

Yellowstone River Cultural Inventory—2006

Part III: Big Horn River to Laurel

Research Team:

Susan J. Gilbertz, Ph.D.
Montana State University—Billings

Cristi Horton
Tarleton State University

Damon Hall
Texas A&M University

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Yellowstone River Cultural Inventory--2006 Preface

The Significance of the Yellowstone River

The Yellowstone River has a long history of serving human needs. Native Americans named it the Elk River because of its importance as a hunting environment. William Clark explored much of the river in the spring of 1806 and found it teeming with beavers. By 1906, the US Bureau of Reclamation was sponsoring diversion projects that tapped the river as a source of irrigation waters. The river then enabled “twentieth-century progress” and today it supports many nearby agricultural, recreational and industrial activities, as well as many activities on the Missouri River.

Management of the shared resources of the Yellowstone River is complicated work. Federal and state interests compete with one another, and they compete with local and private endeavors. Legal rights to the water are sometimes in conflict with newly defined needs, and, by Montana law, the public is guaranteed access to the river even though 84 percent of the riverbank is privately owned.

Interestingly, in spite of the many services it provides, the Yellowstone River in 2006 remains relatively free-flowing. This fact captures the imaginations of many people who consider its free-flowing character an important link between contemporary life and the unspoiled landscapes of the Great American West. As a provider, as a symbol of progress, as a shared resource, as a management challenge, and as a symbol of our American heritage, the Yellowstone River is important.

Purpose

The Yellowstone River Cultural Inventory—2006 documents the variety and intensity of different perspectives and values held by people who share the Yellowstone River. Between May and November of 2006, a total of 313 individuals participated in the study. They represented agricultural, civic, recreational, or residential interest groups. Also, individuals from the Crow and the Northern Cheyenne tribes were included.

There are three particular goals associated with the investigation. The first goal is to document how the people of the Yellowstone River describe the physical character of the river and how they think the physical processes, such as floods and erosion, should be managed. Within this goal, efforts have been made to document participants’ views regarding the many different bank stabilization techniques employed by landowners. The second goal is to document the degree to which the riparian zone associated with the river is recognized and valued by the participants. The third goal is to document concerns regarding the management of the river’s resources. Special attention is given to the ways

in which residents from diverse geographical settings and diverse interest groups view river management and uses. The results illustrate the commonalities of thought and the complexities of concerns expressed by those who share the resources of the Yellowstone River.

Identification of Geographic Segments

The Yellowstone River is over 670 miles in length. It flows northerly from Yellowstone Lake near the center of Yellowstone National Park in Wyoming. After exiting the park, the river enters Montana and flows through Paradise Valley toward Livingston, Montana, where it turns eastward. It then follows a northeasterly path across Montana to its confluence with the Missouri River in the northwestern corner of North Dakota.

Five geographic segments along the river are delineated for purposes of organizing the inventory. These five segments capture the length of the river after it exits Yellowstone National Park and as it flows through eleven counties in Montana and one county in North Dakota. The geographic delineations are reflective of collaborations with members of the Yellowstone River Conservation District Council and members of the Technical Advisory Committee and the Resources Advisory Committee.

Working from the confluence with the Missouri River towards the west, the first geographic segment is defined as Missouri River to Powder River. This geographic segment includes some of the least populated regions of the entire United States. This segment is dominated by a broad, relatively slow-moving river that serves an expansive farming community whose interests blend with those folks living along the seventeen miles of the Yellowstone River that traverse North Dakota. Here the Yellowstone River is also important as a habitat for paddlefish and Pallid sturgeon. At the confluence with the Missouri River, the size of the channel, significant flow and substantial sediment carried by the Yellowstone River makes its importance obvious to even the most casual of observers. Prairie, Dawson and Richland Counties of Montana are included in this segment, as well as McKenzie County, North Dakota.

The second geographic segment, Powder River to Big Horn River, is delineated to include the inflows of the Big Horn and Tongue Rivers as major tributaries to the Yellowstone River and to include the characteristics of the warm-water fisheries. This segment is delineated to recognize the significant agricultural activities of the area and the historical significance of the high plains cowboy culture. This segment includes Treasure, Rosebud and Custer Counties.

The third geographic segment, Big Horn River to Laurel, essentially includes only Yellowstone County, but it is a complex area. To begin, important out-takes near Laurel divert water to irrigations projects further east. Additionally, it is the one county along the length of the river with a sizable urban population. Billings is known as a regional center for agriculture, business, healthcare and tourism. This area is notable for its loss of agricultural bottomlands to urban development. Irrigation projects are important east of Billings, especially in the communities of Shepherd, Huntley and Worden. These

communities and Laurel also serve as bedroom communities to Montana's largest city, Billings. It is in Yellowstone County that the river begins its transition to a warm-water fishery.

The fourth segment, Laurel to Springdale, ends at the northeastern edge of Park County, Montana. The river in this area is fast-moving and it supports coldwater fisheries. While there is little urban development in this segment, there are some rather obvious transformations occurring as agricultural lands near the river are being converted to home sites for retirees and vacationers. The geographic segment includes Sweet Grass, Stillwater, and Carbon Counties.

The last geographic segment is defined as Springdale to the boundary with Yellowstone National Park at Gardiner, Montana and is within the boundaries of Park County. The river leaves Yellowstone National Park and enters Montana at Gardiner. It flows in a northerly direction through Paradise Valley and is fast-moving. It supports a cold-water fishery that is well-known for its fly fishing potential. Near Livingston, Montana, the river turns easterly and broadens somewhat thus losing some of its energy. However, severe floods occurred in 1996 and 1997, and local groups have since spent many hours in public debates concerning river management.

Recruitment of Native Americans

Native Americans also have interests in the Yellowstone River. They are active in maintaining the cultural linkages between their histories and the local landscapes. For the purposes of this study a number of Native Americans from the Crow tribe and the Northern Cheyenne tribe were included. Native Americans were recruited by means of professional and personal contacts, either as referrals from state agency personnel, from Resource Advisory Committee members of the Yellowstone River Conservation District Council, or from other project participants.

Recruitment of Geographic Specific Interest Group Participants

The participants represent a volunteer sample of full-time residents of the towns and areas between the confluence of the Yellowstone and Missouri Rivers in North Dakota and the town of Gardiner, Montana at the north entrance to Yellowstone National Park. Participants were recruited from four major interest groups: agriculturalists, local civic leaders, recreationalists, and residentialists living near the river. A database of names, addresses and contact information was constructed for recruitment purposes. Nearly 800 entries were listed in the database, representing a relatively even contribution across the four major interest groups.

Individuals representing agriculture interests, including farmers and ranchers, were identified and recruited from referrals provided by the local Conservation Districts, the Yellowstone River Conservation District Council and the Montana Office of the Natural Resources Conservation Service.

Individuals holding civic leadership positions, including city mayors, city council members, county commissioners, flood plain managers, city/county planners, and public works managers, were identified and recruited through public records.

Individuals who use the Yellowstone River for recreational purposes, including hunters, fishers, boaters, floaters, campers, hikers, bird watchers, rock hunters, photographers, and others who use the river for relaxation and serenity, were identified and recruited from referrals provided by members of the Resource Advisory Committee. Participants were also identified and recruited by contacting various non-governmental organizations such as Ducks Unlimited, Trout Unlimited, the Audubon Society and by contacting local outfitting businesses.

The names of property owners holding 20 acres or less of land bordering the Yellowstone River, or within 500 feet of the bank, were obtained through a GIS search of public land ownership records. Twenty acres was used as a screening threshold to separate people who lived along the river corridor but whose incomes were from something other than agricultural practices (residentialists) from those who were predominantly farmers or ranchers (agriculturalists). The names were sorted by county and randomized. Recruitment proceeded from the county lists. Other people living very near the river and whose primary incomes were not generated by agriculture were also recruited. These additional participants may not have had property that technically bordered the river and/or they may have owned more than 20 acres. In all cases, the recruits did not consider agricultural as their main source of income.

Participants were recruited by telephone and individual appointments were scheduled at times and meeting places convenient for them. Many interviews were conducted in the early morning hours and the late evening hours as a means of accommodating the participants' work schedules.

Participants in Yellowstone River Cultural Inventory—2006						
	GEO SEG I: Missouri River to Powder River	GEO SEG II: Powder River to Big Horn River	GEO SEG III: Big Horn River to Laurel	GEO SEG IV: Laurel to Springdale	GEO SEG V: Springdale to Gardiner	TOTAL IN GROUP
AGRICULTURAL	22	22	16	12	14	86
CIVIC	14	14	18	14	8	68
RECREATIONAL	15	16	16	13	16	76
RESIDENTIAL	15	11	16	15	19	76
GEOGRAPHIC SEGMENT TOTAL	66	63	66	54	57	
NATIVE AMERICAN						7
PROJECT TOTAL						313

A total of 313 people participated in the project, including 86 representatives from agriculture, 68 representatives in local civic roles, 76 representatives of recreational interests, 76 residentialists and seven Native Americans. A relatively equal representation was achieved in each geographic segment for each interest group.

Description of Interviews and Collection of Participant Comments

A master protocol was designed from questions provided by the US Army Corps of Engineers and approved by the Office of Management and Budget (OMB approval # 0710-0001; see example in the appendix to this volume). Questions were selected that would encourage participants to describe the local environs, their personal observations of changes in the river, their uses of the river and any concerns they may have had about the future of the river as a shared resource. Open-ended questions were used as a means of encouraging participants to speak conversationally.

The questions were adapted to the participants' interest groups. For instance, interviews with agriculturalists began with the question, "How many years have you been in operation here?" while local civic leaders were asked, "How many years have you lived in this community?" Similarly, agriculturalists were asked, "Are there any problems associated with having property this close to the river?" and local civic leaders were asked, "Are there any problems associated with having private or public properties close to the river?" The overriding objective of the approach was to engage the participants in conversations about the river, its importance and their specific concerns.

Participants were promised confidentiality, and open-ended questions were asked as a means of encouraging the residents to talk about the river, the local environs and their personal observations and concerns in their own words. All respondents were interested in talking about their perspectives, and they represented a variety of views of the river, including: farming, ranching, agricultural science, commercial development, recreation, civic infrastructure, environmental activism, historical views and entrepreneurial interests.

With only three exceptions, the interviews were audio-recorded and verbatim transcripts were produced as records of the interviews. In the other three cases, hand-written notes were taken and later typed into an electronic format. The total resulting interview data totaled approximately 2,700 pages of interview text.

Steps of Data Analysis

The content of the interview texts was distilled by way of analytical steps that would retain geographical and interest group integrity.

Segment-Specific Interest Group Analyses: Taking all audio-recordings, transcripts, and field notes as the complete data set, the research group first set out to determine the primary values and concerns for each geographic segment-specific interest group. The team began with the four interest groups from the segment Springdale to Laurel. Team

members read individual interview transcripts and determined a core set of values and concerns for the individuals represented. As a team, notes were compared and a combined outline of values and concerns was constructed for each interest group in the geographic segment. Quotes were then taken from each transcript in the set to illustrate the particular values and concerns.

Outlines of the interest group analyses for the Springdale to Laurel segment were then used as aids in constructing the interest group analyses in all other geographic segments. Care was taken to adapt the interest group analyses to highlight if, and when, the core values and concerns were different in each geographic segment. The Native American perspective was addressed as an individual analysis with attention to the specifics of those perspectives. Each of the 21 segment-specific interest group analyses was then illustrated with quotes from interviews.

21 Segment-Specific Interest Group Analyses

	GEO SEG I: Missouri River to Powder River	GEO SEG II: Powder River to Big Horn River	GEO SEG III: Big Horn River to Laurel	GEO SEG IV: Laurel to Springdale	GEO SEG V: Springdale to Gardiner	TOTAL IN GROUP
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Segment-Specific Geographic Summaries: A summary of the values and concerns for each geographic segment was constructed using the sets of four geographic-specific interest group analyses. Geographic summaries were written to reflect the concerns that crossed all interests groups of the segment, either as points of agreement or disagreement, and were illustrated with quotes from the four relevant interest group analyses.

5 Segment-Specific Geographic Summaries						
	GEO SEG I: Missouri River to Powder River	GEO SEG II: Powder River to Big Horn River	GEO SEG III: Big Horn River to Laurel	GEO SEG IV: Laurel to Springdale	GEO SEG V: Springdale to Gardiner	TOTAL IN GROUP
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River-Length Interest Group Summaries: River-length interest group summaries were constructed for each of the four primary interest groups. For example, agricultural concerns from the five geographic segments were compared and quotes were taken from the segment-specific interest group reports to illustrate commonalities and differences. Similar reports were constructed for local civic leaders, recreationalists and residentialists.

4 River-Length Interest Group Summaries						
	GEO SEG I: Missouri River to Powder River	GEO SEG II: Powder River to Big Horn River	GEO SEG III: Big Horn River to Laurel	GEO SEG IV: Laurel to Springdale	GEO SEG V: Springdale to Gardiner	TOTAL IN GROUP
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Organization of the Reports

Overall Summary of the Yellowstone River Cultural Inventory—2006: An overall summary of the inventory was written as a means of highlighting the values and concerns that cross interest groups and geographic segments. The segment-specific geographic summaries and the river-length interest group summaries were used as the bases for the overall summary. This report is by no means comprehensive. Rather, it is written to encourage further reading in the reports of each geographic segment and in the interest group reports.

Part I: Missouri River to Powder River: This volume includes the geographic summary for Missouri River to Powder River and the four relevant interest group reports: agricultural, civic leader, recreational, and residential.

Part II: Powder River to Big Horn River: This volume includes the geographic summary for Powder River to Big Horn River and the four relevant interest group reports: agricultural, civic leader, recreational, and residential.

Part III: Big Horn River to Laurel: This volume includes the geographic summary for Big Horn River to Laurel and the four relevant interest group reports: agricultural, civic leader, recreational, and residential.

Part IV: Laurel to Springdale: This volume includes the geographic summary for Laurel to Springdale and the four relevant interest group reports: agricultural, civic leader, recreational, and residential.

Part V: Springdale to Gardiner: This volume includes the geographic summary for Springdale to the boundary with Yellowstone National Park and the four relevant interest group reports: agricultural, civic leader, recreational, and residential.

Research Team and Support Staff

The project was directed by Dr. Susan J. Gilbertz, Montana State University—Billings. She was aided in data collection and data analyses by Cristi Horton, Tarleton State University and Damon Hall, Texas A&M University. Support staff included: Amanda Skinner, Amber Gamsby, Beth Oswald, Nancy Heald, Beth Quiroz, Jolene Burdge, and John Weikel, all of Billings, Montana.

Big Horn River to Laurel: Geographic Segment Overview

Interviews in the geographic segment Big Horn River to Laurel were conducted July 7-17, 2006. A total of 66 interviews were conducted, including individuals with agricultural, civic, recreational, or residential interests as their primary concerns.

Participants in Yellowstone River Cultural Inventory—2006						
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Big Horn to Laurel: Geographic Segment Summary

Bureaucracy is a tool that you can either use to your advantage or disadvantage. The fellow that [complains] probably doesn't realize the benefit he's getting from these layers of bureaucracy. (Yellowstone County Local Civic Leader)

Introduction

The study segment Big Horn to Laurel includes data from the people of one large county: Yellowstone County. Three themes dominate conversations with the four interest groups. One theme focuses on the evolving communities of Yellowstone County, most of which are influenced by the economic success and sheer growth of Billings. The second theme focuses on the evolving relationships that the people have with the river. While traditional agricultural activities continue in the county, many people discuss notions related to urban and residential experiences and how the river becomes an asset that improves one's quality of life as an urban dweller. The third theme involves a complex tangle of pressures and demands that require managerial strategies capable of dealing with a future that has arrived.

Evolving Communities are Dominated by Urban Growth

Agricultural activities are recognized as the primary transformative force in the valley. Yet, agricultural activities are seldom mentioned without references to other river-dependent activities and services:

It is a very productive area, producing excellent crops on land irrigated out of the Yellowstone River. If it wasn't for the Yellowstone River, there wouldn't be anything here but desert. *(Yellowstone County Agriculturalist)*

Because of irrigation in this valley, this valley has changed tremendously from what it was in the 1870s....This whole valley was an alkaline flat....There was a nice riparian area, because the Yellowstone is a wandering river, but it was probably a mile wide at its most. Now it is ten miles wide. *(Yellowstone County Local Civic Leader)*

[The river] is the lifeblood of the valley....It keeps a lot of farmers in water and able to grow crops and it's a good source of recreation....I have a boat that was made for river use; it's got a jet on it. And I'd rather boat any day on a river than on a lake. It's just so much more fun. It provides a lot of habitat for wildlife that is fun to watch and fun to hunt....Fish are fun to eat and catch. So it's a wonderful thing for this valley. *(Yellowstone County Residentialist)*

Some people question whether or not agricultural practices, some of which were adopted at the turn of the previous century, are adequate today:

Most of the irrigation projects in Montana were built around...1900 to 1920. They're over 100 years old and they're still operated [today as]...they were when they were built, say in 1910....They're operated very, very inefficiently. There is much more water diverted than is really needed to water the crops. That tends to dewater the river. There's much more water returned to the [river] than needed...and that water is usually laden with silt and Ag chemicals, pesticides, nutrients and so forth....And I'm not anti-agriculture at all. I mean, I don't want to come across as hypocritical at all. I eat the meat and I appreciate it. But I think there are some gross inefficiencies in operation, and that unfortunately degrades the quality of our river. (*Yellowstone County Recreationalist*)

One of the things we hope to see happen...is modernized irrigation practices....Most of the farmers are using 1,000-year old irrigation [methods]....In this hot weather, [they] put as much water on those crops as they can, and they over irrigate in spots and so it carries away silt [and] chemicals back into the river. (*Yellowstone County Recreationalist*)

Others note improved awareness of potential problems with agricultural practices and question whether or not agriculture is used as a scapegoat for larger issues:

Some of the nitrogen probably gets in the water table because it goes down pretty fast. Phosphorous hangs with the soil a while. We use the waste water again when it comes through the drains. We use the same water twice. (*Yellowstone County Agriculturalist*)

The biggest problem that I think is going to be faced on the Yellowstone is ignorance of the natural process, and bad practices. They blame everything on the farmer and rancher. Well, there aren't many left....Those guys [still farming] are getting old, and they're selling off. (*Yellowstone County Agriculturalist*)

As important as the comments regarding agricultural activities are, conversations quickly turn to the other industries and activities supported by the river, especially as they are related to the growing urban center. Billings is the largest community in Yellowstone County, and everyone realizes the town has played an important regional role for years:

[This area] has always provided jobs. My grandparents came here with the railroad. My dad met my mother and moved here from Butte....They stayed here [because of work]....With the refineries, the railroads and the medical corridor, there...[are] jobs available, and I think that is what's real distinct. (*Yellowstone County Local Civic Leader*)

We are the largest metropolitan area between Spokane, and Minneapolis, and Calgary, and Denver, and Salt Lake....Our medical corridor will continue to

grow...[because of] that whole bubble of the generations that are retiring [here]...Businesses that need transportation [locate here]...[and] retail businesses [do well because] you've got people. (*Yellowstone County Local Civic Leader*)

Outlying communities, such as Laurel, Worden and Shepherd, are becoming bedroom communities for Billings, and in some areas the agriculturalists are aware that the increasing land values are not compatible with agricultural activities:

The place right next to me sold to a doctor from Billings. He bought up the land, inflated the prices...[and now a farmer] can't buy land....The outlook hasn't been real good on farming for the last few years....The land is too expensive, and the cost is too high to try to farm. (*Yellowstone County Agriculturalist*)

The local understandings of what it means to have such vibrant, or some might say high-pitched, activities driving the evolution of the valley are of particular interest. Within these understandings, people begin to mention the many concerns they have about the demands placed on the river:

Down around Columbus, you start getting into row crops, and corn, and beets, and into a lot more expensive land—a lot more productive land....We've got to protect some of that. Urban sprawl is taking that out. (*Yellowstone County Agriculturalist*)

[The river] is huge for agriculture, but it is huge for economic development, too. We have three refineries, and...the Montana Power generation plant takes water. Nothing works around here without water. (*Yellowstone County Local Civic Leader*)

The river has to change. As Billings grows, and Laurel grows, and everything else grows, our water supply comes out of the Yellowstone River [and the river has] got to go down....[But, in terms of] habitat, it's essential that the river rise, that floods sub-irrigate [the] ground and create the nesting habitat for...ducks and geese....It has to do its natural flooding. But if we keep drawing more and more water out of it, it's going to change the natural habitat. (*Yellowstone County Recreationalist*)

The first people that should have the opportunity to use water are those that are fighting things like wildfires....Second are the municipalities, and their water systems, so the public has drinking water....Third are the farmers. You know, that's their lifeblood for...irrigation and stuff. And then you finally get down to the rest of it. (*Yellowstone County Residentialist*)

Municipal water uses are sometimes compared to agricultural uses:

[Billings takes] about 24 million gallons a day, peaking at over 50 million in the summer and down to about 15 to 16 million in the winter....We aren't even a pipsqueak compared to irrigators....We return 75 percent of it to the river [and] another 10 to 15 percent is returning to the aquifer. Ok, so we've evapotranspired 15 percent, but we've gained great things from that. (*Yellowstone County Local Civic Leader*)

[Laurel] uses a maximum of seven million gallons of water a day and our intake is designed for 20 million per day. We have good excess capacity. Informally we have talked to the City of Billings about selling them water....[Laurel has] the second water right on the [entire] Yellowstone River, so the chances of us not having water accessibility are very remote. (*Yellowstone County Local Civic Leader*)

Some assume that the capacity for growth is, or will be, limited by the availability of water and that contentious situations are sure to arise out of attempts to share this limited resource:

My elders always told me, 'Whiskey was for drinking and water was for fighting.' I think it's true....When you have the amount of people...and the amount of land that is good land, the only thing that's going to prevent that from being developed is the use of water....Right now there are opportunities for development that are being held back until you find the proper mix of how you are going to supply water....Water holds the key. (*Yellowstone County Local Civic Leader*)

You do have all the industry, too. There's an awful lot of industry that's down by the river that creates not exactly what you would call pleasing environments....Yet it is part of our culture. I guess we all have to be a little tolerant of everybody else, because we can't have everything our own way. (*Yellowstone County Recreationalist*)

If it wasn't for the Yellowstone River the City of Billings wouldn't exist. And one of the things I think that all of us ought to be concerned about is that, with the terrific growth in population that we have, water is going to become a very valuable commodity. We have lots of water, but we make very little effort, if any, to store it. (*Yellowstone County Agriculturalist*)

I think it is too bad we can't divert it somehow, the high water, and put it to use. Once it leaves this state, it is gone. I think we could develop more agriculture if we had some diversion. I'm not sure how'd you do it. Maybe it would take a dam and that would be pretty hard to do anymore. (*Yellowstone County Agriculturalist*)

Another conflict would be between power generation and wanting to use more of the water for power generation and also for cities...and agricultural diversion dams...It's not too much of an issue right now, but in ten years..., I think it might be. I think there will be conflicts of development versus leaving the river in its pristine character. (*Yellowstone County Recreationalist*)

There won't be [enough water] in 100 years. There won't be enough. (*Yellowstone County Residentialist*)

The growth of subdivisions near the river generates a great deal of discussion because the subdivisions are obvious in the physical landscape:

All of the ground that you see between Laurel and Billings is dotted with development. Between Laurel and Park City, and Park City to Columbus, it's the same thing...I think in 30 years,...when you come off the Columbus hill, it's going to be all developed, probably to Custer. (*Yellowstone County Agriculturalist*)

If the realtors had their way, they would fill the flood plain with houses as they have in so many parts of the country. (*Yellowstone County Recreationalist*)

The way Billings is growing, the irrigated farm land is vanishing. I even noticed it in the Worden area. (*Yellowstone County Agriculturalist*)

It is beautiful along the river and fun for kids...[It's] peaceful...We sit out on that patio in the evenings and listen to the ducks and the geese and watch the pelicans in the sky...[We see] beavers in the river,...marmots...The deer like to run through here...The river islands now have turkeys on them...[We're] seeing the turtles...The river is...unique...and it's free-flowing...It's a beautiful river. (*Yellowstone County Residentialist*)

The growth of subdivision developments is understandable when one takes into account the many attractions of these residential settings:

It's beautiful...It's located on the slope that drops down to the river bottom...Since the house was elevated, we get a great view of the river and the water fowl on the river and the deer in the pasture and the pheasants in the yard and all the other great things that go along with living out in the country...I love to watch the ducks and geese and pelicans and the critters that habitat the river. (*Yellowstone County Residentialist*)

Here in Montana, we...really don't care if there is a city park next door because we've got a little greenery in our...five-acre-tract....We are a plains culture. You don't see three story houses with huge oak trees...We have a different look, we have vistas, we are flat and wide. We are not high rise people...They bring planners from the east to tell us how to do things, they want to stack us up

downtown and make everybody believe we are all going to give up driving our automobile and move back downtown. It isn't going to happen....The market demand is for a little elbow-room....It is not a Boston, Massachusetts....If you want people to come here to live and work, they've got to have a nice place to live, nice schools, and they have to have a job....That precipitates housing, schools,...paved streets,...and so on. So I think we need to...keep protecting that that makes Montana great. Let's protect our water, protect our air, protect our space...but allow growth....There is no reason that we can't enjoy this same lifestyle with a \$250,000 house or 250,000 population. Right now, we are at a 100,000 population. What's the difference? (*Yellowstone County Local Civic Leader*)

However, concerns about subdivisions multiply as more and more are constructed. In particular, concerns are voiced regarding the long term costs associated with residential development, the lost character of the river as the banks are transformed from agricultural to residential uses, and lost points of access to the river as a public resource:

We're seeing some development with the golf course; that's bringing in quite a few more houses. And we get a lot of people out here that are bedroom community. You know, it's a bedroom community so we get a lot of people that don't want to be in Billings. It's cheaper out here. You don't have to pay the city taxes, so I expect that we'll see some development. (*Yellowstone County Residentialist*)

Urban sprawl [occurs] because people wanted to get...cheaper land....It used to be that the city...was able to zone [up to] five miles around the city. Well, the legislature struck that down. Can't do that—can't be zoning, even though these places are going to be in the city someday and they don't meet city standards. The streets aren't the right width, they don't have sidewalks, curb, gutters, sewer, they don't have the same grade of water system piping....Then [later] the city has to annex [those areas] and assume the costs....If you happen to through those subdivisions south of Grand and west of Shiloh, you'll see that the roads have no curbs or gutters....They are very narrow little country lanes with huge homes....They were trying to sell [one home] for \$1.4 million, [and] it's got this road that doesn't meet cross sectional design requirements....People will spend \$300,000 to \$400,000 for their house...[but] their infrastructure is awful. So, it's a \$500 saddle on a \$50 horse. (*Yellowstone County Local Civic Leader*)

For farmland, we could pay \$1,800 an acre, but they are getting \$18,000 an acre for that stuff. I don't see us continuing to farm in the next generation....Maybe another 20 years, and then it will all go to houses. (*Yellowstone County Agriculturalist*)

I think another problem with people building so close to the river is that, aesthetically, it's not very pleasing....From what I understand they're going to put in some riverside trails....Hopefully [those trails] will keep the areas pristine and

wild...It ought to be just like the rims, [with] easements that set aside that [area]...Don't allow people to [build] right up to the river. (*Yellowstone County Recreationalist*)

The Department of Fish, Wildlife and Parks was proposing a fishing access site near the Duck Creek Bridge....A few of the people that built homes right on the river [near the bridge] were at this public meeting. Their big argument was, 'We don't want recreationists on the river. We bought a piece of the river to have it for ourselves, and we don't want the public out there.' And really that's the kind of attitude that just can't be tolerated by our public managers....The Conservation Districts and the County Commissions [have to protect] the greater public interest,...not those few individuals that bought their little stretch of the river front....They really need to look at the long-term public interest and the real values that that river has for the greater public into the future. (*Yellowstone County Recreationalist*)

I think it will change drastically as far as people building along the river...[and how] that relates to access to the river....I think that a whole lot more private access show up...[and] it will detract from [the public use] of those areas of the Yellowstone....If it were mine, I would do the same thing. I think that is the way it should be as far as landowners' rights....I don't feel encumbered by houses on top of me. I might when the number doubles or triples or multiplies by ten, and it will. (*Yellowstone County Recreationalist*)

In the eastern-most areas of the county people seem less concerned about Billings and its growth, but even there people recognize the potential for growth:

East of Billings you're not going to see major changes because agriculture is still king. There isn't going to be huge development. There will be some...out by Pompey's Pillar, if it's not all burned up,...[and] some development along the river [in] Park City....[In] Columbus [and] down this way, you're probably going to see...the smaller acreage type of things happening, which is going to take out some productive cropland, and some of it isn't. (*Yellowstone County Agriculturalist*)

While it is easy to note that Yellowstone County is changing, it is more important to recognize the extent to which those changes suggest or necessitate changing relationships with the river.

Redefining River Relationships: Urban and Residential Demands

As Yellowstone County evolves into a more urbanized community, a number of issues are being discussed that suggest the community's relationship to the river is also evolving. These re-definitions of how people use, appreciate and adapt to life by the river are grouped here as the second theme exposed by the data collected in the segment Big Horn River to Laurel.

Individuals representing each of the interest groups offered comments that illustrate how the river adds to their quality of life and serves as an amenity to the community. Foremost, the river environs offer people a refuge from their more stressful and chaotic endeavors:

A retired teacher told me he thought [fishing] was just an excuse for doing nothing, so he never fished. I thought he missed something in his life. Even if it's a good excuse for doing nothing, it's a great way to do nothing....I'm pastor and I'm involved in a lot of things....I go out there...[and] the pressure's gone. [I like to] watch the river. Something's moving that I don't have to push. (*Yellowstone County Recreationalist*)

It's peaceful. It is just someplace that we have always wanted to be. We both were raised on acreage. We weren't town-oriented at all. (*Yellowstone County Agriculturalist*)

I've always gravitated towards it because it's always relaxed me....My church is the river....The fog comes up off the water....The sun pops up and your line is singing out there and you look down and see the little crystals on it, then I look down and see a herd of elk crossing a couple hundred yards from me. It gives you....It's what drug addicts are, the reason they're drug addicts....It gives you that feeling...with no side effects,...other than you're hooked....I'm not leaving here....This is a place to keep forever. (*Yellowstone County Residentialist*)

We're out in the country. We have a view of the mountains. The neighbors aren't that close. We have a little open space to breathe. (*Yellowstone County Agriculturalist*)

When you go down [to the river] you might see somebody else. But you could be down there all day, or all morning, and probably not see somebody else. I have an eight to five job, where I answer the phone 100 times a day and solve everybody's problems, and when I go out duck hunting or fishing or hiking, the only problem is, 'Should we stop here for lunch or over there?' (*Yellowstone County Recreationalist*)

It's beautiful down [by the river]. You still got your wildlife down there, and that's what people like....With Riverfront Park, people are utilizing that more. That's great. And then with the new McCall subdivision going in, I think that's going to be good. I think people are looking at it and finally realizing we've got beautiful scenery here, we should use it....Riverfront Park was a beautiful idea....If we could do that...along different areas of the Yellowstone, I think it would be great. (*Yellowstone County Local Civic Leader*)

It's wild. It's untamed. It almost speaks to me. It's a spiritual thing. When I'm on the river, and I just flow with the current, it relaxes me and it kind of de-stresses me. (*Yellowstone County Recreationalist*)

[In Huntley] we were going to put some paths in, and we wanted to incorporate the east side of the river....[We wanted to] incorporate Main Street and go around the park. We wanted to tie it all in....There are plenty of places to access [the river], but sometimes they've come and gone with ownership. [Some people] get a little wrathful about people crossing their land to get to the river, but I think...it comes down to communication. The people that want to use the river need to...ask [permission]...[and] close the gate when it's closed. (*Yellowstone County Local Civic Leader*)

For some, the river environs offer important ecological services that should be respected:

[The Yellowstone River is] one of the most important riparian areas in this part of Montana....The riparian zone is a place that is adjacent to the river and it extends from the river back two or three miles....It's important for bird species and animal species...and aquatic [life]....[It] filters out the dangerous things that might filter into the river. It decreases erosion...and aesthetically it's very pleasing....[It is nice] to kayak the river and camp along the shores in the cottonwood groves. (*Yellowstone County Recreationalist*)

Well, I guess Aldo Leopold probably said it the best, 'The flood plain belongs to the river.' (*Yellowstone County Recreationalist*)

However, for many more people, the river is associated with wholesome human sensibilities and family values:

I think it was a good place to raise a family. We have a lot of history here. (*Yellowstone County Agriculturalist*)

To me, it goes back to mental health....[We] need that ability to be outdoors and enjoy. Our kids...and grandkids are becoming so much more urbanized....Kids don't have the kind of freedom...I had when I was younger. I think we need those opportunities to keep a sane community....That's why it is so fun to live in Montana because you've got so many opportunities to do that. (*Yellowstone County Recreationalist*)

I was going to say recreation, but it's not recreation: it's a refreshment, a rebuilding time. I bought this when I was still working full-time, and working with people and you're uptight, [and] you come out here [to the river] and can renew yourself. Even busy working, irrigating, it's a great way to refresh yourself. (*Yellowstone County Residentialist*)

Industry [owners] will...be looking for quality communities to live in, and the river can be a tremendous asset for quality of life enhancement. (*Yellowstone County Local Civic Leader*)

I am surprised that you use the term river recreationist. It almost belittles the use because it is not just a matter of recreation. Recreation almost trivializes it, like it is something we don't need to do. With the river it is more than a matter of recreation, our very life depends on the Yellowstone. (*Yellowstone County Recreationalist*)

Long term residents of Yellowstone County recognize that, in some regards, the river is treated better than it was in the past:

I think the attitudes of people have changed from [the river] being a garbage dump to more of recreation or beauty. [The change] has taken place gradually over the years. Hopefully it will stay that way. (*Yellowstone County Agriculturalist*)

The refineries [used to] put their waste oil in ponds and it seeped into the river. In the '30s and '40s you could see the colors of the rainbow in the water from the oil. They have really cleaned that river up. It is amazing. It is really clean now. People are pretty careful about dumping stuff now. If they catch you, they will fine you. Years ago they used to dump their garbage in. (*Yellowstone County Agriculturalist*)

Oil slicks [occurred in] the '60s from spills at the plants....Those don't happen anymore, [since] the Clean Water Act....We've had a water treatment system here since 1915....[Before 1915] people died every year from cholera and typhoid. They installed a treatment system in 1915 and lo-and-behold there wasn't anybody dying anymore....On the sewage side, they didn't recognize they were the contributors to their own problem. They didn't really build any kind of sewage treatment here, other than direct drains to the river...[until] '46 or '47. (*Yellowstone County Local Civic Leader*)

When I was a little kid,...our landfill dump was down on the other side of Conoco, where Midland packing used to be—that's where our landfill used to be....That's where the garbage went, and...we would bulldoze it to the river. That's why there's so much debris....When people [went] down there and they started the bike path through there, they couldn't believe the junk that was in there. But we bulldozed that for years down there, and that's where all the junk went. (*Yellowstone County Local Civic Leader*)

Others point out that modern uses are carefully managed:

