3. Total Value Scoping Focus Groups

3.1 Objective of TVS

The objective of the TVS focus groups was to provide qualitative information on the values people may place on a broad range of service losses (not just recreational fishing). The groups provide information that will be useful for restoration planning, which ultimately will mean identifying projects and their appropriates scales (magnitudes) to make the public whole for all losses. However, the TVS focus groups were not designed to monetize any service losses, nor to provide quantitative information on the scales of value-equivalent restoration projects.

Topics covered in the focus groups included the following:

- What information do individuals have about PCBs in the Kalamazoo River and how do they feel about PCB-caused injuries?
- What understanding and beliefs about PCB cleanup options do individuals have that may affect their feelings about PCB cleanup and tradeoffs among restoration alternatives?
- What understanding, interests, and concerns do people have about possible restoration alternatives?
- What types of information do people seek about PCB injuries and programs for any other restoration options, and how should that information be presented?

Stratus Consulting conducted four focus groups in Kalamazoo, Michigan, on November 6 and 7, 2001, with members of the general public. All written materials for the focus groups are provided in Appendix E.

3.2 Focus Group Development and Implementation

An inventory of potential PCB cleanup and other restoration project proposals for the Kalamazoo River NRDA was developed (see Appendix A). This project list was developed from a review of available documents and from contacts and conversations with individuals in both the public and private sectors from November 2000 through the end of March 2001. In obtaining this information it was emphasized that the intent of the work was to develop as much information as possible about potential restoration needs and opportunities in the Kalamazoo River area. As a result, a large number of potential options were identified to support better informed restoration

decisions in the future. These projects were then grouped into five general categories for discussion in focus groups:

- Improve recreational access and facilities associated with the Kalamazoo River
- Restore and protect wetlands and other natural areas
- Remove PCBs from the Kalamazoo River
- Remove existing sill-level dams from the Kalamazoo River and add a fish ladder to improve fish migration and boating
- Control nonpoint source loadings from urban and agricultural areas (runoff).

All five categories received equal consideration in the focus group materials (i.e., respondents did not know the study was motivated by PCB-caused injuries). Characterization of PCB injuries and the services affected by cleanup and other restoration actions, as presented in the focus group materials, was developed jointly with Trustees and in-house Stratus Consulting natural scientists, and stems from the list of projects in Appendix A.

3.3 Recruitment

Individuals were recruited by telephone to participate in the focus group sessions. The complete telephone recruitment script is included in Appendix E. Individuals were recruited using random digit dialing from areas within approximately ten miles of the Kalamazoo River. Telephone prefixes were identified for all zip codes within this area (some may extend slightly outside of 10 miles) and grouped into three categories: (1) the Kalamazoo metropolitan area, (2) other zip codes above Allegan Dam (referred to locally, and in the focus groups, as "Caulkins" Dam), and (3) other zip codes below Allegan Dam (all the way to Lake Michigan). Sampling quotas were set to equal the population proportions corresponding to the three groups, and individuals were recruited randomly from within these groups.

Respondents were recruited to discuss "a wide variety of programs to enhance the environment and natural resources in the Kalamazoo River valley." The telephone recruitment included a brief survey that collected information on participation in various recreational activities, attitudes about various issues affecting Michigan, and basic demographic information, including employment.

3.3.1 Response rate

After completing the telephone survey, respondents were invited to participate in one of the focus group sessions, unless they or any household member was employed by the MDNR, the MDEQ, a paper production company (Georgia Pacific, Allied Paper, Plainwell, or Fort James), or any environmental advocacy organization. Seventeen respondents were disqualified for employment reasons.

Several measures were taken to increase participation:

- An informational confirmation letter was sent to all participants, including a detailed map of the focus group site and driving directions
- Individuals were provided with parking permits and informed that they would be given snacks and drinks at the sessions
- Reminder phone calls were made before the sessions
- Participants who did not attend the Wednesday focus group session were contacted and invited to attend a Thursday session; three additional recruits were contacted on Thursday morning and agreed to participate (two actually attended)
- At the end of the session participants were paid $40.

Table 3.1 summarizes the response to the telephone survey and focus group response rates. Of the 105 individuals contacted by telephone, two-thirds agreed to participate in the focus group sessions. Of these, roughly half attended one of the sessions.[1] About one-sixth of those contacted were not invited to participate based on their employment status, and another sixth declined or were unable to participate at the designated times.

1. After the terrorist attacks of September 11, participation rates in focus groups in the fall of 2001 were notably lower nationwide. In another Stratus Consulting study that fall, 20 focus groups were conducted in 10 cities across the United States. The overall average show rate for those recruited was 55.6%. In the Midwest region (Madison, WI) the show rate was 55%. While a lower turnout rate affects the sample size and therefore the statistical confidence in the results, the sample sizes are large enough to make general inferences and to draw general conclusions, and there is no reason to expect bias in the responses.

Table 3.1. Telephone survey response rate

Respondent focus group participation	Number	Percent
Participated in telephone survey and focus group[a]	35	33.3%
Recruited but did not attend focus group	37	35.2%
Not invited to participate[b]	17	16.2%
Declined to participate	16	15.2%
Total	**105**	**100.0%**

a. There was a total of 36 focus group participants. One focus group participant was added during the Wednesday 5:30 p.m. focus group session and did not complete the telephone survey.
b. Of those not invited to participate, 10 were not invited because a household member was employed by an environmental advocacy organization (although this question may have been interpreted as "belonging to" or "supporting" such an organization), three because a household member was employed by a paper company, two because a household member was employed by the MDNR or MDEQ, and two because a household member was employed at DNR/DEQ and an advocacy group or a paper company.

3.3.2 Respondent demographics

Sampling requirements are less rigorous for focus groups than for mail, telephone, or in-person surveys of larger samples, but some attention should still be given to how representative the focus groups are of the underlying population. Table 3.2 provides a comparison of the distribution of age, gender, and household income for all telephone survey respondents. For comparison, sociodemographics for the subgroups of focus group participants and nonparticipants, as well as for the city and county of Kalamazoo, are also reported.

In general, the age and income distributions of the focus group participants and nonparticipants are similar. The age distribution of participants is also similar to that of Kalamazoo County. The focus group participants have incomes that were somewhat lower than the general population. The proportion of males participating in the focus groups was slightly larger than the proportion of males in either the city of Kalamazoo or Kalamazoo County; the group sessions were held at night.

Table 3.2. Sociodemographics of focus group participants, nonparticipants, and Kalamazoo area

	Phone survey respondents	Focus group				
		Participants	Nonparticipants		City	County
Kalamazoo area[a]						
Age						
18-25 years	24.2%	20.0%	26.7%	18-24 years	34.6%	20.1%
26-45 years	35.8%	34.3%	36.7%	25-44 years	33.6%	37.2%
46-65 years	31.6%	34.3%	30.0%	45-64 years	19.1%	27.8%
66-75 years	4.2%	2.9%	5.0%	65-74 years	5.6%	7.7%
Over 75 years	4.2%	8.6%	1.7%	Over 74 years	7.0%	7.3%
Gender						
Male	39.8%	57.1%	29.3%	Male	48.2%	48.3%
Female	60.2%	42.9%	70.7%	Female	51.8%	51.7%
Household income						
Michigan[b]						
Under $24,999	23.4%	22.9%	23.7%		18.6%	
$25,000-$49,999	31.9%	34.3%	30.5%		28.2%	
$50,000-$99,999	30.9%	28.6%	32.2%		36.2%	
Over $100,000	3.2%	2.9%	3.4%		16.9%	
Refused	6.4%	5.7%	6.8%			
Do not know	4.3%	5.7%	3.4%			

a. Age and gender data for Kalamazoo City and County were obtained from the U.S. Census Bureau's (2001) 2000 *Profile of Demographic Characteristics*. The Census age categories are slightly different than those used for this survey.

b. State-level income data from the 2000 Census and state, county, and city-level data from the 1990 Census were obtained from the U.S. Census Bureau's (2002) *American FactFinder* web site (2000 income data for cities and counties is not scheduled to be released until the summer of 2002). In 1990 Kalamazoo County had a median household income of $31,060, slightly higher than Michigan's median household income of $31,020. Kalamazoo City's 1990 median household income was $23,207. This pattern is reflected in the participant responses.

