

CONCLUSIONS

The Toledo Harbor Pilot Project was a two year pilot project to demonstrate the effectiveness of using conservation tillage to reduce sediment delivery to the Toledo Harbor. The project used a locally led approach including county sediment committees, county sediment reduction strategies, and competitive grants to distribute available grant funds. Specific conclusions of the pilot project are:

1. **The project successfully demonstrated a delivery system which can be effective in accelerating the rate of application of sediment reduction practices within the Maumee Watershed.** Twenty two of the twenty five counties developed county sediment reduction strategies. The locally led process created public awareness of the harbor problem. The process resulted in locally committees taking ownership of finding solutions. The committees reported that actual changes were put into effect on the landscape. Collectively, the county sediment committees liked the local sediment committee approach and found it effective.
2. **The two year project did not provide enough time to demonstrate actual changes in the sedimentation rate in the harbor.** Actual sediment loading depends on year to year storm events and is highly variable. Additionally, there is expected to be a lag time between when sediment leaves the farm field and when it finally shows up in the harbor as it works its way through the drainage system in the basin. For this reason the measure of success has to be long term changes over a period of time. The two year project period was not sufficient enough time to demonstrate this.
3. **The project was effective in developing partnerships with others to amplify the sediment reduction efforts.** Over 44 different and distinct organizations participated by serving on the sediment committees and helping to develop and implement the strategies. Nine different types of organizations were represented on the committees, ranging from Federal, State and Local governments to private environmental groups and agribusiness organizations.
4. **NRCS and Soil and Water Conservation Districts invested considerable staff time in carrying out the project.** Each entity provided approximately \$140,000

worth of staff time to implement the project at the field office level. This amounted to 26 percent (13% each) of the total project expenditures.

5. **The process resulted in effective use of project funds.** Seventy-five per cent of the Corps of Engineers funding went to the county sediment committees to implement the sediment reduction strategies. Fifty-seven percent of the county grant funds were used for the highest priority practice of conservation tillage. The other funds were used to implement new and innovative ideas, including promotion of filter strips and conservation buffers.

6. **The project generated many innovative ideas for promoting conservation tillage and sediment reduction activities.** These included such things as:

- No-till equipment co-ops
- Invention of row dryer tools
- Strip tillage demonstrations
- Outreach to small farmers

7. **Conservation tillage trends increased in the Toledo Harbor Ohio Counties during the project period as compared to all Ohio Counties.** At the end of the two year project period the conservation tillage in the Toledo Counties exceeded the average for the state as a whole by 9%.

8. **Three separate analysis of conservation tillage trends were conducted as part of the project. In each analysis, conservation tillage rates in counties in accelerated project areas exceeded conservation tillage rates in similar non project counties.** The increases were:

Toledo Harbor counties vs non Toledo Harbor counties	9%
Section 319 counties versus non Section 319 counties	8%
Conservation Action Project (CAP) counties versus non CAP	15%

9. **The Lake Erie Agricultural Systems for Environmental Quality Study found that sediment concentrations in the Maumee River decreased by 20% as a result of application of best management practices over a twenty year period.** This independent study was conducted by Heidleberg College, Case Western Reserve University, and The Ohio State University.

10. **Based on extrapolation of the existing Ohio Conservation Tillage Transect Data, the progress (since 1992) towards the 130,000 cubic yard goal is 69,353**

cubic yards, or 53 per cent of the goal. A more detailed analysis of gross erosion is currently being updated and will be provided as an addendum to this report.

11. **A study by economists at The Ohio State university concluded that a 15 percent reduction in dredging would provide a present market value of reduced dredging costs worth \$1.3 million per year.** The study measured the savings in dredging only and did not place any value on other environmental benefits received such as improved recreation values or improved fish and wildlife habitat.

