

DRAFT MINUTES

30th Meeting of the NECC
September 18 & 19, 2000
Holiday Inn - Moline, IL

by

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Navigation Environmental Coordination Committee (NECC)

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1. WELCOME

The 30th meeting of the Upper Mississippi River-Illinois Waterway System Navigation Study Navigation Environmental Coordination Committee (NECC) was called to order by Ken Barr, Chairman. An attendance list is provided at **Attachment 1**.

2. STUDY STATUS - KEN BARR

Barr led discussion on revision of the meeting agenda. Barr also discussed project status, indicating that, at this point, the Corps is in suspense on this project with no immediate schedule. The Corps recently received new traffic forecasts, which are currently near completion of the ITR process. The Corps has not officially decided on whether to use the old or new traffic projections. This decision will ultimately have an affect on release of the recommended plan and EIS. Also, the National Academy of Sciences review is ongoing. They may have one more public meetings before potential report release in November.

Bertrand: So the schedule is pretty muddled?

Barr: We are probably a few months out if we go with existing forecasts, maybe a year if we go with new forecasts. If we go with the revised forecasts it will change the modeling output for some conditions. For example, backwater impacts will likely be similar with the revised forecasts, with similar backwater areas lighting up. Conversely, fish entrainment impacts should respond linearly to changes in boat traffic and would likely be less.

3. IMPACTS OF RECREATIONAL BOATING - DAN WILCOX (PowerPoint presentation at Attachment 2)

Duvejonck: How will this information be used?

Wilcox: This has been conducted mainly to assess cumulative impacts. Also, estimating the different impacts associated with recreational traffic will put impacts from commercial traffic impacts into context.

Barr: Most of this information will be in Chapter Five under Cumulative Impacts. We can identify if recreational boating impacts are also happening in areas with commercial traffic impacts. This can help with adaptive mitigation. However, we won't mitigate for recreational impacts because we are projecting the same recreational traffic for both with and without project conditions.

Bertrand: Won't more recreational traffic use the expanded locks? With locks more available, wouldn't they be more likely to use them?

Wilcox: The lock capacities presently don't limit recreational traffic, thus expanding the locks will not have an affect on recreational boating.

Barr: Because so many recreational boats can lock through at once, the size of the lock doesn't limit use. Also, most recreational boaters stay within one navigation pool, rather than lock through.

Benjamin: Have there been any other studies on this for recreational traffic? Any surveys on displacement of recreational traffic due to commercial traffic?

Wilcox: We did not attempt to quantify the response of recreational boaters to different levels of commercial traffic. We can consider the spatial locations of impacts by commercial and recreational traffic. Where they overlap, we can conduct mitigation measures for commercial impacts that would also avoid or minimize the effects of recreational traffic. We cannot mitigate solely for recreational traffic effects.

3. ANNOUNCEMENT OF NEW ROCK ISLAND DISTRICT ENGINEER

Barr gave a brief overview of Colonel William Bayles, the new District Engineer for the Rock Island District. This included distribution of a biographical (**Attachment 3**).

4. PRESENTATION ON INDUCED DEVELOPMENT – LAURA ABNEY (PowerPoint presentation at Attachment 4)

Wilcox: Where do these numbers for the forecasts come from?

Carr: They come from the traffic forecast for the Upper Mississippi River Basin completed by Jack Faucett Associates for the Navigation Study and the Corps economic modeling effort.

Moore: How do numbers from the Observations slide link together? A 25% increase in total tonnage of commodities shipped from 2010 to 2050, due to the project?

Abney: One quarter of the increases are due to the project, three quarters will occur with or without the project.

Moore: These numbers don't add up to 25% from the previous slides.

Schonhoff: This is 25% of 23 million tons?

Wilcox: This 23 million is attributable to the project. But based on previous slides, it doesn't add up exactly.

Abney: This deals with the induced growth. The most notable is that the growth to be induced is small compared to the without project. Induced growth is 25%. This should become more clear as I finish the presentation.

NOTE: This information was obtained from a Draft report that is undergoing additional review. Remaining questions regarding these issues will be addressed when the report is completed.

Continue Abney presentation.

Bertrand: I question that mooring facilities locations are not likely to be affected.

Abney: This is not a big problem because you will be moving the grain through faster under the proposed project.

Brummett: Maybe this would increase the size of the terminals, the footprint size?

Beorkrem: Where will these footprint impacts be?

Barr: Footprint impacts will likely occur at the terminal sites.

Beorkrem: In other words all the development will take place at these terminal locations?

Abney: Yes, there will be development, but it will not likely impact additional green space. Grain storage terminals will expand. With additional boat traffic, there will be expansion but it should occur in the same general areas. There would be very limited expansion and development of new sites because of the expense.

Wilcox: The size of grain terminal areas is often is influenced by semi-truck parking. Grain terminals are often 5 to 10 acres, much of which is parking area.

Beorkrem: Go back to terminal storage slide. What is the point of this slide?

Abney: This indicates that existing terminals have capacity for ½ of the anticipated new growth.

Beorkrem: There are not any areas available. This is contrary to existing data.

Abney: This is a long term forecast. I can't speak for Jeff, but I believe this is due to it being a long-term forecast. If there is a storage shortage it is only a short term problem.

Beorkrem: There should be data available on where new mooring facilities are being built. There should be quantifiable data on where these are going to be constructed.

Barr: The locations of where terminals will be built or expanded are a concern for cumulative impacts. But if any of these new areas are proposed, then there is an entire Section 10 review process that they would need to go through.

Beorkrem: When will this report be available?

Carr: It will be about a month.

Beorkrem: It won't get to me in a month.

Abney: You'll probably get it in 60 days, though. I'll go through the report and make it very clear what Jeff is saying. His report basically states that the projections are not for new land development, but possible expansion of existing storage facilities. This should not have an impact to green space.

Benjamin: What about fleeting at these facilities. Where is the separation between mooring and fleeting?

Barr: This is an issue we will likely address in the EIS.

Beorkrem: Is there potential that the EIS will be released before the supporting documents??

Barr: We are responsible to provide information that the public can understand. Its our intent that supporting documents, such as the formal reports, will be completed prior to release of the EIS.

Moore: What information did you include in the EIS if this is not done?

Barr: The EIS is not done. We have some preliminary information that has been included into the preliminary draft document.

Beorkrem: What will be the review time for the EIS?

Barr: The review process will be 60 days.

Moore: Is there any kind of multiplier affect applied to induced river front development? If they build this terminal space, will they build other businesses, residences etc. across from them?

Carr: Regional Economic Development is still underway. We are looking at construction expenditures in the area.

Moore: So the simple answer is no.

6. PRESENTATION ON FLEETING – LAURA ABNEY (PowerPoint presentation at Attachment 5)

Bertrand: Expansions of the system would seem to increase fleeting.

Wilcox: Barge owners don't want the barges to sit idle. One of the major reasons for fleeting is the cueing behind the locks.

Beorkrem: This report is sadly lacking in documentation. The April 2000 fleeting report is what I received in the mail?

Barr: I believe so.

Nelson: How was the data collected from which these conclusions were drawn?

Barr: I believe telephone survey.

Beorkrem: Why were the interview quantifications not available?

Abney: We did include in the report a narrative discussion of what was asked. We also included an example questionnaire.

Barr: We can include this as an attachment to the minutes. **Note: Questionnaire for Development and Fleeting at Attachment 6.**

Beorkrem: Who is responsible for the impacts of the barges sitting in the river?

Barr: If we induce additional fleeing impacts as a result of the project, then we are responsible for discussing this in the EIS.

Beorkrem: Then you are responsible of fleeing impacts through construction of the system.

Barr: We will look at fleeing at 2000 levels for baseline conditions and without project conditions. We will then discuss mitigation for any impacts caused by additional fleeing, compared to without project conditions.

Beorkrem: What are baseline affects?

Barr: I don't know.

Duvejonck: This is an O&M issue not a Nav Study issue.

Moore: This is really disappointing. Fleeing is a major issue of concern. To come out with a three page report strikes me as absurd.

Barr: This is not the only tool for fleeing. The issue of possible adverse affects from fleeing under existing conditions is another story for another day. Evaluation of this issue is not what we tasked these folks to do. We are specifically addressing what are the adverse effects do to lock expansion.

Beorkrem: But you are not assessing the impacts of navigation traffic on the river.

Nelson: If I was a "fleeter," I wouldn't make trouble for myself during one of these interviews used to collect this data.

Beorkrem: Was this all qualitative, or any quantitative?

Abney: Some quantitative data on fleeing volumes.

Wilcox: In recent history, the number of towboats and barges increased when the capital investments tax credits kicked in. The number of vessels parked on the water has gone down because of the 1986 tax law which repealed the investment tax credit. An overbuilt fleet condition may be going away. Fleeing is being watched more closely as is evident by the public meeting for Pool 16. Increasing lock capacities would reduced fleeing times.

Beorkrem: Were they asked to predict there future fleeing needs?

Abney: I don't know, I would have to look back to confirm this information.

Duvejonck: Soyke basically told us that this was a phone survey that was asked to the different people, "Are you planning on future expansion."

Carr: I'll try to answer this tomorrow.

NOTE: Projections for future fleeing were based on existing fleeing data and the results of the questionnaires for future fleeing.

Moore: I would like to be sure to be included on the Distribution List of for all reports, including the Cumulative Impacts Report.

7. STATUS OF ADAPTIVE MITIGATION PLANS – RICH FRISTIK (PowerPoint presentation at Attachment 7)

Duvejonck: We need to consider individual mitigation sites.

Wilcox: Closing structures are pretty effective at stopping sedimentation in backwaters. Depending on your goals for the off-channel area, you can start looking at different alternatives. You could look at these on a site-by-site and pool-by-pool basis. But again, at this point, we are doing this only for a cost estimation process.

Barr: Our greatest emphasis is on avoiding and minimizing impacts.

Duvejonck: I don't know what else we can do. Like Dan says, each one of these is a mini-HREP project.

Wilcox: For planning each of these projects, you will need to involve a small group, but for feasibility, which is where we are at, you can't go to this level of detail. The small working group is appropriate for Plans and Specs later in the process.

Barr: I don't know of a better way to approach Congress and ask for money. As a part of the adaptive mitigative process, this seems to be the best way.

Wilcox: The pool by pool planning will be done in great detail. Is the NECC comfortable with the methods used for estimating initial costs? Keep in mind we can't do detailed site-by-site planning.

Barr: Would you prefer to have your technical people at a workshop to address the areas [backwaters] we lit up?

Wilcox: Backwater areas subject to navigation-induced sedimentation are relatively few and may not require committees of technical folks to estimate mitigation needs. Areas subject to bank erosion and suppression of aquatic plant growth are much more numerous and will be a challenge to estimate mitigation needs.

Fenedick: I'm not comfortable with the methods utilized to estimate cost. Do the tools exist to evaluate effects to the river? Ask other questions. Are there other ways to evaluate sedimentation, etc.? What other monies will be used with Navigation Improvement funds.

Benjamin: The mitigation examples you have showed us may not take into account all of the factors.

Nelson: How do we develop one plan to address Nav Study affects and other adverse cumulative affects?

Wilcox: To address these concerns, we need strong interest in integrated river management, and coordinate appropriately. However, we are in a Navigation Study, and we must come up with numbers on cost, mitigation actions, etc. We are proposing an adaptive mitigation approach which has never been done. This is being proposed to give flexibility to address complex mitigation needs.

Duvejonck: Can you look at other programs such as 1135 and EMP to piggy back with this?

Barr: We should have a management framework that is inclusive. We have been asked to give a number of management frameworks in the EIS, and this one is most attractive. For addressing the mitigation of impacts, we are looking at 1) an adaptive management framework, 2) use of innovative technologies, and 3) the cost for these different measures.

Fristik – continuing with presentation

Moore: Why are some pools listed with no cost? Why were they removed from the list?

Fristik: They were flagged by the hydrologic model without the knowledge of site-specific characteristics. After further detailed review, some of the individual sites were removed.

Walters: Do these costs take into account planning, coordination etc.?

Fristik: Costs include 10% for engineering/designing/planning, and another 10% for supervision/administration.

Duvejonck: It would seem that you would need to do an EA for each of these mitigation actions, with mussel surveys, etc.

Wilcox: We are including a wind fetch GIS model to identify areas with significant effects of wind-driven wave action on plants. This will be useful because we don't want to apply mitigation measures in areas where plants can't grow due to wind fetch.