The river is not safe [for human consumption] as it is. We remove all the fine particles, all the bacteria, and the viruses that are harmful....We improve its potability in the sense of its aesthetic quality to users. It's clear, it has a good quality taste....People find it pleasant....There's lots of water that's safe drinking water but not potable. The [Yellowstone River] is a good quality source. It's a bicarbonate water. We're pretty far up the watershed. There's only a minimal

amount of interference from man, but enough that it wouldn't be safe for anybody to drink as it comes down the river. (*Yellowstone County Local Civic Leader*)

[In Billings, we treat on] average [over] 14 million gallons per day....Approximately 20,000 pounds of solids a day come in, and we put out...maybe 400 pounds....We are removing about 95 percent of the total system solids and bio-chemical oxygen demand. (*Yellowstone County Local Civic Leader*)

However, a great many people believe that the river has been neglected or is potentially threatened by human activities:

I did this Nature Conservancy thing to protect the land so it could never be developed....My kids would sell it, and there would be all houses built. We don't want that. There is enough of that around here. There is so much traffic. They drive too fast. They almost ruined my second cutting last year because it was so dusty. (*Yellowstone County Agriculturalist*)

I know there's an awful lot of pollution around....My concern is with the refinery, but I have to be careful about that because they were there before I moved in and I know they were there before I moved in....I would like to see the refinery...closed, but that's wishful thinking. Quite honestly, I don't know what they do to [the river], but I'm sure there's something that goes on, even if they say there isn't. (*Yellowstone County Residentialist*)

I would hope that the City would learn to respect the river more than they do now. The banks and the industrial development in Lockwood are just terrible. The County Commissioners think everything should be zoned industrial and Lockwood is very close to the river. I would like to see us change all of that so that all along the river it is a natural corridor. (*Yellowstone County Recreationalist*)

I think Billings is really lucky to have the Yellowstone flow through it. Unfortunately, Billings turned its back on the river and lost sight of its value. Consequently, we get a lot of bad development down by the river. It's almost like throwaway land....In some cases development is good if...it reorients us to understanding the value [of the river]....We've allowed our industries to be along the river....I see a lot of waste and bad development occur along the river....It's almost plighted. (*Yellowstone County Local Civic Leader*)

The Yellowstone River really stinks after Laurel. I mean, not that I want to lose the refinery or anything....I don't know if it's necessarily the refinery or if it's just that it's more populated from Laurel to Billings, that stretch. I don't know really what the problem is. But there's no good fish after Laurel....Keeping it clean is my biggest thing. (*Yellowstone County Residentialist*)

[In Custer] we are about to redo our whole sewer system....We do not have city water, [but] we should....The business people have to chlorinate [their water]....We've been dumping animal and human waste into this groundwater for 100 years now. These people are kidding themselves if they think it's not in their wells. (*Yellowstone County Local Civic Leader*)

It seems like we use it, but we don't honor it....We use it for our own industrial interests, but we don't seem to give any of it back to the citizens...in terms of beautifying the many spots [along] the river. Of course, it is beautiful by itself in the more rural areas. But, when it comes through the many cities,...it doesn't seem like we've done much with it. (*Yellowstone County Recreationalist*)

[Outside of the city water system, we have some areas with septic systems in] pretty shallow gravel....[And] on the bottom is shale, which is not porous. So the water...just moves down the gravitational gradient....You sink in your well...[and your water has] lots of minerals in it...It tastes like shit. You end up putting in a reverse osmosis system to get the minerals out:...[the] high calcium, high magnesium, high sulfate, and lots of nitrates. Nitrates are causing problems for Blue Baby Syndrome. About 10 mg per liter of nitrates in water is associated with babies [who are] unable to take up oxygen. So, that's a problem if you were to drink water...above 10 mg per liter, and there are areas like that out there. They need to be urbanized; they need to be put on a water system. (*Yellowstone County Local Civic Leader*)

I serve on the county zoning commission and [sometimes when] we get a request that is close to the flood plain...we don't even get a map with the request. So I ask, 'Where is this?' and they will say, 'Well, maybe a corner is in the flood plain, but it won't cause much problem.' So, we are changing the flood plain regulations....If I lived downriver from Lockwood, I would worry. (*Yellowstone County Recreationalist*)

The ranchers and landowners should not build so close to the river, and I think they [should not]...have their cattle graze right next to the river....Cattle go down to the river and drink and they trample all the...shrubby and grasses. (*Yellowstone County Recreationalist*)

As more people live along the river there are increasing pressures to protect properties, especially those with structural investments. The goals are often site-specific and are related to how the river affects personal properties:

This house used to sit down there where the pile of dirt is. I had to move it.... High water came and washed the bank away....That was the 200-year high. There used to be an island down there about 100 yards and the 200-year high took it out. The next year we had a 500-year high and it went right by me because the island wasn't blocking me....[That second year it washed away 100 feet of bank and] the

river was running right by the whole south foundation.... It cost probably upwards of \$40,000 [to move the house]. (*Yellowstone County Residentialist*)

Sometimes it's heartbreaking to see [erosion]....But, on the other hand, it's a wild river and it's expressing itself in such a way that it makes it what it is. It's a living entity that gobbles up one bank one year and might turn around and gobble up the other bank the next year. That's what's uncontrollable and that's what makes it wild and adventurous for those of us who like to get on that sort of thing. (*Yellowstone County Recreationalist*)

My next door neighbor...tells me he used to drive their old Ford truck over to the island. The deepest [the river would be] in the fall would be two and half or three feet deep. We've sounded that and we know it's eight, ten, 12 feet deep with some deeper holes....Somewhere back in late-'80s, early-'90s the river took a turn, and, instead of going on the other side of the island, ice jams and blockages of one form or another carved the river over here. And we know it's been here because everything here is a product of river sediment over the last million years, and it goes back and it goes forth. (*Yellowstone County Residentialist*)

There's always gradual change, but in a high water year, it could happen in one year, in one season....The boat ramp was carved out a little bit more this year. So there's more water over there this year in that channel, whereas it was one the other side last year. So, it can happen,...like I said, in a season. And it's always happening gradually. (*Yellowstone County Residentialist*)

It's a vigil every year to keep up with the river, to see if it's going to take out some more of the property. It's a living creature, that Yellowstone. (*Yellowstone County Residentialist*)

The time that the river changed course drastically, and started moving into our property, it was just horrific....There was a big island out there, and it was full of trees....You would hear the trees....It sounded just like bowling pins going down....It literally lifted those trees every which way out into the river....It was just unbelievable. [Then, the fallen trees were] knitted and packed with mud just like somebody had created it by hand, but it was just the force of nature....[The fallen trees] diverted the water,...which brought it into our place....It just basically changed overnight. (*Yellowstone County Agriculturalist*)

If we don't get some stabilization on that bank, this place, in ten years, is going to be in trouble, and so is everybody else in this valley if this river gets high enough. We've had two neighbors down there that it flooded already. (*Yellowstone County Agriculturalist*)

The power of that river....The water come up over that bank, and it just rolled. It was like a big roller coming at you, and it was the water coming over the banks, and the force of it, when it moved that huge ice up on the land, and it came around

there, and it went all the way up to the neighbor's house before it broke. And it broke fairly fast. (*Yellowstone County Residentialist*)

The river changes courses. The river as it exists today is changed significantly as far as meanders and the way it picks its course....I built a cabin on the Yellowstone River bank 60 years ago that is now an island, and this is just from the natural flow of the Yellowstone River....It's a natural thing for the river to do....and it will continue to change. (*Yellowstone County Local Civic Leader*)

When they start having big ice flows again,...this entire thing will be eight to ten feet thick in ice that will be exploding and cracking, and it can crush a car in a heartbeat. It breaks rocks....And that water doesn't stop....There will be ice 15-, 16-, 18-feet out from the bank, just packed in against the banks. And all that ice then cuts loose and just slops into the river, and it comes down the size of buses....You've got something that's moving five, six miles an hour by water, and it slams into stuff, it changes a lot of things. (*Yellowstone County Residentialist*)

I'll tell you where the water was one time. Remember when you drove by here? It was right up to the highway. I was here with my fins on....This road in here is new. They built it up higher, thank God. It saved us there, but here, coming around the corner, there's nothing there. The river...[doesn't] have to rise very much to get over and flood. (*Yellowstone County Residentialist*)

Other discussions address how the community ought to systemically think about and manage the flood plain:

People...call it a flood plain for a reason, and if people want to build in the flood plain, then that would tell me that you're going to get flooded. (*Yellowstone County Residentialist*)

It is appropriate to build subdivisions within viewing distance of the river but out of the flood plain....People like to live [near the river], but is also appropriate to keep park land in-between there because then you not only have the chance to enjoy the river but to protect it also. So I think we have come up with a pretty workable balance. (*Yellowstone County Local Civic Leader*)

The Yellowstone...is free-flowing and it floods a lot. So you better not put a house right on the edge of the river; it might flood and wash away. (*Yellowstone County Recreationalist*)

People want to live where it's pretty, but if you're going to build on the river, expect to be flooded. And don't cry to me when you're flooded because, if you're stupid enough to build there, then it's your problem, not mine. (*Yellowstone County Agriculturalist*)

I think there's a lot of guess work that goes into those flood plain maps, frankly....I think there are probably better ways now through GPS technology that they could very closely identify whether it is in the flood plain. (*Yellowstone County Residentialist*)

The photos are of great value to see [past flooding], but I think since that flood in '97 the river has actually changed course and you can see that in the photos from year to year. Historically, the water hasn't come up that far, but since the river channel has changed a little bit in that area and we have lost some land, even last year we lost a big chunk....I can't say what would happen in the future. (*Yellowstone County Residentialist*)

If somebody's going to build in the flood plain, they should sign something, 'I'm building in the flood plain. I'm willing to take the risk. I know what the implications are and I don't expect the government or my fellow Montanans or anybody else to bail me out if things go wrong.' (*Yellowstone County Residentialist*)

When they...develop in the flood plain...their actions can affect others. We have laws that limit what people can do on their property....Their development in the flood plain is not in the greater public interest and the greater public interest is what really needs to hold sway. (*Yellowstone County Recreationalist*)

I like the fact that, for the most part [the river,] is left open to function naturally, that there is still a lot of flood plain left, realizing that it's heavily armored in places....The flood plain is essentially storage for flows that are above normal flows. Without adequate storage, it would be discharged downstream and have to go somewhere and force itself into places that would probably cause a lot of destruction. So, if you can maintain natural flood plains, then you can pretty much protect property from inundation. (*Yellowstone County Local Civic Leader*)

If you ever notice, farmers and ranchers don't have their houses right on the banks of the river. Gosh, I wonder why. But you see the city folk [saying], 'Oh, that's a great place to build, great view. Boy, we can walk out the back door and throw the fishing line in the river; that's fantastic. We can put our jet ski out on the river right out our back door....Oh, my God, now the back door is the front door, the river has changed channels.' I'm not going to cry for those people. Common sense says you don't build in a hazard area. (*Yellowstone County Agriculturalist*)

Rip-rap is generally considered an effective method of bank stabilization:

I lost eight acres on the one field, but it was also endangering the railroad [so] they came in and rocked it....Yeah, it worked. It was spendy, but it worked. (*Yellowstone County Agriculturalist*)

In '97 we had the highest flood on record....[It] was a 500-year flood....[The] REA was afraid it was going to...flood their new unit....They rip-rapped it perfect [for] a half mile...and there has not been one piece go out of place. There's always a hole or something that may have been done better originally, but if you throw...rip-rap [in the hole] it just makes it better....To do it right, you want [there] to be about 16-foot width at the base, so you have a big strong base for the other to lock with, and then bring it up to about a three-foot width at the top....The weight crushes it down....You've got the dirt walls behind it that are packed and it doesn't seep very well. (*Yellowstone County Agriculturalist*)

I know they don't let you put concrete in the river anymore. I don't really understand that and nobody has explained it to me, so I guess I'll have to figure that out. (*Yellowstone County Residentialist*)

I've been thinking about getting some huge landscape rocks and putting them down there along the bank, just on top of the bank. I understand that concrete blocks and concrete rip-rap are out now because of the lime and all of that other stuff. So you got to come up with some kind of alternative. (*Yellowstone County Residentialist*)

Rip-rap in key locations in the river is really important for landowners. If they're not able to rip-rap, they're going to lose land. (*Yellowstone County Residentialist*)

You get a guy with more money than he knows what to do with, and he's paid tens of thousands of dollars an acre for land along the river, and here comes the damn river and starts washing [his land] away. Now he can afford to do something about that, and he will do it. What he doesn't understand is that the degree to which he does that, it is going to hammer the guy downstream. So, he has [created] unintended consequences which he's not responsible for—he should be. (*Yellowstone County Recreationalist*)

Most people agree rip-rap is expensive. Some people explain that rip-rapping can both push the problem elsewhere and result in other problems:

You...[have to] watch out. If you are rip-rapping on the south side, and somebody's got farm land on the north side, that can create some problems....We were very fortunate because there was no effect to people to the sides of us or across from us....We had no one but ourselves to protect. In fact...the river was affecting [the neighbor] tremendously, [and]...when we got done, it turned the river away from their property. They now feel safe and secure. (*Yellowstone County Agriculturalist*)

Rip-rap diverts water into the neighbors' land if you don't do it right. That is something you have to be concerned about. You could subject yourself to a lawsuit. That is something the Corps and the local Conservation District should look at. (*Yellowstone County Agriculturalist*)

Rip-rap is an eyesore and takes a tremendous amount of material. And most people can't afford it. (*Yellowstone County Agriculturalist*)

The natural processes of the river [include] erosion and deposition....I understand why [people who live near the river] would [want to stop erosion], but from a geologic or scientific viewpoint, once someone affects one part of the river it will affect another part of the river. There are consequences....If you put in...rip-rap then that may cause scouring in some places and deposition in others. You may be affecting your neighbors....Those types of things need to be considered....I think it is important to approach this from the scientific point of view. (*Yellowstone County Local Civic Leader*)

Pretty soon you have a ditch, you know, rather than a river. In some cases [rip-rap] is legitimate, in other cases it's probably overdone. (*Yellowstone County Recreationalist*)

The riparian zone along the river is altered as soon as you channelize the river. You don't have the over-bank flows...that renew the riparian zone along the river. And that's habitat for wildlife of all kinds....If left natural it can actually help alleviate flooding problems downstream. So, a lot of the times, the channelization of the stream just creates more problems....[And] there's a loss of values in terms of recreationists being able to enjoy...a viable fishery. (*Yellowstone County Recreationalist*)

[The river and the riparian areas are] less healthy for two reasons. One, there's been a lot of development taking place—I'm talking the entire river, not just around Billings. And [two, I see]...miles and miles of channelization of the river...that very seriously compromises the riparian zone. So, sure, it's gone down hill a lot in the last 30 years. (*Yellowstone County Recreationalist*)

Difficulties in getting permits are cited as a common, but not universal, problem:

After the '96 and '97 floods, there [were]...multiple projects....The Corps approved some, didn't approve too many, but as the pressures build, we will have ourselves a canal instead of a river. There's a 404 permit process [and] sometimes it works, sometimes it doesn't. It depends on the Conservation District....They can, depending on who [sits on] the Conservation District board, be very rigorous....I think there ought to be some basic principles that have to be satisfied, and I think that those are conservation of the riparian zone, and conservation of the hydrologic character of the river. (*Yellowstone County Local Civic Leader*)

I got along with them. They knew the emergency and so they rushed it through so we had it in a couple of days. They did not bitch about the emergency....It had to be done or else it was wrecked. So they allowed them to come in and fill where

the hole was leaking...then the permit followed the deal. (*Yellowstone County Agriculturalist*)

All he wanted to do was rip-rap to save his bridge....At one time, he had 20 guys standing down there on his bridge, discussing what he should do. Bridge finally washes out and down in the river it goes. The next day, to save the road, they are hauling big boulders, dumping them in...and, of course, in the spring he had to haul his bridge out. That's required....But, there you go. When you're dealing with water, you're dealing with a lot of different people. (*Yellowstone County Residentialist*)

It took us two years to get it permitted to do it right....We lost 20 to 40 acres. Had we...done it without the permit, we'd have saved that land....We stood down on the river bank looking at the project after we did it...[and] DEQ guy was complaining about a couple of inches variation in elevation....Yet we looked across the river where they had dumped in car bodies and concrete without permits. I said, 'How can you give me a bad time about doing it right, but being off a few inches in elevation, when you can stand here and look across the river and not do anything about what everybody else is doing?'...If I've got a permit...he's going to make it miserable for me. (*Yellowstone County Residentialist*)

While alternatives to rip-rap may or may not work, Bendway weirs get mostly positive reviews:

[Our neighbor] had a lot of problems with the dikes washing out. He laced willows on the face of the dike, but if there was a hole started, the river ate it out. (*Yellowstone County Agriculturalist*)

We actually looked at using rip-rap. We used to do a lot of rip-rap work....And it was just lining the bank...[to] keep the bank from eroding, but you don't...really do anything about that. The weirs...actually slow the water down next to the bank and you don't have to line the entire bank with rock or concrete....So it will fill back in with grass and trees....It looks much better when it's done and matures. And it is less expensive than lining the bank in its entirety. We just felt that was the best option. (*Yellowstone County Residentialist*)

We put weirs in....[They were] incredibly successful....If it is done right, it works very, very well. We spend a lot of money and time and energy enhancing wildlife on a property like this that we are not compensated for. We do it because we like to....I spent hundreds of thousands of dollars doing the project we did on the river, doing the weirs the way we did it, engineered right. (*Yellowstone County Residentialist*)

[Weirs] are a good idea. A guy...just put some in a while ago. They seem to be helping a lot....In some cases, [weirs are preferable to rip-rap]....[Now,] putting a

weir in still causes an eddy behind it that I think would cause some erosion when the water gets that high....You can see some kind of scalloped areas behind it. But it does push, helps push the current out away from the bank. (*Yellowstone County Residentialist*)

Bendway weirs...[can] angle the river 20 degrees and they gently move it across to the other side....It's moving the river....You can just see how it hits the first one....Then it subtly moves it out to the second, third, fourth....My experience has been the weirs create habitat. There's more fish behind the weirs....The weirs...are a blessing that's not intrusive, creates growth, creates fisheries. (*Yellowstone County Residentialist*)

We used Bendway weirs. I think we put in six of those....We have had very good success with the weirs except one....They simply keep the power of the water away from the bank. They don't wash out the side of the river. You don't ruin anything downstream, which is a common belief. They don't seem to be like the hard stuff where you throw the current to the other side. They are gentler....DNRC had some money a few years ago and they funded 75 percent of the weirs for the ditch company. (*Yellowstone County Agriculturalist*)

The Yellowstone is so powerful that we get water behind the weirs and it washes behind them....The placement of the very first one is critical. If you don't get it right, it will wash behind it....That is the hard part....The person designing those spent an entire year on that...[and] the next spring the river washed away 20 feet of river, and we were back at square one....These were the most highly engineered weirs on the Yellowstone. They must have spent 200 hours on the planning, and they had two people on site watching the placement of every rock. So there couldn't have been any more scrutiny on a set of weirs. It is not an exact science, but they work most of the time. (*Yellowstone County Agriculturalist*)

It is often difficult to grasp how a project on a particular property can degrade the river system, especially given that virtually everyone agrees that any one project probably does not have a significant effect. However, governing agencies are, more earnestly than ever, attempting to understand the summative effect of such projects. They are charged with understanding those effects before they happen as a way of preventing future damage. The result is the future is here. The various agencies must attempt to manage in ways that protect the future of the resources before they are degraded, yet they are further charged with to avoid infringing on personal property rights.

The Future is Here: Management is Complex

While it is comforting to speak nostalgically about a simpler past, most of the people interviewed in the segment Big Horn River to Laurel explain that the Yellowstone River presents a complex tangle of pressures and demands that requires rather complex managerial strategies. The river, as a shared resource, is under increasing demand. Yet, many people realize it has a limited capacity, and it will not be able to provide all things

to all people. Any number of entities—individual, governmental, formal, informal, public, and private—have vested interests in the river. Almost everyone agreed that the river is a public resource that must be shared:

It is the lifeblood of the valley....It keeps a lot of farmers in water and able to grow crops and it's a good source of recreation....I have a boat that was made for river use; it's got a jet on it. And I'd rather boat any day on a river than on a lake. It's just so much more fun. It provides a lot of habitat for wildlife that is fun to watch and fun to hunt....Fish are fun to eat and catch. So it's a wonderful thing for this valley. (*Yellowstone County Residentialist*)

It's got to be managed for multiple-use. I enjoy seeing the people on the river enjoying the river and the fishing and stuff. (*Yellowstone County Agriculturalist*)

Of all the natural things that occur...[the river] is the most important thing. It provides water for drinking, flood irrigation, and recreation. It is the lifeblood of our community. (*Yellowstone County Local Civic Leader*)

I hope we understand that the river is something that belongs to the people of Montana. Just because you own land along it, you can't really own the river. (*Yellowstone County Recreationalist*)

However, opinions vary greatly regarding the best ways to share the resources and to protect the public interests. For instance, private wells and septic systems generate discussions regarding how they affect, or do not affect, underground aquifers and the river:

I wouldn't allow septic tanks....If they want to put in a subdivision of 30 cabins along the river, they would have to pipe that water, pump it back, away from the river, away from the river gravels, maybe to a pond and have their own septic system there. (*Yellowstone County Recreationalist*)

[When] the high water comes, or you have an ice jam, or...the spring run-off [comes], you flood your septic tank or cesspool...[and] that material in that pool goes right into the river. There's a capacity for the Yellowstone....You can exceed that capacity, and then you have a real problem....We need those setbacks. (*Yellowstone County Recreationalist*)

There's a lot of issues with subdivisions....Look at how we look at drain fields on the septic systems. You have places where the groundwater table and the septic system are mixing, but,...mathematically, it doesn't appear to be an issue. See, the problem is this subdivision may not be an issue, but what about [adding] the one above it? Now there's 72 houses above in this aquifer...but the assessment was done here [on one subdivision]....This is decided and this is decided [separately]. We never go like this [and look at all of the subdivisions together]. (*Yellowstone County Local Civic Leader*)

These guys were here this morning...[concerning] a piece of private property out in Lockwood [near] the river. He received a permit to build a cold storage without a restroom. Now he comes back and says, 'You know I need a restroom.' We are denying it. He is into the flood plain, and his permit was clear. It identified that you're in a flood plain, and you cannot build a sanitary system there. The statutes don't allow that so he is not going to get a variance. (*Yellowstone County Local Civic Leader*)

As that aquifer [west of Billings]...can only become more contaminated as more development sits on top of it...[and] the [irrigation] ditches are shut down because there's no agriculture anymore....If they are annexed they would have to get on the [city system]. So, there's a cost there. (*Yellowstone County Local Civic Leader*)

What's the cumulative effect [of development] on the underground aquifers?...I don't think it is as big an impact as people are trying to make it to be....I think we have plenty of water. It snows like heck every time, and we [have] water coming down the Yellowstone....And if you read in Genesis, God set the whole thing up to where the river comes down, [and] evaporates, and the salt sea is almost a purifier....Now, that's a pretty good ventilation system that He developed. And that's here in Montana. Now we are running through some droughts, and you can get into global warming....But what I see in Montana is, we've got lots of water. We are not going to run out of water unless there is this global shift that changes things. (*Yellowstone County Local Civic Leader*)

Any number of topics comes up when the residents of Yellowstone County are asked about the management of the river. Agriculturalists discuss many issues, for instance:

I own this property, and the State owns that river. I understand that and I am perfectly fine with it. I can't go out in that river and mess around, because that is the State's. So, I think the State should have to keep that river off of my property, too. If I can't mess with the river, why can the river mess with me? (*Yellowstone County Agriculturalist*)

I am not a supporter of letting the river meander. Why must we destroy an acre of mature cottonwood trees that are 100 years old in order to provide areas for new ones? (*Yellowstone County Agriculturalist*)

The most important resource that Montana has is the Yellowstone River, and we're giving it away to downstream interests. We should not be doing that. The Federal government should not be allowed to do that. (*Yellowstone County Agriculturalist*)

The County came out here, and they told us all these things we needed to do [about the weeds,]...or they can come out and spray it and charge me money. I told them, 'You go up to the head of the Yellowstone River and you kill all the

knapweed and spurge down to me, and then I will kill mine, and then you can go on down there. Until then, there's nothing we can do about it.' I can...show you every place that river has ever overflowed—it just spreads them weeds, and that is exactly where the knapweed and spurge is. (*Yellowstone County Agriculturalist*)

Local civic leaders have a number of concerns. To name a few:

Obviously, you need to maintain in-stream flows....There needs to be flowing water to provide for those plants and animals...but there is typically more water than that. (*Yellowstone County Local Civic Leader*)

Under the state constitution in Montana, you don't own water, you own the right to use water. And [the various users are] aligned by, 'First in line, first in right'....A full listing [of users] and a full court decree [defines] who is first, and if they're first, how much water can they take. That's what a general stream adjudication is....In the end, if the court ever has to administer the waters of the stream, they have to have the list to do it correctly....But in the older basins history has shown that sometimes you have to [go to court] more than once because they never get it quite right. (*Yellowstone County Local Civic Leader*)

There is much of the Yellowstone River from roughly Huntley east...that is in need of official flood plain mapping....Say a subdivision comes in that is near enough to a flood plain that...a 2,000 foot proximity to drainage area kicks in...If it does, then these [flood plain] stipulations enable one to determine the proper setbacks. (*Yellowstone County Local Civic Leader*)

We have supported the Yellowstone River and Parks Association and looking at the trail process through Yellowstone County....We recognize the river greenway and how important it is. We are starting to see subdivisions pop up that are using that as selling points....We have Riverfront Park and have worked with the County Parks Association....Our whole trail project of trying to intertwine the city and the trails along the river....We may not have perfected it like Great Falls. (*Yellowstone County Local Civic Leader*)

[Landowners] do not have the right to...do anything they want....[In one] situation, where [a fellow wanted] a subdivision,...[there was a] big petroglyph on the site...[and this] conservative planning board...[was] saying, 'The guy owns the land and he should be able to do what he wants with it.' Now, wait a minute....This is a cultural resource. It belongs to all of us....[We can] force this guy to do a cultural resource inventory, which would be really expensive....But, [he can also] register this site with the State Historical Society and...put a deed restriction on the lot. (*Yellowstone County Local Civic Leader*)

Recreationalists' concerns include topics such as:

I think that we've been really lax in our state, county and city government. They've been allowing people to build too close to the river, and then the river rises in the spring, floods them out....Then, first thing you know, the people start rip-rapping and protecting the banks. (*Yellowstone County Recreationalist*)

The pressures from industry, agriculture, and urban areas are not benign on the quality of the Yellowstone River. Also, we're beginning to channelize the river and drastically affect the biota, the quality of the water, the quality of the scenery, and the quality of the recreation potential. It has limited capacity to supply all of these things....It's over-adjudicated and it's under-regulated, but there's not a conservation strategy....There's a direct tie [between] how well we manage all these activities and the health of the river. (*Yellowstone County Recreationalist*)

The private property lobby has tried half a dozen times to turn over our stream access law in both State and Federal court and [the lobby] lost every time. They're afraid of...the setback strips [and] controlling the kind of thing they do in the flood plain....They are worried...that [the river] is such an important public resource that there will be some kind of limitations on what they can do on their land. And there probably will be. (*Yellowstone County Recreationalist*)

I really believe that every species has a place and...if you didn't have one species, it would hurt another species. So, it's very important to keep that...riparian zone....If you don't keep that, [a species] is going to die, or become extinct, and that's going to throw everything off. (*Yellowstone County Recreationalist*)

The riparian area should all be restored. We have a lot of restoring on the river that needs to be done....[A natural corridor is] a natural habitat area. It does not mean [a] lawn right down to the river that is sprayed with pesticide to keep it green. It does not mean that. To me, [the riparian area] is a natural, protective thing. Maybe there could be bike trails and walking trails so people can enjoy that. Not storage and parking lots. (*Yellowstone County Recreationalist*)

Public access is being squeezed....When people...pay tens of thousands of dollars for small acreages up against the river, they don't want a lot of company there. A lot of them don't like it honorary either. The tendency is, and will continue to be, to close off access....Landowners, who own 84 percent of [river access in Montana], say, 'We don't want to have you here. We bought this...for ourselves, and we don't want it where you can go through here.' (*Yellowstone County Recreationalist*)

We have the tension between an urbanizing population and a rural philosophy legislature. And generally governmental bodies...lose opportunities for the parks and access....So the immediate problem is that you have this significant population influx, and subdivision development, and it's bumping into the rural

philosophy of ... 'Leave us alone. This is our land we can do with it what we want.' So, that's having an immediate effect. (*Yellowstone County Recreationalist*)

Residentialists also discuss a great variety of management concerns:

They change the rules. Like if we want to do something in the river, we have to go through six agencies to do all this crap. Laurel was having trouble getting water. They just take bulldozers and drop them in the water and do whatever the hell they want. If I did that I would have been fined quite seriously. So they don't enforce the laws equally either that do exist. (*Yellowstone County Residentialist*)

I just disagree with that whole concept of habitat management. I don't think it needs managing. I think it needs maintenance....Managing the river itself... would sure be nice rather than spend money trying to figure out which way to make the river go. It would be really nice to get the dead stuff out of here, because it is...a fire hazard. (*Yellowstone County Residentialist*)

I guess my biggest concern would be to lose any [boating] privileges that we currently have....If you get enough canoers and kayakers together to get the river to themselves, that would be a big deal to me. (*Yellowstone County Residentialist*)

They need to choose areas [for public accesses] that you can really move up and down. It's a waste of money to have them in the wrong spot....Because the high water mark is right to the edge...[and you have] the concrete down there that's really unsafe to walk on or you've got a 12-foot bank....You have to get up and over the high water mark to get around and that's illegal. So if they did choose any kind of more accesses, they need to find the spot where they can actually get around a little bit. (*Yellowstone County Residentialist*)

Taken together the above examples suggest that the most difficult management task is to balance the rights of the private property owner against the need to protect public resources. Many people offer insightful comments that suggest ways to build a robust and palatable management approach:

You have to have a benchmark....[Then] you can look and see if something is having a devastating effect or no real effect. This mapping is the first step. You can't make these decisions without it....[We need to know] what are the cumulative effects, as opposed to...just hot air in the wind....You [need] a firm basis to make your decision. That way they can make intelligent decisions. That is the major role [for management]. Eventually they will be able to make decisions because they know what has happened and they will have evidence to support those decisions. (*Yellowstone County Agriculturalist*)

You have to have a goal...[and you have to] see the pieces of the puzzle that you need to produce that goal. Then move forward. If you're so hesitant to move

forward that people along the roadside are going to grab you and take you away from your goal, then chances are you have to step back and evaluate because maybe you don't really understand your goal. (*Yellowstone County Agriculturalist*)

We respect private property rights, but we also respect the fact that the river is going to flow where the river deems that it needs to go. And if you build homes in the floodway and the flood fringe, you are probably going to get wet. We saw that a few years ago...We watched Bill Keller's place, over in Custer, as the river chipped away...at the banks and then all of a sudden we watched the building fall right into the river. It is still a free-running river, the Yellowstone, and she has a mind of her own. You have to be respectful of that. You have to understand that we have many, many uses of the river, but we also have to know that if we are going to do subdivisions,...we need to make sure that people are safe and that they don't affect this river. (*Yellowstone County Local Civic Leader*)

Bureaucracy is a tool that you can either use to your advantage or disadvantage. The fellow that [complains] probably doesn't realize the benefit he's getting from these layers of bureaucracy. (*Yellowstone County Local Civic Leader*)

[I heard it] said our society has a bundle of sticks and society...controls those sticks. They issue them out one at a time to private landowners, and they can take them back to depending on the situation. I think most of us don't want to do away with private property. We all live, or were raised, on private property, for heaven's sake....But there comes a time when private property might be impacting [the] public resources of our society....There has always been some limitations....As an example, you can't sell your topsoil to the Saudi Arabians...But that doesn't mean that's the end of private property. It means that society is going to take back a few sticks. (*Yellowstone County Recreationalist*)

If you look back at the history of the United States, the public land and the public water have been enormously important. Our champions are people like Theodore Roosevelt and the national forest, the national park, the national wildlife refuge, the national monuments. All of those are part of the public estate, and we think the public estate is very, very important to our society—equally as important as private property....Our position is, what's private is private, but what's public is public and it should be treated with the same level of respect....You can't have private water where the Constitution says it's public, anymore than you can have public water if the Constitution said it was private. And we don't just sue every time we turn around. We talk to people. We try to convince them it's wrong, that they shouldn't do it, but we have a hammer and we'll use it. (*Yellowstone County Recreationalist*)

I really think that the authorities should be more flexible in allowing landowners to protect their property. It's such a hassle to go through all the steps it takes to put rip-rap on your property....There has been hundreds and hundreds of acres

lost here....I feel for the larger landowners that have a lot of river frontage that lose a lot of property every year and really can't do too much about it.
(*Yellowstone County Residentialist*)

Make a comprehensive plan as to what is allowable and a process to permit it with ease, rather than fighting every step of the way....You get it so difficult, people just say, 'It's not worth the energy [to get the permit.] We'll do it anyway,...[even] if they put us in jail.' And I can't blame those people. (*Yellowstone County Residentialist*)

Any number of other conversations can be found within and across the four interest group analyses included in the next sections of this report. This summary addressed only the three dominant themes in hopes that the readers would be encouraged to further delve into the details of each interest groups' concerns.

Big Horn River to Laurel: Agricultural Interest Group Overview

Sixteen interviews were conducted with individuals representing agricultural interests, including farmers and ranchers. Participants were recruited from referrals provided by the local Conservation Districts, the Yellowstone River Conservation District Council and the Montana Office of Natural Resources Conservation Service.