3.4 Implementation

3.4.1 Methods

Groups were led by a moderator (either Rich Bishop of the University of Wisconsin or Jeff Lazo of Stratus Consulting). Sessions were held at 5:30 p.m. and 8:00 p.m. on November 6 and 7, 2001, in a focus group facility on the campus of Western Michigan University in Kalamazoo. Each session lasted about two hours. Table 3.3 shows the number of participants that were recruited for and participated in each focus group. The individual indicated as "no group assigned" arrived late for the assigned session and was asked to complete the written handout materials in the reception area; this provided additional information for analysis without interrupting the flow of a group in progress.

Table 3.3. Recruits and participants by session

	Number of recruits	Number of participants
November 6, 2001 5:30	19	10
November 6, 2001 8:00	18	9
November 7, 2001 5:30	20	11
November 7, 2001 8:00	15	6
No group assigned	1	0
Total	**73**	**36**

3.5 Analysis

3.5.1 Telephone survey: Recreation and attitudes

The tables in this section compare the responses to questions for all focus group participants to nonparticipants. The telephone survey questions on recreational participation and attitudes on issues affecting Michigan were included to examine whether focus group participants were more avid outdoor enthusiasts with preferences different from those of nonparticipants. While these questions were not used to exclude people, they were useful in comparing participants with nonparticipants.

Table 3.4 reports the results from four questions on recreational activity. Respondents were asked whether they had participated in any of several recreational activities since January 1, 2001, including fishing; boating, canoeing, kayaking, sailing, or rowing; watching or photographing birds or other wildlife; and picnicking, walking, or other outdoor recreational activities. The results show that a large majority of the respondents from both groups had

Table 3.4. Participation in outdoor recreational activities since January 1, 2001

	Telephone survey respondents	Focus group		Test for difference between participants and nonparticipants	
		Participants	Nonparticipants		
Activity	**Percent participating**			**z-stat**	**Significant at $\alpha = 0.05$?**
Fishing	28.4%	28.6%	28.4%	0.02	No
Boating	45.1%	34.3%	50.7%	-1.59	No
Bird or wildlife viewing/photography	57.8%	48.6%	62.7%	-1.37	No
Hiking/picnicking	85.3%	91.4%	82.1%	1.26	No
Total number of activities participated in					
0	9.5%	5.7%	11.4%		
1	21.9%	37.1%	14.3%		
2	30.5%	20.0%	35.7%		
3	24.8%	22.9%	25.7%		
4	13.3%	14.3%	12.9%		

participated in at least one outdoor activity. Hiking and picnicking were the most popular activities. A test for significant difference between the recreation participation rates of the focus group participants and nonparticipants indicates that there is no significant difference for any category.

Table 3.5 reports the average response values for each of 10 issues affecting Michigan. A test for significant difference between focus group participants and nonparticipants indicates that there are significant differences for only the categories "improve schools in your area" and "increase local security against terrorism," where nonparticipants rated both issues as more important than participants did.

Respondents gave the highest average rating to the issue, "clean up PCBs and other toxics that threaten human health and wildlife in the Kalamazoo River Valley" and the lowest average rating to "create more local hiking and biking trails" (although this category still received a 3.31 average rating or higher on a 5-point scale). In general women rated these issues as more important than men did but ranked them in the same order.

In a related question, respondents were asked to identify what they thought was the single most important issue facing Michigan of the 10 issues in Table 3.5. Table 3.6 displays the results ranked in order from participants. The top-ranked issues for both groups tended to be nonenvironmental issues. Cleaning up PCBs was the top-ranked environmental issue for many people in both groups (ranked second by participants, fourth by nonparticipants). Other environmental issues were considered "most important" by relatively few people.

Table 3.5. Results for Question 7: Importance of 10 Michigan issues[a] (1 is "not important at all," 5 is "extremely important")

	Telephone survey respondents		Focus group				Test for difference between participants and nonparticipants	
			Participants		Nonparticipants			
	n	Mean (std. err.)	n	Mean (std. err.)	n	Mean (std. err.)	z-stat	Significant at $\alpha = 0.05$?
Clean up PCBs and other toxics that threaten human health and wildlife in the Kalamazoo River Valley	95	4.41 (0.09)	34	4.26 (0.18)	61	4.49 (0.11)	-1.11	No
Make state and local government more efficient	96	4.14 (0.11)	35	4.11 (0.20)	61	4.15 (0.13)	-0.14	No
Reduce crime in your area	96	4.27 (0.10)	35	4.03 (0.19)	61	4.41 (0.11)	-1.72	No
Encourage economic growth and jobs in your area	96	4.07 (0.11)	35	4.00 (0.20)	61	4.11 (0.13)	-0.47	No
Encourage household recycling	98	3.93 (0.12)	35	3.83 (0.20)	63	3.98 (0.15)	-0.63	No
Improve local roads and highways	96	3.80 (0.11)	35	3.83 (0.20)	61	3.79 (0.13)	0.17	No
Improve schools in your area	93	4.15 (0.10)	33	3.79 (0.21)	60	4.35 (0.11)	-2.40	Yes
Increase local security against terrorism	95	4.00 (0.12)	34	3.53 (0.25)	61	4.26 (0.12)	-2.65	Yes
Preserve and restore wetlands in your area	95	3.69 (0.13)	34	3.53 (0.25)	61	3.79 (0.14)	-0.89	No
Create more local hiking and biking trails	96	3.34 (0.12)	35	3.40 (0.22)	61	3.31 (0.15)	0.33	No

a. Sorted by focus group participants mean importance rating, not by order in which they were asked.

Table 3.6. Respondents' ranking of most important issues facing Michigan[a]

Issues	Phone respondents		Focus group			
			Participants		Nonparticipants	
	% most important	Rank	% most important	Rank	% most important	Rank
Encourage economic growth and jobs in your area	16.8%	2 (tie)	22.9%	1	13.3%	3
Clean up PCBs and other toxics that threaten human health and wildlife in the Kalamazoo River Valley	14.7%	4	20.0%	2	11.7%	4 (tie)
Improve schools in your area	17.9%	1	11.4%	3	21.7%	1 (tie)
Increase local security against terrorism	16.8%	2 (tie)	8.6%	4 (tie)	21.7%	1 (tie)
Reduce crime in your area	9.5%	5	8.6%	4 (tie)	10.0%	6
Create more local hiking and biking trails	4.2%	8	8.6%	6 (tie)	1.7%	9
Encourage household recycling	6.3%	7	8.6%	6 (tie)	5.0%	7
Improve local roads and highways	2.1%	9	5.7%	8 (tie)	0.0%	10
Make state and local government more efficient	9.5%	6	5.7%	8 (tie)	11.7%	4 (tie)
Preserve and restore wetlands in your area	2.1%	10	0.0%	10	3.3%	8

a. Sorted by rank reported by focus group participants, not by order in which they were asked.