Beorkrem: How do you assess effects from offshore revetment structures to mitigate for plant affects?

Wilcox: We can evaluate this with a TABS numerical hydraulic model. We can predict current velocity changes fairly well.

Beorkrem: Have you come up with EAL fish for Open River?

Barr: Yes, these are included in the Final Minutes for last meeting.

Schonhoff: Have you looked at changing the timing of barge traffic to avoid or minimize traffic during the 3-month ichthyoplankton season?

Barr: No, we could look at this.

Wilcox: There is Also a diurnal flux in larval density in the main channel water column. Larvae densities generally go down during the day, and go up at night. There may be benefits to altering barge traffic patterns during the day vs. at night. We would need to go through an analysis of the cost of altering traffic patterns and the degree to which this would reduce fish entrainment losses.

8. DISCUSSION ON LARVAL FISH ENTRAINMENT AND MITIGATION COSTS

Schonhoff: The AFS (American Fisheries Society) gives cost estimates for adult fish. If that's what we are equivalenting, why aren't you using this and not this 5" fish.

Barr: The 5" fish gives a better return for the money.

Bertrand: Also, because of the lack of standardization, this approach may be best.

Bartell: Keep in mind that the multiplier, which varies but is generally about 4, takes into account the size of the fish to reach adult size.

Schonhoff: Also, why put woody structure in place as mitigation if the larvae don't grow to adulthood. This is not addressing the problem.

Wilcox: We are not going to create main channel habitat. We can try to offset the projected larval losses through these different mitigation measures.

Beorkrem: What is the degree of certainty with these larval fish mortality estimates? Where does this play out in mitigation?

Bartell: Appendix M in the EIS details the risk and uncertainty analysis. At the last meeting, we assigned uncertainty values to all these numbers.

Benjamin: Some of these numbers have been changing quite a bit. Why all of these changes?

Barr: Some of the modeling has changed due to changes in the input assumptions.

Bertrand: Again, we need better density data input into the model. If we are basing the cost on these numbers, we need better data. Is there the possibility to agree on a process to obtain better data to change the costs, if necessary.

Wilcox: Obviously larval density is variable, and thus there are high levels of uncertainty. However, we could go out and collect another 3 years of larval density data at multiple locations and not greatly reduce our uncertainty.

Barr: Again, if the group thinks that a few more years could greatly improve our uncertainty, then we could work it in. But its likely that after 3 or 4 years we won't be any further along in reducing our levels of uncertainty.

Wilcox: We should also look at some of this variability in existing data. We could estimate what could be gained by collecting an additional few years worth of data.

Bertrand: Much of the variability in existing data is due to different projects, sampling effort and methods, etc.

Duvejonck: The CAR recommends 3 to 5 years of sampling, acknowledging we may not greatly reduce uncertainty.

Brummett: More data may or may not help. Although there is a lot of flux, you may be able to limit uncertainty.

Moore: For mitigation, we are talking about committing to a number. The issue is does the mitigation costs reasonably reflect the need for compensation. With such high uncertainty, we don't really know that. If the project moves forward, the additional data after the fact may not help with our commitment.

Barr: There is a process we can utilize for this. If project costs change we can go back to modify the original commitment.

Pullen: Maybe as a mitigative process we can implement a review process?

Wilcox: Not many, if any, examples of successful adaptive mitigation exist.

Nelson: Ultimately we would like to see the financial commitment upfront.

Barr: Having experts about the areas of concern in a roundtable discussion for mitigation would be appropriate.

9. DISCUSSION ON THE COORDINATION ACT REPORT

Duvejonck: The FWS met and discussed the CAR with the Corps. Because new traffic information is being considered, the FWS has decided to go ahead and finish the CAR with the data we have as of this summer. This is a Draft document, and I have State comments. We are close to sending the CAR back out and asking for official State agency responses. This will allow for completion of the Final CAR.

Barr: The CAR can then be used for one of its original intended purposes, the selection between alternatives.

Duvejonck: The mitigation workshops are important. We need to lay down a flexible plan. This will need to take into account the consideration of uncertainties, ties of impacts to mitigation, etc. We also will need to bring in some new folks to the discussion. We will need to consider some new measures to better mitigate larval fish losses.

Barr: EPA, any questions?

Fenedick: I have no specific questions on the CAR.

Nelson: As discussed on pg. 10 of the CAR, should we consider a trust fund to get the money up-front?

Barr: We could include discussion about how to set up the trust fund, when the money would be available, etc. as one alternative framework.

Duvejonck: We also should include in the discussion experts that could also lay out future studies to evaluate performance of mitigation measures.

Wilcox: How many different faces are there to plan for management on the Upper Miss and IWW? I see the same people getting involved with the specific mitigation as are involved now with planning for EMP habitat projects. We do currently have an institutional arrangement that's fairly effective. We could fine tune these groups at the Pool level when the specific mitigation planning is appropriate.

Duvejonck: This discussion is about a default plan. The issues discussed about O&M, the second Lock, must be included otherwise the report is deficient. We want to work with you to address this study, but we will continue to push to include these other aspects.

Barr: Once we decide what traffic forecasts we are going with, St. Louis District will have the available information to address issues at the Second Lock.

Moore: In the areas of greatest disagreement, whether it comes out now or later, the deficiencies can't be corrected in that time, so how will the CAR affect selection of alternatives?

Barr: Some of the CAR is new, but much we have heard before and are considering. We won't use the CAR to assess O&M issues. But, for example, which of these impacts will occur on State of Federal owned land (Reserves). This was addressed in the Preliminary CAR and now we will include in the EIS.

Wilcox: The CAR also will reflect the sentiments of the federal and state agencies.

Benjamin: Wasn't the FWS waiting for additional information from the Corps to complete the CAR?

Duvejonck: Yes and no. I guess we wanted to get a Draft of the CAR out.

Barr: The Corps and FWS worked together throughout the process. Its been delayed due to a variety of factors.

10. WRAP-UP FOR AFTERNOON OF SEPTEMBER 18.

Barr: Tomorrow, we will review of the Toliver report on trucks and trains, also the structure of the Mitigation workshops.

September 19th, 2000

11. RECONVENE MORNING OF SEPTEMBER 19TH.

The 30th Meeting of the Upper Mississippi River-Illinois Waterway System Navigation Study Navigation Environmental Coordination Committee (NECC) was reconvened to order by Ken Barr, Chairman. Discussion on the CAR was resumed.

12. FURTHER DISCUSSION ON THE COORDINATION ACT REPORT

Barr: We will first finish up discussion on the CAR, then talk about the workshop format. We will then have Jack Carr talk about alternative modes of transportation, followed by discussion of the minutes from the 29th NECC.

Wilcox: The issue regarding the link between loss of fish and amount of habitat needed may not be resolved anytime soon.

Brummett: For one, we don't know how many individuals are out there.

Wilcox: We can't expect to get comprehensive fisheries population estimates anytime soon. In addition, the science isn't there to link habitat improvements to changes in population size. We don't have quantitative population estimates, and ultimately we don't know how much habitat to build to create X amount of any particular fish.

Duvejonck: We aren't suggesting the need to estimate this because even with another 10 years of work we wouldn't be there.

Bertrand: We have so little data, we are no where near able to do this.

Duvejonck: In 25 years when the additional traffic shows up, we may have more information on some of these populations.

Fenedick: One of the weaknesses of the project is the snap shot in time of data.

Pullen: We can use the LTRM over the future to answer some of these questions. Is the LTRM collecting the right data, and can we or should we change this?

Duvejonck: The previous questionnaire over fish passage was sent out, and it was a disappointing return. As far as FWS, it is something we should still work with LTRM to answer these questions.

Wilcox: The issue is how much habitat do we need to offset impacts. If we can reach an agreement on how much habitat for mitigation, and then where on the river will it be applied, then we can apply HEP for a quantitative analysis. Fish passage is a different issue. What new habitat is accessible as a result of fish passage, and where is it more justified?

Duvejonck: I agree, but how do we know if we are close to the right mitigation figure? We need to have the link back to the identified impacts.

Barr: Keep in mind that we are not taking the mitigation dollars to directly do research, but we should do some additional monitoring with other programs, such as LTRMP.

Pullen: I agree.

Nelson: We would prefer to come up with one big plan to address all of these various issues. It's hard to get around dealing with only this one issue, when there are bigger problems on the system.

Wilcox: We could examine the fish species diagnostically, what species are limited by availability of different habitat, then work on how to improve this habitat.

Brummett: The LTRMP funding cap may not allow them to do this additional monitoring that we would like them to do. This may need funding through a grant above and beyond their normal activities. We do need trend data. But we also need additional information.

Barr: The LTRMP is trying to move beyond trend pools and cover some additional areas.

Nelson: Couldn't additional funding for this monitoring come from the Nav Study?

Barr: Possibly. We are collecting some additional data as a part of this effort. But we are not going to estimate adult fish populations throughout the UMR through Nav Study dollars.

Brummett: We recognize existing impacts. Maybe we could use A&M dollars to minimize impacts to species under existing conditions.

Bertrand: We need this additional biological and physical data (bathymetry, flows etc.) to help in these decisions.

Wilcox: LTRMP is working on a plan to get the rest of the system bathymetry into GIS. Also, we have prepared a scope of work for use of LIDAR technology to obtain high resolution floodplain elevation data.

Barr: What the Nav Study can do is for certain areas at risk, we can go out and collect additional information on those areas for mitigation purposes.

Wilcox: We will be doing planning for future habitat conditions at the pool and reach scales. We will define the desired future habitat conditions. We may be able to use Nav Study mitigation to reach these goals. It will become a matter of accounting for how Nav study dollars are spent.

Barr: We are proposing to complete a mussel study that Keevin is working on. No more larval fish studies, but maybe we can reevaluate existing larval data to see if we can better understand our data set.

Wilcox: Monitoring is relatively easy, but it is different to obtain population estimates and whether or not you are having an affect through habitat modifications. We can rely on LTRMP to give us some insight. Monitoring is something that should be carefully designed.

Barr: Again, we will discuss the various uncertainties within the EIS. Basically, with the exception fish, what we are doing is really minimizing impacts. There is a direct tie from impacts to mitigation for most areas. For fish only, the tie is not direct.

Beorkrem: There is no discussion of existing conditions. This is necessary to identify if the system can handle these additional stressors.

Wilcox: There are no quantitative estimates for some of these different issues. However, the cumulative impacts report puts a lot of this information together.

Barr: Again, the studies have shown that, for example, the incremental changes resulting from this project is very small additional loading of sediments into backwaters. The cumulative impacts report does have much of this information. It would be difficult to say that the additional incremental change greatly affects the cumulative impacts.

Wilcox: Management of the UMR has become fragmented. This helps us identify a desirable future condition. As far as the delivery of materials from the watershed to backwaters and the various effects on life forms, no we haven't included this in the EIS. The Nav Study won't address this.

Beorkrem: Why?

Fristik: Because this is mitigation for the Nav Improvements, not management of the UMRS.

Beorkrem: Then there is a difference.

Fristik: Then there is a difference between interpretation of impacts

Beorkrem: CEQ outlines clearly that you need to include this. You need to identify what the impacts of existing conditions are to identify what the project contributes.

Moore: Can you paraphrase why the agency is not addressing O&M and only the incremental impact which is minor; this is debatable but not entirely wrong. But please explain how you got there.

Barr: We have not tried to develop a mitigation of an O&M strategy for some undefined baseline. We are not proposing this as a look at O&M issues. However to make a decision on

effects on the difference in boat traffic resulting from the proposed project, we used this approach.

Moore: The Corps is taking responsibility for a third of the traffic that will be there.

Barr: The mitigation is looking at the without project vs. the with project [increased lock capacity] condition. We are discussing mitigation for the additional traffic that results from the proposed project. This mitigation may also help to minimize affects of existing traffic. However, the specific purpose of the mitigation is to mitigate for impacts resulting from the proposed project.

Moore: The Nav Study is ignoring existing impacts. How does the EIS address cumulative impacts?

Barr: We are discussing these issues in the EIS and have prepared a cumulative impacts report.

Moore: The Corps has done some excellent work with many issues, but what is missing is a focus of the Corps on the river in one effort. The current approach is compartmentalized.

Wilcox: There is a move toward that. No, there is no individual grand scheme. We see movement toward more integrated river management. Different ways we can manage the river for these different conditions. Following the planning effort for the pool and reach scale, we will know more about what we want for a mix of habitats. We can consider and identify objectives for hydrology, fish population numbers, etc. The mitigation for some affects of added traffic may contribute to this effort.