Participants in Yellowstone River Cultural Inventory—2006						
	GEO SEG I: Missouri River to Powder River	GEO SEG II: Powder River to Big Horn River	GEO SEG III: Big Horn River to Laurel	GEO SEG IV: Laurel to Springdale	GEO SEG V: Springdale to Gardiner	TOTAL IN GROUP
AGRICULTURAL	22	22	16	12	14	86
CIVIC	14	14	18	14	8	68
RECREATIONAL	15	16	16	13	16	76
RESIDENTIAL	15	11	16	15	19	76
GEOGRAPHIC SEGMENT TOTAL	66	63	66	54	57	
NATIVE AMERICAN						7
PROJECT TOTAL						313

Big Horn River to Laurel: Agricultural Interest Group Analysis

I. Specifics of an Agricultural Perspective

A. Lifestyle and Way-of-Life

It's peaceful. It is just someplace that we have always wanted to be. We both were raised on acreage. We weren't town-oriented at all. (*Yellowstone County Agriculturalist*)

We're out in the country. We have a view of the mountains. The neighbors aren't that close. We have a little open space to breathe. (*Yellowstone County Agriculturalist*)

Everybody's got to be somewhere. I like where I'm at....It's secluded, [yet] it's not a long ways to get somewhere either. I've had some people tell me they couldn't live there because they'd just sit on the porch and watch the river go by. (*Yellowstone County Agriculturalist*)

You have wildlife that swim the river. There's even whitetail hunting right down in here if a person chose to do that. There's pheasants, prairie chickens, a lot of wildlife, badgers, coyotes. (*Yellowstone County Agriculturalist*)

Mink, otter, we have all kinds of squirrels, rock chucks, yellow-bellied marmots. There are quite a few bull snakes. We used to have rattlesnakes. Two years ago we had one, but we don't have many....We never kill a bull snake. They eat a lot of mice. I saw one the other day that was as big as my arm and six or seven feet long. I stepped on a bull snake one evening in the grain field and I must have went about 20 feet in the air. (*Yellowstone County Agriculturalist*)

It is a place to live, I guess. The old homestead. We are not like the people that move every two or three years and change jobs. We are different. A lot of country people are that way—they stay in one spot. (*Yellowstone County Agriculturalist*)

I was supposed to retire this year and I ended up irrigating and putting up 4,500 bales by myself. That is hard work. The neighbor was supposed to take over the hay...and he let me know too late that he couldn't. If you stay on the place, there is always something to do. (*Yellowstone County Agriculturalist*)

We love this property. My wife and I have lived here since 1941. We raised our children here. Three of our four children are college-educated. My wife has never lived anywhere but here, and she tells me, 'I have lived here all my life and I am going to die here.' I've told her, 'I hope that we still own it.' It's getting harder and harder to make ends meet. Machinery costs are prohibitive, our property taxes are

atrocious, and our property insurance is out of this world. (*Yellowstone County Agriculturalist*)

Since the fuel prices went up...the people that are in cattle, stay in cattle. They're not switching around. (*Yellowstone County Agriculturalist*)

Want to buy it? Write me a check, I'm gone. I can't afford to leave. (*Yellowstone County Agriculturalist*)

We've just been here for so long. We own it, but somebody else is going to have it someday, and I want to leave it in as good a shape as it was when I got here, if not better. We're real careful that we don't waste a lot of water. (*Yellowstone County Agriculturalist*)

I think it was a good place to raise a family. We have a lot of history here. (*Yellowstone County Agriculturalist*)

Farming is a full-time job. (*Yellowstone County Agriculturalist*)

I guess I'll stay here until the river comes up to the porch. (*Yellowstone County Agriculturalist*)

B. Land Should be Productive

It is a very productive area, producing excellent crops on land irrigated out of the Yellowstone River. If it wasn't for the Yellowstone River, there wouldn't be anything here but desert. (*Yellowstone County Agriculturalist*)

Some of the land we leveled ourselves. We have two scrapers and we leveled quite a bit of the land ourselves. By leveling the land and making the irrigation more efficient, it accomplished two things: the land became more productive and we were able to use much less water. (*Yellowstone County Agriculturalist*)

The upper part I leveled and made a field. It is pretty good productive land. (*Yellowstone County Agriculturalist*)

The gravel that the river washes out of its banks ends up in big gravel bars and islands...that are not productive for anything except for noxious weeds. (*Yellowstone County Agriculturalist*)

Without water you couldn't raise anything. Especially on top. There is so much gravel. That is called cactus flats because that was all that grew. Any moisture just went down in the gravel....You have to use fertilizer. The nutrients do wear out and are used up. On dry land, where you don't have the moisture and don't produce a heavy crop, they last a lot longer. (*Yellowstone County Agriculturalist*)

Down around Columbus, you start getting into row crops, and corn, and beets, and into a lot more expensive land—a lot more productive land....We've got to protect some of that. Urban sprawl is taking that out. (*Yellowstone County Agriculturalist*)

I thought this farm would be a good place for a subdivision when I retired. I looked for three years for that kind of place. (*Yellowstone County Agriculturalist*)

C. Rural Ideals

I own this property, and the State owns that river. I understand that and I am perfectly fine with it. I can't go out in that river and mess around, because that is the State's. So, I think the State should have to keep that river off of my property, too. If I can't mess with the river, why can the river mess with me? (*Yellowstone County Agriculturalist*)

The biggest problem that I think is going to be faced on the Yellowstone is ignorance of the natural process, and bad practices. They blame everything on the farmer and rancher. Well, there aren't many left....Those guys [still farming] are getting old, and they're selling off. (*Yellowstone County Agriculturalist*)

Farmers are stewards of the land. And until the recreationists become the same stewards, you're going to have problems. The folks in the Greater Yellowstone Coalition, they're not stewards of the land. They don't have any idea what it is to manage that land. (*Yellowstone County Agriculturalist*)

Unless you're raised around livestock, you don't know what you're dealing with. City people are not well educated in hazards. They'll go out and think it's a pretty-looking buffalo in Yellowstone [Park] and get gored....Those are city folk that don't understand that cows and horses and bulls can take exception every now and then from being totally docile. I don't care how fast you are, if a bull's coming at you short distance, he's going to outrun you and then he's going to hurt you big time....An OSHA manual came out in the '60s, [and] the title of it was 'Livestock are Dangerous.' That is true. (*Yellowstone County Agriculturalist*)

There are too many people [who] are too far away from having a little dirt under their fingers from working the soil, and they just don't understand exactly what all of it is. (*Yellowstone County Agriculturalist*)

D. Individual Rights are Important

You've got to allow the owner of the land to do what is in his best interest and the land's best interest. And if you start stepping on that, then you're violating their property rights and their personal rights, and that isn't quite what this country was founded on. (*Yellowstone County Agriculturalist*)

It amazes me the number of people that are not connected to the land and that have no respect for private property issues. (*Yellowstone County Agriculturalist*)

II. Agricultural Descriptions of the River

A. The Yellowstone is Evolving

This river is still evolving. It will evolve for the next 1,000 years. And there will be changes in the river and sedimentation—every time a chunk of bank falls into the river it creates mud. (*Yellowstone County Agriculturalist*)

When we were kids we ice skated on the main channel. It was three-feet thick. My grandfather marked a road on the ice from Huntley to Billings. All of the homesteaders drove to Billings on the river. (*Yellowstone County Agriculturalist*)

Years ago, the Clarks Fork used to run into the Yellowstone right here....Now, the Clarks Fork enters up there by Clark's Camp....If you get real old maps you can see that the channel was right over here....The river is slowly cutting this way, and I guess in another 1,000 years it will cut back that way....You can just look across [at] the old growth timber, the big trees way back and then the young growth out here in the front. (*Yellowstone County Agriculturalist*)

B. Ambivalent Sentiments about the River's Character

Montana is the number one watershed area on the North American continent—number one....A good share of [Montana water] comes down this Yellowstone River. A lot of it will go west into the Snake River. A lot of it will go to Three Forks and will go the other way into the Missouri. But it's all Montana water. (*Yellowstone County Agriculturalist*)

This Yellowstone is a mean, mean river during flood time. I live right on it. I know all about it. It's mean. It runs fast and it runs deep. (*Yellowstone County Agriculturalist*)

It's a floating garbage pit....It washes away the land, and it washes away the trees....There's all kinds of decaying trees in the water. Does that do anything for clean water? (*Yellowstone County Agriculturalist*)

It is a beautiful river to take your family out on. It can be a great experience. (*Yellowstone County Agriculturalist*)

I think the attitudes of people have changed from [the river] being a garbage dump to more of recreation or beauty. [The change] has taken place gradually over the years. Hopefully it will stay that way. (*Yellowstone County Agriculturalist*)

C. Comments on Free-Flowing

People have more respect for the river. Everyone knows that the Yellowstone is the last free-flowing river in the United States. They could have dammed it and made a big lake and then irrigate out of it. (*Yellowstone County Agriculturalist*)

I know they want the Yellowstone River to be a wild and free-flowing river, and in some areas, it is. But wherever we've had to put in rip-rap material, or bank stabilization, or what-not, it really isn't anymore....It really isn't wild and free-flowing....People have to protect their property, their homes. (*Yellowstone County Agriculturalist*)

I'm no longer in favor of the free-flowing river. You can have a free-flowing river, but you've got to protect some of the assets. One of the assets is this irrigation ditch that waters a lot of farmland in Yellowstone County....I think we've swung too far on the pendulum [toward] the free-flowing river. You can still have a free-flowing river, but protect some of the assets that have been there, like this irrigation ditch [that has been here] since 1890. (*Yellowstone County Agriculturalist*)

You also have a lot of trouble with this river during high water. There's lots of erosion and there's lots of flooding. And, as you're aware, it's the only undammed river on the North American continent. That I don't like. (*Yellowstone County Agriculturalist*)

I understand that the Yellowstone River is the longest free-flowing river in America, and I used to think that was a great deal until I lived on it. Now I don't. (*Yellowstone County Agriculturalist*)

You have to look at it as a free-flowing river, because it's one of the few left. (*Yellowstone County Agriculturalist*)

Of course, the Yellowstone is the last free-flowing river. And it has to stay that way. (*Yellowstone County Agriculturalist*)

D. The River Goes Where it Wants to Go

We tried to change the channel...[but] once the river has made its mind up, it don't make any difference how much limestone you put in there. It's going to go where it wants to go. (*Yellowstone County Agriculturalist*)

The time that the river changed course drastically, and started moving into our property, it was just horrific....There was a big island out there, and it was full of trees....You would hear the trees....It sounded just like bowling pins going down....It literally lifted those trees every which way out into the river....It was just unbelievable. [Then, the fallen trees were] knitted and packed with mud just like somebody had created it by hand, but it was just the force of nature....[The fallen

trees] diverted the water,...which brought it into our place.....It just basically changed overnight. (*Yellowstone County Agriculturalist*)

People want to live where it's pretty, but if you're going to build on the river, expect to be flooded. And don't cry to me when you're flooded because, if you're stupid enough to build there, then it's your problem, not mine. (*Yellowstone County Agriculturalist*)

If you ever notice, farmers and ranchers don't have their houses right on the banks of the river. Gosh, I wonder why. But you see the city folk [saying], 'Oh, that's a great place to build, great view. Boy, we can walk out the back door and throw the fishing line in the river; that's fantastic. We can put our jet ski out on the river right out our back door....Oh, my God, now the back door is the front door, the river has changed channels.' I'm not going to cry for those people. Common sense says you don't build in a hazard area. (*Yellowstone County Agriculturalist*)

The '97 flood forced us to become more flexible. Our present day intake, where we have it now, is on the south side of the river and [before] it was on the north side. (*Yellowstone County Agriculturalist*)

The river is constantly changing. The river moves from side-to-side one time or another. (*Yellowstone County Agriculturalist*)

The river moves north and south. [Since we've lived here,] it's moved north....It's washed out 30 acres of our land. What we used to have, we no longer have—it's under the water. Fifty years from now it could move back south and we could regain it....In fact, it's endangering the canal down there that's been there since 1890. (*Yellowstone County Agriculturalist*)

That farm right next to me....I've seen that under six feet of water twice in one year. The big hay bales were floating. Once was at Christmas time, due to an ice jam. A lot of times it will freeze up early then it will break out around Christmas. We got a warm spell and [the water] went right through the house. (*Yellowstone County Agriculturalist*)

We sat up one night during a rainstorm and heard the river take one of these 60-foot cottonwood trees.....Just CRACK, and KAPLOOSH, and the whole thing went, roots on one end and leaves on the other. If it can do that much damage to these trees,...I don't foresee anything left of this place eventually. (*Yellowstone County Agriculturalist*)

[Our neighbor] had a lot of problems with the dikes washing out. He laced willows on the face of the dike, but if there was a hole started, the river ate it out. (*Yellowstone County Agriculturalist*)

If we don't get some stabilization on that bank, this place, in ten years, is going to be in trouble, and so is everybody else in this valley if this river gets high enough. We've had two neighbors down there that it flooded already. (*Yellowstone County Agriculturalist*)

The loss of agriculture land [due to flooding]...may be critical....You may be out of business, [especially] if you're renting. (*Yellowstone County Agriculturalist*)

III. Controlling the River with Rip-rap

A. Rip-rap Seems to Work in Some Places

I lost eight acres on the one field, but it was also endangering the railroad [so] they came in and rocked it....Yeah, it worked. It was spendy, but it worked. (*Yellowstone County Agriculturalist*)

It worked. The place is still there. The river has changed and actually it has gained because the river went back north. So, I guess [the rip-rap] was a worthwhile project for us. (*Yellowstone County Agriculturalist*)

It should have been rip-rapped many years ago, when I first moved on that place. If I had known then what I know today, I would have rip-rapped. (*Yellowstone County Agriculturalist*)

In '97 we had the highest flood on record....[It] was a 500-year flood....[The] REA was afraid it was going to...flood their new unit....They rip-rapped it perfect [for] a half mile...and there has not been one piece go out of place. There's always a hole or something that may have been done better originally, but if you throw...rip-rap [in the hole] it just makes it better....To do it right, you want [there] to be about 16-foot width at the base, so you have a big strong base for the other to lock with, and then bring it up to about a three-foot width at the top....The weight crushes it down....You've got the dirt walls behind it that are packed and it doesn't seep very well. (*Yellowstone County Agriculturalist*)

Years ago, we did a lot of rock work and that is the only thing that has saved half of the farm. (*Yellowstone County Agriculturalist*)

Farmers and ranchers protect their soil. It takes too long to regenerate an inch of soil to have it wash down the river. In this part of the country, 100 years will build an inch, and, depending on where it's at, it may take 500 years. (*Yellowstone County Agriculturalist*)

The easy thing can be done, but [it's] not allowed to by the Corps of Engineers. You could put in rip-rap, and you could reinforce the banks. They do this world-wide. (*Yellowstone County Agriculturalist*)

B. Rip-rap and the Potential for Shifting the Problem Elsewhere

Rip-rap diverts water into the neighbors' land if you don't do it right. That is something you have to be concerned about. You could subject yourself to a lawsuit. That is something the Corps and the local Conservation District should look at. (*Yellowstone County Agriculturalist*)

Water finds its own level, as you're well aware, and that's what the Yellowstone will do. If you stop it from meandering [in one] place, it's going to meander someplace else. (*Yellowstone County Agriculturalist*)

You...[have to] watch out. If you are rip-rapping on the south side, and somebody's got farm land on the north side, that can create some problems....We were very fortunate because there was no effect to people to the sides of us or across from us....We had no one but ourselves to protect. In fact,...the river was affecting [the neighbor] tremendously, [and]...when we got done, it turned the river away from their property. They now feel safe and secure. (*Yellowstone County Agriculturalist*)

Weirs change the current so that maybe the flow...shoots [across] and starts chewing on [the bank] over there....People might be upset if they don't have rip-rap to protect them. (*Yellowstone County Agriculturalist*)

C. Rip-rap and Difficulties Getting Permits

Often times, before you can get your permit, the damage has been done....All these various approvals...take from three months...to six months, maybe. But the damage is done and over before you can get [the permit]. (*Yellowstone County Agriculturalist*)

I got along with them. They knew the emergency and so they rushed it through so we had it in a couple of days. They did not bitch about the emergency....It had to be done or else it was wrecked. So they allowed them to come in and fill where the hole was leaking...then the permit followed the deal. (*Yellowstone County Agriculturalist*)

The permitting process is difficult and what they require you to do is costly. (*Yellowstone County Agriculturalist*)

I can't do anything now because of the permit system. (*Yellowstone County Agriculturalist*)

I think we ought to reinforce the banks....[Erosion is] endangering the canal that feeds the sugar beet, barley and corn farm area of Yellowstone Valley....You lose that canal system, you have no food. And yet we can't do anything to it. The ditch company couldn't even get permission from the Corps of Engineers to protect the ditch, something that's been there since 1890....They spent over \$100,000 trying to protect the ditch, but they can't get permits, can't get in the water, can't do rip-rap,

and can't protect it....They used to allow rip-rap on the river, but they've made a decision in the last several years not to do that, so they don't allow anybody to do it. You can't even protect it in Billings. (*Yellowstone County Agriculturalist*)

I think many landowners just don't have the patience, number one, to go through the process. (*Yellowstone County Agriculturalist*)

I have lived here long enough to know that the banks can be stabilized...without bankrupting you. But you can't follow all these stupid regulations....The bulk of our population is so interested in recreation that they overlook the fact that...the river is a resource. It's a resource that should be managed and should be protected. It should not be left to the wiles of flooding and high water. But I don't think [the regulations] will change....There are more of them than there are of us. (*Yellowstone County Agriculturalist*)

I don't expect them to let me put [the dike] out in the river again. I just want to stabilize the bank so that if the water comes over it, it won't cut it away....See, the real bad part about it [is that] the top three foot of this ground is just sand, and as soon as that water hits it, it just sloughs off into the river, and just keeps sloughing off....I don't care if it runs over. We can put up with it running over once a year, you know. But I just don't want it to take any more of my yard. (*Yellowstone County Agriculturalist*)

We didn't have too much trouble with the permits. They went pretty good. Not saying we didn't have little problems once in awhile. Just misunderstandings. We get along pretty good. The only thing was I couldn't get any money to help. To [rip-rap] is awful expensive. (*Yellowstone County Agriculturalist*)

I want to give the Yellowstone County Conservation District credit because I think, by in large, they are very reasonable. It's just that in many cases they are reluctant to have you do anything to the river. (*Yellowstone County Agriculturalist*)

D. Rip-rap is Costly and Few Can Afford it at an Effective Scale

I've put a lot of money into rip-rap...three-eighths of a mile,...[which is] half of my retirement fund....I think it is almost cost prohibitive now....I guess over the years I've put a \$100,000 to \$200,000 into it. That was when money was worth more than it is now. (*Yellowstone County Agriculturalist*)

The neighbors were wanting to do some rip-rap....At that time, land was only worth \$1,000 an acre, so we told them to let the river take it. The very next year, it switched, and we haven't had any trouble since. (*Yellowstone County Agriculturalist*)

I was told, 'We can't approve the using of concrete rubble.' I asked, 'Why not?' I have traveled quite a bit...and I have never been to a city on the Yellowstone where there hasn't been bank stabilization done with concrete rubble....To do what he was

proposing you could easily spend a million and a half dollars. You reach a point and ask, 'Is the land worth saving?' (*Yellowstone County Agriculturalist*)

Agencies say the rip-rapping isn't worth the investment. But once a piece of productive land is gone, there's no revenue from it. It isn't just the revenue the farmer [lost]...[Farming] supports a lot of businesses in the community...It's a hard thing to figure. The land might have been worth \$1,500 to \$2,000 an acre...but when you figure the production over ten, 15, 20 years, it grosses a lot....And it takes hundreds of years to get it back. (*Yellowstone County Agriculturalist*)

We've got the technology to do damn near whatever we want to do; it's whether [or not] we can economically do it. (*Yellowstone County Agriculturalist*)

We've got wasted cement everywhere....We should have it coordinated to where they could take it to a site, dump it on the bank, and, with a backhoe,...get it right. It ...would be helping the whole community. (*Yellowstone County Agriculturalist*)

We can get rip-rap for nothing....People are glad to get rid of it because they have to pay to take it to the dump. Whenever [my husband] sees a new project going on...he'll stop and tell them they can come out and dump it here....But we don't put anything in the water that has any steel rebar in it. Absolutely not....That's just plumb outta the question because people come by here in a rubber raft. A three-quarter-inch piece of rebar sticking up—what do you think that would do to a rubber raft? (*Yellowstone County Agriculturalist*)

E. Alternatives to Rip-rap

[I heard about] a new idea and in some places it really works. What they do is build a rock weir on an angle out into the river. The Canyon Creek Irrigation District has put some of those in, and they work very well. (*Yellowstone County Agriculturalist*)

We used Bendway weirs. I think we put in six of those....We have had very good success with the weirs except one... They simply keep the power of the water away from the bank. They don't wash out the side of the river. You don't ruin anything downstream, which is a common belief. They don't seem to be like the hard stuff where you throw the current to the other side. They are gentler....DNRC had some money a few years ago and they funded 75 percent of the weirs for the ditch company. (*Yellowstone County Agriculturalist*)

The Yellowstone is so powerful that we get water behind the weirs and it washes behind them....The placement of the very first one is critical. If you don't get it right, it will wash behind it....That is the hard part....The person designing those spent an entire year on that...[and] the next spring the river washed away 20 feet of river, and we were back at square one....These were the most highly engineered weirs on the Yellowstone. They must have spent 200 hours on the planning, and they had two people on site watching the placement of every rock. So there couldn't have been any

more scrutiny on a set of weirs. It is not an exact science, but they work most of the time. (*Yellowstone County Agriculturalist*)

A real easy way to stabilize this river, that would benefit everybody, would be to go to Columbus, put a dredge in it and dredge the river [to] about 12 to 15 feet deep.... Haul that rock out and use that rock in road building, use it in cement, or whatever. Dredge it from Columbus to Huntley. They wouldn't have any problem in this river. It just has to be deeper. It's just got to be deeper, and it would make an excellent fishery for recreation. (*Yellowstone County Agriculturalist*)

F. Rip-rap and the Question of Fish

[Rip-rap] can ruin the fishing habitat. That is the biggest thing. If you have a rip-rapped bank on both sides of the river, there is no place for fish to hide. (*Yellowstone County Agriculturalist*)

G. Rip-rap and the Question of Aesthetics

The rip-rap is unsightly, and, [when] they dump rebar...it is dangerous for the animals. (*Yellowstone County Agriculturalist*)

Rip-rap is an eyesore and takes a tremendous amount of material. And most people can't afford it. (*Yellowstone County Agriculturalist*)

Well, they've tried auto bodies and they're ugly and don't work. (*Yellowstone County Agriculturalist*)

IV. Sharing the River

A. Plenty (?) of Water

If it wasn't for the Yellowstone River the City of Billings wouldn't exist. And one of the things I think that all of us ought to be concerned about is that, with the terrific growth in population that we have, water is going to become a very valuable commodity. We have lots of water, but we make very little effort, if any, to store it. (*Yellowstone County Agriculturalist*)

I think it is too bad we can't divert it somehow, the high water, and put it to use. Once it leaves this state, it is gone. I think we could develop more agriculture if we had some diversion. I'm not sure how'd you do it. Maybe it would take a dam and that would be pretty hard to do anymore. (*Yellowstone County Agriculturalist*)

If we were without the river we would have nothing....We've got to get our irrigating water from the Yellowstone....Most of it is flood irrigation. We don't have any sprinklers....The operation is all we can handle. (*Yellowstone County Agriculturalist*)

I think there will always be plenty of water in the Yellowstone until late in the fall. There will be some shortages that show up in the fall, for irrigation mainly. The river gets so low then that people have to pump and that is expensive. I don't think they will ever put a dam on the Yellowstone. I think there is too much public pressure. The only thing is, if they could divert some of the high water, and use it when the river is low. I don't know anybody that is in favor of a dam. (*Yellowstone County Agriculturalist*)

The canal always is filled to capacity at Laurel. There is always competition. The City of Billings wants water. A lot of ranchers would like to pump [water] up to the dry land and put pivots on. There is always competition but the canal has only so much capacity. (*Yellowstone County Agriculturalist*)

Twenty-five or 30 years ago, a man named Cristafulli spent his own money...and [designed a project for]...pulling water out of the Yellowstone at the high-water time, which would alleviate all this flooding downstream...[A canal would take water out] just this side of Livingston, Montana, it would go down the slopes of the Rockies, and the canal would empty it back into the Yellowstone near Glendive, Montana. There were nine reservoirs that would be filled during high-water time that would put some nine million additional acres under irrigation in Montana....Think of the tax base that would have added to our state, not to mention the recreation and the fishing and the funning that nine big reservoirs would afford everyone....But, no sir-ee. [The Feds] said, 'You don't touch the Yellowstone waters.' (*Yellowstone County Agriculturalist*)

We applied for some reserve water....The way I understand it...[the State] would like to get the water out on land because otherwise it will be claimed downstream in other states. (*Yellowstone County Agriculturalist*)

B. Development

The way Billings is growing, the irrigated farm land is vanishing. I even noticed it in the Worden area. (*Yellowstone County Agriculturalist*)

I think between Billings and Laurel it is going to be pretty well filled in. (*Yellowstone County Agriculturalist*)

It has changed. One of these days, you're going to see a lot of houses out here. (*Yellowstone County Agriculturalist*)

In the last ten years we have four times as many families. There is less irrigation and more subdivision. There is less farming. You get 160 acres and divide it up into five-acre plots and put a horse on each plot....Subdivisions have to be approved by the County Commissioners. (*Yellowstone County Agriculturalist*)

The place right next to me sold to a doctor in Billings. He bought up the land, inflated the prices...[and now a farmer] can't buy land....The outlook hasn't been real good

on farming for the last few years....The land is too expensive, and the cost is too high to try to farm. (*Yellowstone County Agriculturalist*)

East of Billings you're not going to see major changes because agriculture is still king. There isn't going to be huge development. There will be some...out by Pompey's Pillar, if it's not all burned up,...[and] some development along the river [in] Park City....[In] Columbus [and] down this way, you're probably going to see...the smaller acreage type of things happening, which is going to take out some productive cropland, and some of it isn't. (*Yellowstone County Agriculturalist*)

For farmland, we could pay \$1,800 an acre, but they are getting \$18,000 an acre for that stuff. I don't see us continuing to farm in the next generation....Maybe another 20 years, and then it will all go to houses. (*Yellowstone County Agriculturalist*)

Eventually it will be for real estate rather than farming. I only have 500 acres. (*Yellowstone County Agriculturalist*)

All of the ground that you see between Laurel and Billings is dotted with development. Between Laurel and Park City, and Park City to Columbus, it's the same thing....I think in 30 years,...when you come off the Columbus hill, it's going to be all developed, probably to Custer. (*Yellowstone County Agriculturalist*)

When they subdivide the irrigated land, I would like to see the taxes on that land go to pay...to put water on something else. If we have to pump water 20 miles up to the dry land, the cost of that should be attached to the land that has been destroyed [for] a house....How would you do that? Politically, it is unsound. (*Yellowstone County Agriculturalist*)

C. Corridor Might Limit Development, Might Violate Rights

[A corridor is]...where...we aren't going to have any development along the river...[and] keep housing and development out of it. I assume is what they're talking about. That sounds fine. (*Yellowstone County Agriculturalist*)

As I understand it, they want to take land from the landowners along the river and make this river corridor. Let's say they have a corridor of a quarter-of-a-mile wide. That would take a good share of our productive land. I object to that. That's how we make our living. Then let's say the river continues in its wild, untamed fashion and it washes into that corridor....They'll want another quarter-of-a-mile. (*Yellowstone County Agriculturalist*)

We all recognize and value the river, and we all recognize the flood zone area. You're never going to put houses in there....It's only going to be good for cattle grazing or horses, or something like that, and if you end up having horse trails through there, or bicycle paths, no big deal....You could make out some kind of compromise so it

could be a win-win for the farmers and ranchers and for the city people. (*Yellowstone County Agriculturalist*)

D. Conservation Easements Can Protect Land from Development

I did this Nature Conservancy thing to protect the land so it could never be developed....My kids would sell it, and there would be all houses built. We don't want that. There is enough of that around here. There is so much traffic. They drive too fast. They almost ruined my second cutting last year because it was so dusty. (*Yellowstone County Agriculturalist*)

We actually looked into creating a river corridor here. We were going to have three miles of riverfront in conservation easement. We had our two neighbors and myself, and between us, depending on how much land they put in, we could have had as much as five miles. Three miles would have been easy to do. And we had the Feds and State both out here several winters ago talking to us over a couple of months. It was a terrible worthless deal that none of us wanted. We were all excited and interested about doing it, [but] the way they put that program together, I don't know why anybody would do it....The tax break is not significant. (*Yellowstone County Agriculturalist*)

With conservation easements I think that either people are afraid that the government is going to do something with the land or they don't trust the people that are issuing the easement. But I think it is a good thing because it protects the land. (*Yellowstone County Agriculturalist*)

They don't give you a break on taxes because it is an easement....I talked to the tax department quite a few years ago and there is no tax advantage. I thought there wouldn't be. (*Yellowstone County Agriculturalist*)

E. Abiding by the "Old School" Rules of Accommodation

You can go to a Montana farmer and rancher, not to the New York boys or the Californians that have bought [land], but go to a Montana farmer or rancher, and you ask permission to go hunting or fishing, and nine times out of ten you're going to get that authorization. (*Yellowstone County Agriculturalist*)

I've been pretty generous with fishermen. All I require is they close the gates and they pick up their trash. If they don't, I throw them out. (*Yellowstone County Agriculturalist*)

We wave and....the dogs go out and bark and greet them. Once in awhile you get some idiots that are all tanked up with beer...and all I ever [ask] is, 'Please, don't tease them'....We haven't had any problem with them. Most of them just wave. (*Yellowstone County Agriculturalist*)

If you want to know where the high water mark is, it's obvious. Yes, it's very obvious. (*Yellowstone County Agriculturalist*)

F. Access and Abuses

Laws keep law-abiding citizens honest. Locks keep law-abiding citizens honest. I don't know what it's going to take....Providing more access to the river may do some good, but it's doubtful. (*Yellowstone County Agriculturalist*)

I do allow hunters in. Last year it wasn't bad, but [now] I have people call and book a hunt. They were taking about 25 [deer] a year. I think last year they only took about 15....We don't allow any bird hunting. My wife likes the ducks. They raise their young down by the barn in the ditch. (*Yellowstone County Agriculturalist*)

We have pickups that come in from the access up the river, and they drive out through our place...to find a way back to the highway. That gets real old. (*Yellowstone County Agriculturalist*)

A lot of people resent people crossing their land to get to the river. [The State or the County is] going to have to have public access to the river....The problem, now, is [the public] can gain access by boating and...[then] they go on private land. That is the biggest thing I think that is going to come up. (*Yellowstone County Agriculturalist*)

We've had gates left open, cattle and sheep in everybody else's country, trees cut down and campfires on the river shore. (*Yellowstone County Agriculturalist*)

We get people in inner tubes coming down here in May and June. I wouldn't be out there in a boat in May or June....If [only] they saw the trees underneath the water, where they could catch a foot in a 'Y' and just get pulled down. And they'd never get up to breathe. They ought to go out there in August when the river is low and see how many trees they could get caught in. (*Yellowstone County Agriculturalist*)

We go down there and pick up beer cans and stuff from people having beer parties, or whatever. I accept the trash is just a part of the deal. (*Yellowstone County Agriculturalist*)

There are more thieves that come down the river. It is like a highway. My father-in-law had his boat pulled up, and they came along and stole it. You can't leave any equipment along the river. [One man] left his backhoe down there and they stole the copper and broke all the windows. You hear boats every day. You don't have the privacy like you used to. A lot of hunters will come and hunt on the islands. They will hunt on your property too. I think it is bad, [but] because the river belongs to the State, we have no say along the river. (*Yellowstone County Agriculturalist*)

V. Other Difficulties and Concerns

A. Exotic Invasive Plants—Noxious Weeds

The number one problem with the river is weeds. We have more each spring when it floods. (*Yellowstone County Agriculturalist*)

After the flood, we also ended up with a noxious weed problem that you can't believe. We had leafy spurge and knapweed, and we have salt cedar growing on the gravel bars in the river....Where the river channel had been before, it is now a huge gravel bar, a big island....There is so much salt cedar down there. When that stuff is in bloom that island was pink with blooms. (*Yellowstone County Agriculturalist*)

We have knapweed and leafy spurge, and we have more each spring when it floods. We spray and spray, but every time it floods...we have more leafy spurge and more knapweed. (*Yellowstone County Agriculturalist*)

I don't graze it because [the animals would] pick it up and we would have it all over the place. There are hundreds of deer down, and they are bad enough. They spread hound's tongue and they like Russian olives. (*Yellowstone County Agriculturalist*)

It is a constant battle with the weeds....[When] cattle season comes, the [trucks] come down the roads with loads of cattle, and they dump their crap....The rains wash it off the road and it stays there. Then, the next spring, they hire the college kids to kill the same weeds that the bull-haulers just hauled in and planted for you....It's ridiculous. It's stupid. What they could do with those bull-haulers is to make it a \$1,000 fine....When I was a kid growing up, it was illegal to ship wet cattle. You had to dry-lot your cattle 24 hours before you could ship them. (*Yellowstone County Agriculturalist*)

I work really hard at taking care of weeds. And you look in the city parks and they are full of white tops....Give us a break. (*Yellowstone County Agriculturalist*)

The disadvantage to flooding is the Russian olive, which is ruining the river valley....The only thing they're good for is a toothpick if you need one. (*Yellowstone County Agriculturalist*)

We could turn the Yellowstone into the ugliest river in the world if the weeds come in and take over. That is a great thing [the Yellowstone River Conservation District Council] has done. They have done a great job on weed control. (*Yellowstone County Agriculturalist*)

B. Cottonwoods

I realized...[that] if you don't have flooding, you don't have new cottonwoods growing. (*Yellowstone County Agriculturalist*)

My place is unusual because a lot of my pastures are covered in high water and...it reseeds all of the cottonwood trees. One year, before I did the diking, the river ran into the field and the cottonwoods grew like grass. I turned the cows in and they ate them like grass. (*Yellowstone County Agriculturalist*)

I am not a supporter of letting the river meander. Why must we destroy an acre of mature cottonwood trees that are 100 years old in order to provide areas for new ones? (*Yellowstone County Agriculturalist*)

We...lost so much land, and this was bottomland that was covered with big cottonwood trees. And we thought, 'Well, with the big, heavy trees there and the roots, we'll never have to worry about it.' In fact, the river ran in the same channel for years and years. And all of a sudden it changed. We've lost at least 42 acres. (*Yellowstone County Agriculturalist*)

The cottonwood and willow river-bottom ecosystem is supposedly an advantage....One of the problems is there's all these beavers down there. They chew up the cottonwood trees—[trees that are] six to eight feet in diameter...that Clark could have used for canoes—but the beavers eat right through them. When they eat through them, they drop that tree...[and] it kills the roots. Guess what? Those roots were holding the soil to kind of keep the river at bay. (*Yellowstone County Agriculturalist*)

A young man came in, and he was soaking wet and freezing cold. He had been on a jet ski [that] washed into a tree and he almost drowned. It sucked the jet ski under. He was able to dislodge himself after a half of an hour and walk to my house....We gave him some warm clothes....What do I do, leave the tree to fall in and it takes someone's life?...If we save a tree, we save a life. The Yellowstone can be so dangerous. (*Yellowstone County Agriculturalist*)

C. Water Quality

There are drainage ditches anymore that you can't find the minnows in....It's due to fertilizers and chemicals that come off the fields. (*Yellowstone County Agriculturalist*)

Some of the nitrogen probably gets in the water table because it goes down pretty fast. Phosphorous hangs with the soil a while. We use the waste water again when it comes through the drains. We use the same water twice. (*Yellowstone County Agriculturalist*)

The refineries [used to] put their waste oil in ponds and it seeped into the river. In the '30s and '40s you could see the colors of the rainbow in the water from the oil. They have really cleaned that river up. It is amazing. It is really clean now. People are pretty careful about dumping stuff now. If they catch you, they will fine you. Years ago they used to dump their garbage in. (*Yellowstone County Agriculturalist*)

D. Threats to Agriculture and to the U.S. Food Supply

There's a huge amount of movement away from food production here in the United States....Our society and our way of life [is moving] into a service industry. The plan is out....We can buy food,...beef and vegetables and sugars and all the rest, from third world countries....And if we do,...we loose our middle class. We will have the very rich and the very poor....The people who work the land are your middle class and we'd lose that. And it'll be the end of the United States as we know it....Then dictatorship takes over usually. (*Yellowstone County Agriculturalist*)

The environmentalist community has a strangle hold on the State of Montana. (*Yellowstone County Agriculturalist*)

VI. Managing for the Future

A. Frustrations with Local, State and Federal Management

Ranchers and farmers are kind of suspicious. A stranger walks in and they are suspicious as to why they are here and what they are after. It has been that way for years. (*Yellowstone County Agriculturalist*)