3.5.2 Discussion of written focus group handouts

Introduction

Four written handouts were designed to guide individuals through a discussion of the topics. This section discusses each of the handouts, which are in Appendix E. Handout A is an introductory "warmup" question, Handout B asks general questions about the Kalamazoo River, Handout C asks about specific natural resource topics, and Handout D asks about funding. In analyzing the written responses for questions offering a "do not know" response category, the mean value is calculated without the "do not know" responses.

Handout A: Introduction

Handout A is simply a blank sheet that asks the respondent to list a few of the most important environmental issues in the area. An open-ended question such as this is an easy task to get the respondent started in the focus group process while other participants are entering the room. Another purpose of Handout A was to elicit individuals' concerns and issues about the environment before any discussion or prompting. This provides an unbiased perspective on what

environmental issues are important in the area and provides a preliminary understanding of the importance of PCB contamination relative to other issues in the region.

A simple count of the number of times topics were mentioned reveals several common issues. Participants provided 127 comments, and some listed up to eight concerns. Overwhelmingly, "rivers and lakes" was noted as an important environmental issue; 27 comments were about river and lakes (or waterways) or water quality in general with some relation to reducing pollution. Only three of these specifically commented on PCBs, and one commented on paper company wastes. Of these 27 comments, 13 were listed first on an individual's handout. Beyond these 27 comments, 7 more focused on drinking water quality and water conservation.

Twelve comments were made about air pollution (including global warming, which is a result of air emissions), and eight people listed urban sprawl or growth as an issue in the Kalamazoo area. Another eight comments were made about pollution in general terms, and six other comments were more easily categorized as general concerns about toxics.

Eight people entered comments best described as relating to wildlife in the Kalamazoo area. These included concerns about diversity and endangered species (including one suggesting deer population control). An additional five comments specifically listed wetlands as a concern (including one suggesting that perhaps there were too many wetlands). Four people commented on brownfields or "old nonused buildings" as a concern, five commented on groundwater or the water table, and five commented on recycling as a concern.

Thirty-two comments were not easily grouped with those above. These covered topics from asbestos to zebra mussels and included a few "nonenvironmental" issues such as school safety and casinos.

Handout B: The Kalamazoo River and its management

Handout B elicited information from participants on:

- Familiarity with the river
- Activity levels
- Recreational, natural resource, and environmental management actions they believe to be the most important
- Why these actions are important.

The handout contains a combination of closed-ended and open-ended questions. The questions were designed to elicit individuals' existing perspectives and preferences. Participants were shown a map with major cities, creeks, rivers, several dams, recreational areas, and other features before they were asked to answer the questions (see Handout B in Appendix E for the map). The moderators briefly discussed the map, pointing out the direction of river flow and that the Lake Allegan Dam is also called Caulkins Dam.

The first question asks about familiarity with the river in general. Table 3.7 shows frequencies and mean responses. Familiarity is highest for the river stretch near Kalamazoo, where most of the respondents live. Also, respondents tended to rate their familiarity higher for stretches closer to their homes. Responses of "not at all familiar" may be correlated with uncertainty in responses to subsequent questions that follow in the focus group and the reticence to commit to a level of knowledge in advance.

Table 3.7. Familiarity with the Kalamazoo River

B1 **How familiar are you with the following sections of the river?**

	Not at all familiar (1)	Somewhat familiar (2)	Very familiar (3)	Mean	Std. err.
Upstream of Battle Creek	23	9	2	1.38	0.10
Battle Creek to Morrow Lake Dam	19	10	5	1.59	0.13
Morrow Lake Dam to Allegan Dam (Caulkins Dam)	16	10	9	1.80	0.14
Allegan Dam (Caulkins Dam) to Lake Michigan	21	7	6	1.56	0.13

Individuals were then asked another closed-ended question regarding their activity levels in, on, or near the river over the past 5 years. Table 3.8 shows frequencies and mean responses sorted in descending order from most frequent to least frequent. The mean of the responses to this question does not provide a definitive ranking of the activity levels because the response categories are qualitative rather than quantitative. "Nonconsumptive" uses of the river such as walking, biking, jogging, watching birds or wildlife, and stopping to enjoy a view along the river dominate. Fourteen of 35 respondents indicated they used the river for fishing from a boat or shore, and of these only 5 ever ate fish from the river. Only one person indicated that he or she swam in the river.

Table 3.8. Respondent activities in or near the Kalamazoo River[a]

B2 **On average, over the past 5 years, how often have you personally done each of the following activities in or near the Kalamazoo River?**

	Never (1)	Occasionally (less than once a year) (2)	Sometimes (1-10 times a year) (3)	Frequently (11-20 times a year) (4)	Very frequently (20 or more times a year) (5)	Mean	Std. err.
Walking, biking, or jogging	12	6	10	4	3	2.43	0.22
Watching birds or wildlife	12	5	10	5	2	2.41	0.22
Stopping to enjoy a view along the river	10	9	12	1	3	2.37	0.20
Reading about or looking at pictures of the river or the surrounding natural area	9	11	13	1	1	2.26	0.17
Picnicking in a park along the river	13	9	9	2	0	2.00	0.17
Fishing from shore or a boat	21	8	5	1	0	1.60	0.14
Motor boating	24	7	3	0	1	1.49	0.15
Canoeing, kayaking, sailing, or rowing	22	10	3	0	0	1.46	0.11
Eating fish from the river	30	3	2	0	0	1.20	0.09
Swimming in the river	35	0	0	1	0	1.08	0.08

a. Sorted based on mean activity level from most to least frequent.

Question B3 asked individuals what actions, if any, they thought were most important to improve recreational opportunities in or near the Kalamazoo River. A total of 51 written comments were coded into one of five general categories.

The category coded as "recreational access" includes comments about more and better public access sites, including boat ramps, places to put in canoes, and fishing access. The "cleanup" category includes comments on stopping or reducing polluting, cleaning up trash, removing contaminants such as PCBs, cleaning up water so fish are safe to eat and it is safe for swimming, redeveloping abandoned buildings, and enforcing fines for polluting. "Paths and parks" includes comments about renovating existing parks, and providing bike paths, walking trails, and parks and associated facilities. The "information and education" category includes comments on

wanting more information on water quality and the status of the river, wanting more advertising about activities to do around the river, and raising public awareness. The "other" category includes comments on land use restrictions (keep out business and other shops within a radius of a couple of miles and monitor closely any construction along the river bank) and assigning responsibility for solving problems.

Table 3.9 shows the frequencies by comment category. The most frequent comments dealt with issues of cleaning up the river to improve recreational opportunities. Note that the question asked about improvements in recreational opportunities, and the largest number of responses related to cleanup of the river environment. The handout questions had not identified cleanup issues up to this point.

Table 3.9. Coding of open-ended responses to Question B3: "What actions, if any, do you think are most important to improve the recreational opportunities in or near the Kalamazoo River?"