Beorkrem: Maybe that's the problem, we are not addressing the whole ecosystem at one time. There are three districts on the UMR doing different things.

Barr: Congress has tasked us to do some investigating on ecosystem issues on the IWW, as well as funding for 206 and 1135.

Nelson: But we need to have one attempt, we are currently fragmenting, and we need one ecosystem plan for the UMRS.

Barr: Absolutely, I agree. But this is not part of the Nav Study.

Wilcox: This opportunity is coming up. We can do this planning through interagency coordination. We do need to have some quantitative and spatially explicit goals for condition of the river ecosystem. The Navigation Study mitigation is one part. The EMP can only be a part. There will need to be additional funding.

Benjamin: However, it is more expensive to go through this cost sharing process than to do it ourselves. This program is fatally flawed because the states don't have the money to cost share on these different efforts.

Wilcox: Cost sharing and collaborative work for ecosystem restoration is happening all over the country, and it needs to happen more on the UMRS.

Pullen: The EIS needs to address impacts of the improvements and the mitigation plans.

Duvejonck: We did this for the second lock and the corps did not live up to its responsibilities.

Fenedick: The navigation side has heavy funding, however the environmental side is light on funding. Because navigation is system wide, mitigation needs to be system wide and its not. Its spotty. St. Louis has A&M, others do not. We should be keeping environmental resources at the same level or improved levels. We need to treat the environment the same as navigation. The concern is that if an alternative is pushed forward, will the environment have its concerns at the same or higher level?

Beorkrem: The decision was made to improve navigation, and assess the incremental impact associated with this improvement. But Division only said we are only going to look at the incremental affects. That violates ER-1110-2-8154 at Page 2, Item 6-B. This will come up in court.

Wilcox: These arguments have been discussed in nearly every previous NECC meeting. We are familiar with these regulations. We are must proceed with previous decisions We need to get

on with identifying mitigation for this Navigation Study and prepare a plan for implementing that mitigation.

Beorkrem: You have EPA, FWS and 5 State.....

Wilcox: Given the various constraints, we need to make the best effort that we can to develop a mitigation plan that will improve conditions.

Pullen: The decision in '92 may or may not have been a good decision.

Barr: At least we have been documenting everything throughout the process.

Moore: We would love to hear your plans on the Second Lock. You should take credit for it if you are making plans.

Pullen: We are planning this and you will be hearing about what we initially will do real soon, possibly before this year is over.

Fenedick: EPA's thoughts: First, the corps is jumping from the analysis to the mitigation. However, You should take more of the umbrella approach to environmental resources. We recognize all these other Corps efforts, and this will give some help to the overall process. Adaptive mitigation, this study needs to be adaptive in itself. Rule of thumb for this approach is five years, after which an agency needs to review to see if an updated analysis needs to be done. It should be done here on a site by site basis. Do these lock changes need to take place, following review 10 and 15 years down the road. Are the traffic forecasts playing out, or are they a fraction of what we envisioned them to be. Implementation – people have said we need a clear list of goals and objectives for mitigation. What we will do, when and how.

Barr: The goals for us are to avoid, minimize, mitigate in-kind and mitigate out-of-kind.

Beorkrem: Where Corps projects have degraded the system, mitigation is necessary.

Fenedick: Second Point, its not clear we have identified all the segments and arms of the strategy. This is a one shot strategy. Next, this strategy needs a holistic approach. Navigation was done on a systemic basis, environmental issues also need to be addressed systemically. What is the fish habitat for that pool or reach of the river? What is the scale of mitigation for fish? In terms of mitigation, are we talking about site efforts with monitoring? What if a side-channel is filled in, what do we do? Where do we claim failure and what will we do about it? And again, we need to have an innovative approach. You need to take into account historical activities to make good decisions. It is not a question of new boats going though, but establishing thresholds of what does it mean. This is not just engineering, but also management decisions. We need to be creative and look for new tools to address some of these issues. Maybe we need to involve NRCS to reduce sediment inputs into the watershed.

Benjamin: We need to identify ecologically what is the best answer. Don't consider it from an engineering standpoint and a dollars and cents stand point.

Pullen: I agree. And on the IWW, because of its condition, we can look at buying levee districts to offset impacts.

Barr: We will have to work hard on the writing for the authorization of this funding.

Fenedick: Its o.k. for the Corps to identify these other issues, and that these lie outside of the Corps authority and need to be addressed in some other forum. This is an opportunity for us to address and treat, as equal as possible, navigation and environmental concerns.

Wilcox: We are looking for these more formal efforts to address environmental concerns and achieve desired future conditions through the EMP.

Beorkrem: This type of detailed discussion should be included in the study.

Benjamin: The potential is that the mitigation is out of kind, as opposed to in-kind. We need to try focus on in-kind, when possible.

Fenedick: If we step outside of the box, and we can come up with something to contribute to the improvement to the river, then it is something to consider. There is concern for being tied

into one mitigation dollar value. There is a traditional way of doing business, then there are these other things we can do to improve the river.

Carr: Don't you hit a point where this is no longer open-ended?

Fenedick: Maybe not from a data standpoint. There may be for money and funding, and that is the concern.

Barr: What I would like to recommend is that we have an initial meeting to plan the framework for mitigation planning. We can lay out one alternative plan with a trust fund.

Bertrand: We need more explanation of this trust fund. When will the money be available?

Barr: Money would be appropriated for environmental issues as it would be for the construction project.

Pullen: We can work to see what the economics affects would be of various trust funds.

Duvejonck: I haven't seen any other attempts at this.

Wilcox: There have been a number for stipulation agreements and the inland waterways trust fund. It is not impossible or completely new, but we would need to propose where it comes from and how will it be used.

Barr: What is the benefit of a trust fund vs. annual appropriations?

Duvejonck: First is the guarantee the money is there, second is the flexibility for its use, and not having to deal with the baggage of annual appropriations.

Brummett: We would be able to go out and do pursue some actions that pop up on short notice with out going through appropriations.

Barr: Regarding the workshops, we should stay targeted on impacts and not do pool planning.

Brummett: This should be a strategy session.

Barr: We have enough to go forward with an EIS. We will have better tools in the near-term for these issues. We are talking about a having a framework in place for when we make site specific plans.

Wilcox: We haven't identified the desired future condition, and what it would cost to achieve this. Under LTRMP we are evaluating hydrologic conditions, what was the unregulated condition, what has changed and what targets can we set to achieve a more natural hydrologic condition. This should be completed in another year. We dealt with this on Pool 8 for summer drawdown, although it didn't pan out this year. We could set targets for the hydrologic regime for the entire system, and incorporate changes to the present system of river regulation in the mitigation plan.

Barr: Jon, do you think the Corps and FWS can develop a draft framework and circulate to the NECC?

Duvejonck: Yes, but they should be open meetings.

Barr: The focus of the meeting should be to put together an implementation strategy. Part of the meeting also will deal with potential tool kits.

Bertrand: Not tools for specific sites, but we may need to consider what we have at our disposal.

Wilcox: We also should include how we identify and agree on the dollar amount needed for mitigation. The hardest part is dealing with the fish. Another thing is how we quantify needed amounts of habitat and where this should be implemented.

Beorkrem: We would like to have confidence that mitigation will have an effect on the lower IWW.

Barr: We can identify methods for quantifying whether these actions have been successful.

Wilcox: How much money do we invest in severely degraded areas? What do we do that could be ecologically affective?

Barr: The FWS and the Corps will work together to identify a management framework, as well as reviewing tool kits. For the mitigation workshop, how about Tuesday November 28, and Wed the 29th. We will consider having the meeting in Dubuque. Lets move to impacts on alternative modes.

13. ENERGY, EMISSIONS, AND SAFETY IMPLICATIONS OF WATERWAY INVESTMENTS – JACK CARR (PowerPoint Presentation) Attachment 8

Barr: How about minutes from the last meeting? We will send hard copies of the minutes and attachments in the future. Please send comments on the minutes via e-mail. We will try to have a quick turn around on these notes.

14. WRAP-UP AND FINAL COMMENTS

Barr: Final comments from the resource folks and NGOs.

Duvejonck: Nothing else to add.

Bertrand: My e-mail address is wrong. Please revise this.

Brummett: I'm anxiously awaiting bathymetry and floodplain elevation studies getting started. This should have been done a while ago. Also, there are still different ways of doing things between districts. This is frustrating. Some uniformity in the division would be appreciated for all of these efforts.

Benjamin: Lets move toward the way St. Paul does their work and away from St. Louis. First, we were originally going to have some cycle meetings. I'm assuming there is no longer such a thing.

Barr: We've gone to GLC and said cycles are gone.

Benjamin: Discussion about O'brien Lock, that was the lock we needed to replace, but lets get started on repair of the one.

Bertrand: Col. Bayles did ask to see if there is an engineering solution to the O'brien Lock. Bayles would look into some engineering feasibility.

Barr: Chicago district is in charge of the Goby Barrier right now.

Wilcox: The round gobies may be moving into the Illinois River faster than the planners are moving to install a barrier.

Beorkrem: We have been active in trying to modify procedures. We aren't negative, we are pro-active.

Moore: No Comment.

Wilcox: First, the habitat needs assessment is getting wrapped up. There has been work in St. Paul on Pool scale planning and we hope we can do this for EMP habitat planning in all the pools. For LTRM we are planning on system wide bathymetry and floodplain evaluation. On fish passage we are attempting to quantify the consequences of restricted fish passage, including a workshop.

Fenedick: First EPA recently had a third meeting to identify issues on the river in Wisconsin. Out of this, the principal and guidance book was reevaluated by the Corps and MVD decided not to change it. Second thing coming out of the meeting was the issue of cumulative impact analysis was brought up to the Corps, and that we need to develop a common language for this subject. Thus, I am now trying to develop cumulative impacts training for common language – this should happen over the next year or so. And third, collectively we question meeting mitigation requirements, and it appears that there is a misunderstanding of what types of mitigation have been done and what is required. We are trying to clear this up.

Pullen: Perception is that Corps projects have not followed through with mitigation. The Corps has a pretty good record, but it is not perfect. Please let us know of other projects you feel we haven't followed through with mitigation.

Fenedick: There is a lot of good discussion about environmental issues. Unfortunately, due to the political structure, it is unclear what the change in command will do to the process, but it initially seems positive. Lastly, in Region 5 we went through reorganization, we are still

looking for our chief, manager etc., Be aware of IPA between the Corps and EPA. If you have identified any opportunities, pass that along.

Carr: No comment.

Bartell: No comment.

Pullen: If you haven't taken a look at the Gulf Hypoxia plan, it does have a budget initiative that could be useful to consider. It may be budget available and its an effort that we may be able to interface with the Nav Study. Also, we are in a state of flux, much of it do to the change of command, and the new president, and where we are going is uncertain.

Fristik: No comment.

15. NEXT MEETING

The next meeting will be the mitigation workshops tentatively scheduled for 28-29 November.