The most important resource that Montana has is the Yellowstone River, and we're giving it away to downstream interests. We should not be doing that. The Federal government should not be allowed to do that. (*Yellowstone County Agriculturalist*)

My ranches have lost probably 120 acres....I'm paying taxes on several islands out in the middle of the river, and I can't use them. But they're still in my deeded ground, and the government still taxes me for it. (*Yellowstone County Agriculturalist*)

I'm telling you, the Department of Environmental Quality has gotten so out of line....The DEQ is running rough-shod over people that live around these streams and rivers, or that have a pond on their place, or that have some cattails that might be in a flyway....Those cattails, it seems as though it's 'Hallowed be Thy Name.'
(*Yellowstone County Agriculturalist*)

The County came out here, and they told us all these things we needed to do [about the weeds,]...or they can come out and spray it and charge me money. I told them, 'You go up to the head of the Yellowstone River and you kill all the knapweed and spurge down to me, and then I will kill mine, and then you can go on down there. Until then, there's nothing we can do about it.' I can...show you every place that river has ever overflowed—it just spreads them weeds, and that is exactly where the knapweed and spurge is. (*Yellowstone County Agriculturalist*)

We were all out on the river bank...and [one man] asked, 'What's the problem with car bodies?' And [an agency man] says, 'It's the oil and the rust.' I said, 'Yeah, I can understand that, but when I go to Billings and this old vehicle in front of me...[is

making] a puddle of oil....Where does that go when it rains?' He says, 'It goes in the river'....That kind of tells me that a 100,000 people make it right, and one individual makes it wrong. (*Yellowstone County Agriculturalist*)

Sure they want our water. They need it for commerce downstream. And now we have the environmental sector,...the tree-huggers from back east, and the Fish and Game has gotten involved....And it's almost a sacred word, 'Don't touch our Yellowstone.' Well, wait a minute here. God put that water here for it to be used. (*Yellowstone County Agriculturalist*)

We have not had the best of luck with some of the agencies. They all have to sign-off. The people who are in those roles, some of them, have been less active than others. We have had permits sit on their desk six months, and [we] get it back signed with no comments. (*Yellowstone County Agriculturalist*)

[Near] the population centers...the County and State government people come in and do what they want. They don't need permits [for bridges and roads]. They just do it. That one project on South Billings Boulevard would have more impact on the river than 50 private people. (*Yellowstone County Agriculturalist*)

[We] went to Miles City,...[to] both the State and Federal offices, and they said, 'You don't need any 401 permits for that project'....[So] we've been flood-irrigating through the years [and now] there's a little patch of cattails. Well, that designates it as a water route....[and] Federal gal out of Helena...says, 'Oh, wait a minute....You didn't get the permit'....They wanted to fine me \$100,000The [Miles City] offices are still up in an uproar about it because the Federal government out of Helena and Denver superseded them...[and] the fine runs \$17,700 a day. Well, this hits up towards the millions, so I finally settled with them. They just use scare tactics on you. (*Yellowstone County Agriculturalist*)

We are not concerned about clean water....It just makes a lot of people feel good. When you have tons and tons of topsoil going down the river, it doesn't do much to clean the water. (*Yellowstone County Agriculturalist*)

B. Management Priorities

The prime agricultural land that's down along the Yellowstone... should be prioritized for protection. (*Yellowstone County Agriculturalist*)

It's got to be managed for multiple-use. I enjoy seeing the people on the river enjoying the river and the fishing and stuff. (*Yellowstone County Agriculturalist*)

I don't care what anybody says—without that river, there isn't anything....Up and down the line, I don't care what county they're in. Take care of this river and it'll take care of us....That's how we've made our living since '47 is through the water in the

Yellowstone River. Without that we'd be like that dryland burning over there.
(*Yellowstone County Agriculturalist*)

They'd better look at the core industries...that are serviced by the Yellowstone River first. Then let's see how we can mesh the rest. I'm just telling you the way it is.
(*Yellowstone County Agriculturalist*)

Be conscious of what goes on upstream...[Decisions are made upstream that] impact the downstream people. (*Yellowstone County Agriculturalist*)

People...in Montana who own land, and pay taxes, [and] pay for their water... should not be disallowed to let a natural resource work against them. (*Yellowstone County Agriculturalist*)

C. Comments on Best Management: Who and How

You have to have a goal...[and you have to] see the pieces of the puzzle that you need to produce that goal. Then move forward. If you're so hesitant to move forward that people along the roadside are going to grab you and take you away from your goal, then chances are you have to step back and evaluate because maybe you don't really understand your goal. (*Yellowstone County Agriculturalist*)

You've got to build...the relationship. The relationship has got to be there between the sportsmen groups, the Fish and Game,...the farmers and ranchers, and the landowners. (*Yellowstone County Agriculturalist*)

You have to have a benchmark...[Then] you can look and see if something is having a devastating effect or no real effect. This mapping is the first step. You can't make these decisions without it...[We need to know] what are the cumulative effects, as opposed to...just hot air in the wind...You [need] a firm basis to make your decision. That way they can make intelligent decisions. That is the major role [for management]. Eventually they will be able to make decisions because they know what has happened and they will have evidence to support those decisions.
(*Yellowstone County Agriculturalist*)

The [Yellowstone River Conservation District] Council is the only one that can bring all the ideas together. I don't know what's going on in other counties. I would never be privy to any of that information. This group has that unique ability to bring all the thoughts together. I am not sure about the cooperation they get from the County. Maybe one of the roles is get some unifying thoughts [and] summarize what has happened. I don't know if they want to tell people what to do as opposed to maybe cataloging what has been done and the effects. (*Yellowstone County Agriculturalist*)

As far as I'm concerned, that [Yellowstone River Conservation] Council has got to get on the ball to do things for the river—to take care of the river for the future, for the people that are coming along. (*Yellowstone County Agriculturalist*)

This [Yellowstone Conservation District] Council is a must. It's going to do some good someplace, sooner or later. Somebody is going to come up with something....[Don't] get discouraged that there's nothing happening. (*Yellowstone County Agriculturalist*)

Thirty-five or 40 years ago [I heard about] the wise use of water....The 'use it or lose it' type of thing...was a step forward, but they never carried it through to wise use. Now they're getting where they're registering the wells and trying to get into the wise use of it. And that's the right step, to have somebody that knows what they're doing. And I think the [Yellowstone River Conservation District] Council has the expertise in these matters to following through with wise use....[The Council] will come out with a really positive program when it's done....They're knowledgeable people. (*Yellowstone County Agriculturalist*)

Some people aren't aware that they can't [do something]....They are naive of the law. Once they realize they need a permit they are cooperative. (*Yellowstone County Agriculturalist*)

The river is there for everyone. It is there for everybody, and we should try to keep these [extreme] groups...away. (*Yellowstone County Agriculturalist*)

Of course, the Corps has the final say in the direction that river goes. So we try to comply and understand...the big picture. (*Yellowstone County Agriculturalist*)

Big Horn River to Laurel: Local Civic Leaders Overview

Eighteen interviews were conducted with individuals holding civic leadership positions, including city mayors, city council members, county commissioners, flood plain managers, city/county planners, and water/wastewater treatment managers. Participants were identified through public records.

Participants in Yellowstone River Cultural Inventory—2006						
	GEO SEG I: Missouri River to Powder River	GEO SEG II: Powder River to Big Horn River	GEO SEG III: Big Horn River to Laurel	GEO SEG IV: Laurel to Springdale	GEO SEG V: Springdale to Gardiner	TOTAL IN GROUP
AGRICULTURAL	22	22	16	12	14	86
CIVIC	14	14	18	14	8	68
RECREATIONAL	15	16	16	13	16	76
RESIDENTIAL	15	11	16	15	19	76
GEOGRAPHIC SEGMENT TOTAL	66	63	66	54	57	
NATIVE AMERICAN						7
PROJECT TOTAL						313

Big Horn River to Laurel: Local Civic Leaders Analysis

I. The Transformed Valley

A. The River, The Rims, West Meets East —This is God's Country

It's...a high plains environment situated on the Yellowstone River, the longest free-flowing river in the United States....[Billings] is bordered by the river and the rim rocks; it makes for a real unique character. (*Yellowstone County Local Civic Leader*)

It is one thing to simply look at the river...but you go back further and that is what created our rims....That view was created by the river. (*Yellowstone County Local Civic Leader*)

[This area] is on the verge of the west, and the verge of the east....The mountains aren't very far away, and the prairie's not very far away. We're kind of a mix of both, right here. (*Yellowstone County Local Civic Leader*)

Where the prairie meets the mountains. We are definitely not western Montana. We're really not totally eastern Montana. We are where the two meet. (*Yellowstone County Local Civic Leader*)

[This is] God's country....It's the best place on earth, just like the Crow Indians thought....When Lewis and Clark came here, this was a bread basket. They couldn't wait to get out of the mountains and come back here because there was food. There was food because...ranging animals moved where there was grass....There were lots of deer, there were lots of everything....[The animals] were able to move unconstrained. Humans have changed that. (*Yellowstone County Local Civic Leader*)

There would be no Laurel without that river. Pure and simple there would be no reason for us. The Clarks Fork and the confluence of the Yellowstone made this the perfect place. (*Yellowstone County Local Civic Leader*)

B. Nothing Works Around Here Without Water

[The river] is huge for agriculture, but it is huge for economic development, too. We have three refineries, and...the Montana Power generation plant takes water. Nothing works around here without water. (*Yellowstone County Local Civic Leader*)

My elders always told me, 'Whiskey was for drinking and water was for fighting.' I think it's true....When you have the amount of people...and the amount of land that is good land, the only thing that's going to prevent that from being developed is the use of water....Right now there are opportunities for development that are being held back until

you find the proper mix of how you are going to supply water....Water holds the key.
(*Yellowstone County Local Civic Leader*)

Of all the natural things that occur...[the river] is the most important thing. It provides water for drinking, flood irrigation, and recreation. It is the lifeblood of our community.
(*Yellowstone County Local Civic Leader*)

Without that water, your land values would drop...from \$1,500 to \$2,000 an acre...to \$300 to \$500 an acre...[And] not only for agricultural purposes....Your communities...are all centered along those river-ways....The river is important: from domestic water, to irrigation, to recreation. (*Yellowstone County Local Civic Leader*)

If you follow the valleys down, you'll find that throughout eastern Montana...the vast majority of the economy is within the boundaries of that river....And it's not a whole lot of land...[And] the water that the City of Billings takes from the river...there would be no growth potential if they couldn't do that. (*Yellowstone County Local Civic Leader*)

When the Federal government created that canal it was headquartered in Huntley, hence we have the Huntley Project....[So] the river is of huge importance to us....It's the mainstay of the whole valley. All of the irrigated farms—what would we do without the river? (*Yellowstone County Local Civic Leader*)

I think [the river] is hugely important [to the town of Custer] because we use it for irrigation. This is a largely sugar beet and corn growing area, and, of course, your irrigated lands are going to produce a lot more. (*Yellowstone County Local Civic Leader*)

Because of irrigation in this valley, this valley has changed tremendously from what it was in the 1870s....This whole valley was an alkaline flat....There was a nice riparian area, because the Yellowstone is a wandering river, but it was probably a mile wide at its most. Now it is ten miles wide....Obviously, you need to maintain in-stream flows....There needs to be flowing water to provide for those plants and animals...but there is typically more water than that. (*Yellowstone County Local Civic Leader*)

There was a man named Willard Frasier....He was an old-time mayor [of Billings]....He was a little ahead of his time. He wanted to punch a hole from the City of Billings to Alkali Creek... and he wanted to put a reservoir up on Calamity Jane. If we'd have done that then, yes, I think...we could have had a source of static water that would have allowed us to take off....Plus, you would have had the recreational facilities would have been available for a lot of enterprising businesses. (*Yellowstone County Local Civic Leader*)

There is a about one mile on each side of the river that denotes that drainage, and that is where you typically have irrigated farm ground, and different tree growth and vegetation associated with the river valley. Outside of that, you move in to other types of terrain.
(*Yellowstone County Local Civic Leader*)

There are all kinds of ecosystems that have grown dependent on man and are living where they weren't before. (*Yellowstone County Local Civic Leader*)

C. A Big, Big Cowtown with Lots of Jobs

[We] are not really Missoula, by any means. Or Bozeman. But we have a lot more cowboys than Missoula or Bozeman....We're headquarters for eastern Montana's agriculture....You can drive anywhere downtown and you can see a load of cows going down the street and a fancy restaurant. I'm not sure what we are. We're kind of a big, big cowtown that thinks we want to be a city, I guess that's how to put it....I don't know how else you [explain] Billings. (*Yellowstone County Local Civic Leader*)

[This area] has always provided jobs. My grandparents came here with the railroad. My dad met my mother and moved here from Butte....They stayed here [because of work]....With the refineries, the railroads and the medical corridor, there...[are] jobs available, and I think that is what's real distinct. (*Yellowstone County Local Civic Leader*)

You had irrigated farming which in turn brought us the sugar beet factory, which was jobs, and the railroad stopped here, and it became a retail center. I think that is really what the river did for us. It brought the first people, and everyone saw how valuable it was. (*Yellowstone County Local Civic Leader*)

I'm thinking that the industrial base will continue to grow simply because we are the largest metropolitan area between Spokane, and Minneapolis, and Calgary, and Denver, and Salt Lake....Our medical corridor will continue to grow...[because of] that whole bubble of the generations that are retiring [here]....Businesses that need transportation [locate here]....[and] retail businesses [do well because] you've got people. (*Yellowstone County Local Civic Leader*)

When we moved [to Laurel] it was very much a German cultural town. It is not that anymore. It has been a slow change, and not without its grumbles and gripes. It has been a change from a German ethnic community to a bedroom community of Billings. There are still local people, but it is not like it used to be. (*Yellowstone County Local Civic Leader*)

D. Water Cycles, The River and Recharging Aquifers

The river is formed from rain and snow that comes from Yellowstone Park....In different reaches [the river is] recharged by the aquifer system that's around it. In other areas [the river is] recharging the aquifer system. (*Yellowstone County Local Civic Leader*)

It's kind of funny, with all the projects I work in the lower end, we don't really have much water availability issues....The Big Horn dumps into the Yellowstone. They dump enough water, and they keep that fishery in good enough shape, that it pretty much makes

the river, all the way down through Sidney, sparkle. (*Yellowstone County Local Civic Leader*)

The Yellowstone, for being a free-flowing river, doesn't experience a lot of shortages....The Yellowstone is definitely the main thing for agriculture in eastern Montana. (*Yellowstone County Local Civic Leader*)

The biggest issue on the west end [of Billings is that]...they're not recharging the aquifer anymore. Eventually, who knows. That's an issue the west end study shows....That's just how it is. It shouldn't be that way, but that's just how it is...[because of] subdividing. (*Yellowstone County Local Civic Leader*)

What's the cumulative effect [of development] on the underground aquifers?...I don't think it is as big an impact as people are trying to make it to be....I think we have plenty of water. It snows like heck every time, and we [have] water coming down the Yellowstone....And if you read in Genesis, God set the whole thing up to where the river comes down, [and] evaporates, and the salt sea is almost a purifier....Now, that's a pretty good ventilation system that He developed. And that's here in Montana. Now we are running through some droughts, and you can get into global warming....But what I see in Montana is, we've got lots of water. We are not going to run out of water unless there is this global shift that changes things. (*Yellowstone County Local Civic Leader*)

II. The River as a Public Asset and a Calling Card

A. Water Rights

Under the state constitution in Montana, you don't own water, you own the right to use water. And [the various users are] aligned by, 'First in line, first in right'....A full listing [of users] and a full court decree [defines] who is first, and if they're first, how much water can they take. That's what a general stream adjudication is....In the end, if the court ever has to administer the waters of the stream, they have to have the list to do it correctly....But in the older basins history has shown that sometimes you have to [go to court] more than once because they never get it quite right. (*Yellowstone County Local Civic Leader*)

Water rights are very important....One of our subdivisions has junior water rights....[and a few years ago, during] the second year of the drought...Fish, Wildlife and Parks...said, 'You no longer can pull water out of the Yellowstone River...because you guys have junior water rights'....We asked, 'Where we were going to get water [for the subdivision]?' and they said, 'The City of Billings.' Where is the City of Billings getting it? The same river. But, the City of Billings had senior water rights. (*Yellowstone County Local Civic Leader*)

When we subdivide where there are irrigation ditches, [water supply] becomes a real pivotal issue....As we develop in these areas...we're dealing with...downstream users who still rely on the water. But people in subdivisions think they have a little creek going

through their property, and that's not the case. I can't say it's gotten any easier, but people are more aware than they used to be. (*Yellowstone County Local Civic Leader*)

Because of the in-stream needs of the fishery, and because of the way that the water laws are set up to reserve water rights, before the Big Horn comes in, in order to develop new irrigation systems, you've got to have a water right and that water is going to be junior to the needs of the fishery. Once you get past the Big Horn, and it reverses, then you can develop senior to the fisheries. (*Yellowstone County Local Civic Leader*)

B. The River as a Calling Card

Those who are interested in the future of this urban area should be interested in the calling cards to the area, one of which is the river. If you allow a few to own it, you've lost that calling card. Would it suffice for the ecosystem if it were a park? Absolutely, it would, because it's a huge area. Riverfront Park is a pretty good example. It needs a lot more extensions. You can go to many cities, Boise is a good example....and fair amounts of Missoula's Clark Fork are in public ownership....Their urban area is right on top of it....The Yellowstone is a beautiful possibility for an open wildlife corridor. (*Yellowstone County Local Civic Leader*)

I think [water] plays a huge part, especially in the growth of everything. The City of Billings and the City of Laurel both have water rights on the Yellowstone River. That is as good as gold. So that really helps. Each one of the refineries has water rights. That is why they all ended up here. So the river has played a tremendous role in the growth of Billings and Yellowstone County. (*Yellowstone County Local Civic Leader*)

[People] are also looking at the Yellowstone River more as an amenity, which is really different. It's amazing having a subdivision down near the river because for years that's where the industry was going. That's a change. (*Yellowstone County Local Civic Leader*)

It's beautiful down [by the river]. You still got your wildlife down there, and that's what people like....With Riverfront Park, people are utilizing that more. That's great. And then with the new McCall subdivision going in, I think that's going to be good. I think people are looking at it and finally realizing we've got beautiful scenery here, we should use it....Riverfront Park was a beautiful ideaIf we could do that...along different areas of the Yellowstone, I think it would be great. (*Yellowstone County Local Civic Leader*)

Industry [owners] will...be looking for quality communities to live in, and the river can be a tremendous asset for quality of life enhancement. (*Yellowstone County Local Civic Leader*)

There are two things that define Billings: the rims and the river. We've already screwed up the rims because we didn't get them into public ownership, and now [they belong only to those] who have more money than I do....When we tried to buy [some riverfront property for bike trails...one owner] refused....[He doesn't want] to let the bike trails to

go through. He's actively filling the floodway with debris so he can move his trailer park down there. Do I think that's wrong, personally? Yes. As a public official, there isn't anything I can do about it...Would I like to see organizations in this urban area recognize the strengths of the river, and allow it to be a wildlife corridor, or allow it to be something as wild and free as possible? Yes....I'm marginally pessimistic [something like that might happen]. (*Yellowstone County Local Civic Leader*)

C. Recreation

I know what the most important aspect now is agriculture, irrigation. But, I think the tourist attraction of [the river] as a natural, scenic resource will become more important over time...[Recreation] should have equal importance to agriculture. It is a tremendously diverse riparian ecosystem along the river. It has historical and cultural significance. It is beautiful. So, people will pay to come and use it, to see it, or they will consider lifestyle changes that involve the fact there is an undammed river nearby that they can appreciate and see. (*Yellowstone County Local Civic Leader*)

The fisheries issues are huge to me...[but] how far do the fisheries [issues] push into the economics? Are we willing to cut our local economy for the Pallid sturgeon? If you're from Missoula you'll have a different answer than if you're from Miles City. The problem is...the sturgeon issues and the fisheries issues are not State [issues]. Even though the state is supposed to manage these streams, the Federal government has to be part of it...It's a huge issue: State's rights verses Federal...Something's going to have to happen...Somebody's going to have to give in...if they want the sturgeon to recover. (*Yellowstone County Local Civic Leader*)

I think we have seen more recreational use of the Yellowstone River corridor...and probably will see more in the future. I know that the County has been working...[to] increase recreational possibilities. (*Yellowstone County Local Civic Leader*)

[In Huntley] we were going to put some paths in, and we wanted to incorporate the east side of the river...[We wanted to] incorporate Main Street and go around the park. We wanted to tie it all in...There are plenty of places to access [the river], but sometimes they've come and gone with ownership. [Some people] get a little wrathful about people crossing their land to get to the river, but I think...it comes down to communication. The people that want to use the river need to...ask [permission]...[and] close the gate when it's closed. (*Yellowstone County Local Civic Leader*)

With the advent of the four-wheelers, more people are able to get down in those river bottoms....A lot of times you'll hear people say, 'I'm going to Huntley to go fishing.'...They're putting in another access down by the Pompey's Pillar rock; they're building that one now. (*Yellowstone County Local Civic Leader*)

I [try to] educate people as to where fishing accesses are [near Custer], what landowners are allowing people to use their river frontage, and which ones aren't....We have two fishing accesses within eight miles....The hunters have definitely been harder on the

landowners than the fishermen. The fishermen work the banks, the hunters work the whole land....Most of our local farmers have shut their land down to hunting....You have rich hunters coming in to buy the farms. (*Yellowstone County Local Civic Leader*)

I don't think agriculture should have priority on the river. I think at best...[agriculture] should...be on par with recreation. Agriculture, you know, feels they have a right to the river, and no matter how hot the water gets, or how low it gets, they figure they got the right to what's left and to hell with the fish, to hell with everybody else, to hell with the whole living system around it. And I don't agree with that....You'll see it later this year, as the heat continuous....It will stress everything along the river...from deer to muskrats. (*Yellowstone County Local Civic Leader*)

III. Municipal Water Use

A. Taking Water, Returning Water: City Uses

[Billings takes] about 24 million gallons a day, peaking at over 50 million in the summer and down to about 15 to 16 million in the winter....We aren't even a pipsqueak compared to irrigators....We return 75 percent of it to the river [and] another 10 to 15 percent is returning to the aquifer. Ok, so we've evapotranspired 15 percent, but we've gained great things from that. (*Yellowstone County Local Civic Leader*)

[Billings has] about 33 millions gallons of total storage in the system. The city uses about 50 million gallons a day in the summer. So, you see, we don't have multiple days of storage....In the winter we do...but then you have a water quality issue. Your potability...[and] the safety component diminishes as its stored....So, we would like to have minimal storage time. (*Yellowstone County Local Civic Leader*)

[Laurel] uses a maximum of seven million gallons of water a day and our intake is designed for 20 million per day. We have good excess capacity. Informally we have talked to the City of Billings about selling them water....[Laurel has] the second water right on the [entire] Yellowstone River, so the chances of us not having water accessibility are very remote. (*Yellowstone County Local Civic Leader*)

[In Billings, we treat on] average [over] 14 million gallons per day....Approximately 20,000 pounds of solids a day come in, and we put out...maybe 400 pounds....We are removing about 95 percent of the total system solids and bio-chemical oxygen demand. The bio-chemical oxygen demand is how much oxygen it takes microbes [to] break down the waste. We want to reduce that as much as possible so it isn't taking oxygen from the river when it is discharged....The water from the wastewater plant is cleaner than [the water the City takes] out. (*Yellowstone County Local Civic Leader*)

[Billings] discharge limits are based on water quality standards of the river. We can't add anything extra to the river that could be considered toxic or detrimental. The fecal coliforms [already] in the river average around 100 colonies per 100 mils, so you wouldn't want to drink that anyway....One of the things we are looking at in the next five

to ten years is...the State of Montana further restrict[ing] our effluent limit....They are looking at the TMDL [total maximum daily load]. That is the amount of a pollutant that the river can handle. If that load for ammonia is set at 4,000 pounds a day, and it is determined that the river already has 4,000 pounds per day, then the city would be required to discharge no ammonia. Right now we discharge a lot of ammonia. That would have a big impact....It may be fairly significant. (*Yellowstone County Local Civic Leader*)

B. Safety and Quality of Water Supply

The river is not safe [for human consumption] as it is. We remove all the fine particles, all the bacteria, and the viruses that are harmful....We improve its potability in the sense of its aesthetic quality to users. It's clear, it has a good quality taste....People find it pleasant....There's lots of water that's safe drinking water but not potable. The [Yellowstone River] is a good quality source. It's a bicarbonate water. We're pretty far up the watershed. There's only a minimal amount of interference from man, but enough that it wouldn't be safe for anybody to drink as it comes down the river. (*Yellowstone County Local Civic Leader*)

Using the [river] as a waste-way is a problem....We are still fighting the past in the sense that it is a convenient sewer. That is a principal problem. We've made huge strides since the 1970s in point-source [pollution] control—huge strides. We continue to squeeze...point-sources, but we continue to neglect nonpoint-sources...such as irrigation, agricultural chemicals, suburban use of chemicals, and storm water runoff. We haven't really begun to address storm water as efficiently in urban areas as large as Billings as we should, although that is changing, too. But, we're not treating storm water runoff yet. (*Yellowstone County Local Civic Leader*)

Oil slicks [occurred in] the '60s from spills at the plants....Those don't happen anymore, [since] the Clean Water Act....We've had a water treatment system here since 1915.... [Before 1915] people died every year from cholera and typhoid. They installed a treatment system in 1915 and lo-and-behold there wasn't anybody dying anymore....On the sewage side, they didn't recognize they were the contributors to their own problem. They didn't really build any kind of sewage treatment here, other than direct drains to the river...[until] '46 or '47. (*Yellowstone County Local Civic Leader*)

[In Custer] we are about to redo our whole sewer system....We do not have city water, [but] we should....The business people have to chlorinate [their water]....We've been dumping animal and human waste into this groundwater for 100 years now. These people are kidding themselves if they think it's not in their wells. (*Yellowstone County Local Civic Leader*)

C. Costs of Safe Water and Sewage Disposal

[In Billings] we're adding four filters...and renovating the remaining eight, so it's a very large project. We have to produce water at the same time, so it's a two-and-a-half year

project to incrementally bring these online....The biggest local expenditure of money is water and wastewater system. One of the biggest costs are these treatment facilities, production facilities. Just that little addition out there is 18 million dollars. Everything else, roads, that stuff, they get a lot of Federal money for that. This [addition] is right out of the local's pockets. (*Yellowstone County Local Civic Leader*)

The '97 flood forced us [in Laurel] to become more flexible....Our present day intake...is on the south side of the river and it was on the north side....And [now we] have that ability on both sides of the river....I don't know how many different times we tried to change the channel, and once the river has made its mind up, it...[doesn't] make any difference how much limestone you put in there, it's going to go where it wants to go....I believe it was right at...3.2 million to put that intake in there, so it was quite an investment. (*Yellowstone County Local Civic Leader*)

When we [put in the Laurel] water treatment plant...it was more expensive than anybody ever thought, but that is life. Companies that were involved were very understanding, specifically the refinery....We sell them raw water....Some days we had to restrict them, some days they got raw water, some days they got treated water. You can't shut something like that [plant] down very quickly. (*Yellowstone County Local Civic Leader*)

The 303(d) list is the list of impaired streams...[with] a lot of nutrient...or sediment or chlorides. [If the Yellowstone is designated] impaired...[with] ammonia, or nutrients, total nitrogen, or phosphorous, we can treat it, it will just cost more money....My goal is to maximize the tax dollar. (*Yellowstone County Local Civic Leader*)

We pressurize [the Billings water supply for] eleven different pressure zones. In order to have water as you understand it come from your tap, you need about 50 pounds per square inch. Good practice is anywhere from 40 to 80. That is all driven by terrain. There's 600 or so feet of difference across the city and if you were to pressurize the water at the upper 600 foot level to 50 pounds, down at the lower level you'd have about 300 pounds per square inch....It would skin you instead of give you a shower....Do we use a lot of energy? Yes, this [city system] is energy-intensive because we have to lift [the water]....Almost 2 million bucks in electricity a year. (*Yellowstone County Local Civic Leader*)

As that aquifer [west of Billings]...can only become more contaminated as more development sits on top of it...[and] the [irrigation] ditches are shut down because there's no agriculture anymore....If they are annexed they would have to get on the [city system]. So, there's a cost there. (*Yellowstone County Local Civic Leader*)

IV. Urban Growth—Urban Sprawl

A. A \$500 Saddle on a \$50 Horse

Urban sprawl [occurs] because people wanted to get...cheaper land....It used to be that the city...was able to zone [up to] five miles around the city. Well, the legislature struck

that down. Can't do that—can't be zoning, even though these places are going to be in the city someday and they don't meet city standards. The streets aren't the right width, they don't have sidewalks, curb, gutters, sewer, they don't have the same grade of water system piping....Then [later] the city has to annex [those areas] and assume the costs....If you happen to through those subdivisions south of Grand and west of Shiloh, you'll see that the roads have no curbs or gutters....They are very narrow little country lanes with huge homes....They were trying to sell [one home] for \$1.4 million, [and] it's got this road that doesn't meet cross sectional design requirements....People will spend \$300,000 to \$400,000 for their house...[but] their infrastructure is awful. So, it's a \$500 saddle on a \$50 horse. (*Yellowstone County Local Civic Leader*)

We made a mistake. We should have told [the developers of the subdivision] to put in an additional overlay to their plats. They put in a group of five acre lots and a group of one acre lots and the problem is that if [Laurel] ever annex[es] them it will be so expensive to put in streets and gutters they won't be able to afford it. What we should have required is you put in an additional overlay that says if this area is ever annexed those one acre lots will be divided into four lots. And your homeowner who buys the one acre has the choice of putting his house on one lot and he can sell the other three if it is annexed to pay the SID [Special Improvement District tax]. Or, he can put his house in the middle and pay the whole bill. They know that up front. (*Yellowstone County Local Civic Leader*)

One of the great natural resources that Montana has for growth and development is our air quality, our water quality, and our space. There is room for a lot of people to live in Montana. And in the high tech businesses, the computer businesses you don't have to live in LA, you don't have to be in New York. You can run businesses here. So, what we have I think, is water, air, and space....Montana has the resources to grow and accommodate. We do not have any urban sprawl. There's no such thing as urban sprawl in Montana. (*Yellowstone County Local Civic Leader*)

[Subdivisions are] a common practice in every state in the union. You have a section of land that is divided into quarters, sold off without a property division because it has a legal description. They are further divided and then they are further divided and what you end up with is somewhat piecemeal instead of planned development. However, the opposite of that is [when] government zones and plans for you. (*Yellowstone County Local Civic Leader*)

I have to say, out-of-state developers...come in, and you put a list down that [shows what] they have to do, and...to them, that's it. Our local folks are not used to doing that....We have good developers out there, and we have some that are just getting by on the skin of their teeth. That is a real problem as we deal along the river. (*Yellowstone County Local Civic Leader*)

Here in Montana, we...really don't care if there is a city park next door because we've got a little greenery in our...five-acre-tract....We are a plains culture. You don't see three story houses with huge oak trees....We have a different look, we have vistas, we are flat and wide. We are not high rise people....They bring planners from the east to tell us

how to do things, they want to stack us up downtown and make everybody believe we are all going to give up driving our automobile and move back downtown. It isn't going to happen....The market demand is for a little elbow-room....It is not a Boston, Massachusetts....If you want people to come here to live and work, they've got to have a nice place to live, nice schools, and they have to have a job....That precipitates housing, schools,...paved streets,...and so on. So I think we need to...keep protecting that that makes Montana great. Let's protect our water, protect our air, protect our space...but allow growth....There is no reason that we can't enjoy this same lifestyle with a \$250,000 house or 250,000 population. Right now, we are at a 100,000 population. What's the difference? (*Yellowstone County Local Civic Leader*)

B. Building in Flood Zones

It is appropriate to build subdivisions within viewing distance of the river but out of the flood plain....People like to live [near the river], but is also appropriate to keep park land in-between there because then you not only have the chance to enjoy the river but to protect it also. So I think we have come up with a pretty workable balance. (*Yellowstone County Local Civic Leader*)

I like the fact that for the most part [the river] is left open to function naturally, that there is still a lot of flood plain left, realizing that it's heavily armored in places....The flood plain is essentially storage for flows that are above normal flows. Without adequate storage, it would be discharged downstream and have to go somewhere and force itself into places that would probably cause a lot of destruction. So, if you can maintain natural floodplains, then you can pretty much protect property from inundation. (*Yellowstone County Local Civic Leader*)

It's still a wild running river....We like to enjoy our recreation and use the water, but it is difficult to develop up to the river's edge because it still works around. If you've ever seen an ice jam break loose, you know you wouldn't want a house or something built in the flood plain....We love the river. We use the river. Everybody likes the wildness of the river, but it's a resource that we can't build right [up] to. (*Yellowstone County Local Civic Leader*)

The river changes courses. The river as it exists today is changed significantly as far as meanders and the way it picks its course....I built a cabin on the Yellowstone River bank 60 years ago that is now an island, and this is just from the natural flow of the Yellowstone River....It's a natural thing for the river to do....and it will continue to change. (*Yellowstone County Local Civic Leader*)

There is much of the Yellowstone River from roughly Huntley east...that is in need of official flood plain mapping....Say a subdivision comes in that is near enough to a flood plain that...a 2,000 foot proximity to drainage area kicks in...If it does, then these [flood plain] stipulations enable one to determine the proper setbacks. (*Yellowstone County Local Civic Leader*)

My concern is that people don't take into account what the flood plain and floodway represent....If people build down there, we have minor floods and ice jams [in Laurel] that will potentially flood somebody's property. That is not anybody's responsibility but the homeowner's and they need to understand it....We have people sign waivers around the airport that they will not complain about the airplanes...because they have [bought land] with full knowledge that the airport is there. That is something we maybe need to look at by the river. Have them sign something that they are aware that their house could be destroyed and it is nobody's fault. (*Yellowstone County Local Civic Leader*)

We have to make sure that [people] are not allowed to build within the flood plain and that they wouldn't be putting the land to any use that would pollute the river....[We should] preserve the natural habitat. I mean, keep the man-made uses from having an impact. Sometimes rivers change their channels naturally. So you don't let people get close enough that [a change in the channel] becomes a problem. I would prefer not to use man-made methods to keep something bad from happening or to remedy something that had already happened. I mean, hopefully you can address it before it gets to that point. (*Yellowstone County Local Civic Leader*)

The non-control of sprawl along the river system, in flood zones, [is a problem]. [The river] needs to be protected in my opinion. Number one, it's a wildlife corridor, and number two, it allows the river to act as a living organism. In a sense, it is—it might migrate a little bit. Now, if you're a guy who owns a farm and you see 30 acres of your property move into the river, and your property line...is now across the other side on a sandbar, that irritates you a lot. So, you want to do something about it. But what you're doing is screwing the river downstream for somebody else. To me, that's a problem. (*Yellowstone County Local Civic Leader*)

We have a lot of resources in Yellowstone County to help us make the best decisions. We have an emergency services director and a flood plain administrator, who is the same guy. We have the flood plain all mapped out so we know where the flood area is...[and] we are even expanding that into different drainages that have floodways....First of all, you don't want the people to get flooded, and secondly it creates enormous problems for the future generations. (*Yellowstone County Local Civic Leader*)