Category	Number of mentions
Access (boat landings, put-ins)	10
Cleanup	20
Paths and parks	12
Information and education	5
Other	4
Total	**51**

Question B4 was an open-ended question asking individuals what actions they thought were most important to improve the natural resources in or near the river. A total of 42 comments were coded into nine categories: pollution control, cleanup, enforcement, habitat preservation or restoration, information and education, paths including more general recreation, shoreline and erosion control, other including land use controls, and do not know. Table 3.10 indicates the frequencies of the mentions by category in decreasing order of frequency. There was no mention of recreational access in response to this question.

The two most common comments related to cleanup of existing pollution and control of pollution. The third most commonly mentioned category related to preserving or restoring wildlife habitat. Some individuals stated that they felt they did not know enough or have enough information to be able to answer this question.

Table 3.10. Coding of open-ended responses to Question B4: "What actions, if any, do you think are most important to improve the natural resources in or near the Kalamazoo River?"

Category	Number of mentions
Cleanup	9
Control pollution	8
Habitat preservation or restoration	5
Information and education	4
Other — including land use controls	4
Enforcement	3
Paths including more general recreation	4
Do not know	3
Shoreline and erosion control	2
Total	**42**

When asked by the moderators whether recreation or environment was more important with respect to Questions B4 and B5, responses varied, with significant numbers favoring ecological improvements over recreational and vice versa. Many participants stated that the two issues are connected: "You can't have good recreation without a clean environment."

Question B5 listed eight natural resource issues related to the Kalamazoo River and asked individuals to indicate whether they were not at all aware, somewhat aware, or very aware of each issue. These issues are largely based on the topics that would be discussed in Handouts C and D. Table 3.11 reports frequencies and mean level of awareness about the eight natural resources topics related to the Kalamazoo River as elicited in Question B5.

Consistent with responses to prior questions and discussion during the focus groups, responses to Question B5 indicated that individuals are most aware of PCBs as an issue for the Kalamazoo River natural resources. Effects of PCBs and other toxic contaminants on fish and wildlife and on people who eat fish from the river ranked first and third, respectively, based on mean responses. The issue of trash and other debris ranked second. People are less aware of issues related to runoff, habitat loss, and shoreline access, and are least aware of shoreline erosion and barriers to fish migration. Thirteen of 36 individuals stated they were not at all aware of the dams and other barriers to fish migration.

As an open-ended probe following Question B5, individuals were asked to write in any other issues regarding the Kalamazoo River natural resources of which they were aware. In general few new topics were raised that had not been covered under the categories from Question B5 and

Table 3.11. Awareness of resource issues[a]

B5 **Below are a list of potential issues regarding the Kalamazoo River natural resources. How aware, if at all, are you with the following issues?**

	Not at all aware (1)	A little aware (2)	Very aware (3)	Mean	Std. err.
Risks to fish and wildlife from PCBs and other toxic contaminants in the river	3	13	20	2.47	0.11
Trash and other debris in the water and on the shorelines	3	14	19	2.44	0.11
Potential effects of PCBs and other toxic contaminants on people who eat fish from the river	4	16	16	2.33	0.11
Effects of municipal and agricultural runoff on water quality (clarity, odor, and safety for human contact)	5	16	15	2.28	0.12
Losses of fish and wildlife habitat (such as wetlands) near the river	8	14	13	2.14	0.13
Limited shore access and facilities for public recreational use	9	16	11	2.06	0.13
Shoreline erosion	7	20	9	2.06	0.11
Dams and other barriers to fish migration	13	19	4	1.75	0.11

a. Sorted based on mean awareness level from most to least.

that were directly relevant to natural resource issues in the Kalamazoo River basin. There was one mention of invasive species and one mention that water levels in the area may have been changing over the years. In addition two individuals mentioned controlling development as a natural resource issue.

Question B6 begins to explore individuals' attitudes toward costs of cleanup, tradeoffs between economic development and natural resource protection, and motivations for preservation. Responses on the first two topics are listed in Table 3.12, and responses about motivation are in Table 3.13. As suggested by responses to the question of cost, individuals seem to fall into two groups, those who generally "somewhat agree" and those who "somewhat disagree" that costs should be considered in choosing how much to cleanup. Only 4 of the 34 responses fell in the neither disagree nor agree response, and only another 9 fell in the strongly disagree or strongly agree. Responses to the second statement fell much more on the side of disagreeing, with 22 of the 35 responses (63%) falling in the strongly or somewhat disagree response categories.

Table 3.12. Attitudes toward costs of cleanup and economic development

B6 **Please rate how strongly you disagree or agree with the following statements.**

	Strongly disagree (1)	Somewhat disagree (2)	Neither disagree nor agree (3)	Somewhat agree (4)	Strongly agree (5)	Mean	Std. err.
Cost should be an important consideration in choosing how much to clean up and restore the natural resources in and near the Kalamazoo River	6	9	4	12	3	2.91	0.22
Sometimes economic development is more important than protecting natural resources	11	11	4	5	4	2.43	0.23

Table 3.13. Motivations for preservation of natural resources

B6 **Please rate how strongly you disagree or agree with the following statements.**

I want the natural resources in and near the Kalamazoo River protected and preserved for:	Strongly disagree (1)	Somewhat disagree (2)	Neither disagree nor agree (3)	Somewhat agree (4)	Strongly agree (5)	Mean	Std. err.
a) My family and me to use and enjoy now	3	1	5	11	14	3.94	0.21
b) My children and grandchildren to be able to use and enjoy	3	0	4	11	16	4.09	0.20
c) Future generations to use and enjoy	2	0	2	10	21	4.37	0.17
d) The benefit of nature, even if nobody uses the natural resources	2	3	0	10	19	4.21	0.21

Table 3.13 shows responses to the four statements focusing on individuals' motivations for protecting and preserving natural resources in the area. Two inferences can be drawn from these responses. First, among the participants, there was strong support for protecting and preserving the natural resource along the Kalamazoo River. Of the 137 total responses across the five response options, only 10 (7%) fell into the strongly disagree category and 4 (3%) in the somewhat disagree category. Second, participants were motivated to support protection and enhancement by both the benefits that people would receive in the near future from use and enjoyment and the benefits that would accrue to future generations and nature more broadly defined.

Looking at responses for particular individuals, only 1 of the 36 respondents agreed more strongly with protecting Kalamazoo River resources for current use than for future generations to use. Twenty-one believed that current use and future use were equally important, and 13 agreed more strongly with preserving the resources for future use than for current use.

In the terminology often used to discuss individuals' motivations for valuing and protecting natural and environmental resources, response option (a) would be considered direct current use; response (b) is for future use, often called a bequest value; response (c) is also future use, but from a more general altruistic motive rather than bequest for family; and (d) is largely an existence value motivation. The strongest motivations for protecting and preserving natural resources in the Kalamazoo River area are for future generations to use and enjoy (c) followed by the existence value motivation (d). Responses to this question strongly indicate that even though there is a significant use value for residents, as indicated by responses under (a), there is potentially an equally large or larger motivation to protect and preserve the resources for the future, both as a bequest and as an existence value.

Handout C: Kalamazoo River actions

Handout C focused on the five natural resource topics for the Kalamazoo River under the following headings:

- Outdoor recreational areas
- Wetlands and other natural areas
- PCBs
- Dams and other barriers to fish migration and boating
- Runoff from cities and farmlands.

