Navigation Environmental Coordination Committee
Draft Minutes- 8 December 1997
Holiday Inn-Moline, Illinois

10:00 the twentieth meeting of the NECC was called to order. An attendance list is attached.

1) Welcome and Approval of Minutes of the Last Meeting

The minutes of the October 7, 1997 meeting were approved, with incorporation of some minor editorial comments provided by Dan Wilcox.

2) Overview of Navigation Study Status (Ken Barr)

Ken reported that the major milestone for December 1997 is to complete the development of the physical and biological models. In January, the team will start testing and using them. In addition, the team will be developing a set of rules to use in applying data from the reaches evaluated in detail for application to the system as a whole.

The other milestones include getting the systems environmental tools tested and available for use in March 1998. The initial NED plan (plan maximizing net benefits to the nation) will then be developed in Mid-April. Dave Tipple will be covering how the study moves from this initial NED plan to the recommended plan in October 1998 later in the meeting. Following the selection of the recommended plan, the team's focus will shift to report and EIS documentation, resulting in a Draft Report and EIS in June of 1999.

Jon Duyvejonck asked when all the alternatives would be available. He needs this information to complete the draft Fish and Wildlife Coordination Act Report (FWCAR). Ken stated that most of this data would be available in April of 1998. However, some additional alternatives may come out of the interactions with the Governors' Liaison Committee or public meetings. All alternatives should essentially be available by August-October 1998. Jon asked if the draft FWCAR would be needed sometime in the winter of 1998. Ken said that time frame should work, but we may want some interim products earlier. Jon will try to have portions of the report in the fall 1998 and a draft in winter of 1998 so that a final draft is available in the spring of 1999.

Rick Nelson asked for some clarification on the alternative plans (NED, NED Brackets, and Regional Economic Development). Ken explained that the brackets (upper and lower confidence intervals) are only part of understanding the risk and uncertainty associated with the mean forecast. They will be based on the possible variations in the traffic forecasts. The RED analysis is not required for Federal decision making, but was added at the request of the states to clarify how the recommended plan impacts each state. It will not necessarily result in an additional alternative, but this information may influence the states input regarding the recommended plan.

3) Plan Formulation Process & Coordination with the GLC (Dave Tipple)

Dave Tipple provided an overview of the Plan Formulation Process. This process brings together the information from the various study disciplines and allows for interaction between the study team, states, agencies, and public. The key time for these efforts will be from April to Oct 1998. Alternative plans will be formulated looking at the system traffic needs and potential measures over the 50 year study period (evaluating needs every 2 years for the first 20 years and every 5 years from the remaining 30 years).

The coordination with the GLC will take place through the provision of information packets and holding of "Cycle Meetings", which will allow for the sharing of information and interaction regarding the various alternatives under consideration. Dave also summarized the timing and information to be provided at each of the 3 cycle meeting taking place in May, June, and October. Public meetings are scheduled for July

1998, after the second cycle meeting, at 7 locations (tentatively scheduled for St. Paul, LaCrosse, Quad Cities, Quincy, St. Louis, Peoria, and Des Moines).

Jon Duyvejonck asked when was the first opportunity for public comment on the alternative plans. Dave said that it would be at the July public meeting. Ken noted that the GLC cycle meetings as currently planned do not account for FWS or EPA involvement. Jon stated that he sees these meetings as a state issue.

Jon asked if the FWCAR was not available until after October, does it cause problems for the Corps in making a recommended plan decision in October 1998. Ken stated that the timing does get somewhat complicated. In addition to the FWCAR, the environmental model runs using the traffic levels associated with the recommended plan will not be finalized until the draft recommended plan is identified. Ken stated that in essence the recommended plan discussed in October is only a draft recommendation. The Corps will want the FWCAR prior to the Alternative Formulation Briefing in Nov/Dec 1998. At that meeting the Corps HQ and Chain of Command review the draft recommended plan and make recommendations to move forward or highlight the need for any revisions.

Action: Ken recommended a meeting between the COE and FWS to discuss this issue. Ken also stated that as requested the Corps will provide Jon with a copy of the latest Corps guidance on Plan Formulation and environmental compliance.

Ken Lubinski asked that in light of uncertainties wouldn't it make more sense to develop a plan focusing on a shorter period than 50 years. Dave highlighted that while a 50-year plan will be developed the focus will be on the near term. In addition, the study team is considering recommending some form of ongoing monitoring to allow periodic reviews of the study recommendations to review recommendations and system needs.