Attachment 1

ATTENDANCE LIST

30th Meeting of the NECC
September 18 and 19, 2000

Attendance List
September 18 & 19, 2000
Holiday Inn, Moline, Illinois

Name	Affiliation	Address	Phone	E-mail
Ken Barr	CEMVR-PM-R	P.O. Box 2004, Clock Tower Bldg. Rock Island, IL 61204-2004	(309) 794-5349	Kenneth.A.Barr@usace.army.mil
Rich Fristik	CEMVR-PM-R	P.O. Box 2004, Clock Tower Bldg. Rock Island, IL 61204-2004	(309) 794-5308	Richard.Fristik@usace.army.mil
Steve Bartell	Cadmus Group	136 Mitchell Rd. Oak Ridge, TN 37830	(423) 425-0401	sbartell@cadmusgroup.com
Rick Nelson	USFWS	4469 48th Ave. Ct. Rock Island, IL 61201	(309) 793-5800	Rick_Nelson@fws.gov
John Duyvejonck	USFWS	4469 48 th Ave. Ct. Rock Island, IL 61201	(309) 793-5800	Jon_Duyvejonck@fws.gov
Lauri Walters	USFWS	4469 48 th Ave. Ct. Rock Island, IL 61201	(309) 793-5800	Lauri_Walters@fws.gov
Ken Brummett	MO DNR	Box 428 Hannibal, MO 63401	(573) 248-2530	brummk@mail.conservation.state.mo.us
Bill Bertrand	IL DNR	P.O. Box 149, 2106 SE Third Aledo, IL 61231	(309) 582-5611	billbert@winco.net
Gretchen Benjamin	WI DNR	3550 Mormon Coulee Rd. La Crosse, WI 54601	(608) 785-9982	benjag@dnr.state.wi.us
Bernard Schonoff*	IA DNR	3390 Hwy. 22 Muscatine, IA 52761	(319) 263-5062	fishiowa@muscanet.com
Al Fenedick	USEPA	77 West Jackson Blvd. Chicago, IL 60604	(312) 886-6872	Fenedick.Al@epamail.epa.gov
Elliott Stefanik	CEMVR-PM-AR	P.O. Box 2004, Clock Tower Bldg. Rock Island, IL 61204-2004	(309) 794-5285	Elliott.L.Stefanik@usace.army.mil
Dan Wilcox	CEMVP-PE-M	190 Fifth Street East St. Paul, MN 55101-1638	(612) 290-5276	Daniel.B.Wilcox@usace.army.mil
Tom Pullen	CEMVD	P.O. Box 80 Vicksburg, MS 39191-0080	(601) 634-5851	Tom.M.Pullen@usace.army.mil
Laura Abney*	CEMVP-PM-AR	P.O. Box 2004, Clock Tower Bldg. Rock Island, IL 61204-2004	(309) 794-5557	Laura.M.Abney@usace.army.mil
Jack Carr	CEMVP-PM-AR	P.O. Box 2004, Clock Tower Bldg. Rock Island, IL 61204-2004	(309) 794-5396	John.P.Carr@usace.army.mil
Rick Moore	Isaac Walton League	1619 Dayton Ave. Suite 202 St. Paul, MN 55104--6206	(651) 649-1446	rxmoore@iwla.org
Mark Beorkrem	Sierra Club	P.O. Box 370, 204 Wyandotte Morrisonville, IL 62546	(217) 526-4480	Mbeorkrem@hotmail.com

* Denotes individuals present on September 18 only.

Attachment 2

IMPACTS OF RECREATIONAL BOATING

(Full Slide Presentation Available Upon Request)

Presented by

Dan Wilcox

Fisheries Biologist
US Army Corps of Engineers – St. Paul District

30th Meeting of the NECC
September 18 and 19, 2000

Effects of Recreational Boating on the Upper Mississippi River System

Dan Wilcox
**St. Paul District U.S. Army Corps
of Engineers**

Steve Bartell and Kym Campbell
The Cadmus Group Inc.

Sandra Knight and Nana Parchure
**Engineering Research and
Development Center**

Kevin Landwehr
**Rock Island District U.S. Army
Corps of Engineers**



Technical Work Group

Effects of Recreational Boating

Scot Johnson	Minnesota DNR
Alan Robbins-Fenger	Minnesota DNR
Tim Kelly	Minnesota DNR
Nani Bhowmik	Illinois State Water Survey
Tim Asplund	Wisconsin DNR
Frank D'Erchia	National Biological Survey
Eric Macbeth	MN-WI BAC
David Schaefer	SIU - Champaign IL
Bruce Carlson	CENCS
James Hill	CELMS

Primary Physical Effects

- *Wake waves*
- Propeller jets
- Noise
- Exhaust

Secondary Physical Effects

- Sediment resuspension
- Bank erosion

Biological Effects

- Effects on aquatic plants
- Disturbance of fish
- Disturbance of wildlife
- Fish entrainment, impingement

Recreational Boating is Popular... Big Business on the UMRS

- 6.9 million boater-days/year
- 2.6 million boat trips/year
- >600 developed boat access sites
- >18,000 marina slips
- 217,364 recreational boat lockages in 1999

Recreational Boating Forecast and Allocation Model

(Carlson et al. 2000)

