APPROVED MINUTES

22st Meeting of the NECC
June 17,1998
Plaza One Hotel – Rock Island, IL

by

Scott D. Whitney
(CEMVR-PD-E)

Navigation Environmental Coordination Committee (NECC)

June 17, 1998

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1.) Welcome and Approval of Minutes of the Last Meeting

Twenty-second meeting of the NECC was called to order by Ken Barr. An attendance list is attached. The minutes of the March 11-12,1998 meeting were approved with no revisions. Gretchen Benjamin remarked that she liked the format of the last minutes. Ken Barr indicated there would be a slight change to the agenda, a brief discussion of the Independent Technical Review (ITR) of Navigation Study Reports will follow the discussion of fish model parameters (2:30).

2.) Dudley Hanson *Overview of Navigation Study Authorities and Schedule*

Dudley is the Chief of Planning for the Corps' Rock Island District. Col. Mudd temporarily (90 days) re-assigned Dudley to serve as the lead Project Manager for the Navigation Study. His primary directive was to verify the quality of key study products and minimize potential impacts to the study. The Economics component of the study is currently under intense review within Mississippi Valley Division. Until a decision is rendered, the Navigation Study schedule has been placed on pause. Once a decision has been reached, the Navigation Study timeline may need to be amended to account for increased cost and time changes incurred in past months.

Questions/Comments

Jon Duyvejonck: Do you believe the schedule will be extended by at least 6 months?

Answer: Due to the complexity and quality of the products being produced a 6 month extension is very optimistic. We do expect an interim product to be produced before the final congressional version.

Jon Duyvejonck: The USFWS would like to know as soon as possible of any delays since the additional time would allow us to produce a better product (Coordination Act Report).

Answer: We (Corps) expect public disclosure of any revisions to the schedule will be made by late September, 1998.

Ken Lubinski: What are the problems with the economics component that it is under internal review?

Answer: Division is presently considering two separate economic plans, one for the Ohio and one for the UMRS. These two plans were developed by different economists, with different ideas on how to develop an economic model. One of the major points of contention seems to hinge on the types of commodities being transported. Agricultural products (i.e. Corn and soybeans) represent greater than 70% of UMRS commodities being transported; conversely, they represent a relatively small portion of the Ohio commodities. Transportation of such commodities is very flexible, since they can be shipped by rail, road, or river depending on the path of least economic cost. In addition, there has been an increasing local demand for corn (i.e. ethanol production) which may affect the future market demand and transportation needs. Supply/demand relationships have changed dramatically within the past few decades, therefore some of the data which drives the economics model may be dated. The Corps wants to be darn sure that they are comfortable with the NED Plan before it is released.

3.) Clint Beckert: *Cumulative impacts assessment*

Objective: Assess the direct impacts of past, present and reasonably foreseeable future actions associated with the continued operation of the 9 foot navigation project on the UMR & IWW.

Approach: Use multidisciplinary team of experts to analyze existing data and predict future conditions based upon observed trends and professional judgment.

Contractors:

- **(a)** WEST Consultants Inc., Bellvue, WA
  - Jeff Bradley (Hydraulics/Sediment Transport)
  - Ray Walton (Hydraulics/Environmental Assessment)
- **(b)** Tatsuaki Nakato (Hydraulics/Sediment Transport)
- **(c)** Stan Schumm (Geomorphology)
- **(d)** Jim Knox (Geomorphology)
- **(e)** Chuck Theiling (Ecology)
- **(f)** Steve Bartell (Ecology/Risk Assessment)
- **(g)** USACE
  - Ken Barr (CEMVR-PD-E)
  - Clint Beckert (CEMVR-ED-HQ)
  - Dan Wilcox (CEMVP-PE-M)
  - Jon Hendrickson (CEMVP-PE-H)
  - John Barko (CEWES-ES)
  - Shirley Johnson (CEMVR-ED-HH)
  - Tom Keevin (CEMVS-PD-A).

Focus Assessment on three factors: (1) Sedimentation, (2) Structures, and (3) Dredging

Data Requirements: (1) Geomorphologic change (planform and bathymetry), (2) Channel maintenance, (3) Sedimentation conditions, (4) Hydrology, and (5) Hydraulic conditions

Ecological Responses: (1) Identify guilds of organisms developed specifically for the UMRS, (2) Utilize habitat classification schemes used by LTRMP, and (3) Identify data required to predict future conditions

Questions/Comments

Ken Lubinski: What time periods are being considered for cumulative impact analyses?