Ken Lubinski stated that he believes the Corps assumptions for traffic are critical and will be an important piece to review. Dave Tipple pointed out that those forecasts were completed approximately one year ago. Since that time, extensive review has occurred resulting in the adoption of the forecasts, along with coordination and input from the Economics Coordination Committee (ECC) and GLC

Action: The Corps will verify that EMTC received a copy if traffic forecasts and provide one if not. In addition, all members will receive the latest list of the Navigation Study Directory.

4) Status of Screening of Large and Small Scale Measures (Brad Thompson)

Brad Thompson provided a brief overview of the status of efforts to identify the range of potential measures and then screen the list to those measures best able to meet the study objective. The study has used a two step process in screening the measures, first a qualitative assessment followed by a quantitative one. The large-scale analysis focuses on evaluating the need to expand the existing locks or construct new locks. The analysis is looking at different types of locks, locations, and lengths. Screening to date has eliminated traditional de-watered cofferdam construction methods and some locations. The screening of lock lengths has eliminated all, but the 600 foot and 1,200 foot options.

The small scale analysis has followed a similar process. First, a universe of 92 potential measures was identified. Qualitative screening reduced the number to 16 for further quantification of performance and costs. Recently using the available quantified data, the list of potential measures has been tentatively screened down to eight "survivors" for use in developing the alternative plans. These measures include: helper boats with temporary guidewall extensions, switchboats with remote remake, industry self help, congestion tolls, lockage time charges, adjacent moorings, power operated ratchets, and channel improvements. These measures provide savings of up to approximately 30 minutes per double lockage at an annual cost of $2.6 million per lock site or less.

Action: At the request of Gretchen Benjamin, a copy of the slides will be provided along with the minutes (Enclosure).

5) Results of the Site Specific Habitat Evaluation Procedures (Rich Fristik, Scott Estergard)

Rich Fristik briefly reviewed the process used in the Site Specific Analysis. This information was also summarized in a handout along with a summary of information on each site (Enclosure). The habitat units shown are determined by multiplying area by habitat suitability indices (HSI-a number 0 to 1, indicating the quality of the habitat). These units were calculated for each of the habitat types evaluated. The HSI was determined for each habitat type based on the quality of the habitat to selected evaluation species. Positive numbers indicate habitat gains, while negative numbers show losses in habitat acres or quality.

For the bottomland hardwood forest habitat type, the greatest impacts were associated with the construction at Location 1 (Landward of the existing lock) and 2 (extension of the existing lock). However, due to the need for staging areas with any construction some bottomland forest impacts are likely to occur. While all locks would have some impacts to this habitat type, the greatest impacts are likely to occur at Locks 21, 22, 25 and LaGrange. Side channel impacts were more limited due to the absence of this habitat at many lock sites. However, locks 20 and 25 have some potential for impacts to side channels.

At many lock sites, construction of a new or extended chamber with associated channel improvements would result in the conversion habitat types (i.e. side channel or bottomland forest to main channel border). However, when a gain in main channel or main channel border habitat resulted from a habitat conversion, the main channel border change was shown as a zero in the summary table. The zero value was used to avoid taking credit for a habitat conversion and does not relate to the value of the habitat. At sites where changes were driven by HSI changes rather than area conversions, those gains are reported. Dan Wilcox stated that just as other habitat types are recolonized and used over time, this new main channel border habitat was created and he would like to see it included.

NOTE: The Habitat Assessment Team has decided that in the summary tables AAHU increases in main channel border will not be portrayed as 0. However, the HAT will make it as clear as possible that positive AAHU's due to habitat conversion are not necessarily benefits.

The largest potential loss of main channel border habitat was at lock 22. These losses are primarily associated with the proposed construction of an emergent dike field upstream of the lock.

Ken Lubinski asked if a 50 year time frame was used to determine the average annual habitat unit impact. Rich stated that average habitat units over 50 years were used. Ken Lubinski and Jon Duyvejonck would like to see some additional analysis or explanation of how the impacts occur over time.

Scott Estergard highlighted that an approach has been identified and applied to develop monetary costs for habitat replacement. Identifying a value for compensation for habitat impacts allows for their direct inclusion in selecting the NED plan. However, this information is not mitigation planning (which will occur after the selection of a recommended plan), but simply provides values to approximate the replacement costs. The environmental work group developed the cost information based on data from the Environmental Management Program - Habitat Restoration and Enhancement Projects (HREP), Section 1135 restoration projects, and discussions with biologists, foresters, engineers. However, potential endangered species impacts and impacts to mussels were not quantified. The Habitat Compensation Estimation Plan explains the process and includes reports of the results (attached).