Unconstrained traffic

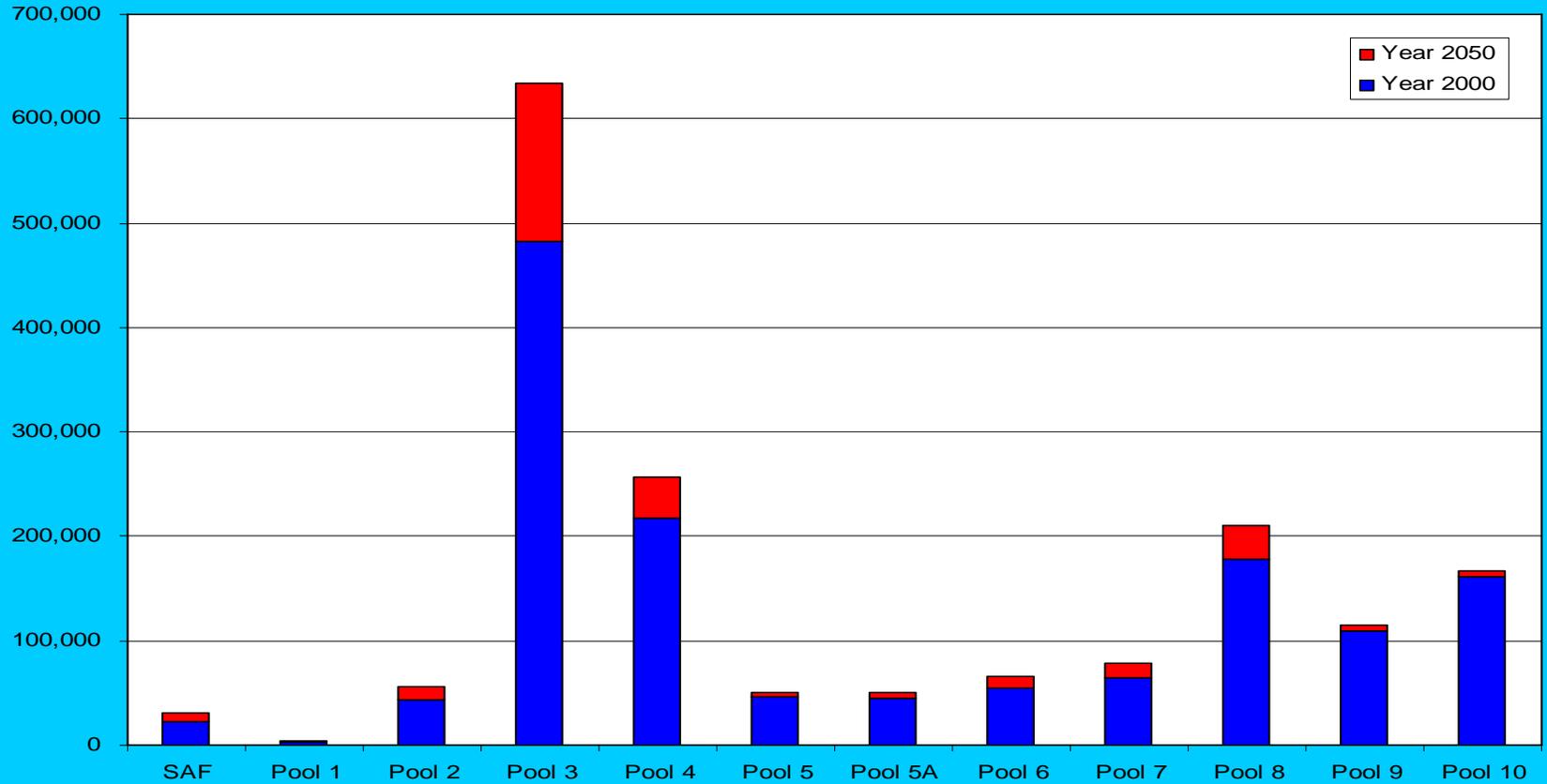
Years 2000 - 2050

Total growth on UMR ~ 19.6%

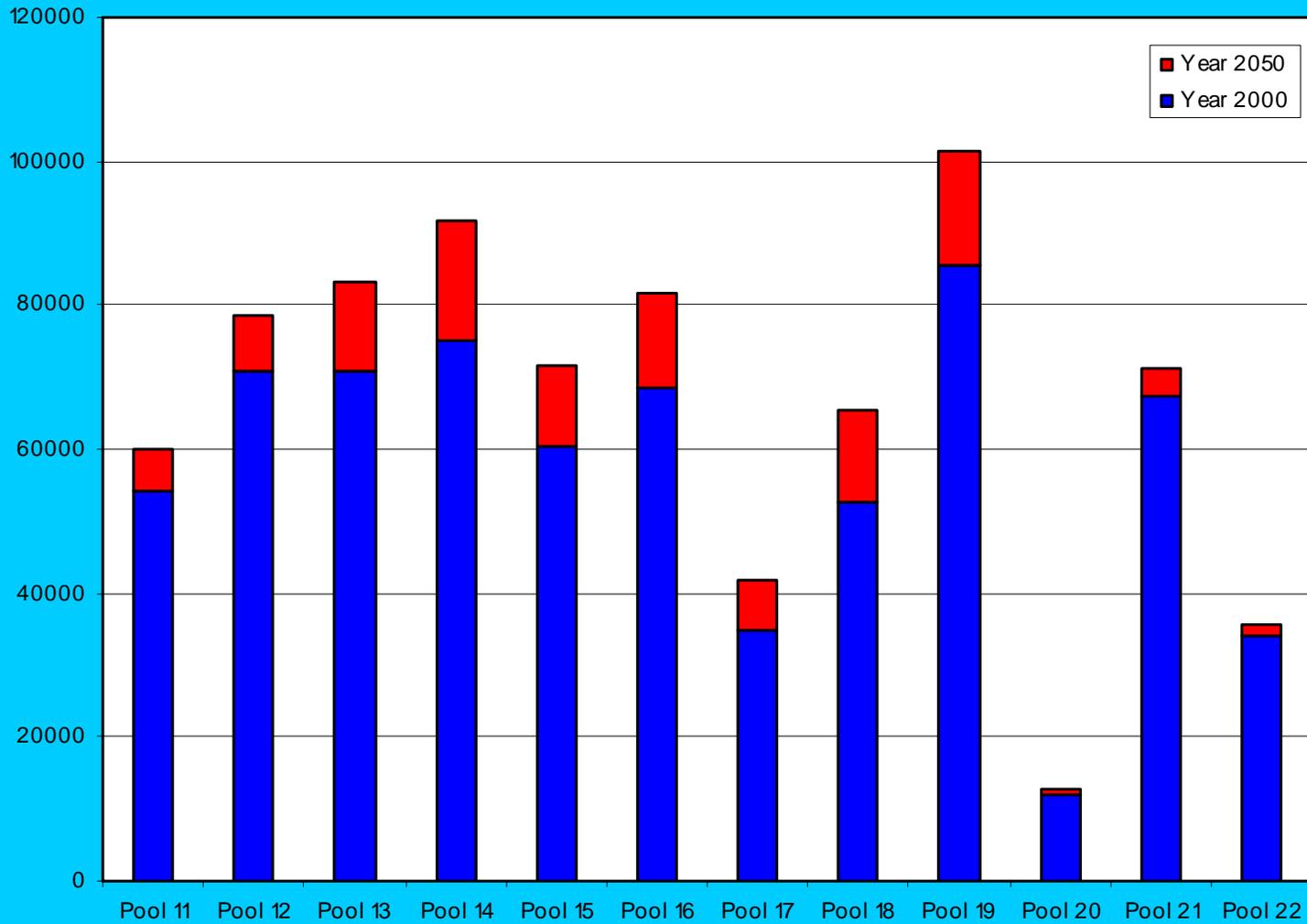
Total growth on IL River ~ 22%

Highest near metropolitan areas

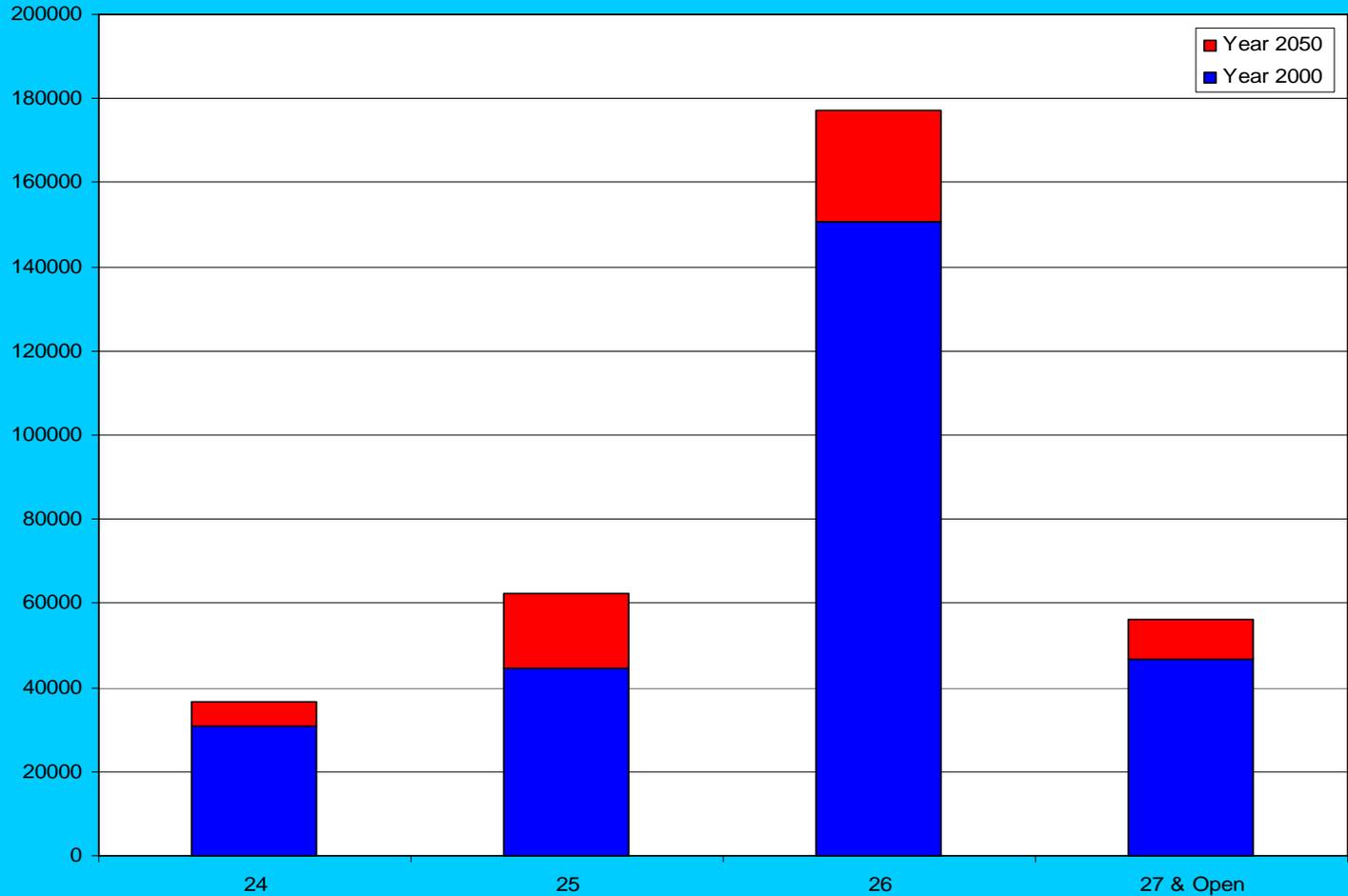
Recreational Boating Traffic Forecast - UMR St. Paul District



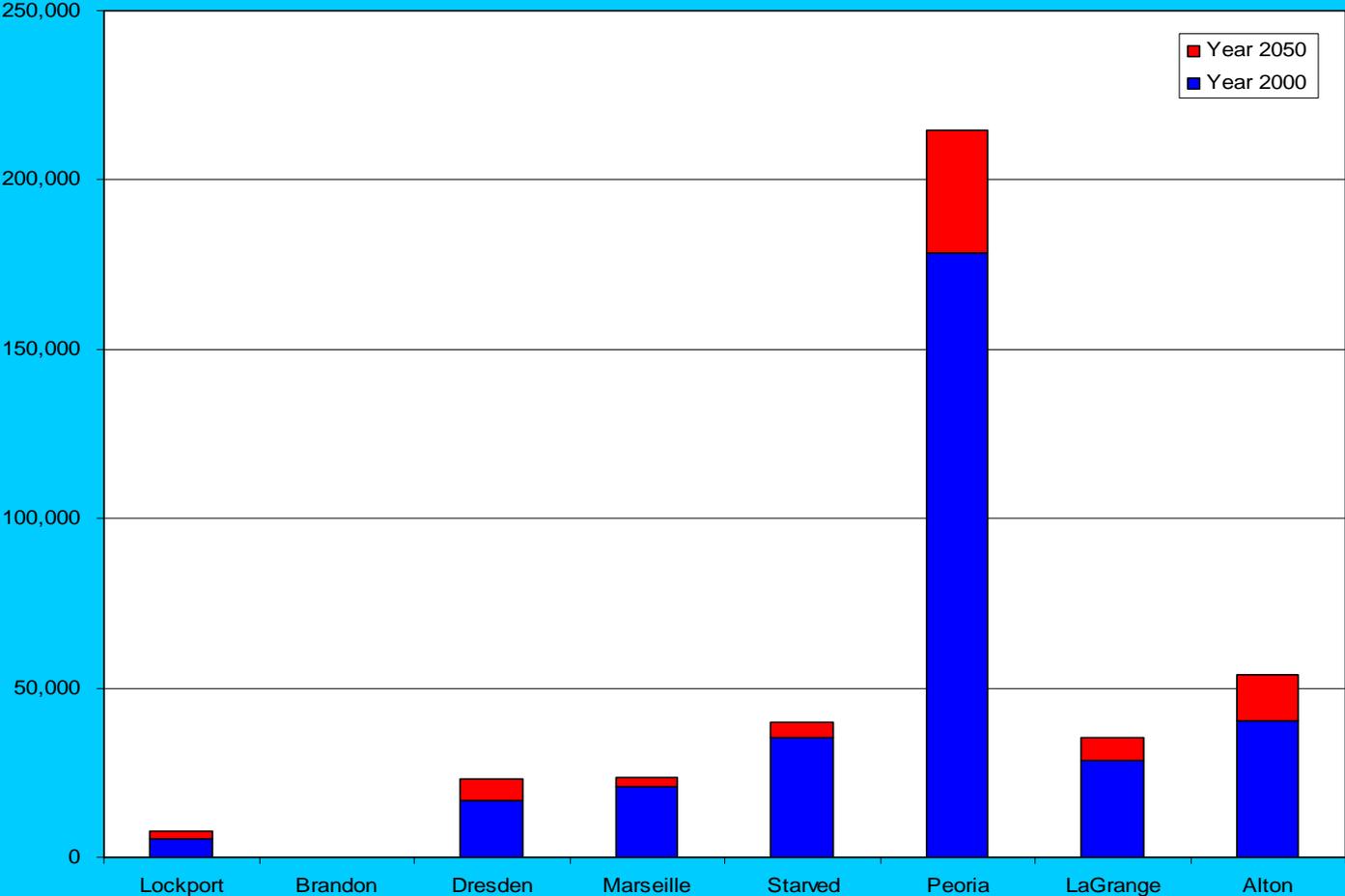
Recreational Boating Traffic Forecast - UMR Rock Island District



Recreational Boating Traffic Forecast - UMR St. Louis District



Recreational Boating Traffic Forecast - Illinois River

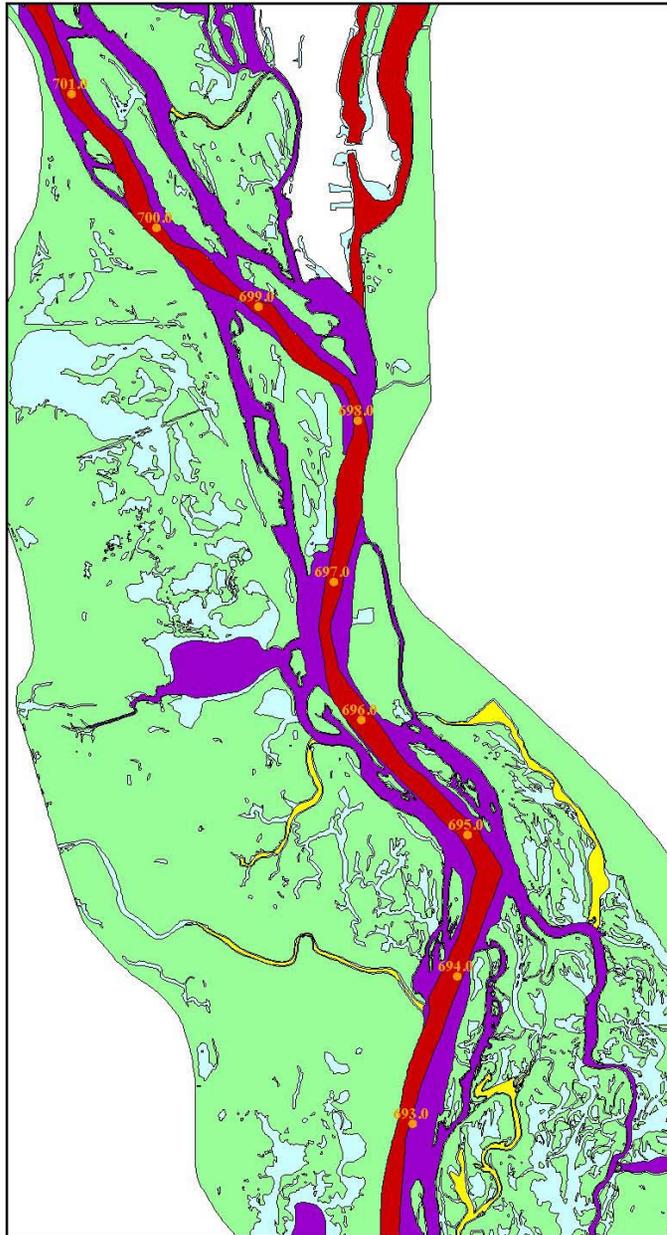


Sequence of recreational boating traffic allocation model development

- Trips / Year / Pool
- Trips / Year / Boat Class
- Trips / Month / Boat Class
- Trips / Day / Boat Class
- Trips / Day / Boat Class / Navigated Area
- Passes / Day / Boat Class / Navigated Area

Percent by Vessel Class of Boats on the Water Summer of 1996 on the Upper Mississippi and Illinois Rivers Averaged Over All Locations

• Sailboats	0.20%
• Fishing Boats	23.41%
• Pontoon Boats	2.78%
• Jet Skis	6.35%
• Medium Power Boats	40.48%
• Large Cruisers	24.01%
• Houseboats	2.78%