The handout briefly introduces each of these topics and then asks a series of questions for later discussion. After the introductory text for each topic individuals were asked, "Before today, how much, if at all, have you seen, heard of, or read about [the topic for that section]?" Participants were then asked, "How important, if at all, is it to you that [action be taken on that topic in order

to reduce or control impacts]?" The quantity of information provided to individuals and the exact layout varied only slightly from topic to topic, and some topics included additional probes on specific issues related to the topic.

Table 3.14 shows response frequencies across all five topics to the question of how much had the respondents seen, heard , or read about the topic. Respondents could answer, "not at all," "very little," "some," or "very much." No one responded, "do not know." Table 3.14 presents the responses in decreasing order of mean level of prior information.

Table 3.14. Prior exposure to information on resource topics[a]

Before today, how much, if at all, have you seen, heard of, or read about . . .		Not at all (1)	Very little (2)	Some (3)	Very much (4)	Do not know	Mean (excluding do not know)	Std. Err.
C7	. . . PCBs and their impacts in the Kalamazoo River?	0	5	17	14	0	3.25	0.12
C14	. . . water pollution from runoff and its impacts?	2	6	17	11	0	3.03	0.14
C5	. . . the loss of wetlands and natural areas around the Kalamazoo River due to farming and land development?	3	10	16	7	0	2.75	0.15
C8	. . . fish consumption advisories in the Kalamazoo River?	7	7	12	9	0	2.66	0.18
C1	. . . the need to add facilities or acreage at existing parks or to open new parks and access?	5	16	14	1	0	2.31	0.12
C11	. . . these dams and impacts?	12	17	5	2	0	1.92	0.14

a. Sorted based on mean awareness level from most to least.

Individuals have seen and heard the most about PCBs and their impacts, and the results are statistically significantly higher than all other resource topics except water pollution from runoff. Statistical comparisons or average ratings were made on the basis of a standard two-sample test of means, using the computed means and standard errors in Table 3.14. No individual responded

that he or she had not heard of PCBs and their impacts at all. Even though all individuals had heard of PCB impacts, fewer had heard of the fish consumption advisories. After PCBs, people had seen, heard, or read the most about water pollution from runoff. The majority of individuals had heard only very little or some about any potential need for additional recreational facilities. Several individuals had never heard of the issues of the dams and their impacts on the river and its wildlife, and only two individuals had heard "very much" on the topic.

In each of the five sections on natural resource topics, individuals were asked how important, if at all, it was to them for action to be taken to improve conditions. Table 3.15 shows frequencies and means in descending order of overall importance. PCB removal received an average importance rating of 4.11 on the 5-point scale, with 29 of the 36 participants (81%) rating this as "very important" or "extremely important," even though some people made verbal comments about their uncertainty of the efficacy or cost-effectiveness of dredging. Removing PCBs to reduce their impacts on wildlife was followed by wetlands and habitat preservation and runoff pollution control. These three actions were rated statistically significantly higher than the other actions based on a two-sample test of means.

Individuals rated improving recreational opportunities, allowing anadromous fish to migrate further upstream, and removing the three partial dams as least important overall. Question C12 regarding the removal of the three partial dams received the largest number (four) of "do not know" responses of any question regarding how important potential actions were to individuals. Along with the lower revealed awareness of this issue, this suggests that individuals need more information about the ecological and recreational benefits of fish migration, and the importance of dam removal.

In the section on the importance of increasing recreational opportunities along the Kalamazoo River, individuals were asked, "Would you be likely to participate more often in outdoor recreational activities if these improvements were made?" Improvements consisted of adding facilities and acreage at existing parks or opening new parks and access. This question begins to explore whether individuals would make behavioral changes if natural resource improvements were made. Table 3.16 shows the frequencies to this question.

Forty-seven percent indicated that they would be likely to use the river more often for outdoor recreation if more opportunities were made available. One out of six was not sure. These responses suggest that use values are important for individuals and that a lack of access may be causing recreationists to substitute to different sites and activities.

Question C4 in the outdoor recreation section elicited comments on specific topics and locations for recreational improvements. The need for additional trails and paths, including hiking and biking trails, was mentioned most often. Wildlife viewing areas, boat and canoe launches and access, and parks were each mentioned less frequently.

Table 3.15. Importance of natural resource topics[a]

	How important, if at all, is it to you . . .	Not at all important (1)	Slightly important (2)	Moderately important (3)	Very important (4)	Extremely important (5)	Do not know	Mean (excluding do not know)	Std. err.
C9	. . . that PCBs be removed to avoid potential harm to birds, fish, and other wildlife?	0	2	5	16	13	0	4.11	0.14
C6	. . . to acquire, preserve, and restore wetlands and other wildlife habitat near the Kalamazoo River?	0	2	10	12	11	1	3.91	0.16
C15	. . . to control runoff in order to improve water clarity in the Kalamazoo River and reduce excess algae?	0	1	11	17	6	0	3.80	0.13
C2	. . . to increase recreational opportunities along the Kalamazoo River?	2	4	16	12	2	0	3.22	0.15
C13	. . . for trout, salmon, and pike to have a greater ability to migrate by opening a fish ladder and other means?	1	4	20	7	3	1	3.20	0.15
C12	. . . that the rest of the three partial dams be completely removed?	2	3	18	7	2	4	3.13	0.16

a. Sorted based on mean importance level from most to least.

Table 3.16. Behavioral response to recreational improvements

C3	Would you be likely to participate more often in outdoor recreational activities if these improvements were made?	
Go more often	**Go about the same, but enjoy it more**	**Not sure**
17	13	6

In the part of Handout C dealing with PCBs, Question C10 asked individuals how bothered they would be, if at all, if they learned that the effects of PCBs would last for 20 or 100 years into the future. This question begins to explore how individuals would respond to different PCB cleanup efforts leading to different durations of PCB impacts. One hundred more years of PCB impacts may be related to minimal cleanup and natural attenuation. Twenty years may result from an intensive PCB remediation program. Table 3.17 shows frequencies and mean ratings for the responses to Question C10.

Table 3.17. Response to temporal effects of PCBs

C10	How bothered, if at all, would you be if you learned that the effects of PCBs would last for:							
	Not at all bothered (1)	A little bothered (2)	Somewhat bothered (3)	Very bothered(4)	Extremely bothered (5)	Do not know	Mean	Std. err.
20 more years?	0	3	8	13	12	0	3.94	0.16
100 more years?	0	2	4	6	24	0	4.44	0.15

No one responded, “not at all bothered,” and no one responded, “do not know,” for either time frame. A total of 83% responded that they would be “very bothered” or “extremely bothered” by a 100 year time path of PCB impacts. Even with reducing the time to 20 years, 69% are still “very” or “extremely” bothered. While these results suggest that reducing the time frame of PCB effects has beneficial impacts, they also indicate PCB effects during the next 20 years are a major concern.

Following coverage of all five natural resource programs (outdoor recreational areas, wetlands and other natural areas, PCBs, dams and other barriers to fish migration and boating, and runoff from cities and farmlands), Question C16 asked participants to rank the five programs from least important (1) to most important (5). Table 3.18 shows these ranking in descending order of importance. Wetlands and habitat enhancement and PCB removal ranked first and second each, with 21 participants ranking these as the first or second most important issue; they are not statistically different. Runoff control ranked third, followed by recreational park enhancement. Recreation ranked statistically significantly lower than wetlands, PCBs, or runoff (which are not statistically different from each other). Dam removal ranked last, which may reflect that individuals have limited understanding of the issue.