A mussel survey was conducted in October 1997 at locks 20, 22, 24, and 25, which did not have adequate existing data. Rock Island District staff conducted a survey at Peoria Lock as well. The results of these surveys, which did identify mussel beds at locks and dams 22 and 25, will be included as part of the site specific results

Scott also covered the tailwater analysis that is being conducted. This analysis is looking at potential changes in velocity, depth, and substrate in the tailwaters if construction occurs at the site. Analysis tools used included FastTABS models for velocity and GIS. The GIS analysis allows spatial analysis of the variables and visual representation of suitable habitat. The team hopes to meet with fisheries personnel to discuss how potential changes may impact habitat for various species. The analysis looked at depth averaged velocity and velocities one foot and two foot above the bottom. GIS capabilities can bring together the various variables along with habitat requirements to show the areas positively and negatively impacted. Steve Bartell highlighted that as part of the bioresponse fish modeling he is looking at spawning habitat suitability. He requested some verification that similar assumptions are being made in regards to this effort and the tailwater analysis.

Rich and Scott will now be compiling and completing a site specific report summarizing the approach and findings. This report will also include a qualitative assessment of potential impacts at the sites upstream of lock 20 on the UMR and Peoria lock on the IWW. A write up including both the HEP and Tailwater Analysis results will be available at the end of January.

A final item of discussion was an overview of the need for a detailed site specific analysis of Small-Scale impacts. Rich Fristik opened the discussion by asking for agency thoughts on the impacts associated with the various small-scale measures. Ken asked if the agencies felt the Corps needs to take a detailed look at the impacts associated with these measures at this stage of the study. Ken highlighted that for the remote make up sites most major concerns could be avoided due to the ability to locate these items at a variety of sites. Dan Wilcox stated that St. Paul District had actually shown reduced hydraulic impacts for approaches with helper boat assistance. Ken stated that for the system study, the team intends to consider that most site specific concerns could be avoided, except for channel improvements, which will be looked at in detail. However, most of the channel improvement impacts have been looked at as part of the assessment of potential large scale measures. Bill Bertrand stated that he supported this position as long as the potential sites for implementation are negotiated with the states to reduce impacts. There was general agreement with this approach by the states and agencies.

6) Ecological Modeling and Integration Status and Overview (Steve Bartell) - Biological Outputs

Steve Bartell provided a summary of how the biological response analysis integrates with the physical effects efforts and the overall study. The main inputs into the biological assessments include overall traffic, traffic effects, and the physical characteristics of the system. These items are being looked at for both commercial and recreational traffic. Dan Wilcox noted that the unconstrained recreational boating report will be available in the next few weeks.

Steve also covered each of the effects being looked at for each of the species. For mussels the ecological risks evaluated included scour, habitat denied, and reduced growth and fecundity. Similar parameters were looked at for submerged plants and fish. However, fish impacts assessed also include equivalent adult loss and low temperature effects. The fish analysis includes 30 species of fish.

David Soong asked how the analysis would apply to the whole system. Steve explained that the models and data developed for the trend pools and sample reaches will be analyzed to provide information for these specific areas. Based on the information provided by this analysis, rules for extrapolating the data to other reaches of the river will be developed.

Steve stated that he would next like to give an overall update on the modeling efforts. The plant modeling efforts focus on two species: *Vallisneria americana* and *Potamogeton pectinatus*. In order to look at the system impacts the analysis will include the bioresponse study results on preliminary plant breakage criteria, sedimentation and turbidity, and the use of plant growth models. This data will be used in combination with bathymetry data and plant distribution maps for selected pools for the UMR (a general rule was plants are found in areas with water depth of 1 meter less, above lock 13) and information on potential traffic scenarios, fleet characteristics, and physical model and recreational impacts.

Ken Lubinski stated that the rules developed might need to change over time and under certain conditions. For example, this summer there was greater than normal water clarity on the upper river allowing plant growth to 1.5 meters in many areas. Zebra mussels have been identified as a possible reason for the change, which could continue into the future. Steve stated that the model analysis will account for variability in a number of factors by using a Monte Carlo simulation to evaluate output from the plant growth model and traffic projections. Potential variability in other factors such as sediment type, plant bed location, and bathymetry will also be evaluated. The results of this analysis will allow for distribution of probable impacts to be matched with impact parameters. Steve hopes to have the bracketing or bounding simulations done by the end of December.

The locations of over 50 mussel beds have been identified on the Upper Mississippi River. Progress on the mussel study efforts includes the completion of a literature search and development of a bio-energetics model to track mussel growth under normal conditions and exposure of navigation related physical effects. The laboratory studies did show some impact on mussels over time with exposure to increased turbidity and turbulence. Study is now in the process of completing a review to determine if the threshold identified are likely to occur on the system under various traffic scenarios.

Efforts on the fish study modeling include an extensive literature search to identify model parameters, for the 30 species. In addition, distribution maps of range and relative abundance are being developed for the system. This will seek to identify any north-south variations and spawning time differences.