Pool 8

Recreational Boat Traffic

Boat Type

- Medium Power Boats

Season

- Spring and Fall

Legend

Boat Traffic

- Low
- Medium
- High

Universal Transverse Mercator
Datum NAD27
Spheroid Clarke 1866



Scale 1:50,000

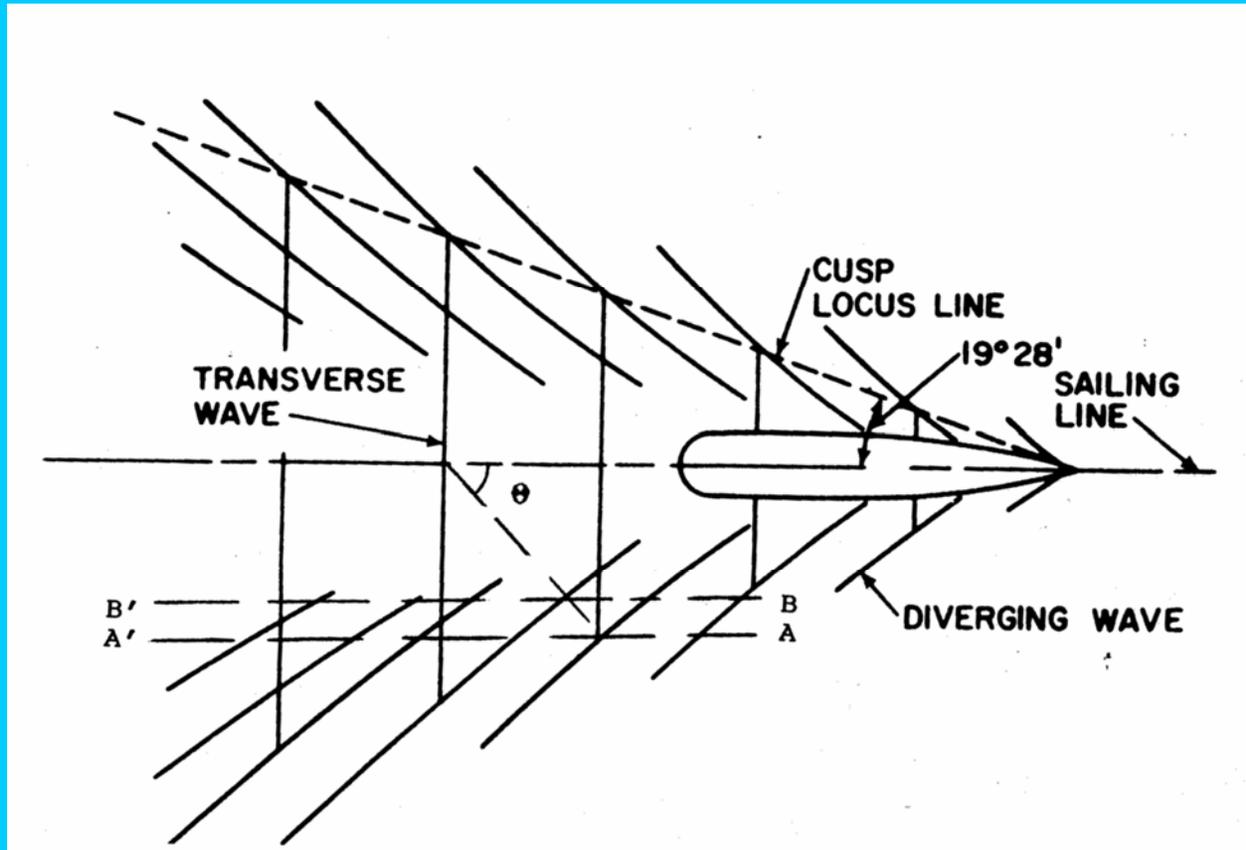
0.5 0 0.5 Miles

0.5 0 0.5 1 KM

Navigated Areas

GIS

Wake Wave Pattern















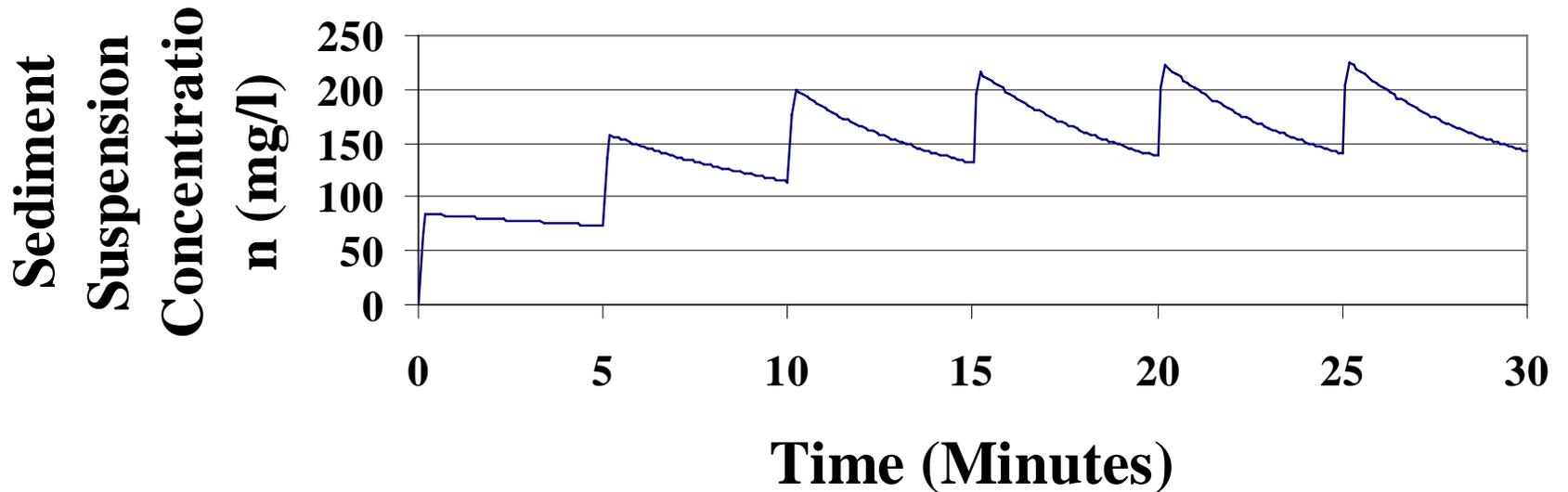
Maximum Wake Wave Heights

Vessel Type	Distance from Sailing Line		
	0 to 100 ft	100-300 ft	300-500 ft
Sailboats	N/A	N/A	N/A
Jet Skis	8 cm	4 cm	0
Fishing Boats	16 cm	8 cm	4 cm
Pontoon	8 cm	4 cm	4 cm
Medium Power	24 cm	20 cm	10 cm
Large Cruisers	50 cm	40 cm	20 cm
House boats	8 cm	4 cm	4 cm

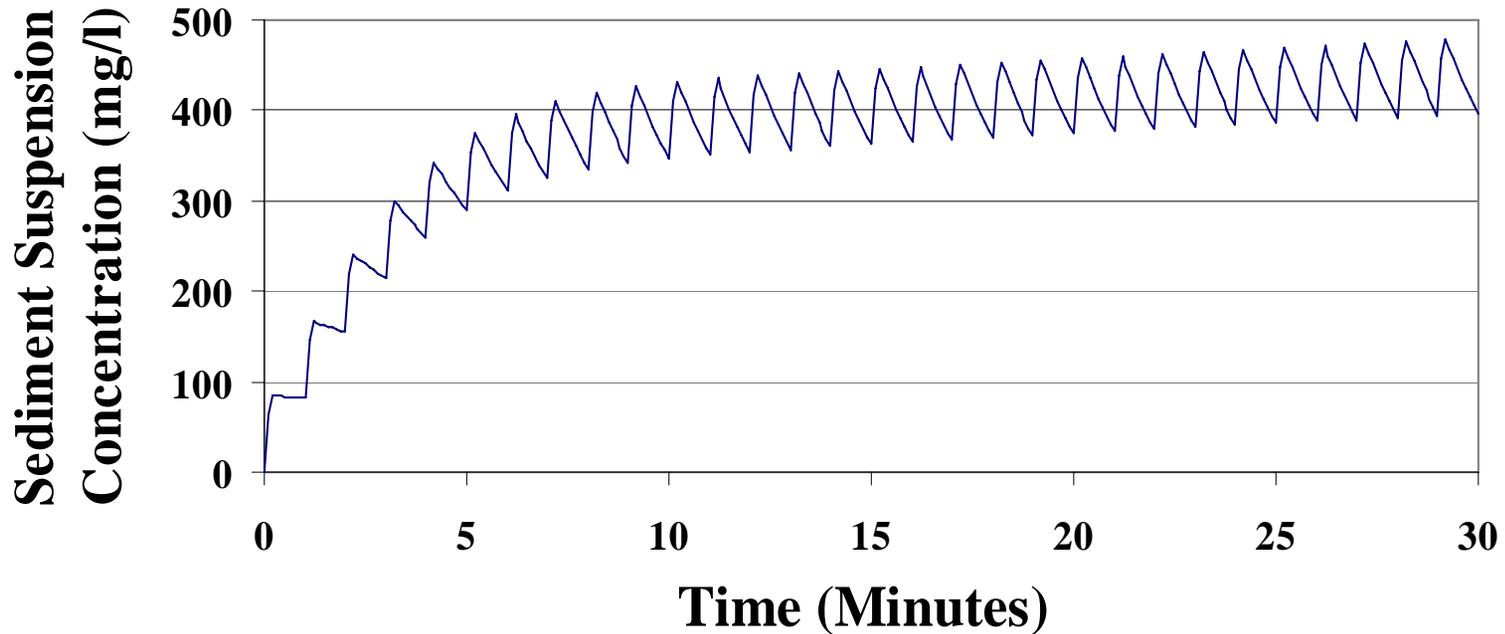
Comparison of characteristics of typical wake waves generated by tow boats and recreational boats

Parameter	Commercial tow boat and barges	Recreational Boat
Duration of a single event	400 seconds or about 7 minutes	24 seconds
Number of waves in one event	200	12
Initial wave height	2 cm	2 cm
Occurrence of maximum wave height	Wave #25	Wave #3
Intermediate wave height	Wave #75	Wave #6
Ending wave height	2 cm	4 cm
Period of each wave	2 sec	2 sec

Sediment Suspension Concentration With Recreational Boat Passage Events at 5 Minutes Interval, H max = 30 cm



**Sediment Suspension Concentration with
Recreational Boat Passage Events at 1 Minute
Interval, H max = 30 cm**



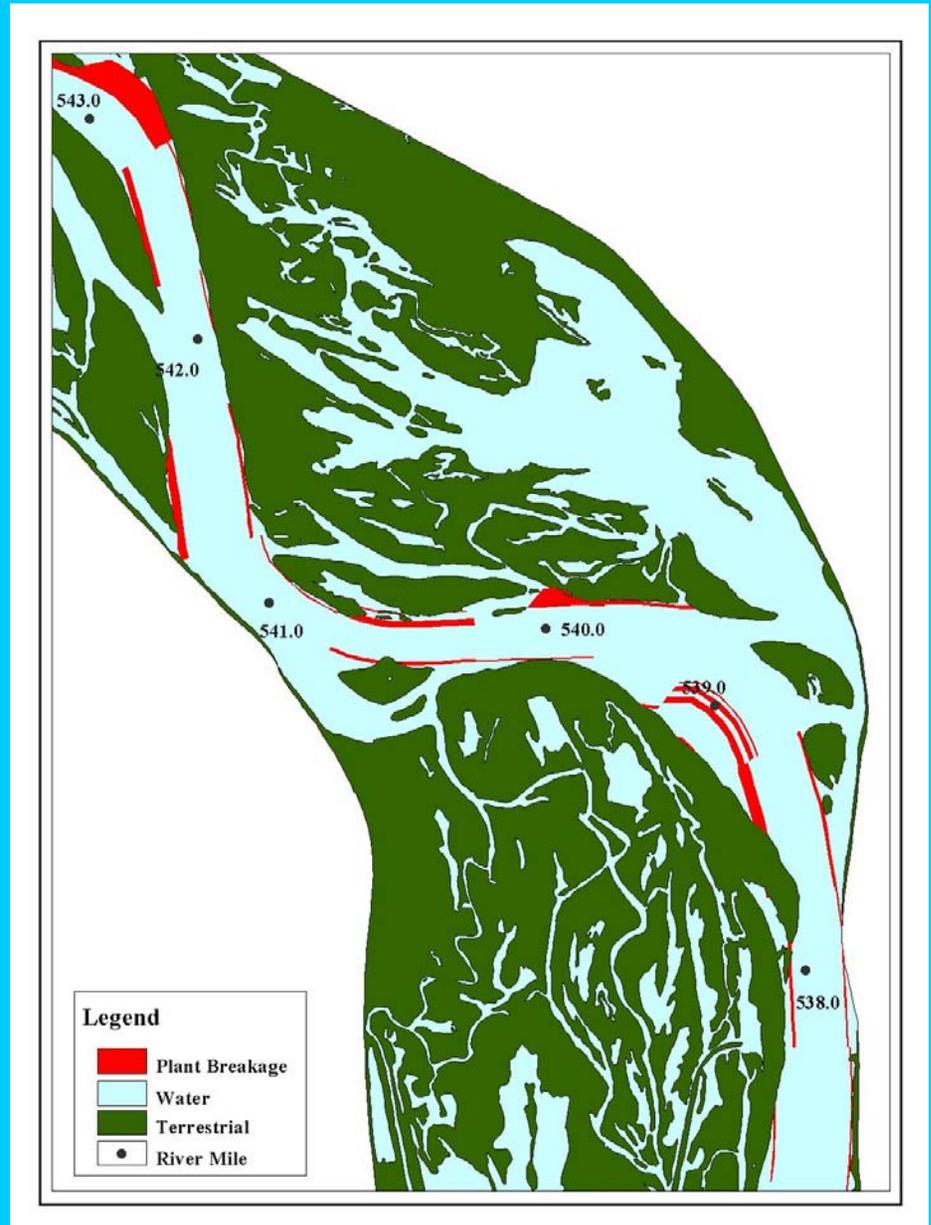
Equilibrium sediment concentrations (mg/L) resuspended by recreational boat wake waves