Table 3.18. Ranking of natural resource programs[a]

C16 **Not all actions can be done at once. Based on what you know so far, how would you rank these five programs from least important to most important:**

	Not at all important (1)	Slightly important (2)	Moderately important (3)	Very important (4)	Extremely important (5)	Mean	Std. err.
Wetlands and habitat enhancement	2	4	9	10	11	3.67	0.20
PCB removal	5	5	5	8	13	3.53	0.24
Runoff control	2	10	8	10	6	3.22	0.20
Recreational park enhancement	13	7	4	4	8	2.64	0.27
Dam removal	10	9	10	3	3	2.43	0.21

a. Sorted based on mean importance level from most to least.

Handout D: Funding Kalamazoo River actions

Handout D further explores individuals' relative rankings and ratings of natural resource management priorities along the Kalamazoo River by introducing the concept of funding. Participants were asked how high a priority should be placed on funding a variety of actions. While this question does not elicit willingness to pay or specifically indicate who will bear funding responsibility, it does suggest implicitly that decisions on resource actions involve costs and that fiscal limitations may constrain options to address these issues.

Table 3.19 shows frequencies and mean responses for nine actions related to the five natural resource topics in descending order of mean priority for funding. General cleanup and pollution reduction rated the highest priority. Based on the discussions, the term pollution may have included the concept of PCB cleanup in some respondents' minds. This was followed by research and education related to the river ecosystem, protecting wildlife from PCBs, and removing PCBs to reduce FCAs. The four top actions all average between a "high priority" and a "very high priority." The three pollution/PCB related actions elicited no "very low priority" responses and no "do not know" responses, again suggesting the overall importance of reducing PCBs in the river ecosystem. Removing FCAs rated a "high priority" even though there were relatively few anglers in the focus groups. Rated sixth and seventh, respectively, of the nine

Table 3.19. Funding priorities for natural resource programs

D1 **If money were available, actions could be taken to improve the Kalamazoo River resources. However, there will never be enough money to do everything. Please tell us how high a priority should be placed on each of the following actions.**

	Very low priority (1)	Low priority (2)	High priority (3)	Very high priority (4)	Do not know	Mean (excluding do not know)	Std. err.
Reduce pollution and shoreline trash to improve the aesthetic quality of the river (e.g., odor, water clarity, visible garbage)	0	0	9	27	0	3.75	0.07
Support research and educational programs about the river ecosystem	2	1	7	25	1	3.57	0.14
Protect fish, birds, and wildlife from being harmed by pollution (including PCBs), even if the number of fish, birds, and wildlife is not increased	0	3	10	23	0	3.56	0.11
Remove PCBs so fish consumption advisories could be lifted	0	7	21	8	0	3.03	0.11
Increase the amount of natural habitat near the river	2	5	22	6	1	2.91	0.13
Increase and improve recreational access points and park facilities along the river	2	11	14	8	0	2.80	0.15
Enhance the state recreational and game areas near the river	3	14	13	6	0	2.61	0.15
Reduce barriers to fish migration and boating	3	14	13	6	0	2.61	0.15
Increase the numbers of fish, wildlife, and native plants	3	14	14	4	1	2.54	0.14

topics are improving river access for recreation and enhancing recreational areas. Ecological and pollution actions get much more support for funding.

3.5.3 Impressions from discussions in the focus groups

The focus groups also contributed much information through discussion. However, discussions in focus groups must be interpreted with caution. Often only one or a few participants will be heard on a given subject and one cannot be sure what other people were thinking. Additionally,

there is always the risk that oral statements will be misinterpreted. Still, in addition to providing people's views, concerns, and opinions on survey-like handouts, focus groups offer the opportunity to probe deeper into what people say and to explore issues and ideas that come up spontaneously.

In general, participants in the four focus groups that were conducted in Kalamazoo tended to think about environmental issues in three discrete groups (which was corroborated using factor analysis on responses to Question D1): (1) recreational actions, which include state recreational and game areas; (2) ecological actions, which include increasing wildlife populations, protecting wildlife, increasing habitat, reducing river barriers, and ecosystem education; and (3) pollution actions, which include reducing pollution in general and reducing PCBs to lift FCAs. They tended not to be adamant or overzealous about any one of these or any other particular environmental issues, and with few exceptions, the Kalamazoo River in its present condition did not seem to be central to their daily lives.

Respondents' statements during open-ended discussions revealed a very strong conviction that the Kalamazoo River has a contamination problem, with PCBs being the most significant source. The topics of PCBs often came up spontaneously. While most participants had some information or awareness about PCBs before reading the materials in the handouts, their knowledge about the ecological effects and potential human health risks associated with the chemical was often incomplete. After written comments were completed, a number of people, when questioned further, mentioned PCB cleanup as an environmental issue for the Kalamazoo River.

Several respondents noted that the PCB problem is just one of a number of environmental problems affecting the river, but there was also some vagueness about the sources of the problems. Overall there appears to be a perception that the river is dirty and needs to be cleaned up to improve recreational opportunities. The "dirt" includes PCBs, other toxins, and trash in general. Terms such as "paper mill waste" and "industrial waste" came up repeatedly; a number of respondents knew that PCBs are linked to the paper industry, although some said there are other sources of pollution problems besides the paper industry. A few individuals seemed to be confusing PCBs with other chemicals such as mercury and DDT.

Respondents openly supported the idea that polluters should pay to clean up the pollution they created, but many also believed taxpayers would ultimately bear most of the burden. However, many were uncertain about the effects and effectiveness of dredging or other cleanup methods. While participants were almost universally troubled by the presence of PCBs, many questioned whether cleanup would be effective and successful (and to what degree, relative to the costs of cleanup), and some were worried about collateral damage and making the problem worse. However, if these concerns were allayed, there is no question that a majority of participants would very much like to see the problem addressed.

Several individuals noted the river seemed cleaner than 10 or 20 years ago, but some people said that the river still has an odor. Only one or two participants said they had ever eaten fish from the river, and essentially no interest was expressed in swimming in the river under current conditions. The anglers noted that the fishing has been good, but that they practice catch-and-release fishing, or fish the Kalamazoo River less, because of the fish consumption advisories. As discussed in Chapter 2, there are many studies that show that anglers respond to contamination and FCAs by reducing the number of fish they eat, fishing less, and fishing at cleaner sites.

From a recreational perspective, participants tended to view the Kalamazoo River as an underutilized resource. Some individuals thought it has substantial potential as a recreational resource, especially now as compared to a decade or two ago when the river was much dirtier, but some still are dubious because they remember the past pollution problems.

Several people thought if access and facilities were better, more recreationists would visit and consequently would learn about and support cleaning up the river. However, a larger group felt that further cleanup took priority over enhancing recreational facilities: better environmental conditions are a prerequisite for expanded recreational opportunities. Overall, participants were in agreement that a cleaner environment and good recreation go hand in hand.

Participants showed interest in better access for recreation, more facilities (especially trails), and better information about access. Some access exists, but some individuals said that it was hard to locate and that lengthy stretches do not have good access. Several made specific recommendations for particular access improvements that also showed up in written comments. Several individuals tied these comments to the need to clean up the river if additional access is provided. The Kal-Haven Trail was noted by several individuals as a model for future paths and trails and as a base for expansion to other stretches of the river.