Steve provided a sample run and outputs of the conditional entrainment mortality model. Data from a wide number of sources was included to develop the model to determine impacts. This model will be used for one pool and one species at a time. Steve presented the results for a hypothetical analysis of a single tow passage traversing a single pool during a low stage. Using rough numbers, the analysis resulted in a proportional mortality and equivalent adult losses with recruitment forgone of larval fish. The group discussed that there is a great deal of uncertainty in all of these calculations. Steve demonstrated that the model is able to highlight the parameters most sensitive to outcomes.

Bill Bertrand asked if data from the power plant in pool 14 was used. Steve stated that he was not sure, but that they have requested data from a number of sources. For example, the parameters for freshwater drum were developed in coordination with Steve Gutreuter.

Don Swenson asked if the system eventually gets to a point were so many tows are on system that even with relatively small impacts they deplete the population of fish. Steve stated that this evaluation can not be done until all of the information is available. However, Dan Wilcox added that the model also assumes complete mixing (replenishment of live adult and larval fish) between vessel passages, this may overstate mortality (since replenishment is actually limited).

David Soong asked Steve that since a great deal of the information for the bioresponse models require other model outputs. How many model runs are required of other outputs. Steve stated that direct outputs for physical effects model provide some parameters while developed rules will be used as others. The major missing piece right now is sediment resuspension This information should come together in December.

David Soong asked about Ed Holly's model for mixing between tows. David stated that in reviewing an early version it appeared that the model would only be able to account for mixing occuring, between tows headed in the same direction. Steve stated that the latest version accounts for both mixing between tows going in the same direction or tows passing when traveling in opposite directions.

Bernie Schonhoff asked Steve about the risk and uncertainty. How does the model incorporate increased risk and uncertainty that builds as outputs of one model are used as the inputs in another model. Steve stated that results will be constrained by the data available, but results will be expressed as distributions accounting for the measurable risk and uncertainty.

7)Study/Model Outputs

Ken asked Tom Keevin and Dan Wilcox to give the group a quick status of reports.

- **Fish Studies** - Tom Keevin reminded the group that currently 3 reports have been sent out (Sheehan's - Winter Study, Maynord's – Sheer stress on the hulls of shallow draft vessels, Killgore, et. al. Effects of propeller entrainment on river ichthyoplankton). In addition, the NECC will receive 3 more fish reports by the end of January. EMTC is writing up the fish field studies that include, 2 years of larval fish study and the adult and juvenile mortality study from sampling behind tows (John Dettmer's work). Tom Keevin reported St. Louis District is about ready to go out with a Doppler system to measure velocities around wing dams and sand dunes as part of the winter study. As part of the spawning study, St. Louis District transferred funds to WES for GIS and TABS modeling of flow distributions. Steve Bartell is currently very active on fish modeling efforts. SENES has completed a scope of work to create fish spawning models in a habitat basis using guilding approach.
- **Mussel studies** – Tom highlighted that Drew Miller's reports have been out for review. He is now looking at the same GIS maps that were reviewed for fish habitat. This provided information on the velocities at mussels bed, potential for scour, and information for a bio-energetics models for mussels.
- **Recreational Boating Forecasts** - Dan Wilcox explained that unconstrained recreation boating traffic forecasts will be released the week of 8 or 15 December. He stated that they would be seeking ideas on ways to improve the forecasts, taking into account any appropriate constraints to growth in recreational traffic.
- **Plant Studies** – Dan noted that Robert Doyle's plant sediment report would be done in early January.

8) NECC Members Reports –

Ken highlighted that for tomorrows meeting Steve Bartell and John Barko will be available and assist in facilitating. An updated agenda for this meeting was provided. Ken requested that the states and Federal agencies continue to prepare for this topic. He reminded the group that he would be asking for comments from each of the NECC members tomorrow on their ideas on significance.

Jon Duvenjonck - Appreciated Steve Bartell's presentation on biological response modeling efforts. He is still wondering how those reviewing the study can understand all of the variables and assumptions that went into the study and how that allows someone to have a level of confidence in the outputs. Ken stated that this is a difficult issue, but to assist the NECC and others the Corps has asked the contractors for each of the model descriptions to include a section on assumptions.

Don Swenson - The information being gathered is very important, and sees data explaining the increase in traffic as key to understanding potential impacts.

Gretchen Benjamin – Stated that she feels a little overwhelmed with the task of reviewing all the reports and information. Dan Wilcox added that he has appreciated the support of the Wisconsin DNR with the recreational studies.

Ken Brummett - said he is also feeling a little overwhelmed by all the information.