Wave height (cm)	Equilibrium sediment concentration (mg L ⁻¹) at various inter-arrival times					
	1 min.	5 min.	10 min.	20 min.	30 min.	60 min.
10	1.0X10 ⁻³	4.1X10 ⁻⁴	2.8X10 ⁻⁴	2.0X10 ⁻⁴	1.7X10 ⁻⁴	1.3X10 ⁻⁴
20	325	110	78	58	50	38
30	865	230	160	110	95	75
40	800	330	240	175	140	110
50	1070	470	350	250	225	180

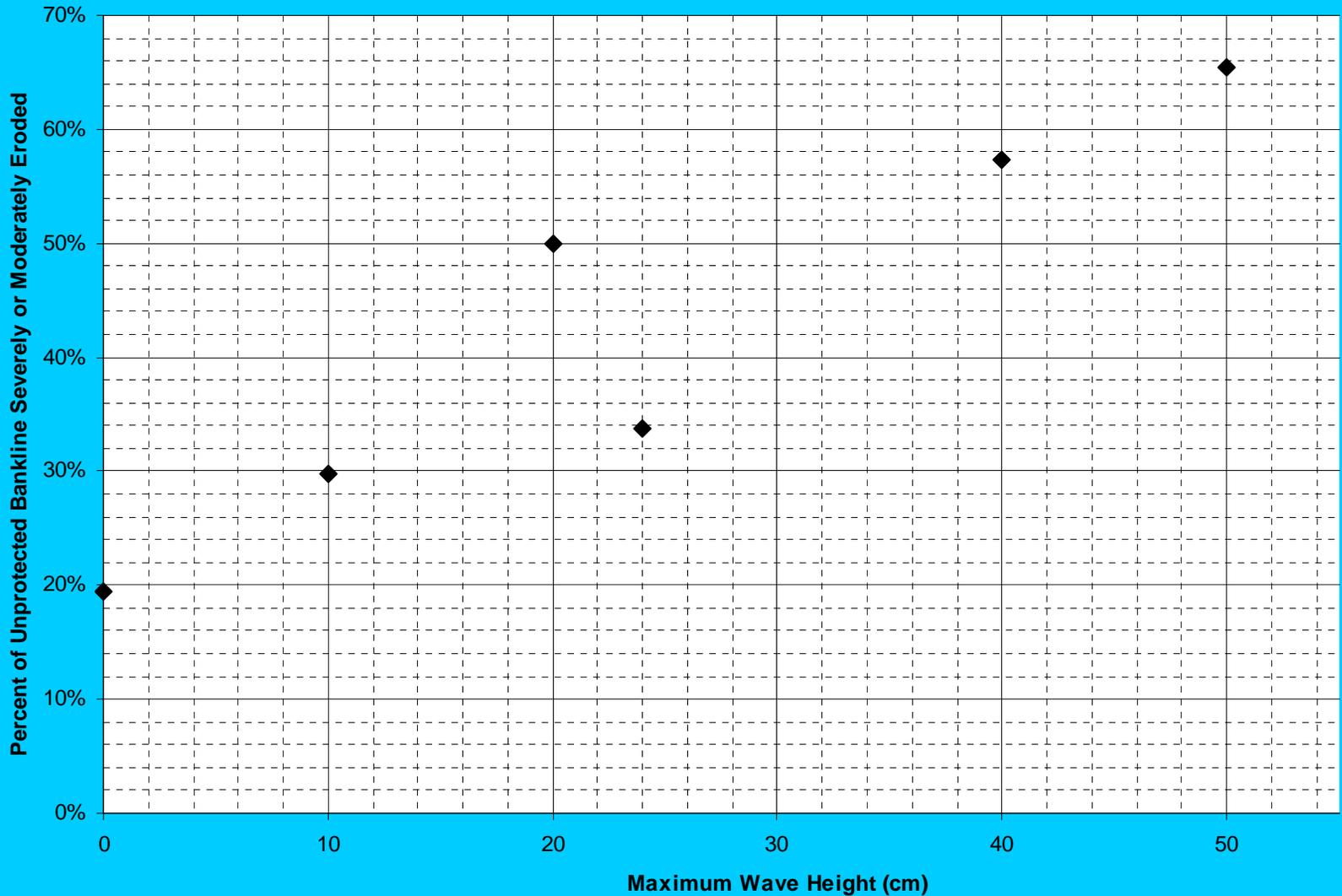
Estimated Reduction of Aquatic Plant Growth Due to Sediment Resuspended by Recreational Boats

Vessel Type	Navigation Pool	% Total Biomass Reduction	
		Wild Celery	Sago
Jet ski	none	0	0
Fishing boat	4, 7, 8, 9, 10	0 % to 9 %	0% to 6%
Medium powerboat	4 through 12	34 % to 79%	5% to 71%
Large cruiser	All 4 - 13	8% to 100%	1% to 100%
House boat	none	0	0
Pontoon	none	0	0

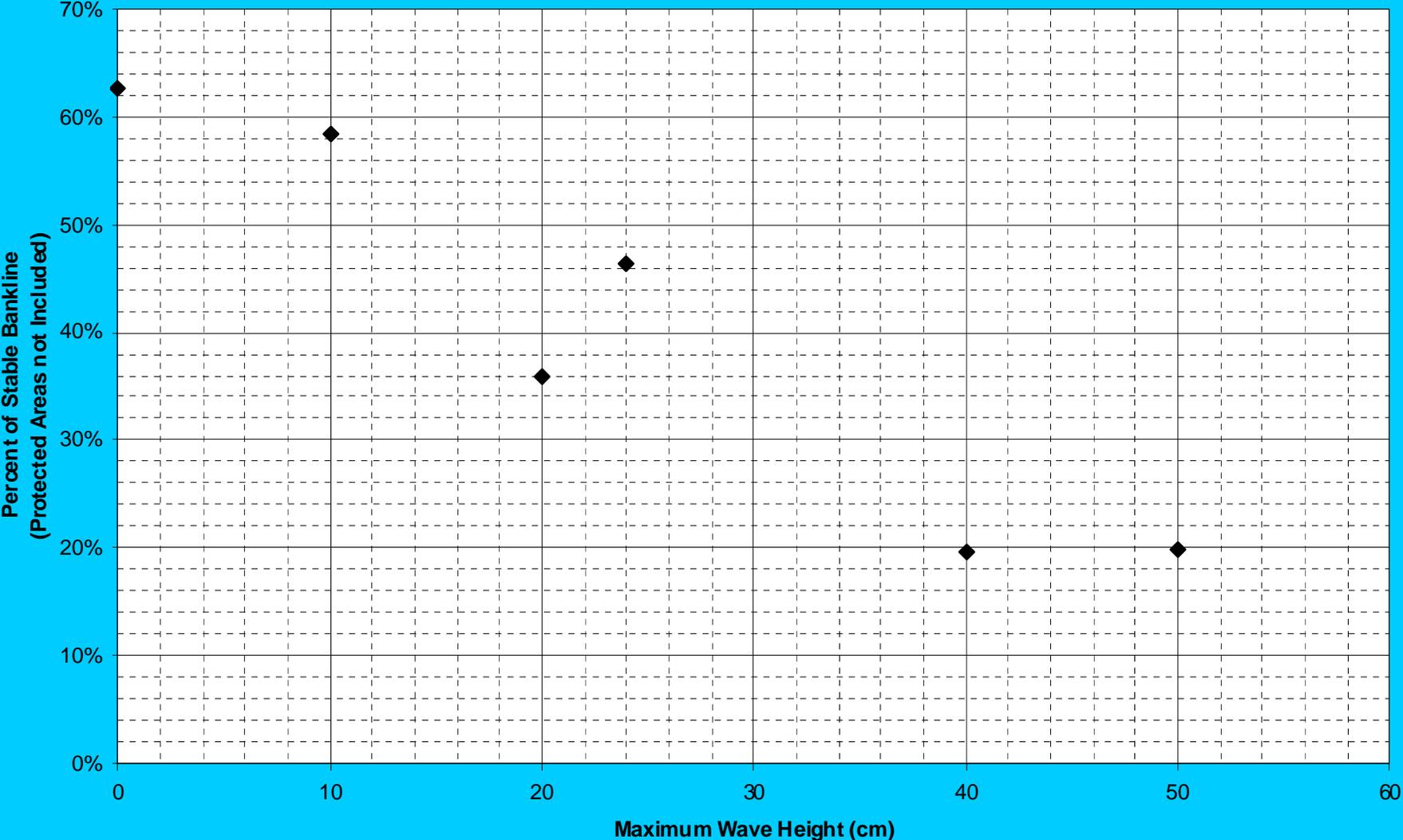
**Locations in part of
Pool 13 where
boat wake waves
may break aquatic
plants**



Percent of unprotected UMR banklines severely or moderately eroded vs. maximum recreational boat wake wave height



Percent of stable unprotected UMR banklines vs. maximum recreational boat wake wave height



Classification of UMRS bank erosion potential
by maximum height of waves (at the bank)
generated by recreational boats

Erosion Potential	Maximum Wave Height
High	> 35 cm
Medium	20 – 35 cm
Low	< 20 cm

Volume of Water Entrained Through Recreational Boat Propellers

$$E_V = D_P \times P_P \times S_P \times V_B \times T \times n \quad \text{where:}$$

E_V = Volume of water entrained

D_P = Propeller diameter

P_P = Propeller pitch

S_P = Propeller slip

V_B = Boat speed

T = Time

n = Number of boats

Estimated volumes of water entrained through recreational boat and towboat propellers on the UMRS during April through August in year 2000

River System	Water Entrained Through Recreational Boats (m ³)	Water Entrained Through Towboats (m ³)
Upper Mississippi River (impounded reach)	7.45×10^9	4.13×10^{10}
Illinois Waterway	1.15×10^9	1.50×10^{10}
Open River	--	7.74×10^9







Redneck Swimming Pool



Attachment 3

BIOGRAPHICAL COL. WILLIAM J. BAYLES

District Engineer
US Army Corps of Engineers – Rock Island District

30th Meeting of the NECC
September 18 and 19, 2000

Attachment 4

INDUCED DEVELOPMENT ANALYSIS OF RIVERSIDE DEVELOPMENT ATTRIBUTABLE TO POTENTIAL IMPROVEMENTS ON THE UMR & IWW

Presented by

Laura Abney

Economist

US Army Corps of Engineers – Rock Island District

30th Meeting of the NECC
September 18 and 19, 2000

Induced Development

Analysis of Riverside Development
Attributable to Potential
Improvements on the UMR &
IWW

Background

Completed in support of the
Upper Mississippi River- Illinois
Waterway Navigation Study

Port Series Data

- 778 Commercial Docks
- Used for fueling, fleetting, cleaning and repairing
- 453 (58%) used for shipping and receiving

Densely Developed Areas

- Urban Areas with a greater degree
 - Chicago
 - St. Louis
 - Minneapolis/St. Paul
- Smaller Cities with lesser degree
 - Dubuque
 - Quad Cities-Rock Island, Moline, Davenport, Bettendorf

Larger Ports Data

- Port of Chicago
- 189 commercial docking facilities
- Over 1/4 of docks in study area
- 1/2 of docks on IWW
- St. Louis Vicinity
- 131 commercial docking facilities
- Area 7% of UMR but over 30% of facilities

Development Pattern Factors

- Width and depth of river
- Suitable landside geography
- Landside transportation options
- Existance of bridge
- Location in reference to sources and/or markets for commodities

Growth Information

- W/Out Project
 - Increase of 205 mill. Tons by 2050
 - farm products 60% of growth
- With Project
 - Increase of 228 mill. Tons by 2050
 - farm products 67% of growth

Observations

- Growth forecasted w/project is small compared to w/out
- Approximately 25% attributed to the project
- 80% of induced growth is in farm products (mostly corn)
- Majority of induced development on the UMR

Grain Terminal Development

- Grain Industry dominated by small number of large firms and vertically integrated
- Fewer, but larger terminals have higher % of barge grain movement
- Improvements of landside transportation

Grain Terminal Capacity

- Storage-most likely to be induced
- Mooring facilities-not likely effected
- Barge loading capacity-easily remedied with equipment modernization

Terminal Storage

- Utilization of existing capacity for 1/2 growth
- New facilities estimated at approximately 10 on the high end based on additional need and capital cost.