Answer: We are trying to predict what the river will look like in 50 years (2050).

Ken Lubinski: Are we looking on a smaller time frame, say 10 years?

Answer: *(Ken Barr)* We analyzed incremental (historic) steps then projected to 50-year future.

Answer: *(Clint Beckert)* We expect some areas of the UMRS will achieve a quasi-equilibrium and other areas may continue to fluctuate for years. The fact is that there are a multitude of unpredictable factors (i.e. climate) that may influence the items being considered (i.e. sedimentation, hydrology, ecological).

Jon Duyvejonck: Are you extrapolating trend lines from past data rather than looking at cause and effect relationships?

Answer: *(Clint Beckert)* We are using historical photographs and data to establish trends but we are also looking at causes for the trends. In all cases the expertise of the study team members has been used to understand why changes are occurring. In some instances there is evidence that an identified trend will not continue. When data indicate the underlying causes for a trend have changed or no longer exist, the professional judgement of the study team members has been used to predict future conditions based upon existing information and anticipated future conditions.

Tom Grindeland: We tried to place planform trends in the context of everything else we are looking at sedimentation, barge traffic, etc. This tempered the cause effect relationship.

Ken Barr: Pursuant to NEPA, we are attempting to predict the future conditions in the absence of any action (Future without condition).

4.) Tom Grindeland (WEST Consultants) – *Overview of Cumulative Impacts Assessment*

Scope of this project is enormous! Study area includes 5 UMR states, three U.S. Army Corps of Engineer Districts, for a total of 800 miles of river. Many physical, chemical, and biological variables are strongly influenced by key tributaries to the UMR.

Specific study elements: (1) existing information, data from many previous reports (site specific); (2) hydrology of the study area (2D models), (3) geomorphic characteristics (soils, geology), (4) human influences, (5) sediment transport in mainstem and tributaries, (6) substantial plan-form study, (7) cross sectional analysis to develop sediment budget, (8) sediment supply to UMRS and deposition in backwaters. All these elements are rolled up into one to evaluate the past, present, and future changes to the river's ecology.

Hydrology: Hydrologic analyses were based on factors which influence the rivers' discharge (velocity) and flow elevation (stage): (a) Drainage area, (b) Land Cover / Land Use, (c) Precipitation, (d) Runoff, and (e) Structures (L&D, wing dams, levees, etc.).

The natural hydrology or the UMRS has been rearranged by the construction of levees and lock and dams.

Other factors which have and continue to influence the rivers hydrological conditions include:

(1) tiling of farm fields
(2) land use changes
(3) damming of tribs.
(4) consumptive use
(5) levees
(6) wing dams
(7) bridges
(8) channel erosion
(9) sedimentation
(10) dredging
(11) climate change.

5.) Jim Knox - *Geomorphologic history and changes in the UMRS*

The geomorphology of the UMRS drainage basin is highly variable due to multiple glacial episodes. The last glacial advance began approximately 25,000 years ago and receded from Lake Superior about 10,000 years ago. This last glacial advance (Illinoisian) diverted the Mississippi River to its present course where it has remained. These periods of glaciation have significantly altered and shaped the geomorphology of the region. Ultimately, the upper Mississippi River can be classified into ten reaches based on their inherent geomorphology (**JK-1**). This classification scheme reflects the river's adjustment to glacial events and other geological controls in the region:

(a) Reach 1: Pools 1-3
(b) Reach 2: Pool 4 (Lake Pepin)
(c) Reach 3: Pools 5-9
(d) Reach 4: Pools 10-13
(e) Reach 5: Pools 14-17
(f) Reach 6: Pools 18-19
(g) Reach 7: Pools 20-22
(h) Reach 8: Pools24-26
(i) Reach 9: Below Pool 26 to Thebes Gap
(j) Reach 10: Thebes Gap to Ohio River Confluence

Major tributaries or key landforms serve as delimiters of this breakdown of the UMRS into geomorphic reaches.

(a) Chippewa River Alluvial Fan
(b) Wisconsin River Alluvial Fan
(c) Fulton to RI Rock Gorge
(d) Fort Madison to Keokuk Rock Gorge
(e) IL and MO River Alluvial Fans
(f) Thebes Gap Rock Gorge.