Ken Lubinski - would suggest that we continue to explore what comes out of the sensitivity analysis/parameters that Steve Bartell went through. This information may help in identifying the important parameters to focus reviews on.

Kym Campbell – Asked the group to let her or Steve know if they think of any important literature or data that may not have been incorporated or evaluated yet.

9) Upcoming Meetings -
The date for the next meeting was set for 11-12 March 1997 at the Moline Holiday Inn, beginning at 11:00 am on the 11th.

Day 2- Workshop on Significance

December 9, 1997

prepared by

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1.0 SIGNIFICANCE WORKSHOP SUMMARY

The workshop was originally scheduled to be led by John Barko with presentations to be made by Steve Bartell and Ken Barr. However, due to weather problems, John Barko was unable to get to Moline. Instead, the workshop was co-led by Steve Bartell and Ken Barr.

- The different definitions of significance were briefly discussed (institutional, public, technical, economic, etc.); the focus of the workshop will be on the technical or ecological definition. The risk assessment is focusing on individuals and not populations, communities, or their interrelationships.

- The significance of the ecological impacts being looked at for plants, mussels, fish, bank erosion, and backwater sedimentation (presented in the integration diagrams developed by Steve Bartell) must be decided. The "red line" (line at which an impact becomes significant) must be established for each endpoint so that the risk assessment and resources can be focused. Currently, the entire risk curve is being looked at.

- This workshop is the beginning of discussions to answer the "so what" question and determine acceptable losses on a pool-by-pool basis, so that decisions can be made at a later date. Mitigation planning will be discussed and modeling results will be presented during the next NECC meeting. Significance may not be able to be determined for some resources.

1.1 USFWS's Interpretation of Significance

John Duyvejonck summarized the USFWS's viewpoint. The primary interest of the USFWS is on trust resources such as threatened and endangered species, wetlands, and migratory birds. The long-term change

to habitat for migratory birds and threatened and endangered species is of critical importance. The cumulative effects on the integrity of the river system and its resources over the life of the project (the next 50 years) is the most important question that the USFWS would like answered (not just one point in time). For example, something may not be causing a significant impact now but what about 30 years from now (which adds another layer of uncertainty)?

1.2 The State of Illinois' Interpretation of Significance

Bill Bertrand, Illinois Department of Natural Resources, explained the state of Illinois' viewpoint. A strategic plan has been developed which helps to guide budgeting. A 5-year plan (1996-2000) is currently in place which discusses state-wide rivers and streams (not the UMRS and IW specifically). For some species, such as walleye, where the demand exceeds the supply, the limits of acceptable loss will be narrow. There is a good institutional base for sport species. Only narrow limits of loss would be acceptable for species such as the washboard mussel and the paddlefish, since they have just been or will be removed from the commercial harvest list. State boundaries, which are usually defined as the sailing line, are irrelevant when discussing such issues.

1.3 The State of Wisconsin's Interpretation of Significance

Gretchen Benjamin, Wisconsin Department of Natural Resources, summarized Wisconsin's position regarding what is significant. She stated that it will be difficult to decide which impacts associated with the Navigation Study are significant because there has been such a long delay in receiving information; the timing of receiving information and results has not been good. Some parts of the ecosystem can be defined as important; however, because all impacts are additive and start a chain, impacts still need to be addressed cumulatively. The impacts together are what makes a difference and talking about just one component is difficult. Wisconsin also has developed a strategic plan. State-listed threatened and endangered species are of special concern and considered important. Avoidance is the most important, and because resources can't be replaced, replacing is not an option that should be addressed. Bringing in the economic component when defining significance is just "opening up a can of worms;" a dollar value cannot be placed on irreplaceable habitat. She stated that a dollar value cannot be placed on a fish or a duck and that we need to get away from economics because it is not appropriate.

1.4 The State of Iowa's Interpretation of Significance

Bernie Schonhoff, Iowa Department of Natural Resources, summarized Iowa's position on significance. He stated that the additive impacts are important and that how additive impacts are to be defined must be addressed. Trust species, such as threatened and endangered species, and species important to anglers (i.e., walleye, smallmouth bass) are important. A state-wide, 10-year strategic plan is being developed; a draft of the plan is available now. He stated that the entire state of Iowa's fishery is worth $1.5 billion/year. He questioned why larval impacts to fish must be converted to adults to determine the impact (since a lot of things can happen between the larval and adult stage). In addition, the issue can be confused when nuclear power plants stock advanced walleye fingerlings as a mitigation requirement, and the carrying capacity for walleye is increased in that particular pool. He stated that bits and pieces of important information are available.