Conclusions

- Most advantageous locations utilized
- Development in areas of rehabilitation, modernization and expansion likely with or w/out project
- Only readily identifiable development is construction of grain terminals

Attachment 5

FLEETING ANALYSIS UPPER MISSISSIPPI RIVER-ILLINOIS WATERWAY SYSTEM NAVIGATION STUDY

Presented by

Laura Abney

Economist

US Army Corps of Engineers – Rock Island District

30th Meeting of the NECC
September 18 and 19, 2000

Fleeting Analysis

Upper Mississippi River-Illinois Waterway System Navigation Study



Rock Island District

Report Task

- **Identify existing fleeing conditions**
- **Predict magnitude of fleeing w/out project**
- **Predict magnitude of fleeing with project**



Current Fleeting Conditions

- 161 Fleeting areas along the Upper Mississippi River
- 42 along the Illinois Waterway



Rock Island District

Determinants of Fleeting Levels

- Level of barge traffic
- Proximity of terminals
- Arrival rate of towboats
- Departure rate of towboats
- Speed of barge turnover
- Limitations of available space



Rock Island District

Interviews from Fleeting Operators

- Navigational delays create surges in fleeting levels
- Increase barge turnover rate can reduce fleeting levels
- Nature of fleeting depends on location
- Consolidation of fleeting areas desirable for staging operations



Rock Island District

Conclusions

- **Without-project condition could contribute to increased demand for fleeting space**
- **With-project condition should decrease or remain unchanged demand for fleeting space**



Attachment 6

Questionnaire for Analysis of Induced Development and Fleeting Issues Upper Mississippi River – Illinois Waterway System Navigation Study

30th Meeting of the NECC
September 18 and 19, 2000

Attachment 7

STATUS OF ADAPTIVE MITIGATION PLANS

Presented by

Rich Fristik

Biologist

US Army Corps of Engineers – Rock Island District

30th Meeting of the NECC
September 18 and 19, 2000

Attachment 8

ENERGY, EMISSIONS, AND SAFETY IMPLICATIONS OF WATERWAY INVESTMENTS

Presented by

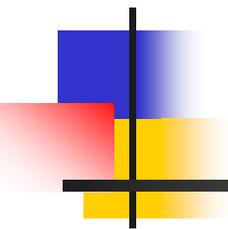
Jack Carr

Economist

US Army Corps of Engineers – Rock Island District

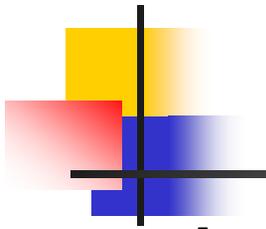
30th Meeting of the NECC
September 18 and 19, 2000

Energy, Emissions, and Safety Implications of Waterway Investments

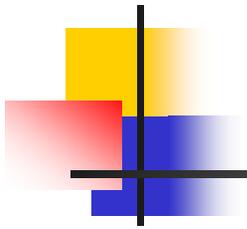


Analysis of Ten Alternatives for
Improvements to the Upper Mississippi
River-Illinois Waterway System

Description of Project Alternatives



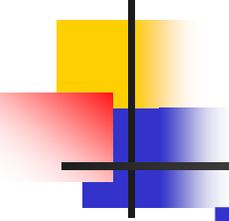
- A Mooring Cells at Lock Sites: 12, 18, 20, 22, 24
- B Mooring Cells at Lock Sites: 12, 18, 20, 22, 24 and Powered Kevel Guidewalls at Locks 20-25
- C Extend Locks 20-25 to 1200 Feet
- D Extend Locks 20-25 to 1200 Feet and Powered Kevel Guidewalls at Locks 14-18

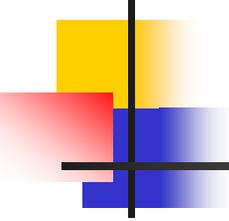


Description of Project Alternatives

- E Mooring Cells at Lock Sites: 12, 18, 20, 22, 24 and Extend Locks 20-25 to 1200 Feet and Powered Kevel Guidewalls at Locks 14-18
- F Mooring Cells at Lock Sites: 12, 18, 20, 22, 24 and Extend Locks 20-25 to 1200 Feet and Powered Kevel Guidewalls at Locks 14-18 and Peoria & LaGrange
- G Extend Locks 20-25 and 14-18 to 1200 Feet

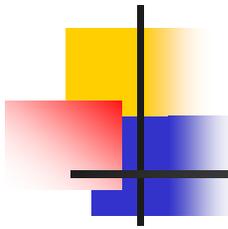
Description of Project Alternatives

- 
- H Extend Locks 20-25 to 1200 Feet and New 1200-Foot Locks at Peoria & LaGrange and Powered Kevel Guidewalls at Locks 14-18
 - I Mooring Cells at Lock Sites: 12, 18, 20, 22, 24 and Powered Kevel Guidewalls at Locks 14-18 and 20-25
 - J Mooring Cells at Lock Sites: 12, 18, 20, 22, 24 and Extend Locks 20-25 to 1200 Feet and New 1200-Foot Locks at Peoria & LaGrange and Powered Kevel Guidewalls at Locks 14-18



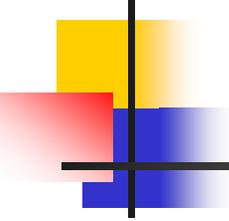
Overview

- Energy- change in fuel consumption & cost
- Emissions
 - Direct cost of compliance/abatement
 - Social (damage) cost
- Safety
 - Accidents, fatalities, injuries
 - Comprehensive costs
- Noise & Vibration
- Hazmat Costs- not included

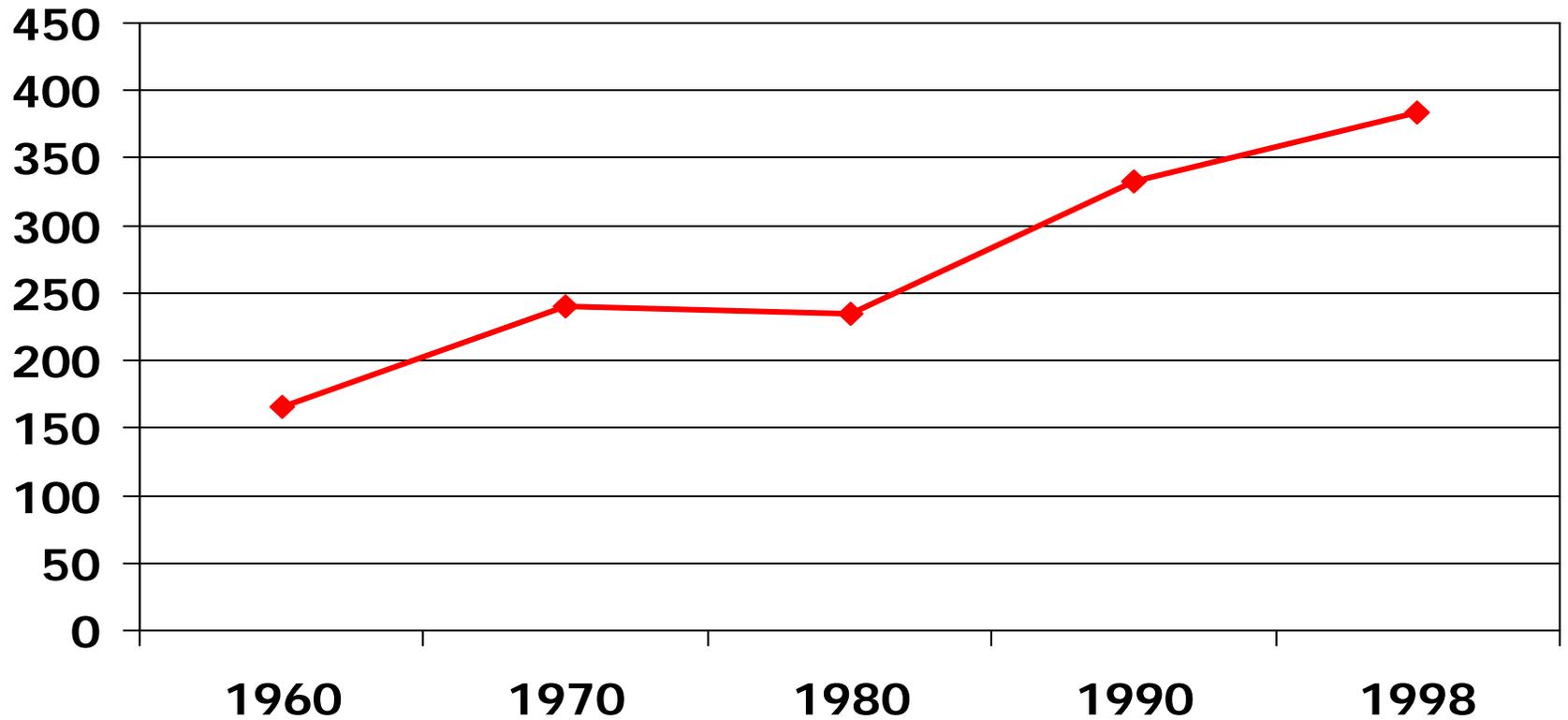


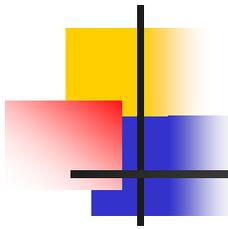
Review of Previous Work

- TRAC Study (08/96)- Accidents & Hazmat Spills
- University of Memphis (UM)
 - 04/98: Emission/Fuel Use
 - 09/98: Accidents & Hazmat Spills
- Corps of Engineers
 - Air Quality Impacts (09/99)
 - Accident/ Hazmat Spill Risk (01/00)



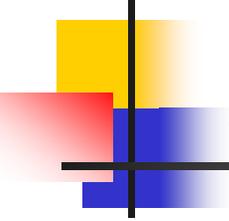
Rail Industry Trend in RTMG





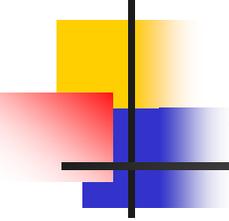
Emission Methodology

- Estimate change in gallons of fuel
- Multiply by emission factors from Corps study: approx. = 2035 EPA loc. Emissions
- Cost approach 1: direct cost of abatement {9.8 cents per lb}
- Cost approach 2: FHWA/HERS pollution damage costs



Accident Unit Costs

- Property Damage Costs
 - Railroad: FRA
 - River: U of Memphis Study
- National Safety Council (1998):
 - Cost of Fatality: \$3.01 million
 - Comprehensive cost
 - Injury: \$38,000



Limitations of Accident Analysis

- Assumes a relationship between ton-miles and accidents
- Does not consider interactive effects of auto and rail traffic
- FRA fatal and injury models use both rail and auto traffic estimates, plus crossing protection factors

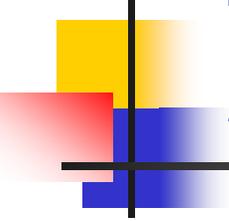


Table 27. Reduction in 2015 Fuel, Pollution, and Accident Costs (Using Pollution Compliance)

Alternative	Net Reduction in Annual Cost (in Thousands of Dollars)			
	Emissions	Fuel	Accident	Total Reduction
A	\$ 3.5	\$ 59.2	\$ 343.0	\$ 405.7
F	\$ 222.6	\$ 3,775.4	\$ 21,444.1	\$ 25,442.2
G	\$ 278.2	\$ 4,717.2	\$ 26,731.6	\$ 31,727.0
H	\$ 227.1	\$ 3,851.6	\$ 21,928.1	\$ 26,006.9
J	\$ 232.7	\$ 3,945.5	\$ 22,464.7	\$ 26,642.9

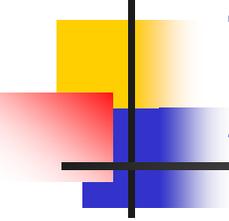


Table 28. Reduction in 2015 Fuel, Pollution, and Accident Costs (Using Pollution Damage Costs)

Alternative	Net Reduction in Annual Cost (in Thousands of Dollars)			
	Emissions	Fuel	Accident	Total Reduction
A	\$ 104.9	\$ 59.2	\$ 343.0	\$507.10
F	\$ 6,692.4	\$ 3,775.4	\$ 21,444.1	\$31,911.90
G	\$ 8,361.9	\$ 4,717.2	\$ 26,731.6	\$39,810.70
H	\$ 6,827.5	\$ 3,851.6	\$ 21,928.1	\$32,607.20
J	\$ 6,994.0	\$ 3,945.5	\$ 22,464.7	\$33,404.20