We respect private property rights, but we also respect the fact that the river is going to flow where the river deems that it needs to go. And if you build homes in the floodway and the flood fringe, you are probably going to get wet. We saw that a few years ago....We watched Bill Keller's place, over in Custer, as the river chipped away...at the banks and then all of a sudden we watched the building fall right into the river. It is still a free-running river, the Yellowstone, and she has a mind of her own. You have to be respectful of that. You have to understand that we have many, many uses of the river, but we also have to know that if we are going to do subdivisions,...we need to make sure that people are safe and that they don't affect this river. (*Yellowstone County Local Civic Leader*)

The State of Montana has pretty rigid standards for flood plain development. And most, but not all, of the counties along the Yellowstone are active participants in the flood plain management program. That means that [most counties follow] the regulations that the State puts out. The model regulations basically restrict development to generally agricultural purposes, or other uses that don't require permanent structures....For the most part [the model is] making sure that the flood plain isn't altered, not filled or re-graded, or things like that. (*Yellowstone County Local Civic Leader*)

We're lucky that we had a 100-year flood along the Yellowstone back in '97 and '98.... There were photos taken at that time, so the photos help substantiate where the [flood] boundaries were. That is allowable evidence when trying to determine where a flood plain is. You can use historical records...water lines...[and] anecdotal stories about where the flood was. In this case, we've got pretty good evidence of where it was....It's useful to use the photos. Many of the maps were created in the '70s and '80s, and there hadn't been a 100-year flood....Also, the river has shifted quite a bit. The Yellowstone is a typical graded stream, it really is a very dynamic stream [that] can shift quite a bit, and it has. (*Yellowstone County Local Civic Leader*)

I anticipate that the flood plain maps and disaster insurance is going to be a big issue in the next few years. Especially in view of what happened in the last couple of years in the Gulf Coast and Florida. (*Yellowstone County Local Civic Leader*)

Most officials and residents are trying to maintain a corridor on both sides of the river, for the aesthetic value and free-flowing [river]. So you really can't be building down on that flood plain. But we are getting very close....[We try to maintain] a buffer zone to keep commercial and residential development from off the river. The river is a wild river and, if we can maintain a...100-year flood plain without permanent structures or that kind of stuff, we are in good shape. (*Yellowstone County Local Civic Leader*)

C. Septic Systems and Sewage

[Outside of the city water system, we have some areas with septic systems in] pretty shallow gravel....[And] on the bottom is shale, which is not porous. So the water...just moves down the gravitational gradient....You sink in your well...[and your water has] lots of minerals in it....It tastes like shit. You end up putting in a reverse osmosis system to get the minerals out:...[the] high calcium, high magnesium, high sulfate, and lots of nitrates. Nitrates are causing problems for Blue Baby Syndrome. About 10 mg per liter of nitrates in water is associated with babies [who are] unable to take up oxygen. So, that's a problem if you were to drink water...above 10 mg per liter, and there are areas like that out there. They need to be urbanized; they need to be put on a water system. (*Yellowstone County Local Civic Leader*)

There's a lot of issues with subdivisions....Look at how we look at drain fields on the septic systems. You have places where the groundwater table and the septic system are mixing, but,...mathematically, it doesn't appear to be an issue. See, the problem is this subdivision may not be an issue, but what about [adding] the one above it? Now there's

72 houses above in this aquifer...but the assessment was done here [on one subdivision]...This is decided and this is decided [separately]. We never go like this [and look at all of the subdivisions together]. (*Yellowstone County Local Civic Leader*)

There is more pollution from agricultural animals and fertilizers and nitrates than there ever will be from people. Now, there...[are] a few examples where they put a lot of septic tanks in near an aquifer and we had some problems. Years ago, there used to be a place out in the Heights [and]...I think those people had cess pools....But now with the various systems that we have, the water, if given the proper zone, filters out and doesn't present a health hazard. As long as you have a septic tank in the area of one acre. In other words, if you have room enough for your drain field, I don't anticipate that is going to be a problem. There were some [other] examples in western Montana...[but,] of course, western Montana has a [more] lot...water than we do so it is a lot easier for them to contaminate an aquifer than it is here. Some of our aquifers are down 60 to 70 feet. Your septic just isn't going to contaminate that; it just isn't. (*Yellowstone County Local Civic Leader*)

These guys were here this morning...[concerning] a piece of private property out in Lockwood [near] the river. He received a permit to build a cold storage without a restroom. Now he comes back and says, 'You know I need a restroom.' We are denying it. He is into the flood plain, and his permit was clear. It identified that you're in a flood plain, and you cannot build a sanitary system there. The statutes don't allow that so he is not going to get a variance. (*Yellowstone County Local Civic Leader*)

D. Preserving the River, Local Farms and Public Greenways

Most agricultural operations near the Yellowstone River utilize the river for their livelihood. They depend on it for their water supply. I think there's a link between economic viability of agricultural property and [other] land uses...The tough thing is for our agricultural entity to survive—most likely it will change into some other land use. (*Yellowstone County Local Civic Leader*)

You look at these subdivisions, one on top of the other on the west end. I wish that there...[were] public dollars that could buy out all the development of those farms—just say, 'This is a farm.' And then it's only worth farmland values because you can never develop it. There's programs out there but no funding to speak of. (*Yellowstone County Local Civic Leader*)

When you talk about corridors...it is quality of life issues....I've always...felt like there has to be more to planning than just deciding which subdivision goes where....A good use of public dollars: if there was some very prime irrigated ground...buy that development out of it. [Then,]...if I come in and buy [out] that...development potential,...buy conservation easements on those places. The problem right now [is that] the conservation easements are all dealing with trout streams and elk habitat, not raccoon and whitetail habitat so to speak. It would be great if there were a corridor there and subdivisions weren't in there. (*Yellowstone County Local Civic Leader*)

Riverfront Park is a good example. The area that they developed was kind of the corridor area....There's places along the corridor where it's fairly narrow, but there are places where it's nearly a half a mile wide....I think you look at the wildlife population and the things that are going on there. You look where hayfields have developed and stuff like that. The corridor is generally fairly undisturbed....It's not a good area to develop....Generally it's the cottonwood area along the Yellowstone and the low lying areas. And in places that's not very wide. [In] other places it's real wide. (*Yellowstone County Local Civic Leader*)

I agree with the [idea of a] corridor....I mean it keeps the quality of life where it is....There's something about walking down the road smelling a fresh cut alfalfa field. I've seen the corn field out there and watched a raccoon go into it, or a deer go by. That's just something that you want your kids to experience, just like you get to. The beet industry up and down the river, the smell of just all that, that's all a part of the quality of life. (*Yellowstone County Local Civic Leader*)

One [problem] is...you don't have to have park dedication if you do a minor subdivision. [So, people would] get that approved take a breath. Do another minor subdivision, take a breath. Pretty soon you have done a major subdivision with no park dedication. You have done a major subdivision as one minor [subdivision] at a time....That was the case in Yellowstone County...but [with] our new subdivision regulations....[a] second minor [subdivision] will be a major. That is a hole that we have found....I hope [the new regulation] sticks, because it will probably be challenged by a land owner. (*Yellowstone County Local Civic Leader*)

We have supported the Yellowstone River and Parks Association and looking at the trail process through Yellowstone County....We recognize the river greenway and how important it is. We are starting to see subdivisions pop up that are using that as selling points....We have Riverfront Park and have worked with the County Parks Association....Our whole trail project of trying to intertwine the city and the trails along the river....We may not have perfected it like Great Falls. (*Yellowstone County Local Civic Leader*)

[According to our] subdivision [rules], you have to do a little bit of park land. It's one of the city/county regulations...like seven or six percent....I think it has to be public of some sort. The problem is that we have all these parks all over the place and nobody maintains it. You go out to Lockwood and look at a subdivision, [and] there's park land authorized....The problem is nobody knows about it and nobody maintains it. So it sits out there, three [or] four acres in the middle of a subdivision....That's how it is. (*Yellowstone County Local Civic Leader*)

[In] that new subdivision...there's a wildlife area [near the river]....It'd be nice to walk from your house and go down there and be able to still have the river intact. And take your kids to walk down there...rather than developing all the way to the edge of the river...[and] it's going to end up...public because it joins other public access. (*Yellowstone County Local Civic Leader*)

I think that you have to be there quite a while before you realize... ‘Where’d the deer go? What happened to that hayfield that was down there. Now it’s a car dealer’... Driving from here to Laurel, it is getting harder to see any farming... and it’s getting to be more things right along the road... more developed. And some of those guys are my friends. (*Yellowstone County Local Civic Leader*)

The experience of floating the river changes dramatically if you have houses on both sides of the river. Right down at the river... How do we encourage understanding that there is the possibility of losing that... [and of losing] the culture of Montana?... If we are not careful, that’s what is going to disappear on us. The reason everybody wants to be here is the thing that is threatened by them wanting to be here. How can we articulate that? (*Yellowstone County Local Civic Leader*)

E. Planning Boards

[As a planning board] we are sitting there looking at the overall growth plan: what would be ideal?... [How should we] use our infrastructure the best? Our water? Sewer?... We... develop a master plan which is for guidance only.... Then somebody comes in and says, ‘Okay, I want to build a rural subdivision, and I want to have 50 houses on one or two or three acre tracks.’ We review that.... That’s our main role, to be a citizen review board, and then we pass our recommendations on to the city, if it is in their jurisdiction, or the County, if it is in their jurisdiction. The elected officials make the final decision. (*Yellowstone County Local Civic Leader*)

[Landowners] do not have the right to... do anything they want.... [In one] situation, where [a fellow wanted] a subdivision,... [there was a] big petroglyph on the site... [and this] conservative planning board... [was] saying, ‘The guy owns the land and he should be able to do what he wants with it.’ Now, wait a minute.... This is a cultural resource. It belongs to all of us.... [We can] force this guy to do a cultural resource inventory, which would be really expensive.... But, [he can also] register this site with the State Historical Society and... put a deed restriction on the lot. (*Yellowstone County Local Civic Leader*)

I’m one of only three non-realtors on the planning board, out of ten. So I come to the table with a whole different idea of what planning should be. You look at the old flood plain maps and there’s a lot of leeway in them.... If you’re building an irrigation system, then we should talk.... If you’re that young couple, that bought that house and you don’t understand the issues, it’s going to hurt you a lot more than that developer who maybe should have thought about it before he put in that subdivision.... The problem [with realtors on the planning board] is that they are out there making a living [by] selling property.... I don’t blame them... but I think [the planning process] is more of a public issue. What’s our policy going to be? What do we want to do? Then [the developers have to] follow the policies.... I think it’s beyond a realtor. (*Yellowstone County Local Civic Leader*)

V. Pressures on the River Character and Water Quality

A. Rip-rap and Channelization

The natural processes of the river [include] erosion and deposition....I understand why [people who live near the river] would [want to stop erosion], but from a geologic or scientific viewpoint, once someone affects one part of the river it will affect another part of the river. There are consequences....If you put in...rip-rap then that may cause scouring in some places and deposition in others. You may be affecting your neighbors....Those types of things need to be considered....I think it is important to approach this from the scientific point of view. (*Yellowstone County Local Civic Leader*)

I would like to see more of the original river come back. The meanderings, the flooding, the islands, get rid of the rip-rap, that kind of thing. I'd like to see that come back. I don't think that would impinge a lot on industry...but at the same time I realize it is a complex issue trying to tell somebody he can't rip-rap his 100 acres....But this isn't rocket science, but I mean, this stuff can be worked out; some sort of compensation can be set up....You have to do that. That's part of working together to get something done. (*Yellowstone County Local Civic Leader*)

The erosion issue is a tough issue....Are we going to armor the whole [river]?...What's the right thing to do if it's your 100-acre farm that you're going to lose?...If you look at the old maps,...that river moves....If I was a landowner along-side of [the river,] erosion would be a huge issue for me....If you're the City of Billings and it's at your intake for your water system, rip-rapping near that might be a pretty important issue. Where do we go with that?...I'm sure that armoring the whole river is probably not the answer, because if you armor one spot, that force is going somewhere, somebody else is going to deal with that. (*Yellowstone County Local Civic Leader*)

We used to just push cars in the river. I remember along the Milk River....What an ugly sight, but it worked. There were places they'd have half a mile of cars piled up, just push them off into the river for rip-rap. They were allowed to do that at that time. They're all gone now. (*Yellowstone County Local Civic Leader*)

Even in Yellowstone County, we have a lot of extreme bank armoring. You can see it in very site-specific areas where the armoring has caused erosion just right downstream from it. The velocity increases where the bank is armored and you get swirls and eddies downstream that cut into the bank....On a site by site case you can see evidence of how armoring really does change the dynamics downstream. It's not [only] development; it may just be a farmer trying to save his field. It doesn't have to be a subdivision, housing development. (*Yellowstone County Local Civic Leader*)

If you stabilize the bank in one area and...don't really do a good hydraulic evaluation, you're going to erode something downstream. The river has to dissipate energy, and it's going to dissipate it by eroding the next guy's bank. If you graze off all of the riparian plants along the river, you're going to have a whole lot more sediment...than if you had

good turf, trees, and all things that attenuate flood flows and that don't allow a channel to migrate as rapidly. (*Yellowstone County Local Civic Leader*)

Channelization is a problem because the river loses its ability to cleanse itself, it increases flooding, it does a lot of things in the long run that could be disadvantageous to a system like this....A river that no longer has any of its own storm controls—oxbows and a nice riparian zone—doesn't attenuate extremes....Rip-rap destroys the river environment, and, from an outdoorsman perspective, it's awful....It channelizes the river, it moves the flood...events down the river. I think there are points on the river where you have to [protect the banks] because of our historical practice of locating facilities that are almost impossible to move. If I had my druthers, would I druther those refineries were away from the river? Yeah. But we can't move them today. (*Yellowstone County Local Civic Leader*)

I've seen a lot of different things. In my mind, the rip-rap is the worst that there is because it just protects the bank at that location. Generally, it gets eroded behind it. You see those old rip-rap trails in the middle of the river eventually. I've seen the river barbs that come out and they're oriented upstream, and basically it diverts the flow away from the bank. These are navigable. You can still go over them in low flows or avoid them in low flows. They don't go across the river. (*Yellowstone County Local Civic Leader*)

[At the Billings water treatment plant] we do have plans to build up the access road and do some rip-rap and get that up higher than the 500-year flood plain. They are looking at...raising the road up a couple of feet. I don't know when or if that will happen....As far as somebody that uses the river a lot, the element of the banks is an issue. It does create some good fishing holes but it also increases the velocity and channelizes the stream....They have [also] channelized the river a lot at the water plant to make it deep enough to get [City] water. They channelize big time to try and keep it deep enough....Laurel has done the same thing. (*Yellowstone County Local Civic Leader*)

B. Billings Turned Its Back on the River

I think Billings is really lucky to have the Yellowstone flow through it. Unfortunately, Billings turned its back on the river and lost sight of its value. Consequently, we get a lot of bad development down by the river. It's almost like throwaway land....In some cases development is good if...it reorients us to understanding the value [of the river]....We've allowed our industries to be along the river....I see a lot of waste and bad development occur along the river....It's almost plighted. (*Yellowstone County Local Civic Leader*)

When I was a little kid,...our landfill dump was down on the other side of Conoco, where Midland packing used to be—that's where our landfill used to be....That's where the garbage went, and...we would bulldoze it to the river. That's why there's so much debris....When people [went] down there and they started the bike path through there, they couldn't believe the junk that was in there. But we bulldozed that for years down there, and that's where all the junk went. (*Yellowstone County Local Civic Leader*)

We...need to take advantage of the aesthetics of the river, because now there is just junk down there...and there's a refinery on one side, and then the treatment plant, and then a trailer court....You would think that would be prime real estate. (*Yellowstone County Local Civic Leader*)

[The river] is kind of an anchor for Billings...that doesn't get seen very often, or appreciated....If you develop it, you try to work with it and try to use it as a natural system rather than trying to control it [or] channel it....[Focus] more on developing compatibility with natural resource systems rather than trying to control them....We've gone beyond that age....Those rivers were here a long time before we were, and they did just fine....We don't...spend enough effort thinking about that end of it....That guy who built those artificial islands, did you see that? Wasn't that cool? Wow, that was a neat deal. (*Yellowstone County Local Civic Leader*)

I'm always looking at things how we should be able to improve our community, and I think utilizing the river to me would be one of them....Down in Santa Fe...[and] in the Laughlin, Nevada, you can walk the river[s]....But in Billings, we seem to shy away from the river....I think we ought to utilize the river because it's so beautiful....I think we should probably be...promoting use along the Yellowstone River....either [with] more bike paths or trails along the Yellowstone....I don't think we would let people build right on top of the river....Basically learning from Santa Fe and Laughlin....If we could do something like that here, I think it would be well worth it if our economic development program [would] look at stuff like that. (*Yellowstone County Local Civic Leader*)

C. Industrial Threats

Thermo-loading back to the river is a problem....That is cooling water that is taken out, like...at the refineries, [for] they're cooling water. That water is returned to the river. It changes the thermal characteristics of the river, so it's thermo-loading. They have some pretty tight controls. (*Yellowstone County Local Civic Leader*)

The further that there is a buffer zone from any other user of any substance, the better off for the city....Industrial facilities right on the bank of the river are an awful thought to me. (*Yellowstone County Local Civic Leader*)

When Midland Packing used to be down there,...they would dump everything down into the river....Nowadays...it's improved....I think we should still pursue that....With the refineries, I think they should be watched more closely. I know with the oil spills that we had four or five months ago, they never did find out where that one came from....Nobody admitted to it....There has been a lot of improvement, [but] I think we can do more. (*Yellowstone County Local Civic Leader*)

There are some...man-made chemicals that are probably added because of ignorant use by people in urban areas, things like...prescriptions [that are] put it in the toilet and flushed down the drain. Worst possible thing you can do. A lot of those things we can't

treat, so it goes right into the river system. That needs to go into a landfill or it needs to be disposed of in a hazardous waste landfill. (*Yellowstone County Local Civic Leader*)

The pharmaceuticals and other things are considered emerging contaminants and it is something that is being investigated now. Efficiently run treatment plants remove 99 percent of the pharmaceutical drugs. It is not only what is flushed but what is passed through people. The one percent they [find in streams] they are thinking is still enough to affect aquatic organisms. Not enough to affect humans. It is down below parts per trillion. (*Yellowstone County Local Civic Leader*)

I think we would have to watch so that our rivers are not polluted,...but I think they ought to be utilized, I really do. I think we should be able to develop something, even if it were away from the river. (*Yellowstone County Local Civic Leader*)

D. Noxious Weeds

The only other issue that's the big one is the noxious weeds....There's just about every horrible weed you can find on the Yellowstone....I don't know how it got started, but it definitely goes down the river. If you just go on the riverbanks and look, that salt cedar is just about everywhere now. We can't hardly go anywhere without seeing leafy spurge and...it's a very competitive plant. It'll take a field over....You can't just kill...knapweed and spurge....I can only imagine if we don't get a handle on that how that will look in ten years....Salt cedar is an issue we used to only talk about around Sidney. Now...it's all over the Big Horn. (*Yellowstone County Local Civic Leader*)

It's a big deal, and I think it's in the public interest to fix those sorts of problems. The landowner is important but the [is] public too....We do have some spraying programs [for noxious weeds]...but it's a lot bigger than the little bit of funding we put out there right now. And it's in the public's interest, not just the landowner's interest, to take care of that. Just in Yellowstone County, I can't even imagine to effectively spray those areas, what would that cost. I can't even imagine. Millions and millions of dollars, I'll bet. It's expensive. You don't spray that real easily. You can't just spray it once and control it. You can be years down the road, ten years down the road before you can fix it. (*Yellowstone County Local Civic Leader*)

VI. Comments on Agriculture

A. Agricultural Uses and Water Supplies

Even irrigation is not a consumptive use of water, other than the evapotranspiration....[In the] water cycle your evapotransporting is going up, and raining back down. Water is neither created nor destroyed. (*Yellowstone County Local Civic Leader*)

I've got land and we raise cows...but, you know, I even question sometimes flood irrigating. It isn't the most efficient use of water. They've shown that sprinkler systems are a more efficient use of water, so they have less runoff, and waste and

fertilizers...hailed down...In some states, the amount of surface water has been reduced such that you can't afford to keep flood irrigating. There will be some issues like that in Montana, I'm sure. (*Yellowstone County Local Civic Leader*)

Right now we're converting a lot of flood [irrigation systems] to pivots [systems]. So we're reducing the amount of usage, but then again, we are adding acres. So we are spreading water and using it more effectively, but probably not gaining a whole lot to the stream. (*Yellowstone County Local Civic Leader*)

Irrigation, more so than municipal use, has changed the river...The river flows less in the late-spring than it did historically because of irrigation withdrawals. It floods more in the winter because of base load return, because, when irrigation is charging the alluvial aquifers, the aquifers sustain the river in low flows. Without that irrigation, the river would certainly run in greater extremes, both on the top and on the bottom. That is good under some conditions for flushing flows. It is bad in others when it dries up. You hear a lot of rhetoric and a lot of discussion about water uses. A lot of it I believe is totally uninformed. (*Yellowstone County Local Civic Leader*)

Irrigation is a problem if [the river] is over-appropriated and dries up midstream flows. It is not a problem if it creates a larger riparian zone, which it has done. The abundance of life is huge compared to what it was previously. (*Yellowstone County Local Civic Leader*)

Agriculture is clearly a commercial use. Historically, everybody tries to say, you can do anything you want in agriculture as long as it is agriculture related...But if you view it as a commercial use, then when a residence comes in there, you've got [to] look for a compatibility between commercial use and residences...We have a lot of subdivisions on the west end, and out east too, where the people say, 'Well, this isn't commercial use, this is Ag use.' A feed lot is a commercial venture. And it has an effect on the neighborhood. I get a little irritated sometimes with people who get the idea that we have got residential development, commercial development, industrial development. And then they act like agriculture is sitting up there as some sanctimonious outfit that can do anything they want, when in fact,...if you put a hog operation right down on Big Horn River, like they did, you...[get] pollution issues...Agriculture, just like any other business, has to be accountable when it comes to our water. (*Yellowstone County Local Civic Leader*)

B. Agricultural Practices and Water Quality

We are seeing such a change in philosophy even in the farm and ranch community about riparian areas. Everyone used to just perimeter fence their cows; you have a mile square section or half a mile depending on whatever land you own. And now they are starting to fence the riparian areas out so the cows don't trample through the brush and that natural filtering system. That is kind of a farm management thing that is good for the environment. (*Yellowstone County Local Civic Leader*)

Bank erosion today is caused by inappropriate use of the riparian zone, primarily....It's a trade off: do you want to have your cows and calves down in the river under the trees or do you want to take care of them somewhere else? Well, the old-style method was down along the river. Well, they trampled the shit out of everything. The Yellowstone is a big river, so you don't see it as much as you see it on the side channels. The Clarks Fork is awful. It creates nothing but trouble for us because of sediment coming down. It's a very erodeable country....it erodes something fierce. [And] it's got years of that sediment built up right in the flood channel. So, even if you were to correct it today, it will continue to move that stuff forever. (*Yellowstone County Local Civic Leader*)

Irrigation wasteways return sediment to the river, that's a problem for me....Typically, wasteways bring a lot of sediment back. That's where excess water in a canal system can be dumped back into the rivers. When you do a lot of flood irrigation, often that water will collect and drain...back to the river....That's okay, except that it's usually carrying lots of sediment, which is washing away your topsoil and it's also putting sediment in the river, so you're changing the quality of the river ecosystem. The higher sediments change the types of creatures that can live in the water. (*Yellowstone County Local Civic Leader*)

Number one is agricultural chemical runoff...that's a huge use. Chemicals either leach from the soils, and get into the alluvial aquifer....The river is a huge dilution source, relative to the concentration....Aquifers move in inches and feet per year, versus feet per second like a river. So [water] moving back into the river [from the aquifer] is a very slow process. Something you did years ago may [appear] later. (*Yellowstone County Local Civic Leader*)

Something that is really brewing is the run-off from agriculture operations, be it herbicides or animal waste. Getting down into the river this will be treated as a pollutant and you have to have all retained on-site. I don't know how you are going to do that. If I spray my field for aphids and I flood irrigate and some of the herbicides gets into the waterways and ends back into the river. Or my cow craps in the field and it runs off. I mean, there are some problems. (*Yellowstone County Local Civic Leader*)

The agricultural communities are learning about that [run-off] and they are finding out that with flood irrigation and you have a little riparian area that has natural weeds and stuff to filter that wastewater back into the river, you filter most of that stuff out. Not all of it, but there are solutions. (*Yellowstone County Local Civic Leader*)

I've got to credit agriculture....Most people make sure that they [don't] overgraze and,...for the most part the responsible people have tried to be good stewards of the lands as far as grazing and vegetation and the creek beds....The long-time, old-time farmers and ranchers...did a pretty good job. (*Yellowstone County Local Civic Leader*)

C. Agriculture's Potential Allies

A lot of times I don't even understand how agriculture and recreation have any issues with one another. They both want water storage....There are fights and [then] there's a lot

of perceived problems....The Pallid sturgeon is a good example of a conflict. It's going to cost somebody a pile of money to pass those fish up and down the river from the different diversion structures....I tried to explain to [the agricultural community] that 'You need to listen to the Feds on this deal....It doesn't cost you anything, and you get your diversion structure rebuilt, which is in horrible shape. The fish get to pass around it, and you still get everything you want. You best be looking that direction. There will come a point where you will pay for that structure and that fish passage issue will be added to your bill. If you don't want that then you need to be at this discussion [and say] that's an appropriate use of Federal dollars.' An environmental community will agree with that. The Ag-recreation deal is just absurd, really....The recreationalists on that river don't really hurt anybody, and the Ag guys...there shouldn't be an issue there. They both, the recreationalist and the environmentalist, want the Ag guy out there. (*Yellowstone County Local Civic Leader*)

Once I explained... 'Hey this fishery is the best thing that could happen to you....You're downstream of the need to have 2000 CFS in the [Big Horn River] for the fishery. So, don't cuss at those trout, because that's the best thing you could have. Now you've got the fishery people on your side....They don't care that much whether you're taking the water as long as it gets past Two Leggings [drainage]—the end of the blue ribbon stretch is in there.' And once they figure that out, they liked that idea. (*Yellowstone County Local Civic Leader*)

One of the problems the Yellowstone has, and I struggle with it everyday, is our ideal in the Ag economy....The Yellowstone has a diminishing population base in the rural areas....You go to Sidney, you go to Glendive, [and] the oil industry has helped. But that's a superficial expansion....where the oil industry comes in. They drill some wells and do really well for awhile, and then it goes to heck....My issue is the economy....Not lately, but we've seen a lot of money-guys come in and buy ranches along the Yellowstone. That continues to happen from time to time. It changes the whole dynamic....The rural economy is in tough, tough shape. The ranches are getting bigger, the farms are getting bigger, [and there are] less people....A professor from Harvard came in—this was about 20 years ago—he came in and said...we should...turn Montana back into a buffalo pasture. Made a lot of us mad. But up by Malta they put in one of these buffalo pastures, and there's getting to be a lot of buffalo....He said that's the best use of this country. I hope he's not right. (*Yellowstone County Local Civic Leader*)

VII. Stewardship and Complications in Managing Public Resources

A. Stewardship and Property Rights in Public Policies

I don't feel the river is broken in any way, so I don't see it needing any fixing, as long as communities along the way aren't polluting the dang thing....That's the only way I could see that it would need any more control. (*Yellowstone County Local Civic Leader*)

We all take for granted the Yellowstone River...and we can't do that any more. The value of the river is that...she's kind of a spiritual entity....The whole basis for the existence of life here. If we didn't have that river here, where would we be?...The right of the river to exist in a natural environment is a priority....It benefits us as a place that people want to live, as a place people want to visit. It's a place that enhances our sense of ourselves. It kind of blesses; it enhances. (*Yellowstone County Local Civic Leader*)

A huge percentage of...people are good stewards. Then there's this percentage that aren't....[Good stewards] leave it the way you found it. The next generation needs to use it too....We're not very good at next-generation thinking. I'm not sure we ever were....We haven't made the philosophical change to that thinking yet....I'm a believer in wise use, and I don't think we've defined wise use. It's not merely conservation; it's wise use. (*Yellowstone County Local Civic Leader*)

If one takes a look at where we were in the '50s and '60s, and where we are today, one would have to say that there's no need for pessimism....Have we done enough? Probably not. But it would be unbelievable if we hadn't done anything. Even here, it would be unbelievable. If private property rights were totally valid and you could do anything you wanted to do, it would be pretty awful. (*Yellowstone County Local Civic Leader*)

Guess who the property owner is in all of these [public] green ways? You and I. We have property rights and we support those property rights. (*Yellowstone County Local Civic Leader*)

Waterways are public....[Unfortunately,] the closer people are to the river, the more they feel it's theirs and they put up barriers for recreationists....At least in the navigable waters,...setbacks should be required. (*Yellowstone County Local Civic Leader*)

The increase in population pressure never stops....We need to find a way to protect the river assets because there is getting to be more and more and more of us. And we all want a piece of the river for our own private purposes and...you can't do that. I think we need to do some planning on the river before you destroy what you love....By taking a look and starting to appreciate...what a tremendous resource the river is....You have to look at use options and priority settings and water rights. And I think you have to work together with agriculture, and recreation, and industry. I don't like to see the either/or options being thrown around. No one ever benefits by that. I guess that is what I mean about planning. (*Yellowstone County Local Civic Leader*)

They say once you hit [a population of] 100,000 that the next 100,000 comes twice as fast....We'll see. We've had about two to three percent growth a year, which is not like...Bozeman and Belgrade, [and] Kalispell...[where growth is] seven to eight percent [and] you just can't keep up with it....I anticipate that Billings will continue to grow at about three percent and so that will require increased use of the water and, of course, more streets and sewage and sewer and gutter and all that kind of stuff. (*Yellowstone County Local Civic Leader*)

Priorities probably should be in health and safety. But we're...trying to finagle what we have...instead of trying to conserve....Our priorities should shift to a more conservative attitude as far as water usage. And then maybe the question wouldn't be so hard as to whether it's going to be Ag or human consumption....You do that through a variety of means that could support a natural system as well as provide for drinking and agricultural water. We waste so much water through those ditches it just drives me nuts. The leakage of the ditches and evaporation from them—there's got to be a better system than that. Yet, it's contributed to our groundwater and that's something people rely on.
(*Yellowstone County Local Civic Leader*)

The river corridor is like the whole valley. In places, the Yellowstone River valley is miles wide. The river is actually maybe 600 to 700 feet wide, but there's from hills to bluffs on both sides; it's pretty extensive....You have to be careful, I think, so wherever little creeks that drain into it, and we need to be careful not to impede those....There's things that could be done towards the outskirts of the corridor that are definitely going to affect the river. (*Yellowstone County Local Civic Leader*)

You can't say, 'That guy is a good guy; he's my buddy. His ranch is right next to mine, and he wants this diversion....Ok, he can do that.' (*Yellowstone County Local Civic Leader*)

There is a conflict between private ownership and access...[but] somehow the public has to have access....The public should have the right to walk the banks of any stream or river....The conflict that will probably never be resolved in some situations...[but] I wish there was a way that could be ironed out because I think the public, more and more, is being denied access to rivers and streams and mountains. I would be an advocate for the public's right to enter those. (*Yellowstone County Local Civic Leader*)

Bureaucracy is a tool that you can either use to your advantage or a disadvantage. The fellow that [complains] probably doesn't realize the benefit he's getting from these layers of bureaucracy....You have to have a goal...and be able to...see the pieces of the puzzle....Then move forward. If you're too hesitant to move forward, people along the side of the road are going to grab you and take you away from your goal. Then...you have to step back and evaluate because maybe you don't really understand your goal....The general rule, I believe, is that [bureaucracy] serves the purpose for which it was intended—it serves the people. (*Yellowstone County Local Civic Leader*)

B. Tensions Between Agencies' Missions and Governing Entities

Now, we are very fortunate in Montana that those major rivers supply a tremendous amount of water....The State of Montana...owns the water. And the thing that bothers me most...is the Federal government and the Corps of Engineers and their control over our water. They [can] demand water...downstream...[to] float barges in the Mississippi....That is always bothersome to us. (*Yellowstone County Local Civic Leader*)

You have the Fish, Wildlife and Parks with the mission of access....Then you have....the road department that tells the private owner that if you give me a right-a-way, we will fence it and keep the public off your property....Down by Duck Creek...you have a river...a private property owner and...you have a bridge. [The area by the river] is all within the high water mark so [the public] can [be] down there...[but] to get down there, people do what? They drive down,...violating this guy's right....because the State said, 'If you give me my road right-a-way through here, I'll fence it.' So [the State ran the] fence...up to the bridge [and] the public can't get from this public right-a-way to this public right-a-way without climbing over the fence. [So] they cut the fence....There are solutions:...pedestrian gates through there, and better enforcement by Fish, Wildlife and Parks. They often will open an area up but they count on the Sheriff's Department or somebody else to put out the bonfires and the keggers....[This] is a State issue....They sign those agreements for 'highway uses only'....Quite honestly,...you need to provide adequate access where you can because [the river] is a public resource. (*Yellowstone County Local Civic Leader*)

The cities can annex wherever they damn-well want....We [ended up with a] roadway between two subdivisions and they are in the City of Billings [now]. It was just asinine! So we passed a law that they have to take the roadways along with [the subdivisions] and [the cities] have to maintain them. (*Yellowstone County Local Civic Leader*)

The other thing which Billings hasn't done, but I think it should,...is annex [the land between the City and the river]....The land from Garden Avenue to the river is County, and it's all septic....If you...are trying to get them on to a sewer system, the only way you can do that is annex them. What we're going to try and do is focus a planning effort down along that corridor and talk to the people....Their systems [are old and] will be failing...and they'll need to make that decision: Do they want to annex and get sewer, or do they want to replace [their septic systems]?...So, it's a good time to get in there and show them the benefits of getting on sewer....The City can't force annexation, but we sure would encourage it. It's expensive for people to...get hooked up to sewer [after the fact]....[Where we have annexed] we're playing catch-up,...which is why I say [that area] is plighted. It hasn't really reached its best development potential. (*Yellowstone County Local Civic Leader*)

With regard to development, the State ties your hands in some regards. And the worst regard...is that water issues don't need to be addressed under subdivision....We had a subdivision here and it barely has enough water for itself because it is outside of the City of Laurel. If a sub-divider comes in and says he will build a subdivision right here, and the next one comes in and builds here, at what point can we say, 'You can't do this because then [the people in the first subdivision] don't have water.' We can't do that because the State won't allow it....The link to the Yellowstone River is [that] they will eventually say, 'Please annex this and get us water'....We let a subdivision build in that same type of situation...[but] we did require them to put in ponds to recharge the ground for the subdivision below them. (*Yellowstone County Local Civic Leader*)

C. *The Complications of Setbacks and Corridors*

I believe that there needs to be corridors....Not only to protect the river itself but [also] the wildlife systems that are in that river. I would love to see public funding in some of those issues. That is kind of wild for me to say considering I come from a Republican background. (*Yellowstone County Local Civic Leader*)