1.5 The State of Missouri's Interpretation of Significance

The state of Missouri addresses biodiversity on two levels: the Big River Fisheries Plan and a strategic pan. Ken Brummett, Missouri Department of Conservation, summarized the state of Missouri's position on significance; he stated that any loss is a loss and that the species does not matter. Their non-game species policy considers everything to be significant. He stated that it is difficult to determine how many tows/day are important. Populations of the majority of species are already lower than they were 100 years ago due to many factors (i.e., dams); it will be tough to determine significant impacts. He envisions compromises, trade-offs, and mitigation.

Note: A representative from Minnesota did not attend the NECC meeting or Significance Workshop.

1.6 The U.S. Environmental Protection Agency's (USEPA's) Interpretation of Significance

Al Fenedick summarized the USEPA's position on significance. The USEPA is not a resource-based agency and is more interested in enforcement. Ecological integrity is important to the USEPA, and cumulative impacts, therefore, are important. The day-to-day impacts are not important but the seasonal significance, yearly significance, and significance over the life of the project is important to the USEPA. Addressing the cumulative impacts must also address the questions of duration and integrity. The USEPA is interested in a geographic type of assessment (i.e., each pool, series of pools, entire river system). He is also interested in how past activities have been accounted for and what the baseline, pre-navigation conditions are.

1.7 Significance Workshop Discussion

- The loss of larval fish as production forgone is being addressed since some species provide forage for other species (including predatory fish and birds).

- In order to get to cumulative effects, additive effects must be addressed.

- The USFWS will put together a coordination report that will incorporate opinions of all of the states. It will be circulated to all states for their comment; differences of opinion between states could be included in an appendix. Information will be presented to the Governors Liason Committee (GLC).

- Ken Brummett suggested that indirect impacts due to back erosion, backwater sedimentation, and change to habitat itself be included as endpoints.

- Bill Bertrand questioned if vessel drawdown in backwaters is being addressed in the Navigation Study. Temporary dewatering in backwaters is not included in the ecological models. The HIVEL model will simulate where backwater dewatering could occur (the magnitude), but the effects are not being evaluated. Effects on fish stranding are very difficult to evaluate. It has been shown that frequent disturbances and changes in current velocity can cause a loss of production in adult fish. Fish spawning is being addressed but not in the backwaters.

- Ken Barr stated that state-listed threatened and endangered species are included as a GIS coverage and will be addressed in the overall system study. In addition, results from the Cumulative Impacts Study will provide a backdrop of qualitative results for the Navigation Study.

- As results are obtained, impacts that affect the overall system will be determined.

- Steve Bartell questioned the state representatives concerning the availability of additional fish data (i.e., population data, stock assessments). (For example, because of the lack of population data, fish population models cannot be developed.) Commercial catch data will be compared to results of the Equivalent Adults Lost and Production Forgone Models. Gretchen Benjamin stated that walleye data are available for Pool 5. A limited number of stock assessments are available from the Upper Mississippi River Conservation Committee (UMRCC) (walleye and sauger in Pools 7 and 8, channel catfish in Pool 13). Sport catch survey and creel surveys were conducted by the UMRCC in 1962, 1967, and 1972. Angler-use surveys (number of days spent on the river) have been conducted in Illinois. Creel surveys have been performed in Pools 4, 5, 24, and 25, and studies on walleye and sauger have been performed in Pool 18. Minnow seining monitoring studies have been performed in Pools 24 through 26. Rotenone surveys were conducted in the backwaters of Pool 14 in the 1940s and 1950s. Trend pool data are useful since they are expressed

as relative abundance by habitat type; a multiple-year trend analysis has been performed over all field stations which gives the trends from non-channel/marsh areas to the main channel. A change in backwater fish communities has occurred over time, and different communities are found in different reaches. Data on fish entrainment by power plants can provide context and be used to cumulatively address the impacts due to tows.

- During the 1970s, all states took a hard look at power plant entrainment losses and negotiated what was a significant impact; this information is useful to compare with losses due to navigation traffic. Even through the power plant entrainment data are 20 years old, they provide a basis for comparison. The power plant studies may not have done a good job of sampling live eggs and fish larvae, since intakes along the shoreline may be taking in nonviable eggs and dead larvae.

- The baseline stock has already been affected by history (dams, pollution, power plant entrainment), so in reality, the ecological risks to an artificial system are being assessed (resulting from dams). However, this "artificial" system is important; for example, a national walleye tournament is now held around the Quad Cities area, and a walleye and bass tournament is scheduled for next year.

- There was discussion regarding if impacts to fish passage are being addressed. The Service is evaluating restoration opportunities at each lock and dam and should identify where fish passage is warranted fish passage. Some dams are worse than others (i.e., Lock and Dam 19), especially those with high-gated capacity. The Long Term Research Monitoring Program (LTRMP) report will identify which dams are worse (in causing impacts to fish passage).