SEDIMENTATION: To evaluate the past and predict the future sedimentation rates for the UMRS we need an understanding of the physical components (geomorphology) which mitigate this process. Dr. Knox showed a series of geographic maps of the UMRS states and provided a brief description of dominant landforms that mitigate sedimentation rates in each. For example, the Upper Mississippi River flows through regions having variable erosional resistance. This variability in association with glacial episodes accounts for the large reach to reach variability in valley morphology and river characteristics. Ridge lines (Cuestas) capped the erosional resistant dolomite rocks of the Galena and Platteville formations causes the Mississippi River to flow in a narrow rock gorge at this point. Further north, less erosionally resistant sandstones crop out on the valley sides. Here the valley tends to be much wider and more open in character.

Silt can be both a blessing and a problem since it creates tremendously fertile soil however it is also highly erodable. Areas covered during the last period of glaciation, have considerably less silt material and are much less erodable than areas out in front of the glacier. As glaciers began retreating and melting the frequency and magnitude of tremendous glacial floods increased. With discharge levels in excess of 350,000 cu ft /sec these events were very erosive and subsequently deposited immense layers of sediment. Large lakes were created. During a flood event, these lakes would produce fast moving clear water that was highly erosive. One such event resulted in a 60 to 100 foot incision of the mainstem of the Mississippi River. During the post-glacial period many of the these deeply incised areas are trying to reach equilibrium by buildup or grading of materials washed in from the watershed. The Lake Pepin area is equalizing laterally at a rate of 25 feet / year. Pools 10-11 have historically been a series of braided channels and islands. This reach is relatively stable with some areas existing for at least the last 3000 years (sediment profile analysis). The Wisconsin River Alluvial Fan (just south of Prairie du Chien) is largely responsible for the stability of this reach. The lower reaches are less stable and have tributaries with considerably higher net sediment loads than the upper reaches. Sediment loads can be influenced by man-made structures. Locks and dams act as sediment traps, causing increased sediment deposition in the slow moving pools they create. The large reservoirs on the Missouri are highly effective sediment traps, so much that waters of the lower Missouri River suffer “sediment starvation” and are very erosive.

SUMMARY

The UMR can be subdivided into 10 naturally based reaches, which have unique geomorphology and sedimentation rates. Having an understanding of the underlying geology and physical processes within a region allows us to calculate and predict natural and artificial sedimentation rates. Based on such evaluations we can dispel the misconception that the Upper Mississippi will eventually turn into a system similar to the Illinois River. The geology of the two areas are quite different as are the potential and realized sedimentation rates.

Question/Answer

Comment (*Ken Lubinski*): I believe your last statement is very important, we need to realize that their are similarities between the Mississippi and Illinois River but they differ significantly in the magnitude of sedimentation rates.

Response (*Jim Knox*): Exactly, it all comes down to the fact that rates and magnitudes are significantly different between the two areas although the physical processes remain constant.

6.) Jim Knox – *Erosion/Sedimentation Rates in the UMRS*

Sedimentation rates are very episodic and variable, the frequency between significant events of deposition appear to be increasing in the past few decades. Post glacial sedimentation in Pool 10 is estimated at 0.001-0.004 feet/year. McHenry *et al.* (EMTC publication) estimated sedimentation rates in a backwater slough in the Upper Miss. was occurring at a rate of 3-4 cm/ year in 1950’s, but had decreased to a rate of 1-2 cm/year from 1965-75.

The magnitude of surface runoff has increased dramatically (3-5x faster) in post agricultural period than in pre-ag period. Farming practices have evolved to conserve the valuable soil. For Example, corn used to be planted in a grid pattern in hills and was highly erodable. Today corn is planted in contour strips perpendicular to the slope. Consequently, erosion rates during the 1930-40’s was estimated at a loss of 15 tons/acre per year, today the rate is 4-6 tons /acre/year. Land use patterns (**JK-2**) can dramatically influence surface runoff, erosion rates, and ultimately, sedimentation rates. Not surprising is the fact that the highest erosion rates and sediment loads occur in the states of Illinois and Iowa, areas where approximately 70% of the land cover/land use is designated as cropland. Corn and soybeans, two highly erodable row crops, are the primary crops grown in Iowa and Illinois.