[In the] last few years people are talking about a numerical setback of, say, 300 feet....In some cases that would be sufficient, in some cases it would not....Those things are best viewed [by] scientific data, elevation data, [and] topographic data that is accurate enough to determine what the 100-year flood plain levels are....[If the scientific data] sets up a duel type of a regulation that [will be] confusing to people....It is important to have those flood plains and floodways delineated so that when the river is at high stages it doesn't do the tremendous amount of damage that it can. (*Yellowstone County Local Civic Leader*)

[With] our zoning regulations, we also have a setback from water courses required. Unfortunately, it's only 50 feet from the center line....You'd have to study it. I've seen counties that have had up to 300 feet, and that could be severe. I don't know if there is one size that fits all...[but] bigger setbacks are getting to be more common, and those are good practices. (*Yellowstone County Local Civic Leader*)

Do you want me to come in and tell you what you can do with your 160 acres? And what if that is where you put all our resources...and your plan ultimately was to...pay for your retirement. Then along comes the government and says now we are going to make this a riparian area. This is a green space and you can't develop that. I have just wiped out your assets. The government has to be careful that controls don't go overboard...[and] start infringing on private development rights. (*Yellowstone County Local Civic Leader*)

[In] a new set of subdivision releases,...for the first time in Stillwater Country, setbacks from the river are going to be a consideration....[The requirement] didn't say you have to be 50 feet back—it doesn't work. However, if [the subdivision is] in an ecologically sensitive environment, [a setback can be] a requirement, which is a major step forward for a conservative county. So that was cool. (*Yellowstone County Local Civic Leader*)

The opposition will be out there....It's because you don't look beyond the fact it's my property and you can't tell me what to do with it. Public policy can't tell me what to do with it. Now, he might be the same guy that would sell a conservation reserve on that property voluntarily, but if you said, 'We on the Yellowstone are going to make this policy,'...it's just—I don't know what to call it...[It the] It's-my-property-and-you-can't-tell-me-what-to-do-with-it mentality. I don't know what to call it. I know it's out there. I've seen it all the time. (*Yellowstone County Local Civic Leader*)

Politically, whether you can define [a setback] depends on who has the juice and where they're located. We're humans and politics rules sadly sometimes. (*Yellowstone County Local Civic Leader*)

I would be very much in favor of [a] setback....It's dangerous [to build near the river]....It's an obstruction to a natural river. And what happens when you start building along that river is you've got to protect them. And now you're forced with making decisions that are contrary to the natural flow of the river. So I think that setback should be in effect. I don't know what that number would be, but it needs to be out of the way, that's what I think. And that is regardless of ownership. It's just it should be a building restriction on how close you can get to that river. (*Yellowstone County Local Civic Leader*)

You know, the Constitution of the United States, with its Bill of Rights, as well as the Montana Constitution, absolutely lists as an inalienable right your right to property, both personal and real. And you should be able to develop that to the highest and best use. The biggest problem that we get into then is the responsibility of the property owner....It was absolutely wrong for people to develop their copper at the expense of everybody else's environment. That was wrong. It is wrong today for somebody to build a house that is inappropriate and...destroys other people's values. So the balance between our right to own a piece of property, and to develop that piece of property as we see fit, either for our own aesthetic value or market value,...between all of those bundles of rights and the responsibility of a good citizen, as a neighbor...that's where, I guess, government and rules and regulations and so on comes in....What is responsible in my opinion may differ from your opinion....Refereeing the property rights [is important, but]...without a question, we're going to defend private property rights....People should be able to hone that property and invest and make money in it, or sell it, or whatever. But there is a responsibility that goes with that ownership. (*Yellowstone County Local Civic Leader*)

People who want to carve their own niche out of God's country for themselves bring problems....Because of our own history of 'let the other guy do what he wants,' which I believe in too, we have a conundrum....I tend to fall on the side of 'let the guy do what he wants unless it affects me.' And I consider it affecting me....It's restricting access of others for recreational use....[It's] wanting to control [the river] so that it doesn't impact their little niche. (*Yellowstone County Local Civic Leader*)

I think you would have any landowner organization, probably the stock growers [or] any outfit that represented a large landowner base, [oppose the idea of the corridor]. That's just how it is. If you're the NRA and somebody says, 'Let's get rid of bazookas,' you're going to be against it even though the average guy is going, 'Why would I want to own a bazooka?'...When you are a group that's trying to protect landowner's rights, it's the same. (*Yellowstone County Local Civic Leader*)

After the '96 and '97 floods, there [were]...multiple projects....The Corps approved some, didn't approve too many, but as the pressures build, we will have ourselves a canal instead of a river. There's a 404 permit process [and] sometimes it works, sometimes it doesn't. It depends on the Conservation District....They can, depending on who [sits on] the Conservation District board, be very rigorous....I think there ought to be some basic principles that have to be satisfied, and I think that those are conservation of the riparian

zone, and conservation of the hydrologic character of the river. (*Yellowstone County Local Civic Leader*)

You don't have to have houses right on the river....It wouldn't hurt them to push it back from the river a little bit, so you couldn't see [the houses from the river]. That is a big step, but I think it's a possibility....We could put homes in [the trees]....It's going to be a long, long time [before people will accept the idea, but] I pushed it and I don't get the opposition that I did. (*Yellowstone County Local Civic Leader*)

It's like everything in life: there's middle ground. And absolutism is a problem. I don't care what it is—religion, land, you name it—absolutism is crazy. There are just a whole lot of people who can't see anything but black and white. The rest of us see grays....It's a struggle. Thankfully, if you look at it in my lifetime, there's a...majority that have seen the grays for periods of time....There's a general consensus that things ought to be better, and that,...collectively, we have a responsibility to the next generation....[But] it costs money. (*Yellowstone County Local Civic Leader*)

VIII. Fulfilling Regulatory Duties

A. Informing and Working with the Public is Difficult and Important

I think that the average person relies on whoever is developing the property....[People] don't think the Yellowstone River can flow 50,000 CFS—it's only running eight CFS [when they look at the property]. They haven't been there that day when it goes from bank to bank. (*Yellowstone County Local Civic Leader*)

The methods...that are based on hysteria methods don't work because they breed the opposite reaction....Credibility is a real problem when you do that....I had a lady call me the other day, 'I just listened to Oprah and somebody on there said the bird flu is coming, and you can expect not to have any water for six weeks.' She was a young mother and was scared enough to think that it was true—that we don't stock any chemicals so we can't treat water...We stock the average supply of chlorine, which is three days in any plant....But even if we didn't have any chlorine and weren't able to treat the water, all you have to do is boil it. (*Yellowstone County Local Civic Leader*)

People have to realize that there are two sides to every story, maybe one good, one bad, but there's two sides. I learned a long time ago when I was working that I had to listen to both sides, and then maybe my side really wasn't right, but maybe the other person was right. And so you learn that...you're always going to have pessimists in whatever you do, but I think...people [need to] understand what you're trying to do...[and] keep them involved. Don't do it behind their back, because you'll lose everything. (*Yellowstone County Local Civic Leader*)

[When] you have people who are talking emotionally, [you can] get caught up in the emotion, rather than the facts. That's why it's important that you have people who can present the facts....Make the decision that's for the betterment of the community. A lot of

times, if you get caught up in the emotional decisions,...you walk away and say, ‘What did I just do?’ (*Yellowstone County Local Civic Leader*)

I think people...have to be educated...that certain times you can swim in the Yellowstone River and certain times...not....The Yellowstone is a treacherous river. People don’t realize that. Sure, everybody thinks it looks nice when it gets hot and you go in there and jump in, but you get such an undercurrent in there, and you don’t know what’s underneath there. We’ve lost two or three people already this year alone....I think once people started utilizing this [river,]...we’ve got to [inform people to]...be careful...And you’ve got to use a little common sense, especially on the Yellowstone. (*Yellowstone County Local Civic Leader*)

B. Don’t Force: Enforce in Ways Best for the River

Bad policy...makes people angry. And the one thing that we found out is that you don’t force things down people’s throats. You sit and work with them and you work on a solution to get it done. That is what creates the balance....We sit down and work it out....This is really a feather in Commissioner Reno’s cap. We are going to actually have a grand opening...for a boat ramp access to a big island down on Pompey’s Pillar. And that has been a site where there have been [both] trespassers and legal access to the river off a county right-of-way for the last 150 years. It is a great spot [for access]. (*Yellowstone County Local Civic Leader*)

One of the ways you maintain water quality is by having the river [in its] natural environment [and] it self-cleanses to a certain extent. That does not address man-made chemicals very well, but it does address natural things pretty well....I hate to sound too Republican, because I’m not, but there are plenty of laws on the books for that right now. They need to be enforced...[and] people need to pay consequences for misuse. I’m not sure there are any consequences right now for misuse. (*Yellowstone County Local Civic Leader*)

The Yellowstone River Master Plan....is basically a vision for a [set of] desired outcome[s,]....[such as] maintaining a natural system, and opening it up more to public recreation....Once your goals are established, then you start looking at some ways of achieving it, and those are your strategies. If you do it soon enough, and you do it continually—like, every five years or so—then you’ll be able to take advantage of opportunities that arise....Somebody might want to donate land, or there might be land trade you can get into, or funding that suddenly becomes available that you can purchase land. [If] you’ve already established [areas] you should protect...you [have] the tools to be able to move in an opportunistic way. (*Yellowstone County Local Civic Leader*)

We have to respect people with cattle and animals....We have to respect that people have to have an access on public right-a-way to get to the river—you can’t fence anyone of them out. You have to have a balance, but how do you do it? Do we use some fencing to keep the cattle in? Do we use gates to keep the cattle in and let the fishermen or

recreationalists [get to the river]? That has been a tough one and not every case is the same. We have been beat up over it. (*Yellowstone County Local Civic Leader*)

Clarks Camp...They built it in the flood plain and we have now gone through five years of fighting with those people to get that removed. It [was] originally...just supposed to be porta-potties...Well, someone is living there now. They have been told to move it and they haven't. We have turned it over to the County and now they have the issue. (*Yellowstone County Local Civic Leader*)

We have been involved in some lawsuits. Clark Camp is a perfect example...we dug our heels in and said it is wrong—you are jeopardizing everyone's flood insurance along the Yellowstone River and you have to remove it. [The owner] put a lot of pressure on us...but we were not the ones who made the investment for him...We couldn't jeopardize everybody along the river. (*Yellowstone County Local Civic Leader*)

Create a balance instead of just putting up roadblocks. I have to say that our Conservation District board here is probably one of the most progressive groups I have ever met. They don't just say, 'Ag is the only thing...and, by God, if we need to put a new ditch onto the river,...[Ag can] just automatically get it.' This group takes painstaking hours to look at [the permit applications] and to see what is best for the river. And these are volunteers. Everybody says, 'Well, you come from the urban county and you could care less.' We have Billings, but if you travel around Yellowstone County we have a lot of rural areas [and] a lot of river. (*Yellowstone County Local Civic Leader*)

Slow is a relative term...If it's a very complex project, [one] that you've never heard of before, and you have to go to the State or some other agency to help make a determination whether this is ok, that takes a while. (*Yellowstone County Local Civic Leader*)

I don't know if we're ever going to be able to come to agreement of what we can do without disturbing the environment. Everybody is going to have to be real understanding...We all have to understand each other's concerns...In order to keep the balance, we have to have people that are genuinely concerned about the river, and they have to meet with the people that want to...make some use of the resources....A lot of people get upset because government moves so slow. Well there's a reason for that. Impulse is not a good thing...I think we just have to sit down and trust each other and work together at it. (*Yellowstone County Local Civic Leader*)

C. Identify Best Practices and New Ideas From Other Places

People will tell you they need the access, but that's usually too late because they realize that their access is being blocked. I think [it helps] bringing in somebody that has some experience in another place...[and make judgments] based on maybe projected population...and characteristics of the river....You might need some outside help. (*Yellowstone County Local Civic Leader*)

As you see the growth of that community on the river [near Laurel,]...you're going to see people who want to have access to the river....Hopefully we'll have guidance....We need people who know what that's all about to come [help] us....We've got some great river frontage. All the people of the City of Laurel own that riverside park. So we have a lot of vested interest in that. (*Yellowstone County Local Civic Leader*)

One of the roles [for the Yellowstone River Conservation District Council] is assembling information so that we can learn and share information with all those other counties who are having similar problems. Once you analyze all the approaches that everybody has taken, you can certainly filter out to the ones that rise to the top....I'm sure there are some spots that we could gain knowledge from what others are doing. (*Yellowstone County Local Civic Leader*)

What is lacking for me in my job is [information about] the state-of-the-art. What is going on in Delaware or Kansas? What is going on in Gallatin County relative to these issues?...If only somebody will bring to me the current trends. I was amazed when Gallatin County...put in a mechanism where voters voted to tax themselves to buy view sheds. [They didn't] want lights on top of Bozeman Mountain so, rather than zone it, [they] are going to buy it. When that was explained, it made me wish I knew some of the current best practices. (*Yellowstone County Local Civic Leader*)

We should be able to develop [information] that would serve all of our counties....To say, here's some of the pros...[and] here's some of the bad ideas we came up with....To make sure every county follows the same sets of rules that we make for everybody. And sometimes maybe one set of rules don't fit everybody, but education would work....If you could think ahead....Education is the biggest thing when trying to educate people to...think out of the box. (*Yellowstone County Local Civic Leader*)

If you want the government officials to get involved, give them some good, simple tools to use that are unbiased and that we can create a real balance. That is really what we need, instead of trying to figure out how can I out-smart these guys....And the other piece is, when you go with something that is just pulled out of the sky and is not affordable, you have started a project that is going to die. Sometimes people do that just to ruin a project. I don't understand that either and we get a lot of that. (*Yellowstone County Local Civic Leader*)

Analyze the information you have from everyone...and identify the best ones—best practices. That is how you come up with one....[But be honest during the process]....You have everybody, and they are nodding their heads, and then someone says, 'No, you can't do that. It is against this blah, blah, blah.' Well, you just shot that [idea] down and you just wasted three hours! Lay your cards on the table and be honest about it, for God's sake. (*Yellowstone County Local Civic Leader*)

Whenever we can make an opportunity to educate...that's one of the most important things [we need in Laurel]....We've grown to this point because of the water, and we're being impacted because...we have to understand what it took to get here and what's the

best way to look forward. And that's going to be through discussions....People [need] information....Come forward anytime...[to address] the issues that the people of the City of Laurel want answered....We lack...opportunities to educate our city council...and I'd really like to have [informational] presentations. (*Yellowstone County Local Civic Leader*)

[If we had] a water storage containment system north of Laurel...we could use our excess water intake and pump to a reservoir and feed the whole Yellowstone Valley. Billings pumps their water all the way to 68th Street. It would benefit everybody. There is no way the City of Laurel could afford it, or Yellowstone County. If we have Federal funding it would benefit the whole valley....If that is the kind of thing...[you are considering, we will write] letters of support....That is the stuff we need to know. (*Yellowstone County Local Civic Leader*)

D. Agriculturalists Trust Agriculturalists

With the Yellowstone River Council we actually have Conservation District guys. [They have] buy-in for agriculture....I mean, if you're from Treasure County, you've got Phil Fox—your neighbor. He's on there. So, now all of a sudden, maybe there's a little more to this....Every Conservation District has somebody on the Council. Well, that buys you quite a bit....You take a guy like Kenny Nemitz, who is a personal friend of mine, he's not going to buy into something that's going to hurt a farmer. He just won't do that, I've known him for along time and know exactly how he is. Everybody knows him. If I'm his neighbor, I know...he's not going to go for something that's going to hurt the Ag sector....That's the buy-in. (*Yellowstone County Local Civic Leader*)

Just do an interview with the average person walking on the street in Livingston...and then go over to Sidney or Glendive and [ask] the same questions. You're going to find a world of difference between those two people....Because I grew up over in the east, sometimes I shake my head when I go over west.... I think your buy-in [with the Ag people] is with the Conservation District members—the members have fairly good credibility. (*Yellowstone County Local Civic Leader*)

There is a critical balance....It would be ticklish....Those who are really sensitive to the water [rights] would have some immediate red flags....It is a critical balance that we have right now....It is a real touchy balance. (*Yellowstone County Local Civic Leader*)

The 'family farmer' is barely making it...so, politically, there's a reticence to put any issues under control....All those things would improve water quality, both temperature and sediment control. There's also a belief system among many [Ag people] that there really is not a problem. (*Yellowstone County Local Civic Leader*)

There's a huge fear in the Ag sector about Uncle Sam—what he will and won't do...that Uncle Sam is going to take your livelihood from you—your water....And you've got alarmists in the Ag sector....[who hear about] some ideas out there, and all of a sudden...that's how it's going to be....[Ideas] get turned around....I sat in the coffee shop

in Roberts, Montana and listened to two irrigators....They knew just a little bit on the subject of water rights...[but] they got a little piece of information that got turned over. (*Yellowstone County Local Civic Leader*)

You help people understand that they can better manage their resources....[For instance,] if you...fence your property right and manage your fields and your streams and your water resources, you can keep all of the cows out of there, and you can keep all of those filtering areas good and clean. (*Yellowstone County Local Civic Leader*)

It's dollars. [People adopt new riparian practices when they see their] land is of more value and [they] have better livestock if [they] protect that fragile area....[When they see the] land has an increased value. (*Yellowstone County Local Civic Leader*)

We have a lot of armchair quarterbacks out there....They never have the complete story....We give them time to spout off, and then we sit down and explain it to them. (*Yellowstone County Local Civic Leader*)

Big Horn River to Laurel: Recreational Interest Group Overview

Sixteen interviews were conducted with individuals who use the Yellowstone River for recreational purposes, including hunters, fishers, boaters, floaters, campers, hikers, bird watchers, rock hunters, photographers, and others who use the river for relaxation and serenity. Participants were recruited from referrals provided by members of the Resource Advisory Committee of the Yellowstone River Conservation District Council.

Participants were also identified and recruited by contacting various organizations such as Ducks Unlimited, Trout Unlimited, and the Audubon Society and by contacting local outfitting businesses.

Participants in Yellowstone River Cultural Inventory—2006

	GEO SEG I: Missouri River to Powder River	GEO SEG II: Powder River to Big Horn River	GEO SEG III: Big Horn River to Laurel	GEO SEG IV: Laurel to Springdale	GEO SEG V: Springdale to Gardiner	TOTAL IN GROUP
AGRICULTURAL	22	22	16	12	14	86
CIVIC	14	14	18	14	8	68
RECREATIONAL	15	16	16	13	16	76
RESIDENTIAL	15	11	16	15	19	76
GEOGRAPHIC SEGMENT TOTAL	66	63	66	54	57	
NATIVE AMERICAN						7
PROJECT TOTAL						313

Big Horn River to Laurel: Recreational Interest Group Analysis

I. *Valuing the Yellowstone River*

A. *The Yellowstone “Adds to the Quality of Life”*

The Yellowstone River is worth so much to this area and to the state as a beautiful river...It adds to the quality of life in Montana, not to mention a dependable water supply for municipalities and agriculture. (*Yellowstone County Recreationalist*)

The river...puts us in touch with our history....Clark went down the Yellowstone, and they had some steam-wheelers come up the river as far as Billings. And I'm sure that a lot of fur trappers used the river. (*Yellowstone County Recreationalist*)

We're avid touring kayakers. We love to go on the river kayaking and watch the wildlife, the deer the birds, the eagles, hawks, beaver, lot of beaver....It puts you in touch with nature and the cycles of nature....It's just amazing what diversity you see along the river....It's a pretty special place. (*Yellowstone County Recreationalist*)

It is a symbol of nature and a symbol of godliness....It is at the river that I best understand my role as a human being on this planet. I am part of nature, as you are and we all are. When you stand by the river you have a tendency to realize that. (*Yellowstone County Recreationalist*)

[I enjoy] the fast flow of the main channel, and the ripples in the main channel, and the color—it changes with the seasons. I like it when it is greenish and not so brown. I like it when it is flowing fast in June. (*Yellowstone County Recreationalist*)

I am surprised that you use the term river recreationist. It almost belittles the use because it is not just a matter of recreation. Recreation almost trivializes it, like it is something we don't need to do. With the river it is more than a matter of recreation, our very life depends on the Yellowstone. (*Yellowstone County Recreationalist*)

To me, it goes back to mental health....[We] need that ability to be outdoors and enjoy. Our kids...and grandkids are becoming so much more urbanized....Kids don't have the kind of freedom...I had when I was younger. I think we need those opportunities to keep a sane community....That's why it is so fun to live in Montana because you've got so many opportunities to do that. (*Yellowstone County Recreationalist*)

B. *The River as A Refuge*

When you go down [to the river] you might see somebody else. But you could be down there all day, or all morning, and probably not see somebody else. I have an eight to five

job, where I answer the phone 100 times a day and solve everybody's problems, and when I go out duck hunting or fishing or hiking, the only problem is, 'Should we stop here for lunch or over there?' (*Yellowstone County Recreationalist*)

It's wild. It's untamed. It almost speaks to me. It's a spiritual thing. When I'm on the river, and I just flow with the current, it relaxes me and it kind of de-stresses me. (*Yellowstone County Recreationalist*)

I used to be a big fly fisherman. [I] went up to the Big Horn all the time...but I just got tired of all the people and all the outfitters....For my purposes, and my friends and family, we really love [the Yellowstone] river. This would be our premier river. (*Yellowstone County Recreationalist*)

It [is] neat...to sit on the bridge and put your feet in the water. A lot of people don't get to do that. We're lucky compared to growing up back east where it's crowded. (*Yellowstone County Recreationalist*)

A retired teacher told me he thought [fishing] was just an excuse for doing nothing, so he never fished. I thought he missed something in his life. Even if it's a good excuse for doing nothing, it's a great way to do nothing....I'm pastor and I'm involved in a lot of things....I go out there....[and] the pressure's gone. [I like to] watch the river. Something's moving that I don't have to push. (*Yellowstone County Recreationalist*)

C. Free-Flowing and Natural

I would describe it as a wild, natural river. The longest free-flowing river in the country, not counting Alaska. A meandering, muddy river with gravel banks, and trees having fallen in, and a river that reflects the seasons naturally in color and size. (*Yellowstone County Recreationalist*)

[The Yellowstone River] is a meandering river. And you look all over the face of this globe, and see rivers that are in the stage of development that the Yellowstone is, and you'll see that the Yellowstone is doing what it's always done. (*Yellowstone County Recreationalist*)

You know, every other river in the country is dammed, and it is nice to have something that's wild in your backyard. (*Yellowstone County Recreationalist*)

The river will do what God wants it to do. It's going to change in whatever way it's going to naturally change. (*Yellowstone County Recreationalist*)

In the lower forty-eight, the [Yellowstone provides an] opportunity to float an undammed river [for] 670 miles—there's not any other opportunities like that. You can do it in Alaska, but not here, not in the lower forty-eight. So, it's a neat recreation resource. You go from cold water fisheries to warm water fisheries and view all the different terrain and countryside. (*Yellowstone County Recreationalist*)

[A free-flowing river] helps with cottonwood regeneration along the river. Cottonwoods are important for breeding birds....Cottonwoods need sandbars to germinate the seeds, and if you don't have a free-flowing river to help shift the course of the sandbars in the river then cottonwoods can't regenerate. And if you don't have trees along the river, it decreases the [habitat] for the birds. (*Yellowstone County Recreationalist*)

D. The River's Public Resources

I hope we understand that the river is something that belongs to the people of Montana. Just because you own land along it, you can't really own the river. (*Yellowstone County Recreationalist*)

Water being the thread of life, it's the most essential thing we need. (*Yellowstone County Recreationalist*)

[The Yellowstone River is] one of the most important riparian areas in this part of Montana....The riparian zone is a place that is adjacent to the river and it extends from the river back two or three miles....It's important for bird species and animal species...and aquatic [life]....[It] filters out the dangerous things that might filter into the river. It decreases erosion...and aesthetically it's very pleasing....[It is nice] to kayak the river and camp along the shores in the cottonwood groves. (*Yellowstone County Recreationalist*)

I really believe that every species has a place and....if you didn't have one species, it would hurt another species. So, it's very important to keep that...riparian zone....If you don't keep that, [a species] is going to die, or become extinct, and that's going to throw everything off. (*Yellowstone County Recreationalist*)

We're going to need to understand...the biologic resources of the river...What are the parameters we really need people paying attention to?...I don't think we know those things yet. And that's in the face of coalbed methane development....The BLM is looking at thousands of coalbed methane wells, each of which is producing water...with more saline. So the potential, if we don't have good regulations...would be very significant on rivers like the Powder and the Tongue. (*Yellowstone County Recreationalist*)

The river is a multi-use river. It's used for agriculture, it's used for recreation, it's used for generating energy....There's agate hunting, fishing, bird watching...kayaking...water for cities, and towns. I guess that's about it...Oh, [and] mushroom picking. (*Yellowstone County Recreationalist*)

[You have] cottonwoods...great horn owls, and heron rookeries. In fact, a Fish, Wildlife and Parks spokesperson told me that every seven miles along the river there's a bald eagle nest. (*Yellowstone County Recreationalist*)

I think it is an under-utilized resource....There are some great opportunities for enhancement and enjoyment of it....[We should] develop trail systems within the

community. You know, with the river so close, as well as the rims, you have two natural resources that...most communities don't have. (*Yellowstone County Recreationalist*)

It seems like we use it, but we don't honor it....We use it for our own industrial interests, but we don't seem to give any of it back to the citizens...in terms of beautifying the many spots [along] the river. Of course, it is beautiful by itself in the more rural areas. But, when it comes through the many cities,...it doesn't seem like we've done much with it. (*Yellowstone County Recreationalist*)

The riparian area should all be restored. We have a lot of restoring on the river that needs to be done....[A natural corridor is] a natural habitat area. It does not mean [a] lawn right down to the river that is sprayed with pesticide to keep it green. It does not mean that. To me, [the riparian area] is a natural, protective thing. Maybe there could be bike trails and walking trails so people can enjoy that. Not storage and parking lots. (*Yellowstone County Recreationalist*)

II. Shifting Scenery: Development Along the Riverbanks

A. Homes on the Riverbank/ Flood Plain

Well, I guess Aldo Leopold probably said it the best, 'The flood plain belongs to the river.' (*Yellowstone County Recreationalist*)

If the realtors had their way, they would fill the flood plain with houses as they have in so many parts of the country. (*Yellowstone County Recreationalist*)

When they...develop in the flood plain...their actions can affect others. We have laws that limit what people can do on their property....Their development in the flood plain is not in the greater public interest and the greater public interest is what really needs to hold sway. (*Yellowstone County Recreationalist*)

I think another problem with people building so close to the river is that, aesthetically, it's not very pleasing....From what I understand they're going to put in some riverside trails....Hopefully [those trails] will keep the areas pristine and wild....It ought to be just like the rims, [with] easements that set aside that [area]....Don't allow people to [build] right up to the river. (*Yellowstone County Recreationalist*)

The Yellowstone...is free-flowing and it floods a lot. So you better not put a house right on the edge of the river; it might flood and wash away. (*Yellowstone County Recreationalist*)

I think that we've been really lax in our state, county and city government. They've been allowing people to build too close to the river, and then the river rises in the spring, floods them out....Then, first thing you know, the people start rip-rapping and protecting the banks. (*Yellowstone County Recreationalist*)

You want to make sure [developments] are done in a way that they are not destroying the...feeling that you get from being along the river....Keep your streambed, riverbed...in a more natural state. (*Yellowstone County Recreationalist*)

Keep it pristine and let it flow. It isn't like we don't have enough room to build a little bit back from the river. We haven't run out of room in this state, yet. (*Yellowstone County Recreationalist*)

B. Calls for Stricter Flood Plain Regulations and Stricter Enforcement

One of the most graphic examples of incursion in the river is...up in Paradise Valley, not too far south of Livingston....Five to eight years ago,...somebody came in and bought a chunk of land between the highway and the river, and that's now an RV park....We have RV tailpipes sticking out over the bank of the river....That's the kind of thing that just should never happen....Paradise Valley has been compromised so bad....[It has] been willy-nilly development....Consider the cost, financially as well as the amenities that are lost. (*Yellowstone County Recreationalist*)

I serve on the county zoning commission and [sometimes when] we get a request that is close to the flood plain....we don't even get a map with the request. So I ask, 'Where is this?' and they will say, 'Well, maybe a corner is in the flood plain, but it won't cause much problem.' So, we are changing the flood plain regulations....If I lived downriver from Lockwood, I would worry. (*Yellowstone County Recreationalist*)

[We need to] develop setbacks, like 300 feet back, and prohibit any development in the flood plain....We shouldn't allow any building out to the 500-year flood plain. Unless there is a high cliff, there should be a rigid setback in the planning. (*Yellowstone County Recreationalist*)

Much of the problem is allowing development within the river corridor, by which the natural processes of the river are jeopardized. You can avoid that development. Move it back away from the river, away from the river environment, and emphasize uses within the river environment that...can withstand some flooding. Things like parks or golf courses....Then the need for modifying...and channelizing the river seems to go away. (*Yellowstone County Recreationalist*)

We worked on a project to get together all the flood plain regulations across the state....We put them together and compared them, and we put together kind of a dossier....We started working with Yellowstone County and the flood plain administrator with that array of flood plain regulations and we got a fairly good set of flood plain regulations passed in Yellowstone County....I find it somewhat troubling that more and more it's being altered to accommodate encroachment by development...construction of buildings, homes, and other buildings that are right on the river banks or very close. They're in the flood plain, and then as a result of that, [there's] a lot of ...rip-rapping—so called channel stabilization work—that's being used to channelize the river in the interest of protecting those developments. (*Yellowstone County Recreationalist*)

The ranchers and landowners should not build so close to the river, and I think they [should not]...have their cattle graze right next to the river....Cattle go down to the river and drink and they trample all the...shrubby and grasses. (*Yellowstone County Recreationalist*)

[We need] good, thoughtful flood plain regulations within a county to protect that critical resource....[The Yellowstone River Conservation District Council] has the muscle to do that within State law. Within that flood plain there's quite a bit of authority to do the right thing. (*Yellowstone County Recreationalist*)

I think where [the Yellowstone Conservation District Council] could really play a good role is in supporting good flood plain regulations within our counties. (*Yellowstone County Recreationalist*)

C. Housing Developments Threaten Water Quality

[When] the high water comes, or you have an ice jam, or...the spring run-off [comes], you flood your septic tank or cesspool...[and] that material in that pool goes right into the river. There's a capacity for the Yellowstone....You can exceed that capacity, and then you have a real problem....We need those setbacks. (*Yellowstone County Recreationalist*)

I wouldn't allow septic tanks....If they want to put in a subdivision of 30 cabins along the river, they would have to pipe that water, pump it back, away from the river, away from the river gravels, maybe to a pond and have their own septic system there. (*Yellowstone County Recreationalist*)

With people building homes close to the river, I think there's a danger of fertilizer runoff into the river and that probably would create algae blooms [due to] nitrogen. (*Yellowstone County Recreationalist*)

D. Other Development: Industry and Municipalities

I would hope that the City would learn to respect the river more than they do now. The banks and the industrial development in Lockwood are just terrible. The County Commissioners think everything should be zoned industrial and Lockwood is very close to the river. I would like to see us change all of that so that all along the river it is a natural corridor. (*Yellowstone County Recreationalist*)

The river has to change. As Billings grows, and Laurel grows, and everything else grows, our water supply comes out of the Yellowstone River [and the river has] got to go down....[But, in terms of] habitat, it's essential that the river rise, that floods sub-irrigate [the] ground and create the nesting habitat for...ducks and geese....It has to do its natural flooding. But if we keep drawing more and more water out of it, it's going to change the natural habitat. (*Yellowstone County Recreationalist*)

You do have all the industry, too. There's an awful lot of industry that's down by the river that creates not exactly what you would call pleasing environments.... Yet it is part of our culture. I guess we all have to be a little tolerant of everybody else, because we can't have everything our own way. (*Yellowstone County Recreationalist*)

E. Agriculture, Economies and Land Prices

Most of the irrigation projects in Montana were built around...1900 to 1920. They're over 100 years old and they're still operated [today as]...they were when they were built, say in 1910....They're operated very, very inefficiently. There is much more water diverted than is really needed to water the crops. That tends to dewater the river. There's much more water returned to the [river] than needed...and that water is usually laden with silt and Ag chemicals, pesticides, nutrients and so forth....And I'm not anti-agriculture at all. I mean, I don't want to come across as hypocritical at all. I eat the meat and I appreciate it. But I think there are some gross inefficiencies in operation, and that unfortunately degrades the quality of our river. (*Yellowstone County Recreationalist*)

Is it necessary to plow up that land? Is it going to be productive land? So then we plow up a piece of land and pretty soon it's not productive. We decide that we plowed too close to the Yellowstone [River]....It wasn't good quality land to plow because of the way it's sub-irrigated. It had too much alkali in it so they couldn't grow anything in there. Now you've changed the natural grasses that were along that river [by] trying to plant something there, and with the sub-irrigation, the farmer said it's not going to work....That was a pretty stupid idea. Who draws the line? (*Yellowstone County Recreationalist*)

So if that river meanders and goes away all of a sudden, and you're a person that's doing pivot irrigation, and you can't get water out of that river, you've got a real problem. I mean it's a critical problem and you don't have a year or two to sort this thing out. You need to figure out how to make some provisions where you can get that water, whether it's for livestock or whatever. So,...there's a lot of ongoing problems and that will probably continue forever. (*Yellowstone County Recreationalist*)

But it's my understanding that there are some tax benefits [with conservation easements] that are attractive, maybe not to everyone, but to some people. But the easements are sold. They receive a part of the value of the land right now when they issue the easement or when they grant the easement. They're paid for that. Then when they sell that property, they have to sell it with that encumbrance, so maybe they get a little less for it then. But they've gotten that value up front. Now, if they manage that money that they've got up front, invest it, or whatever, [it] could be that it will be worth as much or more of that selling price [than] if it didn't have that encumbrance. (*Yellowstone County Recreationalist*)

III. Access Dilemmas: Demands, Limits and Controls

A. The Importance of Public Access Laws and Public Lands

The Department of Fish, Wildlife and Parks was proposing a fishing access site near the Duck Creek Bridge....A few of the people that built homes right on the river [near the bridge] were at this public meeting. Their big argument was, 'We don't want recreationists on the river. We bought a piece of the river to have it for ourselves, and we don't want the public out there.' And really that's the kind of attitude that just can't be tolerated by our public managers....The Conservation Districts and the County Commissions [have to protect] the greater public interest,...not those few individuals that bought their little stretch of the river front....They really need to look at the long-term public interest and the real values that that river has for the greater public into the future. (*Yellowstone County Recreationalist*)

The private property lobby has tried half a dozen times to turn over our stream access law in both State and Federal court and [the lobby] lost every time. They're afraid of...the setback strips [and] controlling the kind of thing they do in the flood plain....They are worried...that [the river] is such an important public resource that there will be some kind of limitations on what they can do on their land. And there probably will be. (*Yellowstone County Recreationalist*)

[I heard it] said our society has a bundle of sticks and society...controls those sticks. They issue them out one at a time to private landowners, and they can take them back to depending on the situation. I think most of us don't want to do away with private property. We all live, or were raised, on private property, for heaven's sake....But there comes a time when private property might be impacting [the] public resources of our society....There has always been some limitations....As an example, you can't sell your topsoil to the Saudi Arabians...But that doesn't mean that's the end of private property. It means that society is going to take back a few sticks. (*Yellowstone County Recreationalist*)