- The entire river system will be screened for physical forces that will cause habitat denied to submersed aquatic plants. The trend pools (Pools 4, 8, and 13) will be screened first, and other parts of the river system will be screened as a second step. A closer look of the subset of the river system resulting from the screening will be taken using the plant growth models. Habitat denied will be compared to potential plant habitat (and known habitat from 1989 aerial photos). Assessing the impacts of increased navigation traffic is biased towards predicting an impact when there might not be one (since plant distributions vary from year to year).

- There was some discussion regarding the assumption that plant growth does not occur below Pool 13 (due to the turbid conditions). However, submersed aquatic plants are present in Pool 19 and in the main channel borders of the lower IW during low-flow conditions. A suggestion was made that if data were available for the lower pools and the IW to indicate these "hot spots" that they be made available. A study was mentioned by Anderson et al. that studied submersed aquatic plants in Pools 7 and 19. A comment was also made that in the lower pools of the UMRS, "thicker" species of plants have been replaced by "thinner" species. Grass carp eating submersed aquatic plants was briefly discussed as a potential confounding factor.

- The methodology for assessing the ecological risks to mussels associated with the incremental increases in commercial navigation traffic was explained, along with the assessment endpoints. There was discussion regarding the fact that Drew Miller's studies have shown that effects associated with increased commercial navigation traffic do not appear to kill mussels (so the endpoint is not mussel mortality), but physiological effects have been shown to occur. Drew Miller has performed additional experiments in the field since the last NECC meeting; therefore, a separate report on shell gape results will be out soon. Results will be compared to commercial catch data, historical records, threatened and endangered species considerations, population data, the literature, and known colonized areas (depending on data availability). Steve Bartell questioned the state representatives concerning the availability of additional data (i.e., commercial catch data, population data, stock assessments). Gretchen Benjamin (Wisconsin Department of Natural Resources) mentioned studies on washboard mussels and anecdotal data in zebra mussel studies. Ken Brummett, Missouri Department of Conservation, mentioned available mussel studies

associated with bridge replacements, dive studies performed to determine the extent of mussel beds, and an available data base containing qualitative mussel data.

- There was significant discussion regarding the fact the effects associated with zebra mussels are not being addressed since commercial navigation may be acting as a vector and providing the upstream source. Zebra mussel population models have been developed for the Great Lakes, and studies have shown that zebra mussels "ride" on barges. In Illinois, zebra mussels have been thought to travel on recreational boats and in bait water (adult zebra mussels must be within a certain distance from each other for reproduction to occur). Zebra mussel problems in the system area being addressed elsewhere but will not be included explicitly in the Navigation Study.

- Kevin Landwehr summarized the bank erosion study. Assessing the risks of bank erosion will be a GIS exercise, overlaying coverages of low, medium, and high erosion areas (due to increased navigation traffic), important habitat areas, agricultural levees, railroads, highways, islands, structures (i.e., wingdams), artificial vs. natural banks, bald eagle nests, etc. A useful exercise would be for each state agency to review the bank erosion maps and identify any important areas that would be subject to bank erosion due to increased navigation traffic. There was discussion regarding the positive effects of bank erosion since the river system is no longer considered dynamic.

- Backwater sedimentation was discussed. The focus is to determine where navigation traffic might be contributing to backwater sedimentation. A series of rules could be developed; currently it appears that the rules will be based on sediment particle size. The next step of determining the ecological consequences associated with backwater sedimentation is not part of the cumulative effects. The Cumulative Effects Study will provide an expert opinion on how much sedimentation will occur in backwater areas.

2.0 FUTURE PLANS OF ACTION AS A RESULT OF THE MEETING AND WORKSHOP

Listed below are the action items resulting from the NECC meeting and Significance Workshop.

- Strategic plans, developed for all of the states, will be sent to Ken Barr so that they can be included in the NECC meeting minutes and distributed to the entire NECC (so individuals do not have to ask for their own copies at this time).

- Bill Bertrand will send Kym Campbell, *SENES* Oak Ridge, Inc., his set of Section 316(b) studies for the Quad Cities area. The studies will be copied and returned in a timely manner.

- As per a suggestion by Ken Brummett, the abundance maps for the spatial distribution of shovelnose sturgeon will be reevaluated by *SENES* Oak Ridge, Inc. (shovelnose sturgeon are stocked in the lower pools and there is a large commercial catch and an occasional distribution is shown on the abundance maps developed by *SENES* Oak Ridge, Inc.)

- Gretchen Benjamin will assemble a package of Pool 5 walleye data (and any other pertinent data from Wisconsin) and will forward the information to *SENES* Oak Ridge, Inc.