Participants showed a general awareness of the importance of wetlands, although many did not have a complete understanding of the services they provided. For example, some people were unaware of filtration and dilution services performed by wetlands; once someone mentioned these types of services, support for wetlands programs grew within the focus groups. In general, participants were much more in favor of preserving existing wetlands over restoring wetlands that had been drained previously. Some participants voiced reservations about how high a priority wetlands deserve, whereas others thought wetland programs were critically important to the environment of the Kalamazoo River valley.

Because of time constraints, discussion of runoff issues and nonpoint source pollution was limited. Nevertheless, awareness and support for controls were significant. Respondents characterized runoff pollution as an ongoing problem.

Without question, of the topic areas discussed, participants were least informed about sill-level dams. This potentially was reflected in the low levels of interest in and low priority ranking of dam removal. After reading the materials about fish migration and boater access, there was some interest in removal, but also much indifference and some reservations (although no significant opposition to removal). It was not clear whether the participants fully appreciated the service enhancements that would result from dam removal. Awareness was definitely limited regarding the connection between lowering the impoundments and the high PCB concentrations that reside behind them. Further, the implications of PCBs and other contaminants in areas that would be dewatered by dam removal were not fully comprehended.

3.6 TVS Summary

Focus groups are a qualitative research tool. They do not lend themselves to the same sorts of quantitative, detailed generalizations about the public's attitudes, knowledge, and values that one expects from a formal survey, but they can nevertheless be useful in gauging where the public stands in general terms. In this section, conclusions are drawn from the focus groups that should be useful in qualitatively evaluating service losses and in restoration planning under the Kalamazoo River NRDA.

It is clear that area residents are aware of and concerned about PCB contamination in the Kalamazoo River. They have a basic understanding of the problem, although they are not always aware of the details or have the details just right. They are quite troubled by the prospect that PCB effects could last even 20 more years, much less 100 years. Hence they would like to see the problem addressed, provided effective remedial procedures can be employed at reasonable cost. They see remediation as a potential way to benefit themselves, others alive today, future generations, and nature for its own sake. According to verbal comments in focus groups, they would like to see those responsible for the problem pay for cleaning it up.

To the extent that full remediation of contaminated sediments proves infeasible, the area residents are willing to consider other forms of compensatory restoration. Alternatives that seemed to appeal most to the group participants would involve either preservation of and, to a lesser extent, restoration of wetlands and other habitats or control of nonpoint source pollution.

Recreational facilities seemed less promising as a restoration strategy for two reasons. First, there was no general perception that current outdoor recreational facilities are grossly inadequate in quantity or quality. Second, there seemed to be a general feeling that recreational improvements are not very desirable along a river that remains contaminated by PCBs and otherwise degraded. Recreational improvements would be more attractive along a cleaned-up river. Pedestrian and bicycle trails and increased access stood out as possibilities for compensatory restoration.

A case for dam removal would be hardest to make among the alternatives that were considered. Area residents might or might not warm up to the idea if they knew more about it.

In considering restoration strategies, the relatively high priority placed on PCB cleanup needs to be kept in mind. While environment-enhancing actions such as wetlands restoration and runoff control had noteworthy importance rankings and were considered high funding priorities, PCB cleanup generally got as high or higher rankings.

A formal survey of Kalamazoo area residents could help flesh out in much more detail what combinations of PCB remediation and restoration actions would make the public whole. Such a survey would be feasible if it proved desirable in later phases of the NRDA process. The focus groups showed that area residents have the knowledge base about PCB contamination and restoration alternatives needed as a starting point for such a survey. However, gaps in public knowledge and misunderstandings of relevant facts mean that substantial information would have to be effectively supplied to potential survey respondents. This would require careful design and pretesting of the survey materials.

The results from this TVS study are consistent with certain questions on the same topics from another recent general population survey sponsored by paper companies in the Kalamazoo River valley. Not only does this other survey corroborate findings in the TVS study, it also provides useful new information on the knowledge, attitudes, and preferences of residents. A short summary of those results in presented in the next section.

3.7 Atkin General Population Survey Results

Charles Atkin (through the Communications Research Institute in East Lansing, Michigan) conducted a public opinion poll in 1998. This poll consisted of a telephone survey with 38 questions related to environmental issues involving the Kalamazoo River. While no sampling plan or record of the final disposition of telephone calls is available, the data show this study primarily targeted residents of the counties through which the Kalamazoo River runs. Of the 400 people who completed the survey, 384 were from Kalamazoo and Allegan counties, 7 were from St. Joseph County, and the 9 remaining reported no county. The median level of education for respondents was “some college,” the median age was in the 40s, about one-quarter of the sample had children under 10, and men and women were nearly equally represented.

The data and survey form were obtained from Triangle Economic Research in North Carolina. No data codebook was provided, so this analysis reflects the best understanding of the raw data and the questionnaire. The procurement of a codebook might make reanalysis of the data necessary, perhaps leading to different conclusions.

Residents of the counties near the river were aware of its pollution problems. Most (67%) thought the Kalamazoo River is somewhat or very polluted. Only three respondents felt it is very clean (and were terminated from the survey), 16% thought it is somewhat clean,[2] and 17% did not know. When asked what kind of pollution is in the river, about 40% of all respondents mentioned PCBs, chemicals, or toxic waste (14% explicitly mentioned PCBs). Respondents who did not mention one of these categories were prompted with the question, "Do you think there is chemical contamination in the river?" Of the respondents who answered this question, about 83% said they thought there was chemical pollution present. Therefore, overall about 71% of respondents think the Kalamazoo River is polluted with PCBs, chemicals, or toxic waste. Some respondents (30%) also mentioned paper waste polluting the river.

Most respondents think paper mills were responsible for chemical pollution in the Kalamazoo River. When asked who is responsible for this waste, 43% said paper mills/plants, without prompting, and an additional 33% agreed when specifically asked if they think paper mills polluted the river. However, only a very small number of respondents (less than 5%) could specifically name any of the individual paper mills in an open-ended question.

The majority (77%) of residents near the Kalamazoo River are concerned about the possible effects that may result from contamination of the river.[3] The reasons for their concern vary widely, as do their most important concerns. Overall, 58% are concerned about health issues (impure ground or drinking water, contaminated fish, cancer risk, safety of nearby residents, or risk to babies and children); 32% are concerned about hunting and fishing issues (fishing, contaminated fish, hunting, or contaminated waterfowl); and 10% were concerned about other recreational activities (boating, swimming, or tourism).[4]

Those concerned about contamination are more likely to be recreational users (21% of those concerned are users, whereas 14% of the unconcerned are users). Further, those concerned are more likely not to be using the river because of contamination (49% of those concerned are not using the river because of contamination, whereas only 10% of the unconcerned are not using the river for that reason).

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2. Those who think it is somewhat clean may be responding to aesthetic improvements to the Kalamazoo River, brought about by the Clean Water Act, that began to be seen in the early 1990s (James Dexter, MDNR, personal communication, 2002).

3. Note that the way the survey is worded, "contamination" could be interpreted to include all contaminants, not just PCBs.

4. These responses are based on an open-ended question. Note that respondents could report concerns in multiple categories, so percentages do not sum to 100%. This is also true for other questions where multiple responses are possible.