These two states account for approximately 25% of the worlds corn production. These fertile soils consist primarily of a silt/clay mixture.

Historic sedimentation rates can be evaluated by identifying trace metals released during mining operations within the basin. Depositional soil horizons can be aged using this correlation with mining history.

Improved land use in the upper portions of the tributaries may in fact be increasing the erosive capacity of the stream since they (improved land use) are providing cleaner water which is "sediment starved" and highly erosive. Small headwater drainages are presently developing new wider floodplains with a much larger capacity for sediment storage. In some areas this trend has resulted in the reformation of pre-existing islands, channels, and lakes. Most of this reformation is occurring near their mouth, in areas which were previously inundated by the reservoirs formed by the building of locks and dams

Over the period from 1940 to 1998 the standard deviations of flood events indicate a downward trend in the intensity (max) of flood events. In the early part of this time period 1940-1998 75% of the precipitation was flowing off the land. Today, this rate has been reduced to 45%, primarily attributable to changes in land use.

Mother nature or global events also play an important role in erosion/sedimentation processes. Mann *et al*. 1998 (Nature Magazine) provides an overview of the record of North Hemisphere mean temperature. His data analysis indicates that the 20th century warming is unprecedented in the previous four centuries (graph from 1400-2000). What effect is this climate change having on the UMRS climate? One possibility is a warmer wetter environment. Models tell us that the upper Miss. valley will experience more significant changes than further down river. This warming effect may also result in extremes in the frequency and duration of floods and droughts. Showed gage information from St. Paul, Clinton, and St. Louis. Climate changes produce enormous swings in the frequency and magnitude in flood events

Questions/Answers:

Ken Lubinski: If hydrology can be linked to climate how predictable are future flood events?

Answer: Probably not very predictable, these changes occur so suddenly you often do not have recent values or data which would allow us to predict such a change. Can't predict with any degree of confidence.

7.) Tom Grindeland (WEST Consultants) – *Human Influences*

Structures

- **Wing dams -** number of wing dams categorized by years or decades in which they were built, the majority were in place before the Locks and Dams were constructed. In general, highly regulated areas (flow) require fewer wing dams than areas not benefited by flow controlling structures.
- **Levees -** increase in the down river direction, restrict the floodplain, reduce area of soil deposition, flood control
- **Locks and Dams** – Important variables include: date of operation, feet of lift, and percent of time open river. In general, areas characterized by a steep slope (high lift) have the least amount of open river time. For example, Lock and Dam 19 has the highest lift (38 ft) and is subsequently rarely open river (**TG-1**). On the other hand the lower Illinois River has a gradual slope and low lifts (5-6 ft) and may be open river nearly 50% of the time (**TG-2**)
- **Reservoirs –** Greater than 80% of existing reservoirs were built at the same time as L&D structures (1930-39), most are concentrated in northern 1/2 of the drainage basin (**TG-3**), and encompass nearly every tributary.

Channel Maintenance

- **Dredging** – Dredging history for the Mississippi (**TG-4**) and Illinois (**TG-5**) Rivers is presented for three time periods 1940-59, 1960-79, 1980-1995. These figures show that over these three time periods there has been a significant decrease in dredging in every UMR pool. Very intense dredging occurred in upper part of a pool immediately after dam construction due to the rapid accumulation of sediments. This accumulation has since migrated down river. The cumulative impacts study will produce CD's (distributed to attendees) which will contain datafiles and maps detailing the dredging history for every pool. Comparison of bed load to dredging appears to shows that in most cases there is a significant correlation between these variables (**TG-6**). However, some pools (i.e. Pools 11, 18, and 20) have a tremendous bed load supply, yet require comparatively little dredging. Bed material characteristics primarily sand until Pool 19 where it becomes more variable with a trend towards finer material (silt/clay). The Illinois Waterway progresses from gravel in upper pools to silt in the lower pools. A Summary of UMR sediment transport estimates is provided in Table 5.5 (**TG-7**). Total sediment load consists of both bed load and suspended sediment load. Figure 5.1 (**TG-8**) shows the average annual tributary sediment load to each pool along the UMR; average sediment loads were determined from the entire period of record. Most of the tributaries have a very short period of record, this may present erroneous conclusions due to high variability.