So, we decided, 'All right, there's an island here. Let's find out who owns that island and maybe we could get an access'....Well, we started looking, and nobody was paying taxes on that island, so we said wait a minute whose is this? So, through a series of actions, the BLM finally said we own it. We manage that island. It's been a public island for 100 years and nobody knew it. (*Yellowstone County Recreationalist*)

If you look back at the history of the United States, the public land and the public water have been enormously important. Our champions are people like Theodore Roosevelt and the national forest, the national park, the national wildlife refuge, the national monuments. All of those are part of the public estate, and we think the public estate is very, very important to our society—equally as important as private property....Our position is, what's private is private, but what's public is public and it should be treated with the same level of respect....You can't have private water where the Constitution says it's public, anymore than you can have public water if the Constitution said it was

private. And we don't just sue every time we turn around. We talk to people. We try to convince them it's wrong, that they shouldn't do it, but we have a hammer and we'll use it. (*Yellowstone County Recreationalist*)

We have to determine exactly what is public and what is private.... Here's an example: the meander surveys. When the general land surveyors came through here around the turn of the century,...they didn't try to run a chain across the river....They went up and down stream with a series of meander surveys, meaning they shot bearings and distances following pretty much the high water mark. And this is how they define [the high water mark].... Public land, all navigable bodies of water, and other important rivers and lakes below the line of the mean high water mark, are segregated...from lands open to private ownership....Once the State was established, the lands within that meander survey were turned over to the State of Montana, including the islands. Who owns the islands now? That has never been completely cleared up. There are some islands that have been identified. (*Yellowstone County Recreationalist*)

A guy from Florida bought a piece of land and [across a corner] there is a little...road that's been used for many, many years. [The road] accesses the national forest....He closed it off; he gated it....You just simply can't let that stand....You can't depend on the County to fight them because they don't have the money. We're disappointed in some of the Federal agencies. They should be fighting these problems....Part of the idea of the public resources—like BLM, Forest Service, and land management agencies—is that people can get to their [public] land. They have to....They can't brag about a 'land of many uses' if you don't get there. (*Yellowstone County Recreationalist*)

We have the tension between an urbanizing population and a rural philosophy legislature. And generally governmental bodies...lose opportunities for the parks and access....So the immediate problem is that you have this significant population influx, and subdivision development, and it's bumping into the rural philosophy of ...'Leave us alone. this is our land we can do with it what we want.' So, that's having an immediate effect. (*Yellowstone County Recreationalist*)

I think it will change drastically as far as people building along the river...[and how] that relates to access to the river....I think that [as] a whole lot more private access show up...it will detract from [the public use] of those areas of the Yellowstone....If it were mine, I would do the same thing. I think that is the way it should be as far as landowners' rights....I don't feel encumbered by houses on top of me. I might when the number doubles or triples or multiplies by ten, and it will. (*Yellowstone County Recreationalist*)

Yeah, subdivision law is set by [the] State legislature basically, so counties are very hamstrung in terms of their abilities to really plan and to force some kind of conservation standards. As an example, you can take a big track of land...and you can subdivide it into 20-acre blocks and [then] you sell it as undeveloped 20-acre lots—almost no constraints within counties for that. Then you own a 20-acre block and you come back in and you ask for a process to subdivide that 20-acre block. You divide it into five-acre blocks—almost no constraints on that. And then you come in with a subdivision plan for that five

acres, and it's small enough you don't have to provide for any parks or public constraints. So that's what's happening. So the effect...is that all [developments] lack any coherence. And where you have a really important public environmental resource like the Yellowstone River, which is important to so many things, it has impacts.... [The counties] are really handicapped because of the state laws that govern them. (*Yellowstone County Recreationalist*)

If I live along the river, I don't want other people down there.... That seems to be the resistance to trails in general in this area.... Any time you have private property, people do not want other people down there. And yet I think the river is a community asset so everyone should be able to at some point to enjoy more parts of it anyway. I am not saying you take away people's private property. But I think...we should still provide some kind of a corridor for the public to be able to access. (*Yellowstone County Recreationalist*)

B. Problems with Access

I think river access is a really important issue. Until they opened up Josephine Park, I used to crawl under the fences and sneak down to the river. The first time I saw that they put the path down to the river and I didn't have to crawl under fences, I actually burst into tears. (*Yellowstone County Recreationalist*)

I don't have access to the river and its islands like I used to.... It used to be anything below the high water mark was legal hunting, but today it's considered private property on the islands and you have to have property owner permit in your possession. (*Yellowstone County Recreationalist*)

When you fish, you meet people in different communities because you go to have lunch afterward.... You get to know some of the farmers. It helps to know some of the farmers so that you can get access to the river. (*Yellowstone County Recreationalist*)

Public access is being squeezed.... When people... pay tens of thousands of dollars for small acreages up against the river, they don't want a lot of company there. A lot of them don't like it honorary either. The tendency is, and will continue to be, to close off access.... Landowners, who own 84 percent of [river access in Montana], say, 'We don't want to have you here. We bought this... for ourselves, and we don't want it where you can go through here.' (*Yellowstone County Recreationalist*)

Achieving more access to the river for the average person, I would have to believe is a good thing.... [For] example, when... someone has a Federal land loan [and] they go bankrupt, [if it] would be a good access spot.... Make it [public].... [Make it] as open as you can to the public... I don't have much of a problem because I know some of the private landowners... and [I've] cultivated relationships over the years. (*Yellowstone County Recreationalist*)

You have to separate law enforcement from access. You can't say, 'Well, the public is not entitled to access to public land because they might do something wrong' anymore than you say you can't have access to the public library because someone might tear up a book. (*Yellowstone County Recreationalist*)

If you're going to float the length of [the river], you don't know where you can stop, where it's legal to stop. You're not sure where you might get off to get re-supplied or to have people meet you. There needs to be maps. There are some sections where the access is really poor. (*Yellowstone County Recreationalist*)

Any place where a road would cross [Montana Rail Link's]...property to get to the river, they're in a habit of closing it off. So you can get in if you walk, but you can't drive in. Sometimes that's inconvenient....I carry a big ten gallon cooler that's a minnow aerator. And if I don't bring a small minnow bucket, I'm kind of stuck as far as getting my minnows over to the fishing site. I wish there was more access to the river. (*Yellowstone County Recreationalist*)

[We need] trails [and]...places for people to access [the river,] to enjoy it in whatever sense. We do have some of that with River Front Park...but it is not necessarily the easiest place to get to....It would be better if you could access it from the community. We don't have a real good access point just because of the environment [the Interstate] we have built in between. (*Yellowstone County Recreationalist*)

C. Decorum: Respecting Others and the Resources

When you go camping, you don't leave your beer tops and...paper plates. I just hate litterers. If you leave it cleaner than you found it, the world would be a better place. (*Yellowstone County Recreationalist*)

I think that the usage will go way up. There will be an awful lot more people using the water. And when you have those people using the water, then you have conflicts from those uses. (*Yellowstone County Recreationalist*)

Not everybody that would agree [with me]. I take my little jet boat out there, and I'm going to offend a bunch of people on that bike path because they're going to say, 'Well that makes noise and it puts out a little smoke'....Through education I think we can bring a lot of people around. (*Yellowstone County Recreationalist*)

We see more and more of the big jet boats....Usually, they've been very congenial and I think they watch out for kayakers, but....sometimes they get a little close to you. (*Yellowstone County Recreationalist*)

[There was] a place that had wonderful waterfowl recreation....Now...there are so many kids going in there shooting the ducks...they've absolutely just ruined it to the point where I'm not sure if any of us will go back anymore because there's just so much pressure on it....With waterfowl you can't pressure things too much or pretty soon they'll

just go away....I think the only way you could do it is to try to educate [people].
(*Yellowstone County Recreationalist*)

When you actually look at trail systems,...99 percent of the people that use those trail systems are good, family-oriented [people]...just wanting to go out, not wanting to pollute...or do something to their place, but just be able to enjoy the area. And they become eyes and ears...of whatever system is out there. (*Yellowstone County Recreationalist*)

D. Recreationalists At Odds with One Another

One conflict that comes to mind would be between self-propelled, quiet users versus jet boats or jet skis. (*Yellowstone County Recreationalist*)

You have people who like quiet recreation, and you have people who are more into motor sports....You always have these groups that are always at odds with each other.
(*Yellowstone County Recreationalist*)

There is a lot of pressure on outfitters and the board to get rid of the outfitters....Most of the complaints...have to do with the river traffic. What I think is valid is that we prompted it. We get people up here to experience some of these things because we have world-class fishing....[The public] foolishly think that the fishing we have here is available everywhere and,...if there were no outfitters, people wouldn't fish it. Neither of those is true. We do have world-class fishing here and it happens that I guide people one time and they come on an annual trip and they do it themselves. Did I cause that? Maybe. The same way that everybody in town that takes their uncles out and fishes it. The traffic increases because of it....What I think is invalid is [they] think that the number of guides has a negative affect on the fishing or the fish. We generally take great pains to play the fish well and keep them alive and to never keep any unless they completely insist on it. If people can be talked into putting fish back, we do. I don't begrudge the guy who walks down on the bank and catches his limit. I am frustrated about him complaining about me hurting the fishing because I am not. If you take a few out, the food volume stays the same....The rest [of the fish] just get bigger. (*Yellowstone County Recreationalist*)

IV. Ideas About Erosion and Rip-rap

A. Erosion is Not Necessarily a Problem--It is What the River "Wants to Do"

[As] a hydrologist, I studied river mechanics and fluidal geomorphology and from that perspective, the channelization really changes the character of the river. [Channelization] creates...an artificial river system, really. Often times the so-called channel protection work that's done in one place, causes impacts immediately down the stream. The river is not allowed to meander and shift as a mature river like the Yellowstone wants to do. It can cause unnatural artificial areas of degradation and aggradation, or deposition, or erosion of stream materials, or loss of streamside vegetation. We're losing the

cottonwood trees and much of the riverine environment is changing as a result of man's uses and developments. (*Yellowstone County Recreationalist*)

I think erosion is part of the river in terms of the river flow itself. (*Yellowstone County Recreationalist*)

Sometimes it's heartbreaking to see [erosion]....But, on the other hand, it's a wild river and it's expressing itself in such a way that it makes it what it is. It's a living entity that gobbles up one bank one year and might turn around and gobble up the other bank the next year. That's what's uncontrollable and that's what makes it wild and adventurous for those of us who like to get on that sort of thing. (*Yellowstone County Recreationalist*)

B. Rip-rap and Its Effects

Most of the time, people haven't taken the time to determine how to go about it properly. They don't go through the permitting process correctly. Traditionally, what happens is they will do something inappropriately and then it sends the problem farther downstream, to the next guy. (*Yellowstone County Recreationalist*)

Pretty soon you have a ditch, you know, rather than a river. In some cases [rip-rap] is legitimate, in other cases it's probably overdone. (*Yellowstone County Recreationalist*)

The riparian zone along the river is altered as soon as you channelize the river. You don't have the over-bank flows...that renew the riparian zone along the river. And that's habitat for wildlife of all kinds....If left natural it can actually help alleviate flooding problems downstream. So, a lot of the times, the channelization of the stream just creates more problems....[And] there's a loss of values in terms of recreationists being able to enjoy...a viable fishery. (*Yellowstone County Recreationalist*)

[The river and the riparian areas are] less healthy for two reasons. One, there's been a lot of development taking place—I'm talking the entire river, not just around Billings. And [two, I see]....miles and miles of channelization of the river...that very seriously compromises the riparian zone. So, sure, it's gone down hill a lot in the last 30 years. (*Yellowstone County Recreationalist*)

I think that the erosion problem...is a result of stream straightening. You don't have the cottonwood growth to hold the banks and keep the erosion down. (*Yellowstone County Recreationalist*)

You get a guy with more money than he knows what to do with, and he's paid tens of thousands of dollars an acre for land along the river, and here comes the damn river and starts washing [his land] away. Now he can afford to do something about that, and he will do it. What he doesn't understand is that the degree to which he does that, it is going to hammer the guy downstream. So, he has [created] unintended consequences which he's not responsible for—he should be. (*Yellowstone County Recreationalist*)

I assume [rip-rap] confines the river and screws up the fishing. (*Yellowstone County Recreationalist*)

Rip-rap [is used for erosion], but that's not pleasing as it is so unnatural looking. (*Yellowstone County Recreationalist*)

There's a guy between Laurel and Billings...that...put big rock jetties out into the river to stop the washing. I don't think it's impeded anything. In fact, sometimes some of that stuff gives the fish more cover, more places to go and hide. (*Yellowstone County Recreationalist*)

C. Rip-rap Does Not Work—Maybe

Keeping the river from meandering is like stopping a natural process. The river meanders; rivers do that. Particularly mature rivers, like the Yellowstone, that are not constrained by the geology. In other words, it's not a rock canyon, it's a meandering river. Keeping it like it is means allowing it to perform its natural function. It doesn't mean locking it in, channelizing it, holding it in the same channel forever and ever. That won't work. It simply won't work. (*Yellowstone County Recreationalist*)

I think from the standpoint of silting, I think allowing them to put stones and old broken pieces of cement and stuff along the riverbank is probably not a bad idea. It'll prevent a lot of land being cut away and being dumped into the river. I think they need to be careful. I would imagine some things they could put in there could be toxic....Any places where they've done that in the past, I can't say it's damaged the river or anything. (*Yellowstone County Recreationalist*)

V. Comprehensive River Management

A. Cumulative Impacts

[An example is] the farmer, who has plenty of capacity in his irrigation pump. It's going to be a 100-degree day today, and he knows that if he can get lots of water to those plants on a day like this....So he grinds that pump out full blast and water runs off,...carrying silt off into the stream. And he sees the stream as a little dirtier, but what's the impact of that [little extra]? And the guy upstream does it, and the guy downstream does it, and the guy up-beyond does it. (*Yellowstone County Recreationalist*)

The pressures from industry, agriculture, and urban areas are not benign on the quality of the Yellowstone River. Also, we're beginning to channelize the river and drastically affect the biota, the quality of the water, the quality of the scenery, and the quality of the recreation potential. It has limited capacity to supply all of these things....It's over-adjudicated and it's under-regulated, but there's not a conservation strategy....There's a direct tie [between] how well we manage all these activities and the health of the river. (*Yellowstone County Recreationalist*)

There's more and more users, so we'll probably be losing water....Actually from the Park on down, there's just more and more folks wanting a place on the river. The guys who are farming or ranching, they're selling those home sites. That's going to be an issue someday too....Everybody can't have a place on the river. (*Yellowstone County Recreationalist*)

When you get people living so close to the river,...they place all their various junk...down by the river and then when it floods that all goes into the river and creates hazards, especially for the wildlife. And fishing line is another thing we see....You know it entangles the wildlife, especially birds....Up by Canyon Ferry, they've got these PVC pipe tubes...[for] used fishing line....[You] put it in [t]here, and they have a cap on it....[They are] at all the fishing access sites....Maybe they could start putting them in here. They're very inexpensive to build. (*Yellowstone County Recreationalist*)

[We need] protection of the animal life on and near the river. The bald eagles, the deer, the birds, all the multitude of birds and even fish that are on the river could be harmed with too much growth, too close and everybody wants to be on the river....I wouldn't mind being on the river. But, at the same time, it might impede the success of animal reproduction in those areas and it would be a shame to lose it. (*Yellowstone County Recreationalist*)

The sauger fishery is pretty weak anymore compared to what it was. There were times when you could get four limits of 15 fish in an hour and a half or two hours right at Huntley. And now to catch 15 fish in a day would be pretty good sauger and walleye fishing....I think they've been over-fished....The problem with sauger, of course, is that people have a hard time telling them from walleyes. A lot of the Montana anglers are still coldwater-oriented people....The ling population has dropped right off on the Yellowstone too, and I think that's probably an over-fishing situation too. (*Yellowstone County Recreationalist*)

B. A Need for Balance

Money talks. Sometimes it screams. (*Yellowstone County Recreationalist*)

I believe you have to balance the needs....How many more people can move into the Billings area before it starts affecting the water supply?...So it's balancing that recreation use with that agriculture use...with the whole picture of who gets to decide. (*Yellowstone County Recreationalist*)

I don't think the balance should be for the users. It should be for the river....An ATV-user [might ask,] 'Don't I have a right to ride along the bank and down to the river?' No, [ATVs] cause erosion and they destroy habitat....Jet boats would be a disaster for the wildlife if they covered the river with them. If it is not healthy for the river, they don't have that right. We have to do what is healthy for the river....I am not against property rights, but the river is primary...and it belongs to the people of Montana. The people along the river have to share their property with all the people that own the river. The

river is not healthy unless it has good riparian areas, good habitat, and room to move. It is, above all, a meandering river. Our only criterion has to be what is healthy for the river. (*Yellowstone County Recreationalist*)

The big issue we had this last year with our county was trails. County supervisions would not stand up in front of the rural people and say, 'Guys, here's what this means....We can change this wording so it's a little clearer to you.' No, they didn't do that. They were willing to throw out all the planning that had been done for trails because the sky is falling, and they wouldn't stand up and just be honest about what the world is about. Who's Bill Kennedy? He's supposed to be a progressive. He's not. That's to be put on the record. (*Yellowstone County Recreationalist*)

How do you balance it out?...In the past, when an industry asks nature and those of us who try to protect it [for something], it never compromises in the other direction....I don't think compromises work when it comes to that because we're asking nature to give a little more....I know we try to stiffen the laws but there's so many things grandfathered in that you can't do anything about. Once it's taken, it's gone. Balancing is a difficult issue in an environment that's worried more about their monetary welfare as opposed to say the bald eagle or those animals that depend on the river all these many centuries. (*Yellowstone County Recreationalist*)

They [houses built on the river] are bad in that they change the feel of being by yourself on the river. It doesn't have the same feel as it once did....If I owned a place I don't blame the people. I don't have the right to tell them not to build there. I don't want to pretend that my view of the river is more important than their rights as landowners because I disagree with that. It is a tough question but if this were a question about do I have the right to guide on the river, I would want to defend my right to use the river for fishing but at the same time I want to respect the landowners' rights. I think they can coexist. (*Yellowstone County Recreationalist*)

I think that you have to have some realistic expectations [that] some things will be lost along the way....I've heard the word 'steward' so much. That word is so trite I hate to even use it anymore, but I guess until a better word comes along....[I hope] that we would be able to hand this thing off and do it in a quality way, but listen to everybody too. (*Yellowstone County Recreationalist*)

C. Management with Vision

[An important step is] getting the cities, the states, all the people coming together and discussing these [tough] issues....But we have to discuss them, and we have to have a vision. And, number one, we have to say this river is important to us. It's important that we keep it pristine....It's so important for recreation....It's important to have the wildlife. It's important to have this sanctuary. So, we need to value it, and we need to really get in there and discuss it. (*Yellowstone County Recreationalist*)

I'm optimistic and pessimistic. I think, within the next ten years, it's going to take people with a lot of vision to protect the river. Vision and foresight. And willingness to go out on a limb and develop some green-ways, and cut down on things that could damage the river such as straightening the channel....Hopefully there will be people to step up to the plate and protect the river and voice their concerns. (*Yellowstone County Recreationalist*)

There are some good things happening in the state that they can also look at, and the Madison valley is one of them. Now there's been some encroachment on that river. But there's also a strong move afoot to conserve that valley and to put conservation easements on a lot of the ranches, and to try to prevent us from losing that wonderful Madison Valley....I think there's some real forward-thinking people behind that. (*Yellowstone County Recreationalist*)

My suspicion is that there are a lot more problems along the Billings area. I think the people in the upper Yellowstone are more conservation-minded than here and in the eastern counties....I don't think we pay enough attention to the preservation of the Yellowstone River and the wildlife habitat along it....I hope we get more conservation-minded in our attitude toward the river. Otherwise it will be a disaster. I think it should be in better shape even than it is now. (*Yellowstone County Recreationalist*)

The conflict can be huge, and will be huge if we don't think about a long-term strategy for the river....You have 18 Federal and State agencies that have some responsibility [for the river], and that doesn't count all the cities...[or] all the counties....So who's managing it? Who's thinking about the overall quality of the river?...The river is tremendously threatened...because of lack of focus, lack of attention, lack of thought. It's about [protecting]...the qualities of this river that are important to our society. (*Yellowstone County Recreationalist*)

This is difficult for county supervisors because...it plays against that rural philosophy which they see as representing their constituents. But in Yellowstone County who are the constituents of Yellowstone County board of supervisors? Well, it's Billings, too, but that's not the way they look at it. You can [have] a 1,000 Billings-ites whining, but [if] you get a dozen of these rural people out here whining, that's...the squeaky wheel that will get attention. So, [as far as] stronger subdivision regulations...[or] stronger planning regulations,...most of these rural communities are not going to be enthusiastic about that [and] it pits [the townspeople] against these rural people. (*Yellowstone County Recreationalist*)

[The Yellowstone River Conservation District Council] has roots in those local counties...if they're armed with good knowledge about this river, and all aspects—the social economic importance of it, the biologic importance of it, the industrial, agricultural benefits of it, and what it is that has to happen to preserve that for future generations—they will be in a stronger position to have real effect on it. (*Yellowstone County Recreationalist*)

I hope that...there are some people that will step up and protect the river, and become river-keepers....A river-keeper is basically someone or a group of people who will watch out for the river and...keep it pristine and keep the wildlife....They are kind of like watch dogs. (*Yellowstone County Recreationalist*)

D. Collaboration

The Conservation Districts have done a very wise job in establishing this [Yellowstone River Conservation District] Council and [in]...taking a look at the river comprehensively....[The Yellowstone River Conservation Forum and the Yellowstone River Conservation District Council] did put goals together,...pretty darn good ones, and they are still good ones. We didn't get everything in them we would have liked to have seen. For instance, it didn't have anything in there about access and it didn't have anything about recreation, but it did have goals for clean water, sustained flows, wildlife conservation, protecting endangered species, and some really worthwhile goals. (*Yellowstone County Recreationalist*)

[Regarding a possible alliance between agriculturalists and the Audubon Society]...Sure. Probably the "Z" word, zoning, could be a potential point of discussion. My impression is [that] in most of Montana that's a four-letter word. I've got to think those people [agriculturalists] are shaking their heads, too, when they see...houses down below [in the flood plain]. (*Yellowstone County Recreationalist*)

We had just had two big heavy flood years. And the response to that was the Corps of Engineers was issuing rip-rapping permits like mad and the conservations groups were beginning to get concerned....So I pulled together a number of conservation leaders and we talked about the idea of a Commission and they said no, we ought to focus on the Yellowstone River. So that led to establishing the Yellowstone River Conservation Forum. (*Yellowstone County Recreationalist*)

The Audubon Society, Trout Unlimited, the Greater Yellowstone River Coalition were suing Corps of Engineers for their lack of doing environmental reviews for all of these projects [that] they were doing....The Corps of Engineers lost the judgment and a judge directed them to do the work, which they have not really done yet. (*Yellowstone County Recreationalist*)

We jointly sponsored a two-day seminar and invited all the agencies in, all the agencies being 18 of them, they all came. I think everybody but the BIA. And they all pledged [at] the end of the conference to cooperate in a cooperative approach. And the state of Montana has been a great supporter of this whole effort, particularly in terms of DNRC. The NRCS has also been a good cooperator for this effort....The Corps of Engineers... they're hard to work with, but more recently they've been pretty cooperative. It's a wretched bureaucracy and they do it the best they can under that bureaucracy that they've got. (*Yellowstone County Recreationalist*)

If we made it easier for the public to experience and enjoy the river and you got more people involved in the uses of the river for all the right reasons, you would have more people on the side of the right direction as opposed to the industry and those people who use it for better or worse. I'm thinking that the more things you can do to the river to provide recreation for the community,...the more people that you'll have drawn to the attention of its needs to combat the industries that don't really care. That would make them a stronger ally. (*Yellowstone County Recreationalist*)

E. Management Agencies

A lot of people...[are] not too excited about any kind of a survey to know what's going on. They're not sure if it's going to affect them, pro and con...All these avian studies, there [are] people that have expressed concern because they're not so sure they want people on their property talking about birds....They're not sure if they're going to have to deal with some endangered species or Big Brother coming in and saying, 'Oh, I noticed that you got a couple bald eagle less than you got last time and now you're going to have to do this'....So, communicating...in a way the people can understand and be honest about the whole thing, there's a tremendous need for that. (*Yellowstone County Recreationalist*)

There [has] to be some more enforcement regarding the use of the river, from a recreation standpoint, as well as agriculture....In order to do that, we need to have knowledgeable, sincere people in management positions. And you can't do that without money....We are going to have to fund the necessary people and enforcement policies that you have on this river to protect it. The public estate is too valuable to trivialize or to fall victim to those who say we shouldn't be paying any taxes. (*Yellowstone County Recreationalist*)

The State will cap the number of users at some point. There is too much public support for that not to happen. Our outfitter association has been able to fight it and there are a number of expensive steps that the state would have to take to implement a moratorium on user days. I am torn as far as what should happen. (*Yellowstone County Recreationalist*)

F. Education

[The Yellowstone River Conservation Forum and the Yellowstone River Conservation District Council]...agreed that we ought to start getting fundamental knowledge on the Yellowstone River. And, that that fundamental knowledge, that science should be brought to bear in developing Best Management Practices for the river. (*Yellowstone County Recreationalist*)

[For example,] I think sometimes people that own [boats] and have never kayaked ...don't even realize...that the noise or possibly coming so close to kayakers, that it bothers them....You'd get together and say, 'Let's try to ease this, and be more aware that there's kayakers on the river.' (*Yellowstone County Recreationalist*)

We just have to find the language so that you really can communicate. Montana has a history of trying to deal with the commons. Back in the early grazing days, most of these rural people understand that you just can't turn unlimited numbers of cattle loose on the range and have everybody using it as a commons. You'll find that a lot of the rural people kind of understand that....So Montana was really one of the first states to...deal with...the abuse of the commons....It's certainly the kind of issue that we're dealing with here...if you're going to have Best Management Practices, a cooperative approach, and an education approach, we really have to find the language that communicates between kind of these urbanized people, the rural people, and these other people who are itinerant rich people coming in. (*Yellowstone County Recreationalist*)

There were a couple of fellows from the Audubon group that took an interest and started going to their [Yellowstone County Conservation District Council] meetings and were greeted with kind of suspicion and alarm at the beginning....I think that's gradually changed to an acceptance. I think it's positive to get more than just agriculture interests involved in the Yellowstone River issues of the Conservation District business really, and it sounds like maybe they think that too, if they've gone to the trouble to commission this survey. (*Yellowstone County Recreationalist*)

I think where [the Yellowstone Conservation District Council]...can be helpful is...with an education program. People understand how important this river is to everything we are about in this part of the state: our culture, our society, our production base....Everything we do here is dependent on it, almost everything....I think that the Council really has an opportunity there for an educational program. (*Yellowstone County Recreationalist*)

You [outfitter or guide] are constantly showing by example. When we come into a crowded area, I tell them to reel in and we will dodge fishermen and get through here fast....I feel like because of the things that I do to teach ethics and etiquette that these people, when they do come back, they will be a friendlier user of the resource than you would have otherwise. (*Yellowstone County Recreationalist*)

VI. Concerns

A. Concern: Agricultural Run-Off

One of the things we hope to see happen...is modernized irrigation practices....Most of the farmers are using 1,000-year old irrigation [methods]....In this hot weather, [they] put as much water on those crops as they can, and they over irrigate in spots and so it carries away silt [and] chemicals back into the river. (*Yellowstone County Recreationalist*)

[A farmer] certainly has a right to earn a living. But he doesn't have the right to pollute the river with contaminants and pesticides to do that. He has to figure a way to do it without damaging the river because the health of the river should be our primary focus. (*Yellowstone County Recreationalist*)

Irrigation return flows is the single biggest pollutant on the Yellowstone River, carrying sediments, agricultural chemicals nutrients off the land. The most graphic of that would be at the Clarks Fork. (*Yellowstone County Recreationalist*)

Regrettably the water quality particularly below Laurel has been compromised in places primarily as a result of agricultural use along the tributaries. And stream flows have been reduced to undesirably low levels during the summer. That's a result of large diversions on the river. (*Yellowstone County Recreationalist*)

Some of the rivers tend to put a lot of mud and silt in [the Yellowstone River]. I'm not sure why that is. I'm not sure if you can blame it on fields that are washing into the river or whatever the case is. (*Yellowstone County Recreationalist*)

B. Concern: Water Quality

We need to conserve as much land as we can for habitat and [make] sure...that the river stays as clean as possible. We can conserve all the land in the world, but if the river goes to hell as far as the quality of the water,...then we've accomplished nothing. It won't be good for anybody, man or beast. (*Yellowstone County Recreationalist*)

For example, we have a PCP plume coming from a cleaning place on Central Avenue that is heading toward the river all under the ground. PCP doesn't disappear. Eventually, it has to get to the river. It affects the ground water. (*Yellowstone County Recreationalist*)

You know, other little things, like mercury, for crying out loud, coming off of our power plants, coming into the Yellowstone River. Right now women aren't supposed to eat too many of those fish....And nobody's at fault and nobody's responsible, you know, as a community. (*Yellowstone County Recreationalist*)

Our Governor's got to play hard ball with Wyoming....I don't know if you've seen any of that coalbed methane development over there, but their getting better, but they are not good. (*Yellowstone County Recreationalist*)

Obviously we have...the legal laws on septic systems that would be such a pollutant to a river....You can legislate all you want, but if you don't have somebody to enforce the rules that you legislate, enforcement is more difficult than the legislation part. (*Yellowstone County Recreationalist*)

[The water treatment plant] is absolutely essential, but I don't think the city should be buying property down there....And I don't think they should have their storage and washing and storing their trucks there...right on the bank of the river. (*Yellowstone County Recreationalist*)

A few years ago, in Laurel, we did have problems [with pollution]. I think it's been taken care of, but the Cenex refinery had a pipe running into the river that was pumping raw gas into the river....The Department of Environmental Quality [was contacted], and they

got in there and got that thing shut off. I caught a trout out of that spot and that thing just smelled like gasoline. (*Yellowstone County Recreationalist*)

I know agriculture has probably polluted it to a great degree. Sewage plants like the one in Billings has got to have some affect on it. The power plant, we've got a couple of refineries....It worries me that they could ruin the river for longer than I live....That bothers me. (*Yellowstone County Recreationalist*)

Warm water has got to be tough on everything, low water. Something else I'm kind of concerned about is the turbidity of the water that comes in from the Clarks Fork. I realize that those boys have got to irrigate, but when they turn their wastewater back in, it's just a mudhole. (*Yellowstone County Recreationalist*)

C. Concern: Warmer Winters

In an ice jam, which we had a severe ice jam here seven to eight years ago, it really changed how the river flows. (*Yellowstone County Recreationalist*)

A lot of summers, we have less water and the streams and creeks are dried up. We are becoming more arid. I would think the biggest changes in the river are due to the climate change. Some of that is man-made. We are changing the water cycle and are changing the quantity of water on this planet. You don't see huge chunks of ice on the river anymore. Most years it doesn't even freeze up. We have already done damage to the planet [and] the river. That is why we need to take such good care of it now. (*Yellowstone County Recreationalist*)

D. Concern: Water Rights

We have to stop wasting water. I see my neighbor running the sprinkler in the middle of the day and 90 percent of the water is just evaporating and not getting into the ground. We are so extravagant in so many ways. We are extravagant in the way we live and the way we use water. We have to be more a lot more conservation [minded] if we are to survive as a people. (*Yellowstone County Recreationalist*)

I hate to see us paying money to pump the water clear out to the middle of nowhere and not charging for that. I think we need tiered costs of services in our planning....People who get their water pumped clear out to Ironwood need to be paying more for their services,...instead of everybody paying the same rate. [Ironwood is] a long way from the river....We need to be more conservationist in our development. (*Yellowstone County Recreationalist*)

E. Concern: Dams and Diversions

Another conflict would be between power generation and wanting to use more of the water for power generation and also for cities...and agricultural diversion dams....It's not too much of an issue right now, but in ten years..., I think it might be. I think there will

be conflicts of development versus leaving the river in its pristine character. (*Yellowstone County Recreationalist*)

I don't think that the river should be dammed....Most of the damming we have done hasn't helped. We dammed up the Colorado so we could irrigate California and they paved it over and built houses. I am opposed to a dam. (*Yellowstone County Recreationalist*)

Every 15 to 20 years, you hear somebody talking about maybe they ought to dam the Yellowstone, but that's not an option ever. (*Yellowstone County Recreationalist*)

I hope it continues to be the same. I can't imagine that they're going to dam it because it is the last major, longest free-flowing river in the United States. Hopefully, they are not going to impede the way it works its magic around here. (*Yellowstone County Recreationalist*)

Big Horn River to Laurel: Residential Interest Group Overview

Sixteen interviews were conducted with property owners holding 20 acres or less of land bordering the Yellowstone River, or within 500 feet of the bank. Names were obtained through a GIS search of public land ownership records. These names were randomized within counties. Other people living very near the river and whose primary incomes are not generated by agriculture were also recruited.