These concerns have affected recreational use patterns on the Kalamazoo River. The current level of contamination is preventing 39% of respondents from using the river. In the year before the survey, only 19% of all the respondents used the river for recreational purposes (9% fished, 11% canoed, boated, or swam, and 6% hiked or participated in other recreational activities). Of the 117 respondents who are specifically concerned about contamination effects on fish and fishing, 49% did not fish the Kalamazoo River in the prior year and 60% said the current level of contamination kept them from using the river. Of the 36 respondents who were concerned about boating and swimming, 81% did not swim or boat on the Kalamazoo River in the prior year, and 58% said the current level of contamination is keeping them from using the river.

Some respondents are also interested in improved access to the Kalamazoo River. When asked if they would be likely to use the river for recreation if additional sections were made more accessible, 29% said yes, 19% said maybe, and 35% said no (18% were not asked because they already use the river). Which "additional sections" would be made accessible is not specified and different respondents may envision different stretches being made more accessible. These stretches could be near to their homes, in a scenic area, or in a less polluted part of the river.

Only 53% of respondents think they know what PCBs are, but 73% believe PCBs are harmful. Most residents (62%) have heard about the FCAs and 34% have full or partial knowledge of which fish pose health risks. Awareness and knowledge are higher for those who use the river. Of those who recreated on the Kalamazoo River in the prior year, 73% had heard of the advisories and 48% had full or partial knowledge of which fish pose health risks. Of those who fished the river in the prior year, 81% had heard of the advisories and 57% had full or partial knowledge of which fish pose health risks.[5]

About half (49%) of all residents think the contaminants in the Kalamazoo River pose a cancer risk (33% do not know and 18% think there is no risk). These proportions are about the same for those who are aware and those who are not aware of the FCAs. Those who are aware and knowledgeable about the FCAs are slightly more likely to think the contamination poses a cancer risk (53% believe it does). While 16% of respondents think the risk is serious, about 27% believe the cancer risk to be "slight" or "mild." Another 6% believe there is a cancer risk, but do not now how serious it is. When asked if PCBs are harmful in an open-ended question, over one-quarter

5. Note the percentage of anglers who are knowledgeable about FCAs is larger here than in the KRRA study described in Chapter 2. This difference reflects the fact that the two studies focused on different populations. Atkin (1998) interviewed residents of eight counties near (or containing) the Kalamazoo River. He asked only about two seasons of fishing that year. From this partial data, only 37 respondents reported fishing. Of these, 81% said they had heard of the FCAs, but the question may have been leading: "Have you heard the advisory warning about eating fish from the Kalamazoo River?" These anglers are also likely to be less avid than the KRRA anglers because the KRRA study was an intercept survey, and the Atkin survey was a random-digit-dial telephone survey. See Appendix B for further discussion.

(27%) said no. Approximately one-third believe they are harmful, but do not know what harm might occur. Another 31% believe PCBs could increase cancer risk. Other categories of potential harm included risk to babies, risk to pregnant women, risk associated with eating contaminated fish or waterfowl, and other health-related and other responses.

Only 19% of respondents feel animals, birds, or amphibians are harmed by the contamination, but the large majority of that group believes the harm is somewhat or very serious. The types of wildlife (i.e., species) some respondents believe to be harmed include frogs, eagles, and, to a lesser degree, mink, muskrats, and other species.

Respondents clearly favor cleaning up the Kalamazoo River. The majority of respondents (71%) think the river should be cleaned up, only 17% feel it should be left alone, and 12% do not know. Moreover 81% of the respondents who fished (and 79% of the respondents who recreated) on the Kalamazoo River in the prior year want to see the river cleaned. Two-thirds of the respondents who said they were not concerned about the effects of the contamination also want to see the river cleaned.

Almost three-fourths (73%) are unaware of any efforts to clean up the river. In an open-ended question for those who had heard of cleanup efforts, the most frequent responses about what is specifically being done include Superfund, government projects, paper company activity, and other cleanup.

Respondents were asked if they were aware of a cleanup under way at Bryant Mill Pond near Portage Creek. Only 30% had heard of any cleanup, and of those, approximately 73% did not know any details about how cleanup would be done. An even smaller number (20%) had heard of plans to clean up paper company landfills in the Kalamazoo area and downriver, and of those, 72% did not know any cleanup details.

Respondents were asked in an open-ended question what type of river cleanup should be undertaken; they could make multiple responses. A number of approaches were mentioned by interviewees, such as stopping new emissions (mentioned by 27% of people who made comments); cleaning up nonchemical pollution along riverbanks, beaches, and wetlands (21%); filtration (3%); and testing (2%). “Whatever it takes” was mentioned by 11%. Comments on oversight, regulations, and research accounted for 20% of all comments. Dredging and removal of PCBs was mentioned over 10 times more frequently than waiting for natural processes to have an effect (21% versus 2%).

The Atkin survey also explored areas that were not covered by the TVS study. The Atkin study asked about where the public obtains information about the river, knowledge about which agencies play a role in remediation, views about potentially responsible parties, and the “reasonable cost” of cleanup.

Almost half of the respondents (49%) get information on pollution problems in the Kalamazoo River from a newspaper. Other sources of information are television, radio, government, and friends and family. The median number of days per week local newscasts are watched on television is three, and the median number of days the local newspaper is read is also three. Over half of respondents (53%) do not think they are getting enough information on Kalamazoo River pollution problems; 36% feel they are getting enough information, and 11% do not know.

Almost half of the respondents do not know which government agencies play a major role in studying and cleaning up the river. EPA was mentioned by 26% of respondents, and the MDNR was mentioned by 22%. Approximately three years before this survey was conducted, the MDNR was split into the MDNR and the MDEQ, so public recognition of the MDEQ may still have been low.

Respondents' general attitudes toward the paper companies tend to be neutral, with a slight tendency to view them unfavorably. The great majority of respondents (over 90%) do not know if the four paper companies identified as potentially responsible for some Kalamazoo River contamination (Allied Paper, Fort James, Georgia Pacific, and Plainwell) have agreed to pay for the cleanup process. When asked if these companies have acted responsibly in handling the problem so far, 44% do not know. Over twice as many respond no (31%) versus those who respond yes (14%), although 11% say the companies have acted somewhat responsibly. Residents were also asked if the different organizations involved in the Kalamazoo River cleanup process are credible sources of information. Government and citizen organizations were rated as "somewhat" to "very" credible, on average, while the paper companies were rated as significantly less credible, falling between "somewhat" and "not" credible. For example, over one-quarter of respondents rated the paper companies as not credible, while only 4% rated the MDNR as not credible and 7% rated EPA as not credible.

Finally, a survey question was asked about the respondent views of a reasonable cost of cleanup, and how many millions of dollars should be spent cleaning up the river. About half do not know. For the other half, the mean response was almost $30 million (with a standard error of the mean of $3.8 million).

3.8 Conclusions

The TVS focus groups were designed to qualitatively evaluate service losses due to PCBs and potential service gains from restoration projects. Results demonstrate that individuals are aware of PCBs, that they value service losses caused by PCBs beyond FCAs, that they are concerned about PCB contamination, and that PCB cleanup is a high priority. Of the other potential restoration actions considered, wetland protection ranked highest, recreational enhancements and dam removal ranked the lowest, and nonpoint source runoff ranked in between.

While the scope and size of the focus groups were small, the results are corroborated by the Atkin (1998) general population survey. The Atkin study reinforces conclusions about awareness of PCBs, the potentially harmful effects on people who eat fish, how to improve natural resources, and the type of cleanup that should be undertaken.