PLANFORM ANALYSIS - Determine magnitude of change by evaluating maps, river charts, aerial photos, and GIS coverage. Four time periods were evaluated: (1) pre lock and dam 1930's, (2) 1940's, (3) 1970's, and (4) 1989. Found very limited data for IWW, basically only 1994 coverage.

Definitions of plan form features employed in this study are:

- **(a) Main channel** – the main channel of the river conveys the majority of the discharge. Boundaries of the main channel are the apparent shorelines (i.e., land/water boundaries visible from aerial photographs of the river for average river flow conditions), straight lines across the mouths of secondary, tertiary, and tributary channels, and the outer boundary of inundated open-water areas upstream of locks. In most reaches, the main channel encompasses the navigation channel.
- **(b) Secondary channels** – Secondary channels were defined as waterways that are directly connected to the main channel and have a minimum width of 150 ft. A secondary channel will have definitive entrance and exit and may contain submerged closure structures under average flow conditions.
- **(c) Contiguous backwaters -** Contiguous backwaters are off-main channel areas that include impounded areas, backwater lakes, and tertiary channels of less than 150 feet minimum width under average flow conditions. The contiguous backwaters have inlets and/or outlets to the main channel.
- **(d) Isolated backwaters -** Isolated backwaters are located adjacent to the main channel, but lack an inlet and outlet to the main channel.
- **(e) Islands** – Islands were defined as discrete vegetated land areas isolated by open water.

In all 25,000 features were identified, measured, and computerized in the plan form analysis. Each navigation pool was subdivided into upper and lower pool based on their characteristics as riverine or reservoir. Figure 5-4 (**TG-9**) provides examples of statistics developed from the plan form analysis of Pool 4. Most information from plan form analyses is presented in bar graphs or summary tables. Changes within a pool between time periods may be dramatic but have to consider the changes in all aquatic parameters to determine if changes are absolute, incremental, or significant.

Historic geomorphic processes evaluated in each navigation pool (by time period) include the following:

(a) Loss of Contiguous Backwater
(b) Filling of Isolated Backwaters
(c) Loss of Secondary Channels
(d) Filling between wing dams
(e) Wind-Wave Erosion of Islands
(f) Island Dissection
(g) Tributary Delta Formation
(h) Delta Formation
(i) Island Formation

These nine processes were measured (area) for each time period using a planimeter. Trends within each pool were determined by changes in area (gain or loss) over time.

Question/Answer

Mark Beorkrem: How do you determine wind/wave erosion?

Answer: Expert opinion and analysis of maps.

Mark Beorkrem: Isn't this misleading and wouldn't it be better defined as island erosion?

Response (*Dan Wilcox*): There are other forms of island erosion, i.e. tree tipover.

Ken Lubinski: Delta formation includes tributaries?

Answer: This is different from tributary delta formation. Delta formation occurs as a result of deposition where small channels widen into open water areas.

Scott Whitney: Are you classifying the impounded reservoir as main channel?

Answer: Yes, that is the area where the flow is not interrupted by islands.

SUMMARY

Tom presented a series of summary bar graphs depicting trends in geomorphic processes within the navigation pools of the UMR (**TG-10 to TG-15**) and IWW (**TG-16**). Tom provided a series of slides of aerial coverage from each of the four time periods demonstrating the following trends:

- **(a)** Filling between wing dams (Pool 18) – **TG-17**
- **(b)** Loss of Contiguous Backwater and Filling of Isolated Backwater (Pool 19) – **TG-18**
- **(c)** Loss of Secondary Channels (Pool 24) – **TG-19**
- **(d)** Island Loss (Pool 8) – **TG-20 and TG-21**
- **(e)** Delta Formation (Pools 7and 11) – **TG-22**
- **(f)** Island Formation (Pool 12) – **TG-23**

General Comments concerning bar graphs and aerial slide series:

- Total water area is increasing due to the erosion or disappearance of islands.
- Total isolated backwater area increase in Pool 8 attributable to formation of wildlife refuge.
- Total contiguous backwater area in lower pools constitutes a very small portion of the total water area.

- Number of isolated backwaters increasing in some pools in the upper end, increase over pre-dam numbers.
- Total island area dramatic loss of islands in 8,9,10 during specific time period.
- Total number of islands increase in some pools due to island dissection.

Ken Lubinski: Why Missing islands in Pool 9 during 1940?