12. **As part of the project NRCS prepared a detailed conservation buffer analysis to determine the effect that widespread application of conservation buffers would have on sediment reduction in the Toledo Harbor.** The analysis found that:
 - Properly designed and installed buffers could trap as much as 25% of the sediment passing through them. The beneficial effects of buffers are very elastic when combined with the practice of conservation tillage.
 - Buffers and tillage interact in a synergistic manner.
 - Applying conservation buffer protection to 35 percent of the corn and soybean fields could result in 29,000 cubic yards of sediment reduction which would represent 20 percent of project goals. Approximately 68,000 acres of new conservation buffer practices would need to be installed to achieve this level of protection
 - Meeting reasonable goals for both conservation buffers and conservation tillage systems could result in exceeding project goals.
 - It is not likely that the project goals can be attained with either practice alone and by itself.

13. **Two types of buffer systems will be needed.** One is the commonly understood filter strip practice which is applicable to flat landscapes. A second and new practice which will be needed is wetland sediment traps which will be appropriate in the more rolling landscapes. Demonstrations are needed to gain experience in designing and constructing this practice. The demonstrations are also needed to refine the delivery and incentive programs which will be necessary for widespread acceptance and installation by landowners.

14. **Sediment modeling under the Water Resources Development Act will provide an opportunity to make more effective use of project funds but it will not replace the need for widespread adoption of conservation tillage and conservation buffers in the watershed.** The size of the watershed makes it very difficult and expensive to apply traditional watershed predictive models. The low erosion rates and large number of cropland acres will require a large percentage of the watershed to be treated.
15. **It would improve project efficiency to have additional sediment monitoring stations installed on watersheds where they do not now exist.** A complete set of long term sediment data by sub-watershed would help design a more efficient sediment reduction program. The Blanchard River Watershed, among others, is one major sub-watershed which is lacking is sediment loading data. Collecting actual sediment monitoring data for the major sub-watersheds appears to be more useful than computer modeling of the watershed.
16. **The project suffered from a lack of personnel, a lack of sufficient funds, and poor timing due to competition with other newly released USDA programs.** Future efforts will necessitate adequate personnel funding be provided as part of the project. While the new USDA programs competed with the pilot project, these new programs have now stabilized and the programs can be a valuable component of future project efforts if adequate personnel funding is available to implement them.
17. **Project communications needed to be improved and NRCS has taken steps to accomplish that.**
18. **The project was hindered in the beginning by a lack of up front funding.** Future projects need to include up front funding as part of the process order to allow NRCS and Soil and Water Conservation Districts to operate within agency authorities and laws.
19. **The recommended future Soil Conservation Program as a component of the LTMS, consists of three elements:**
 - Continued funding of the county sediment reduction committees and county sediment reduction programs.

- Acceleration of the conservation buffer initiative within the watershed.
- Establishment of a Toledo Harbor Trust Fund, modeled on the Lake Erie protection fund, to provide for long term project maintenance

20. **The recommended funding level for the future Soil Conservation Program is \$16.5 million. This includes:**

- Approximately \$9.5 million for the continuing the county locally led sediment reduction programs to promote conservation tillage and other sediment reduction practices.
- Approximately \$2 million for accelerating the conservation buffer initiative in the Maumee Watershed.
- Approximately \$5 million for a Toledo Harbor Trust Fund to provide long term maintenance.

Fifteen percent of the recommended funding for the locally led sediment reduction programs and the accelerated buffer program is designated for NRCS technical assistance to implement the program.

21. **The recommended source of this funding is redirection of dredging funds.** This mechanism of funding would utilize a user fee collected from those who benefit from protecting the harbor. An additional recommended source of funding is the 1996 Water Resources Development Act.

22. **The Natural Resource Conservation Service is recommended as the lead agency for implementing the locally led sediment reduction program and the accelerated conservation buffer program.** The lead agency for the Toledo Harbor Trust Fund is yet to be determined.

23. **NRCS and the conservation partners stand ready to implement a long term sediment reeducation program when and if a stable multi-year funding is provided.**