- Jon Duyvejonck will perform a search of the UMRCC data base to see if there are any studies that would provide useful data. He will then work with *SENES* Oak Ridge, Inc. to obtain the data. In addition, he will consult with Bill Fritz regarding a recent summary on commercial mussel data and work with *SENES* Oak Ridge, Inc. to obtain the data.

- Ken Brummett will assemble a package of applicable studies, including studies mentioned during the workshop, and forward them to *SENES* Oak Ridge, Inc.

- *SENES* Oak Ridge, Inc. will contact Al Stevens with the Minnesota Department of Natural Resources (as per the suggestion of Dan Wilcox) in order to obtain any applicable studies performed in Minnesota (i.e. fish population studies, stock assessments, creel surveys).

- *SENES* Oak Ridge, Inc. will call Gretchen Benjamin (Wisconsin Department of Natural Resources) to obtain a contact person in order to obtain the studies on washboard mussels and anecdotal data in zebra mussel studies that she mentioned. In addition, Ken Brummett, Missouri Department of Conservation, will be contacted regarding obtaining the available mussel studies associated with bridge replacements, the dive studies performed to determine the extent of mussel beds, and the data base containing qualitative data that he mentioned. In addition, Dan Wilcox suggested that Mike Davis be contacted regarding dive studies performed in Minnesota and Tim Yeagar be contacted regarding semi-qualitative mussel surveys performed by the St. Paul District of the USACOE.

- The next NECC meeting is scheduled for March 11 (beginning at 11:00 a.m.) and 12, 1998 in Moline. Items that will be discussed during the next meeting will include the following: (1) Jon Duyvejonck will discuss successful mitigation projects, an available mitigation handbook, and the USFWS Coordination Report (assumptions, state strategic plans, etc.); mitigation topics will be put together by the USFWS (Jon Duyvejonck) and USACOE staff, and (2) results from the ecological modeling efforts will be presented, comparable data will be presented, and an attempt will be made to pick the significance "red line" (the part of the curve that should be the focus of the risk assessment).

3.0 CONCLUSIONS AND RECOMMENDATIONS

The NECC meeting continues to provide an excellent forum for communicating project status, pointing out potential problems, and determining items for future action. As the Navigation Study assumes greater momentum in completing study components, it might prove useful to schedule NECC meetings more often or ensure that all NECC members are kept aware of current progress.
The Significance Workshop was successful in that NECC members were made aware of how the various state and federal agencies determine when an impact is significant, and the forthcoming strategic plans that will be distributed will be very useful. In addition, during the workshop the NECC was made aware of additional useful studies. The discussion on significance will continue during the next NECC meeting, and mitigation will continue to be discussed (as well as avoidance and minimization options).

ATTENDANCE LIST
NECC Meeting – 8 December 1997

Moline, IL

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Rich Fristik -	COE, Rock Island District	(309) 794-5308
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Dan Wilcox - COE, St. Paul District		(612) 290-5276
Tom Pullen - COE, Mississippi Valley Division		(601) 634-5851
Jon Duyvejonck - USFWS, Rock Island Field Office		(309) 793-5800, ext. 522
Rick Nelson	"	" ext. 519
Don Swenson	QCCA	(309)-788-5912
Bill Bertrand - ILDNR		(309) 582-5611
Gretchen Benjamin - WIDNR		(608) 785-9982
Bernard Schonhoff - IADNR		(319) 263-5062
Steve Bartell		
Kym Campbell - SENES Oak Ridge, Inc.		(423) 483-6111
Ken Brummett	Missouri Dept. of Conservation	(573)-248-2530
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UMR-IWWS NAVIGATION STUDY

NAVIGATION ENVIRONMENTAL COORINATION COMMITTEE

December 8-9, 1997

Holiday Inn – Moline, Illinois

MEETING AGENDA

DAY 1

10:00 to 5:00

1) Welcome and Minutes of Previous Meeting (Additions, deletions, corrections)

2) Overview of Navigation Study Status (Ken Barr)

3) Plan Formulation Process & Coordination with the GLC (Dave Tipple)

5) Status of Screening of Large and Small Scale Measures (Brad Thompson)

4) Results of Site Specific Habitat Evaluation Procedures. (Rich Fristik, Scott Estergard)

a. Summary of HEP results, estimation of habitat compensation, eval. of tailwater impacts.

b. Evaluation of environmental affects of small scale measures (Fristik)

6) Ecological Modeling and Integration Status and Overview (SENES) - Biological outputs

7) Study/Model Outputs -

8) Overview of Approach for Tomorrow's Significance Meeting

Day 2

8:00-5:00

1) Overview of approach

2) Framework for defining significance

3) Connection of significance to Navigation Study endpoints

4) NECC Members Reports