Answer: We did not have 1940 aerial photos for this area.

- General plan form of the river has stayed in the same location since 1888 and present.
- In the Illinois River, the main channel area is significantly greater than most other classes

SEDIMENT BUDGET

Sediment Storage - Changes in sediment storage were determined by analyzing 2000 different cross sections of the river. Evaluations were made based on two time periods: Period 1 (1930-50) and Period 2 (1950-95). Immediately following dam construction we saw a significant increase in main channel sediment storage while in Period 2 we see the erosion (loss of storage) of sediments from the main channel (**TG-24**)

Sediment Accumulation Rates – Main Channel accumulation rates for the Rock Island District are presented in Figure 5.2 (**TG-25**). Backwater accumulation rates (Pool 11): Period 1 = 1.56 cm/year and Period 2 = 0.34 cm/year.

Sediment budget concept : Formula proposed by Dr. Nakato (1981) (**TG-26**). Results without dredge material shown in Table 6.3 (**TG-27**) and results with dredge material shown in Table 6.4 (**TG- 28**). Consider dredging as taking sediment out of the system. When dredging material is left in we see a slight increase in sediment budget, but it is clear that the differences we observe are more attributable to inputs from tributaries. Also provide a summary output of backwater sediment accumulation rates derived from sediment budget (**TG-29**)

Summary of sedimentation rates from other studies (**TG-30**)

General rules in the prediction of future geomorphologic conditions (**TG-31**), these were applied to formulate predictions many are based on judgement calls rather than mathematical modeling. Predicted percent change within each geomorphic reach from present conditions (1989) to year 2050 (**TG-32**). All data used in this report will be included as appendices to the actual report, 10-12 CD ROM's will be included with the report. This study will provide a very rich database that will be used by a great deal of people far into the future.

Question/Answer

Bill Bertrand: Only one or two pools show island formation while most other pools show the opposite?

Answer: These are very isolated areas and need to be addressed on a case by case basis, will look up over break and discuss. Site specific conditions are very important making general answer difficult.

8.) Chuck Theiling: *Environmental Assessment of Cumulative Effects*

Table 2 (**CT-1**) shows a comparison of aquatic area classification systems and generalized depth substrate and current velocity. This table also provides a comparison of terminology used by WEST, WES, and LTRMP in terms of Depth Characteristics, Substrate characteristics, and Velocity characteristics. (high 1.5 ft/sec, med 0.5-1.5 ft/sec, and low flow <0.5 ft/sec

ECOLOGICAL GUILDS In the UMR we are dealing with a total of 1,400 species (**CT-2**). In order to deal with such a large number more effectively we assigned various species to Ecological Guilds based on their similar function in the aquatic environment. Table 6 provides a breakdown of the biological community/guild system used in the analysis of cumulative ecological effects. Examples of the Fish community guilds are based primarily on habitat needs of the adult life stage:

(a) Rheophil **-** bottom dwellers sturgeon, catfish,
(b) Rheo-Limnophil **-** ambiquitous, found most anywhere gar, sauger, eel
(c) Pelagic Rheo-Limnophil yellow bass, white bass
(d) Limonophil **-** Shad pike, crappie, largemouth bass
(e) Limno **-** Rheophil **-** Carp, Carpsuckers
(f) Pelagic Limno-Rheophil **-** paddlefish, SM &LM Buffalo

Question/Answer

Gretchen Benjamin: Aquatic plant classification why didn't you use perennial or annual emergent plants? What about Shorebirds?

Answer: This study only deals with submersed aquatic species. Study does not address shorebirds.

Don Swensson: Why didn't you go beyond Pool 13 for Plants?

Answer: Corps established the rule that plants (submersed aquatics) rarely occur below Pool 13. This rule was established based on ambient turbidity levels.

Chuck displayed a series of bar graphs (color) depicting changes in habitat types and how they were related to observed and predicted changes in each of the biological components (**CT-4 to CT-11**). General comments made about these figures included:

CT-4 and 5: Contiguous and Isolated backwaters drop off dramatically below Pool 13

CT-9: Backwater species getting better (potential) in Pools 5-11

CT-10: Channel Species above Pool 14 increasing or stable; below Pool 14 decreasing or stable

CT-11: Ubiquitous Species Pools 5-13 increasing or stable below Pool 14 decreasing or stable

Question/Answer

Jon Duyvejonck: How will this relate to the Nav study since WES used a different terminology?

Answer (*Ken Barr*): - Tow boat is passing over the same cross section in 2050 as it is now, more important in terms of evaluating significance. Habitat approach can determine which ones are becoming most scarce and how to mitigate.

Response (*Steve Bartell*): Our modeling effort assumes the river today will be the same as in 2050.

Response (*Clint Beckert*): - The numbers presented today are still relatively soft.

Ken Lubinski: On the maps what do the boxes represent?

Answer: The boxed areas indicate areas of concentrated change. Do we expect these changes to continue? Yes and No, we will compare historical with more recent coverage and attempt to predict where such changes will be concentrated in the future. All the change is not represented in the box.

Ken Lubinski: Warning that public may perceive this as a narrow view if they don't understand that you have evaluated the entire pool and not just the square area.

Dan Wilcox: HREPs are not figured into any of the cumulative effects modeling (past, present, or future)

Ken Barr: Cumulative effects may provide insight into mitigation techniques for navigation related effects. Seemed to have preserved integrity of existing data that will be a very valuable tool in future efforts

9.) Kevin Landwehr - *Bank Erosion*

Evaluation of significance - identify overlap of locations with high potential for navigation induced erosion and resources of concern. Provided each attendee with a series of color Handouts depicting the results of the bank erosion evaluation:

Page 1 - LaGrange Pool **Red -** hot spots, **Blue -** barge terminals, **Green** historic properties. 85 known historic properties sites overlapped with hot spots, UMRS had only a dozen.

Page 2 - landforms overlay orange spots are existing historic properties had 1601 know sites that overlap, what landforms were they found

Page 3 - summary of historic properties site density /ha

Page 4 - bank erosion land use overlay

Jon Duyvejonck – I envision overlaying USFWS maps with the bank erosion maps to identify potential mitigation sites.

QUESTION: What do the members feel about getting Nav Reports on CD's as opposed to hard copies? Most were in favor however, some state resource agencies expressed concern about reproducing the documents for their co-workers since they may not have access to the correct operating system or print device.

SOLUTION: Documents will be distributed on CD's with each NECC member receiving a hard copy.

10.) Status Reports

(A) Fish Modeling (*Steve Bartell*)

Larval fish entrainment study completing revised estimates since previously the entrained volume and pool volumes needed to be amended, w/ and w/o project awaiting NED plan, now have decided to bracket increases in traffic from 25%, 50%, 75% and 100% to get an ideal where we may fall within the realm of possible traffic scenarios. Provided a handout of the input parameters utilized for each of the 30 fish species being modeled, seeking any input or corrections from NECC members, want to ensure we are using the best possible information available. Steve indicated he has recently changed employers and will now be employed by CADMUS Group. **NOTE** – Steve's new address will be: 136 Mitchell Rd, Oak Ridge, TN 37830, Ph. (423) 425-0457, e-mail sbartell@cadmusgroup.com.

Question/Answer

Ken Lubinski - What new information has become available to justify changes in entrainment variables?

Answer: Previous estimates were based on a single large sized boat ("Big bad boat") that was actually overestimating entrainment for a number of smaller boats which make up the fleet. The revised entrainment model will more accurately reflect the actual composition of the existing navigation fleet as well as different flow regimes.

(B) ITR Process (*Scott Whitney*)

All Navigation Study Reports are being sent out for Independent Technical Review (ITR). A list of reports and suggested reviewers was distributed to attendees. This process will include at least two individuals per report. ITR reviewers will be selected based on their expertise and reputation and will be selected from a nationwide pool of candidates. Reviewers will complete a form which details their comments or concerns. These review sheets will be sent to the author(s) for their response. The ITR process is complete when the reviewer signs off on the report indicating that all comments have been addressed to their satisfaction. To date, only the fish/mussel reports have been sent out plus one plant report. Most of the reports will be coming in within the next month or so and will be sent out for ITR then. **UPDATE:** As of 8/3/98 we have issued 24 of the remaining 35 (69%) Nav. Study Reports out for ITR. Remaining reports will be coming in through the end of August.

(C) Plants and Recreation (*Dan Wilcox*)

- Recreation boat and traffic report should be completed (revisions from NECC comments) in the near future and will be sent out for technical review. Update **-** Report will be completed by end of August.
- Aquatic plants study (Boyle) has been sent out for technical review by Ann Kimber (ISU plant ecologist) and John Madsen (WES, plant ecologist). Expect ITR process to be complete by mid August.
- Plant Model **-** Sediment resuspension logarithms are nearly complete and will be fed into the plant model as soon as available, report that describes the plant growth modeling is in draft format and will be sent out for ITR by end of July.

Ken Lubinski: Given the known existence of periodic plant establishment in the lower reaches (1 out of 6 six years), is it possible to model this aspect in the plant model?

Response (*Steve Bartell*): The primary focus has been on the upper pools since they are more the norm and ambient conditions typically allow submerged plant growth.

Response (*Dan Wilcox*): The plant growth model does incorporate water depth, suspended sediments, water temperature, variables which set the stage for plant growth we can use this information to identify areas where conditions may potentially exist to allow plant growth.

Response (*Ken Barr*): We solicit members to submit know location of plant development below Pool 13.

Jon Duyvejonck: The USFWS is undertaking a mapping effort for coordination report which will incorporate historic information on submersed aquatic plant beds in the UMRS.

Steve Bartell: Managed backwaters in lower pools, does anyone know of any water quality information (temp and SS) that we could use to feed into the model to evaluate the potential for submersed aquatic plant growth?

(D) Coordination Act Report (*Jon Duyvejonck*)

Coordination Act Report (CAR) Outline is now complete. We realized we were not going to be able to complete the report in our office and have sought others to complete portions of the report. The CAR will include a comprehensive GIS mapping effort for natural resources in the IWW and UMR. USFWS will be conducting interviews and workshops with biologist up and down the river to identify the locations of significant resources, (fish spawning, overwintering areas, etc). .First set of meetings will be held in near future. Other items to be included in the CAR include: (1)identify areas where navigation will likely cause adverse effects (fleeting areas, bank erosion) (2) Identify areas where opportunities for mitigation or compensation exist, remediation to nav. related effects (3) exotic species and how they relate to the spread from future navigation efforts (4) fish passage (Wlosinski and Supernaut) recommendation for countering fish passage problems mitigation or restoration (5) USFWS has been discussing consultation for navigation study cannot render opinion on endangered species impacts from nav study until we have evaluated the effect of the existing system on endangered species, a team of fish & wildlife biologist and corps personnel are working on this issue.

SCHEDULE: Draft report completed sometime in October. Will undergo internal review then turn to Corp as draft in Jan 1999.

11.) Agency Reports

Ken Lubinski: Keeping track of the EMTC chiefs report suggesting that program (EMP) be expanded and extended for another 10 years, there is still contention on the cost sharing. Objective in strategic plan geomorphologist brought on board to evaluate geomorphology of UMRS to increase wisdom on this topic. EMTC is in the transition of a merger with the Upper Miss. River Science Center (Fish Lab). This will be completed in August or September. Status and Trends report used 6 criteria to monitor river health, correspond with EPA to discuss how to quantify these criteria, a more objective approach.

Gretchen Benjamin: 1989 plant coverage map was not a tremendous year for plants but rather we had better capabilities for mapping

Steve Bartell: So noted it has already been incorporated into the writeup for the plant study.

12.) Next Meeting

The 23rd meeting of the NECC will be held on **29-30 September** at the Holiday Inn in Moline, Ballroom A (in the back of the building). Our tentative schedule will be: Day 1 - 12:00 to 5:00 and Day 2 - 8:00 to 4:00. To make a reservation, call the hotel at (309)-762-8811 by September 8, 1998.

HANDOUTS

Geomorphologic History and Changes in the UMRS

22^st Meeting of the NECC
June 17,1998

by

Jim Knox
Department of Geography
University of Wisconsin - Madison

HANDOUTS

Cumulative Impacts Analysis

22st Meeting of the NECC
June 17,1998

by

Tom Grindeland
WEST Consultants Inc.

HANDOUTS

Environmental Assessment of Cumulative Impacts

22^st Meeting of the NECC
June 17,1998

by

Chuck Theiling
U.S. Geological Survey
Environmental Management Technical Center

Attendance List

NECC Meeting 17 June 1998
Plaza One Hotel, Rock Island, IL

Name	Affiliation	Address	Phone	E-mail
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Name	Affiliation	Address	Phone	E-mail
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