Participants in Yellowstone River Cultural Inventory—2006						
	GEO SEG I: Missouri River to Powder River	GEO SEG II: Powder River to Big Horn River	GEO SEG III: Big Horn River to Laurel	GEO SEG IV: Laurel to Springdale	GEO SEG V: Springdale to Gardiner	TOTAL IN GROUP
AGRICULTURAL	22	22	16	12	14	86
CIVIC	14	14	18	14	8	68
RECREATIONAL	15	16	16	13	16	76
RESIDENTIAL	15	11	16	15	19	76
GEOGRAPHIC SEGMENT TOTAL	66	63	66	54	57	
NATIVE AMERICAN						7
PROJECT TOTAL						313

Big Horn River to Laurel: Residential Interest Group Analysis

I. *Living Near the River*

A. *Appreciating Scenery, Wildlife, Serenity and Play*

But in Montana—hunting, fishing—we ride in the mountains a lot. We are horse back riders....We like outdoors. All our recreation is outdoor stuffs. (*Yellowstone County Residentialist*)

I've always gravitated towards it because it's always relaxed me....My church is the river....The fog comes up off the water....The sun pops up and your line is singing out there and you look down and see the little crystals on it, then I look down and see a herd of elk crossing a couple hundred yards from me. It gives you....It's what drug addicts are, the reason they're drug addicts....It gives you that feeling...with no side effects,...other than you're hooked....I'm not leaving here....This is a place to keep forever. (*Yellowstone County Residentialist*)

[We see]...eagles, ospreys, [and] we wanted to make sure they have places to stay so they can come and entertain us, which they do, constantly. It's just amazing....It's fun to watch them battle the eagles when there's a catch in one of their claws....I didn't realize that an eagle could actually fly inverted with the fish—you know, roll over on its back in flight to address the threat. It was wild. Oh yeah, I'd have a \$100,000 tape if I'd have just had the camera. (*Yellowstone County Residentialist*)

I've floated it, fished in it, ice skated on it, done just a little bit of everything....The Yellowstone is pretty nice, too, especially if you like to float. (*Yellowstone County Residentialist*)

I describe it as pretty....Where we live is within a riparian area, close to the river and next to our alfalfa fields....[There's] a lot of wildlife and [it is] just a pretty area. (*Yellowstone County Residentialist*)

This is good habitat for the deer and stuff; there's a lot of whitetail. I spooked up a little fawn when I was coming in....It helps support an awful lot of the deer and bird and water fowl they come in and out of this area [and there is]...a lot of fishing in this area too. (*Yellowstone County Residentialist*)

[I] absolutely adore the choice of the location....It changes daily....It's alive....I would say that I'm one of the luckier guys in the world to have this view,...this untamed river that I always brag about....There's two of my [Canadian geese] parents out here going down with 12 of their babies....We see all the ducks, ...the muskrats and the

snakes....We'll have an eagle fly by and an osprey dive in the river....I'm a happy guy here. I've never worked a day out here, but I've sweat and toiled a bunch, but every bit of it has been so enjoyable. (*Yellowstone County Residentialist*)

We enjoy boating and swimming and doing stuff like that. (*Yellowstone County Residentialist*)

It is beautiful along the river and fun for kids....[It's] peaceful....We sit out on that patio in the evenings and listen to the ducks and the geese and watch the pelicans in the sky....[We see] beavers in the river,...marmots....The deer like to run through here....The river islands now have turkeys on them....[We're] seeing the turtles....The river is...unique...and it's free-flowing....It's a beautiful river. (*Yellowstone County Residentialist*)

It's beautiful....It's located on the slope that drops down to the river bottom....Since the house was elevated, we get a great view of the river and the water fowl on the river and the deer in the pasture and the pheasants in the yard and all the other great things that go along with living out in the country....I love to watch the ducks and geese and pelicans and the critters that habitat the river. (*Yellowstone County Residentialist*)

It is just a raw piece of land so it is a recreational piece of property at this point....It is a nice piece of ground on the river....I love the river....I like to jet boat....It is scenic....There is a lot of river there. It is a huge asset to this state. There are so many opportunities. It is a great playground. (*Yellowstone County Residentialist*)

[The place is] on the river and close to town. Quiet....There is a lot of wildlife, a lot of birds....We always have geese. They bring the little ones along the bank....There are eagles nesting across the river straight over here....There are a few ospreys up the river. There are a lot of beaver, quite a few pheasants. (*Yellowstone County Residentialist*)

I like the river a lot. I like to fish and float and the wildlife. Ever since we've lived here we've always done things in the river. I mean, it's been a part of living here since we moved....Deer, owls, eagles, beavers—we had a beaver scare when we were floating a little bit ago—fox, raccoons. (*Yellowstone County Residentialist*)

As far as our livelihood goes, the river doesn't play any part. It's more part recreation and status for my husband. He's lived in Montana all his life and living on the river is something he's always wanted to do. (*Yellowstone County Residentialist*)

I enjoy it for recreational purposes. (*Yellowstone County Residentialist*)

I was going to say recreation, but it's not recreation: it's a refreshment, a rebuilding time. I bought this when I was still working full-time, and working with people and you're uptight, [and] you come out here [to the river] and can renew yourself. Even busy working, irrigating, it's a great way to refresh yourself. (*Yellowstone County Residentialist*)

B. *Keep the Yellowstone Natural*

The big argument has always been, ‘Dam it or let it run free’....There are always advantages and disadvantages. (*Yellowstone County Residentialist*)

This is a 759 mile-long river, the longest river in the lower forty-eight [states,] untamed by any dam....I would not be opposed to a dam. I’d probably say, ‘You’re not going to flood my land, are you?’ like everybody else would. It would be a great recreation deal...[but] I think the river is somewhat manageable even without a dam....I feel just a little unique saying that I live on this 759-plus stretch with no dam, although it would make a hell of a recreation area if it had one. (*Yellowstone County Residentialist*)

[Keep it] free from dams. I think that’s really important. (*Yellowstone County Residentialist*)

I don’t know if ever there could be a dam where they use power, and I know this is the only river in the United States that’s free-flowing. To take that away....I’m for it at times, and then I’m not because of the free-flowing. (*Yellowstone County Residentialist*)

They should have built a dam at Livingston 100 years ago in Paradise Valley. The whole river would have been beautiful. What a fishery it would make for 500 miles. Plus, they would get hydropower and the reservoir. Now it is just a lot of rich people in Paradise Valley. No way would it ever get done now. (*Yellowstone County Residentialist*)

Put a dam in at the top, [and] that’d be the end of [the river changing course] (*Yellowstone County Residentialist*)

For all the trouble it is, I still like the idea of the Yellowstone just running free. That’s more about the aesthetics and the recreation thing....There’s a lot of stuff,...the wildlife, the floodplains, the swamps, all those things you have because it runs free. All the changes it has from year to year. It’s really important....I can see the dam....There will be a lot of advantages to control the flow of water. But I think we are back to economics....Irrigation—there needs to be more ditches. No flooding if you have a dam to control it. Plenty water for the growth [for] all these cities. (*Yellowstone County Residentialist*)

C. *The River as a Shared Element of Life*

It is the lifeblood of the valley....It keeps a lot of farmers in water and able to grow crops and it’s a good source of recreation....I have a boat that was made for river use; it’s got a jet on it. And I’d rather boat any day on a river than on a lake. It’s just so much more fun. It provides a lot of habitat for wildlife that is fun to watch and fun to hunt....Fish are fun to eat and catch. So it’s a wonderful thing for this valley. (*Yellowstone County Residentialist*)

In Eastern Montana, water is critical to everybody any more. So, we are well aware of the river. (*Yellowstone County Residentialist*)

We do a lot of recreation, and, of course, the water wells and the irrigation.... You know, we used to see jet boats and some floaters.... There's a lot of fisher people.... There's a lot of cattle down there. (*Yellowstone County Residentialist*)

Farming, ranching, and recreation. That is basically it.... I have to admit there are more people on the river. There is a lot of river there and you can spread a lot of people out and never bump into too many people. (*Yellowstone County Residentialist*)

Everybody [uses the river]. The Yellowstone River feeds Laurel's water system. I believe it feeds Billings' water system, and since that's a necessity of life, I would say everybody [uses it]. I know a lot of the farmers around use it for irrigation, and I would like to figure out how to do that as well. We have an irrigation ditch.... [And] recreation—... there are so many people out there who fish and boat. I think there isn't anybody that doesn't depend on it. (*Yellowstone County Residentialist*)

D. Ruralness

I have lived in town down here for years. And I just wanted to get out of town and have some cows and horses. I always kind of liked that. (*Yellowstone County Residentialist*)

We're right along side the river.... We just love the area out here. We didn't want to be in Billings... We do a lot of fishing and hunting and floating and, you know, that kind of thing, and rafting.... Just the trees, and that there's nobody between us and [the river] so it's quiet. Solitude. (*Yellowstone County Residentialist*)

We just love the bedroom community.... I mean, it's very quiet we don't have any noisy neighbors. We don't have to worry about any of that. And we have an ideal spot right here. We are next to the river. It's great, you know. (*Yellowstone County Residentialist*)

It's more private, because we're surrounded by our land, and quiet: we're not by traffic. And it's by the river. (*Yellowstone County Residentialist*)

Privacy: Even though we're right here on the road, when you get back behind the house, nobody can see, and all you can hear is the water, and it's very private. (*Yellowstone County Residentialist*)

I think we've got a pretty nice place. The location is good. We're into Billings in 15 to 20 minutes, [on] paved roads.... We are out of town, yeah, it is pretty nice.... We... plan on living here, [and] dying here, basically. (*Yellowstone County Residentialist*)

E. Development

We're losing more farm ground every year for people to build on....It's going to grow. If they get a sewer system in here, it'll grow. It's grown a lot now, all these houses down here are new. There's a block over here, there's three new houses on it. (*Yellowstone County Residentialist*)

We're seeing some development with the golf course; that's bringing in quite a few more houses. And we get a lot of people out here that are bedroom community. You know, it's a bedroom community so we get a lot of people that don't want to be in Billings. It's cheaper out here. You don't have to pay the city taxes, so I expect that we'll see some development. (*Yellowstone County Residentialist*)

This has been recently zoned where they can cut it to five acre lots. I think that will happen, not only at our place....I think when the kids inherit things, they may not want to live here, they got their own lives, so they'll sell. Whether they sell it all in one piece or not.....Some of those places will start to get broke up. It will all be residential. (*Yellowstone County Residentialist*)

II. The River as a Physical Element

A. Living with the River

It's a vigil every year to keep up with the river, to see if it's going to take out some more of the property. It's a living creature, that Yellowstone. (*Yellowstone County Residentialist*)

The power of that river....The water come up over that bank, and it just rolled. It was like a big roller coming at you, and it was the water coming over the banks, and the force of it, when it moved that huge ice up on the land, and it came around there, and it went all the way up to the neighbor's house before it broke. And it broke fairly fast. (*Yellowstone County Residentialist*)

I wouldn't say it is any abnormal erosion....It is the natural way. It needs to change and move where it wants to move like it does. (*Yellowstone County Residentialist*)

Everything that we've built down there had a three-and-a-half to four foot high level in preparation for the next flood, which isn't a question of *if* it's going to happen—it will happen. We're prepared. (*Yellowstone County Residentialist*)

[We're] just worried about floods every year, because we are right on the water. (*Yellowstone County Residentialist*)

Ice jams are actually the worst for us. They don't last long, but, boy they are quick....Three or four years ago, [our neighbor] had his horses in there. The river is pretty close down there....I went home to get something....I see him running back and

forth, he is trying to get his horses out. He is in waist-deep water just like that. Big chunks of ice...[and] your spring floods, you know they are coming. You don't know how high or anything, but you know so you can be prepared for that. (*Yellowstone County Residentialist*)

The ice does clean the river up....It gets the moss off the bottom, cleans the dead trunks out, does everything....So if you stop the ice flows, the river's not going to be as clean....[It's] Mother Nature's way of cleaning the stream. (*Yellowstone County Residentialist*)

B. Stories of Destruction

My dad grew up fighting the river because it eroded so much....So the river was always a pain in the butt because his farm land the river was taking away....[In] '98, or '97...[there] was one of the biggest ice jams this place had ever seen because the ice jammed totally the river off around the bend. And all that water and ice came through here and we had eight inches of water in our house....We went up to the neighbor's and watched the water come higher and higher and watch it get to the top of the porch. (*Yellowstone County Residentialist*)

It was a combination of a lot of snow melt and heavy rains that caused the flooding. Our neighbor did get water into their pasture, but it never got into ours. But it took a lot of the bank away between our ditch and the river. Now, each year, the river every time it goes up, it erodes more away and it's caused some real problems. In fact, at that same time it ...washed out...our irrigation system. (*Yellowstone County Residentialist*)

This house used to sit down there where the pile of dirt is. I had to move it.... High water came and washed the bank away....That was the 200-year high. There used to be an island down there about 100 yards and the 200-year high took it out. The next year we had a 500-year high and it went right by me because the island wasn't blocking me....[That second year it washed away 100 feet of bank and] the river was running right by the whole south foundation.... It cost probably upwards of \$40,000 [to move the house]. (*Yellowstone County Residentialist*)

You can get an ice jam up there...[and] so the river just takes off and it's running 13,000 cubic feet a second. It is a great digger and carver. (*Yellowstone County Residentialist*)

I couldn't even say [what was lost to the river], not in acreage....I lost a huge tree,...no roots or anything, and it probably took 20 feet of our fence. (*Yellowstone County Residentialist*)

When it starts cutting in it,...water is relentless. (*Yellowstone County Residentialist*)

When they start having big ice flows again,...this entire thing will be eight to ten feet thick in ice that will be exploding and cracking, and it can crush a car in a heartbeat. It breaks rocks....And that water doesn't stop....There will be ice 15-, 16-, 18-feet out from

the bank, just packed in against the banks. And all that ice then cuts loose and just slops into the river, and it comes down the size of buses....You've got something that's moving five, six miles an hour by water, and it slams into stuff, it changes a lot of things.

(Yellowstone County Residentialist)

C. The River Changes

And then the river decided for some reason [to] move across—up against the bluff—and so now the river has become a smaller channel here....I think it had to do with maybe the ice jam. *(Yellowstone County Residentialist)*

As the river changes, the fishing holes change, and the river changes about every year. *(Yellowstone County Residentialist)*

And, you know, it widened out the river so much with that flood the last time, there was so many trees and stuff that went. *(Yellowstone County Residentialist)*

Lots of changes. There used to be just a small channel that...would get water in it during high water and then, when the water went down, you could actually drive out on an island. It was pretty large. And I used to be able to launch my boat down there....It was one of those years when we virtually had a 100-year flood. *(Yellowstone County Residentialist)*

Ice jams are a big factor. They probably change the river more than anything. *(Yellowstone County Residentialist)*

My next door neighbor...tells me he used to drive their old Ford truck over to the island. The deepest [the river would be] in the fall would be two and half or three feet deep. We've sounded that and we know it's eight, ten, 12 feet deep with some deeper holes....Somewhere back in late-'80s, early-'90s the river took a turn, and, instead of going on the other side of the island, ice jams and blockages of one form or another carved the river over here. And we know it's been here because everything here is a product of river sediment over the last million years, and it goes back and it goes forth. *(Yellowstone County Residentialist)*

I figure things change when the ice comes. Ice in the middle of winter—that's what happened here. There was a big ice jam here....And it changed the channel. [It] used to just make a big sleeper here, then it turned it and it came 90 degrees right above this guys house right above into our bank....Now, guess where it's going again? Wrapping around, so it's changing back. *(Yellowstone County Residentialist)*

There's always gradual change, but in a high water year, it could happen in one year, in one season....The boat ramp was carved out a little bit more this year. So there's more water over there this year in that channel, whereas it was one the other side last year. So, it can happen,...like I said, in a season. And it's always happening gradually. *(Yellowstone County Residentialist)*

Although that channel has changed over the years, it's gotten deeper and wider in my estimation, just natural....The main channel used to come down and hit down here and then go out. That has changed. (*Yellowstone County Residentialist*)

Yeah, there's a lot of water there....The main channel is on the other side of that. This is all filling in....What will happen is...they'll have another major ice flow and it will hit the back end of this island and it will start shooting it into this thing here and this will all just get washed away and then it will be going that way. (*Yellowstone County Residentialist*)

I think that the ice flows that will happen...are going to change the direction...and the entire ecosystem....They've done it before, and they're going to continue to do it. And every 20 to 30 years, something major happens. (*Yellowstone County Residentialist*)

D. Building in the Flood Plain is Foolish

People...call it a flood plain for a reason, and if people want to build in the flood plain, then that would tell me that you're going to get flooded. (*Yellowstone County Residentialist*)

We were smarter than the people [building] across the way. You can't tell what the river [will do]. (*Yellowstone County Residentialist*)

I'll tell you where the water was one time. Remember when you drove by here? It was right up to the highway. I was here with my fins on....This road in here is new. They built it up higher, thank God. It saved us there, but here, coming around the corner, there's nothing there. The river...[doesn't] have to rise very much to get over and flood. (*Yellowstone County Residentialist*)

If somebody's going to build in the flood plain, they should sign something, 'I'm building in the flood plain. I'm willing to take the risk. I know what the implications are and I don't expect the government or my fellow Montanans or anybody else to bail me out if things go wrong.' (*Yellowstone County Residentialist*)

The house sits on a .97-acre tract and it is in the 100-year flood plain. The three and a half acres that surrounds it is in the flood plain...and the 30 acres down below is in the flood plain...We've seen a lot of water come through the overflow channel which according to the Army Corps of Engineers is telling me is what's keeping from flooding my place. (*Yellowstone County Residentialist*)

[When building near the river,] be careful. Come and see me. I am not in the flood plain. That river is 30 feet below the deck. When the water comes up above the gravel line, the dirt just tumbles off in the river. (*Yellowstone County Residentialist*)

That's basically is a flood plain, and I'm not sure what the flood frequency is here, whether it's 100 or 500. In the 30 years I've been here, I've never been flooded, but the

lower piece down by the river is the one that's been flooded. (*Yellowstone County Residentialist*)

Zoning [is a problem]...because they think we are in a flood plain....[And] because you have all the rules with a flood plain. Cripes, this house was built...after World War II....Water's never, ever come within 20 to 30 feet to be raising high enough to flood us, but we live with all the rules of being in a flood plain....And, actually...in certain areas here, you can't even build a house because of being in the flood plain. These restrictions are due to all of that. (*Yellowstone County Residentialist*)

I think there's a lot of guess work that goes into those flood plain maps, frankly....I think there are probably better ways now through GPS technology that they could very closely identify whether it is in the flood plain. (*Yellowstone County Residentialist*)

The photos are of great value to see [past flooding], but I think since that flood in '97 the river has actually changed course and you can see that in the photos from year to year. Historically, the water hasn't come up that far, but since the river channel has changed a little bit in that area and we have lost some land, even last year we lost a big chunk....I can't say what would happen in the future. (*Yellowstone County Residentialist*)

E. Rip-Rap is a Known Solution

[Regarding rip-rap]...it would take a whole heck of a structure to hold up against an ice flow when the ice flow comes down. (*Yellowstone County Residentialist*)

The river's the banks. I mean people do raft on these all the time, and you know there's nothing worse than going by old car bodies. (*Yellowstone County Residentialist*)

I know they don't let you put concrete in the river anymore. I don't really understand that and nobody has explained it to me, so I guess I'll have to figure that out. (*Yellowstone County Residentialist*)

I've been thinking about getting some huge landscape rocks and putting them down there along the bank, just on top of the bank. I understand that concrete blocks and concrete rip-rap are out now because of the lime and all of that other stuff. So you got to come up with some kind of alternative. (*Yellowstone County Residentialist*)

Rip-rap in key locations in the river is really important for landowners. If they're not able to rip-rap, they're going to lose land. (*Yellowstone County Residentialist*)

I don't know where he got those boulders from. He put some money into it, [and] he was able to get a pretty good tax break when he put those big boulders in the river down there....You've got to use rocks big enough to withstand heaving force of water, especially ice....[The rocks are] aesthetically pleasing....In fact, you'll hardly see them because the vegetation has covered them up now....If it hadn't been for that rip-rap, I

wouldn't own the land that I own now,...because the river would be in the middle of this field down next to the river. (*Yellowstone County Residentialist*)

We converted it all to grass and in order to conserve the banks. We've let [the] creek grow wild and planted trees along there and planted shrubs and bushes to hold [the bank]....Those [cottonwoods] are just seven years old....And these guys are 70 years old, these big ones here....They just do so well down there and anything that grows on the bank I just encourage it's growth because it holds the bank. (*Yellowstone County Residentialist*)

I guess if I had problems I would want the opportunity to save my investment. [Rip-rap] makes for some good fishing. You have rocks and boulders that give the small fish a place to hide out....It is a hiding spot for the littler fish and a resting spot for the bigger fish if they can squeeze in between the rocks. (*Yellowstone County Residentialist*)

[Rip-rap is] the only way they can save their land, you know. A lot of them dump rocks in there. When they first started, they'd dump cars in there, but that was outlawed so they couldn't do that. (*Yellowstone County Residentialist*)

I don't think [rip-rap] would be effective—not on a curve like that ,because I think eventually it just...gets behind the rip-rap, [and] you end up doing it again. So I don't believe rip-rap is the answer. (*Yellowstone County Residentialist*)

He stopped it [with rip-rap] from coming any closer. It probably got,...I'd say, about 40 feet from our barn. And he kept it away that long and kept it from getting to the dairy farm. And when my husband and I moved back it was still dangerous and then all the laws of the environment that you couldn't do nothing but just watch it. So, it was kind of scary for a few years. (*Yellowstone County Residentialist*)

When they came in and put...those rip-rap fingers,...in...I think they did a pretty good job with that....They called them fingers at the time, but they're like little levies or dikes. (*Yellowstone County Residentialist*)

F. Weirs as an Alternative to Rip-Rap

We actually looked at using rip-rap. We used to do a lot of rip-rap work....And it was just lining the bank...[to] keep the bank from eroding, but you don't...really do anything about that. The weirs...actually slow the water down next to the bank and you don't have to line the entire bank with rock or concrete....So it will fill back in with grass and trees....It looks much better when it's done and matures. And it is less expensive than lining the bank in its entirety. We just felt that was the best option. (*Yellowstone County Residentialist*)

We put weirs in....[They were] incredibly successful....If it is done right, it works very, very well. We spend a lot of money and time and energy enhancing wildlife on a property like this that we are not compensated for. We do it because we like to....I spent hundreds

of thousands of dollars doing the project we did on the river, doing the weirs the way we did it, engineered right. (*Yellowstone County Residentialist*)

[Weirs] are a good idea. A guy...just put some in a while ago. They seem to be helping a lot....In some cases, [weirs are preferable to rip-rap]....[Now,] putting a weir in still causes an eddy behind it that I think would cause some erosion when the water gets that high....You can see some kind of scalloped areas behind it. But it does push, helps push the current out away from the bank. (*Yellowstone County Residentialist*)

Bendway weirs...[can] angle the river 20 degrees and they gently move it across to the other side....It's moving the river....You can just see how it hits the first one....Then it subtly moves it out to the second, third, fourth....My experience has been the weirs create habitat. There's more fish behind the weirs....The weirs...are a blessing that's not intrusive, creates growth, creates fisheries. (*Yellowstone County Residentialist*)

There's weirs all the way around this curve [to protect the bank]....We haven't really had high water yet so can't say [how effective they are]. (*Yellowstone County Residentialist*)

I'm living with the river and coping with it. As long as I can do some weirs, I have enough land and grass....If I left it unchecked, that river will be in this creek in less than 50 years. (*Yellowstone County Residentialist*)

G. Rip-Rap and the Potential For Unexpected Consequences

There [are] guys that put in little rows of rocks and stuff to push the river away from their bank, so it's going down like this. This guy does it, this guy does it on this side, so it kicks up more that way from them doing that....It pushed the river that way, so then those guys over there pushed it back this way. (*Yellowstone County Residentialist*)

I don't agree with people messing with [the river] so much to the point [that] when they filled it in over there and the river drastically came over here. I'm just afraid of things like that happening and losing more land. And, maybe not generally just for our land, our neighbors, as well....It changes a lot. A lot of that is because it was natural, but some of it because you know people decide to take it upon themselves to change it. (*Yellowstone County Residentialist*)

III. Frustrations with River Management

A. Agencies Need to be User-Friendly

All he wanted to do was rip-rap to save his bridge....At one time, he had 20 guys standing down there on his bridge, discussing what he should do. Bridge finally washes out and down in the river it goes. The next day, to save the road, they are hauling big boulders, dumping them in...and, of course, in the spring he had to haul his bridge out. That's required....But, there you go. When you're dealing with water, you're dealing with a lot of different people. (*Yellowstone County Residentialist*)

The only problem we had was the reluctance on the Army Corps of Engineers and the DEQ to get [the weirs] done. It took us two years....We probably lost 30 acres and an eagle's nest. To me, that is very disappointing. The lack of vision on the part of people that think the river has to be natural and nothing else works....The length of time and meetings it takes and attitude of, particularly, the DEQ was very difficult. Some of the people in the Corps were very reasonable; some were not that reasonable. The DNRC in town was very good as far as helping us. But their hands are pretty-well tied. They wait for all of the bigger agencies to deal with it. I think they make it so difficult that people just don't want to do it right, frankly. (*Yellowstone County Residentialist*)

My husband wants to build a pond out front and he would like to put a boat ramp in the back, right on the river....We haven't really seen a lot of requirements, other than they want to know what we're doing, exactly how we're going to do it, and what we're going to use when we do it, which I can completely understand. They don't want us messing stuff up. They're pretty particular about what's going to be used and what's going to be done....They even want to know how we're going to restore vegetation after we're done working. (*Yellowstone County Residentialist*)

I petitioned every agency that you have to...to build in four weirs...[in a] series, [which] is what works them gently out....We went through four or five agencies to get this done, and write this down. The Corps of Engineers was the slowest moving, hardest to....just follow up. I tried to do everything,...[to] get engineering drawings, pictures, whatever. It took forever for the Army Corps of Engineers to move. Bless their heart, they did. I was good friends with the gal that ran this deal out of Nebraska, and I certainly knew her on a first name basis and her birthday, because I talked to her every other day. I asked her where it was and she said it was sitting on somebody's desk. (*Yellowstone County Residentialist*)

It took us two years to get it permitted to do it right....We lost 20 to 40 acres. Had we...done it without the permit, we'd have saved that land....We stood down on the river bank looking at the project after we did it...[and] DEQ guy was complaining about a couple of inches variation in elevation....Yet we looked across the river where they had dumped in car bodies and concrete without permits. I said, 'How can you give me a bad time about doing it right, but being off a few inches in elevation, when you can stand here and look across the river and not do anything about what everybody else is doing?'If I've got a permit...he's going to make it miserable for me. (*Yellowstone County Residentialist*)

That flood, it took probably three or four acres of ground where our irrigation system was and just completely wiped out our source of water. And we had to go through a quite a lengthy process of going through the Extension Service and the Conservation District and State of Montana...Corps of Engineers...to get permission to...lay an underground culvert farther up the hillside and tie it into that system at another point and rebuild our irrigation system. (*Yellowstone County Residentialist*)

I really think that the authorities should be more flexible in allowing landowners to protect their property. It's such a hassle to go through all the steps it takes to put rip-rap on your property.... There has been hundreds and hundreds of acres lost here.... I feel for the larger landowners that have a lot of river frontage that lose a lot of property every year and really can't do too much about it. (*Yellowstone County Residentialist*)

Make a comprehensive plan as to what is allowable and a process to permit it with ease, rather than fighting every step of the way.... You get it so difficult, people just say, 'It's not worth the energy [to get the permit.] We'll do it anyway,...[even] if they put us in jail.' And I can't blame those people. (*Yellowstone County Residentialist*)

Make the rules a little simpler, and let the people save the land [with rip-rap]. I mean, it is such a headache. I don't know if they straightened it out, but it used to be a dozen different government agencies you have to deal with. (*Yellowstone County Residentialist*)

I know you have to jump through a lot of hoops [for the permits]. The Corps of Engineers is one, the County is one, [and] Fish and Game. (*Yellowstone County Residentialist*)

The only problem I have with the river here is there is no protection for us that live here in town. This is just a small bank here that goes around a corner. We tried to get them to do something, but they never have.... They'd have to put in a dike there. There's no way out of it. There was talk about doing that. In fact, the county commissioners were going to do it one year, then I don't know what happened. The bottom fell out of it. But there does need to be something done. (*Yellowstone County Residentialist*)

B. Rules Should Be Fair and Enforced

And then you get people across the river or downstream that just throw concrete on the edge of the bank, let the river bank wash out, the concrete falls in and looks like hell and they don't have any problems and yet I got hassled the whole way trying to do it [bank stabilization] right. And that is very disappointing to me. (*Yellowstone County Residentialist*)

I think the restrictions of what you can put on the riverbank has gone a little too strict. I know that you don't want to make it yucky looking, but it seems like...they're getting too touchy on it. (*Yellowstone County Residentialist*)

I don't think you can ever stop them [from littering] because you can't get enough cops to enforce it just like you can't get enough to watch the river. You have to change people's attitude if that's even possible. (*Yellowstone County Residentialist*)

Some people over here a couple years before took a CAT and put up a big berm over there and it pushed all the water over here. I contacted some people and nobody would do anything about it. (*Yellowstone County Residentialist*)

They change the rules. Like if we want to do something in the river, we have to go through six agencies to do all this crap. Laurel was having trouble getting water. They just take bulldozers and drop them in the water and do whatever the hell they want. If I did that I would have been fined quite seriously. So they don't enforce the laws equally either that do exist. (*Yellowstone County Residentialist*)

When that old boy started moving dirt around down there, someone should have done something about that. I called and nobody would do anything. This happens a lot....I have been up and down that river a million times and you can see where people have moved the bank around. (*Yellowstone County Residentialist*)

C. Management Practices Should Meet Residential Needs

I appreciate the chance to talk to you. Hope it will do some good. If they can understand our needs down here, that would be great. (*Yellowstone County Residentialist*)

[The] best manager that I've ever seen—it's been the common farmer. (*Yellowstone County Residentialist*)

I guess they can put the ear muffs on [if they don't like the boat noise]. We have been running the river forever. Now they build a house there and want us to change....The four-stroke motors are coming into play now due to new laws. There are two-strokes that are louder, but they have them running pretty clean. Give it ten years and it will be predominately four-strokes and at that point it will be quieter....If I build on the river, I am not going to complain because I chose that and I know it could be an issue. (*Yellowstone County Residentialist*)

I just disagree with that whole concept of habitat management. I don't think it needs managing. I think it needs maintenance....Managing the river itself... would sure be nice rather than spend money trying to figure out which way to make the river go. It would be really nice to get the dead stuff out of here, because it is...a fire hazard. (*Yellowstone County Residentialist*)

Co-op funding from the Federal government or the State government...would certainly help. Even if you are not getting reimbursed for all of [the cost to stabilize the banks, we need,]...participation and encouragement to help you do it, rather than no participation and discouragement. I think maybe a lot more people that live along the river would do it knowing they could save land from being washed away. (*Yellowstone County Residentialist*)

[River management is] huge....[It should come from] someone that doesn't profit from the management itself, or someone who doesn't garner any kind of political votes....You've got to start somewhere,...[but] you're going to be infringing on people's rights. Especially Montanans. Out here, we're kind of out-laws....We'll do what we want within the parameters of the law. And, you start putting more rules and regulations on [Montanans] it's not going to work. (*Yellowstone County Residentialist*)

We hear a lot of complaints from fellow boaters and fishermen concerning the dams....There are not any very technical systems for those fish to be able to travel like they would normally. I think it has really affected the fishery. They could make it better....You could have a canal around there where the fish could get through. As far as boaters go,....if they could make a spot in the middle that would stay deep enough to pop over. I don't know. A lot of them have a cement pad and underneath giant boulders. *(Yellowstone County Residentialist)*

I think [the access] should just be a day use, because at night there's no way you can get boats in. And it's just the kids then and the people that take advantage of the land and aren't really fisherman that would enjoy it. *(Yellowstone County Residentialist)*

I don't think it's the right river to dam up. But I think the State and Federal government should work more closely with the landowners....And I'm not talking about making the river a straight channel all the way from Yellowstone park to the border, but give them a better chance to protect their land...and keep their irrigation systems in tact....I think there should be a little bit of Federal or State help for people that get in that kind of situation. *(Yellowstone County Residentialist)*

I would hate to see it come to a deal where you couldn't make use of [the river] with a motor. It would be a shame. It is such a great resource. It is big enough and if you keep [the boat] full speed and go by you don't leave a wake. If you slow down you really put out a wake. I know I went past a few that probably thought I was going too fast, but if I were to slow down it would be a big wave. I would get as far as I could away from them or shut down and let them go by. *(Yellowstone County Residentialist)*

I guess my biggest concern would be to lose any [boating] privileges that we currently have....If you get enough canoers and kayakers together to get the river to themselves, that would be a big deal to me. *(Yellowstone County Residentialist)*

They need to choose areas [for public accesses] that you can really move up and down. It's a waste of money to have them in the wrong spot....Because the high water mark is right to the edge...[and you have] the concrete down there that's really unsafe to walk on or you've got a 12-foot bank....You have to get up and over the high water mark to get around and that's illegal. So if they did choose any kind of more accesses, they need to find the spot where they can actually get around a little bit. *(Yellowstone County Residentialist)*

I like [the high water mark] because it allows you on the river and then it also allows the landowners...to get nasty if you get out of it or above it....So, as long as you pay attention, you're fine. *(Yellowstone County Residentialist)*

IV. Other Problems

A. Water Quantity

I imagine the day could come, but it seems like we have sufficient amount of water, even with the drought. (*Yellowstone County Residentialist*)

The big thing for me is the low water, the low water levels, but I'm not sure at this point what you can do. There's not a lot upstream that you guys can do to force it down stream. You know we rely too much on the snowfall. (*Yellowstone County Residentialist*)

If you believe in global warning, I think [lack of water] will be a problem everywhere....There is apparently some evidence that there is getting to be too many people. (*Yellowstone County Residentialist*)

We have had some really dry years. That river right now is flowing half of what it should be. (*Yellowstone County Residentialist*)

Maybe [we should be] setting limits on how much water people can use a month....Make it a...law, or vote it on because I think if it came to that...a lot of people, at least I hope they would, understand the problem and want to vote for limited water use....[But, then] everybody's going to look at it for their own interests....It's just not an easy issue....[The farmers] have water rights, you know....And, that's the law, so unless you change the law, that's how it's going to come out. (*Yellowstone County Residentialist*)

There won't be [enough water] in 100 years. There won't be enough. (*Yellowstone County Residentialist*)

I think the Yellowstone actually moves more water per year than the Missouri does....Speed is the difference. The Yellowstone flows pretty fast and then in high water it really rips....It'll fool people....I think the Yellowstone has been able to supply so far, although it's gotten low, really low sometimes....[In] August, September,...it drops off substantially. (*Yellowstone County Residentialist*)

There's not a lot of water in Eastern Montana. It's a touchy subject....You get away from the Yellowstone,...up on the rims and stuff. Those people are hauling water to their houses....And we ran into the deal...by Fort Peck....They have to allow so much water to go down stream all the time. That is determined by the Army Corps of Engineers....We don't get to control that. Now, they can't say anything on the Yellowstone, because it runs free...but what you worry about, the next step is they come to Billings and say, 'You can only use so much water, because the rest has to go down stream.' Then the fight is on. (*Yellowstone County Residentialist*)

We are all hobby farmers....We don't have water....But it isn't our livelihood. [There's] a big difference [than]...if I was growing beets, or hay, and that's how I made my living.

I wouldn't be happy if someone was using the water that was rightfully mine.
(*Yellowstone County Residentialist*)

The first people that should have the opportunity to use water are those that are fighting things like wildfires....Second are the municipalities, and their water systems, so the public has drinking water....Third are the farmers. You know, that's their lifeblood for...irrigation and stuff. And then you finally get down to the rest of it. (*Yellowstone County Residentialist*)

I'd put the farmers before the cities....I think it's probably more important to have crops than to water your lawn. (*Yellowstone County Residentialist*)

[Here's] a case of [a] city...running out of water....Their water intake...is by the bridge. [The] channel changed, like for, three or four years, they spent \$50,000 to \$60,000, got an okay to be out in the river, set up a berm, channeled the water over to the intake. But of course, the powers that be said it was a temporary fix, you are screwing up our river. You can't do that. So we had a big bond issue, it passed....You can't see it, but there are now two intakes. The one that sits up, the cement one, and the one on the south side, which is all under water. (*Yellowstone County Residentialist*)

B. Problems with Public Access

Nine out of ten of those people that...come from a public access are going to trespass....There's four-wheelers all the time that we are constantly reminding them are not to be up on motorized vehicles, even within the high water marks. 'Oh, gee, we didn't see the signs,' 'Oh, really, gee, we are sorry' [they say] after they have been down there tearing up the river bank. (*Yellowstone County Residentialist*)

We need more access so people can get on to fish. People just don't trust people anymore, and we can't blame them....Unless you know somebody, you can't get on...[so] they fish the bridge down here...[on] both sides, and they fish this corner up here, and they'll walk down the railroad tracks and fish that side, and there's a rancher over here that lets people that he knows on there to fish....[But] it's too close; you've got to get farther away to fish. To catch these here, you've got to go a long ways. (*Yellowstone County Residentialist*)

There's always the high water mark which I really like. As long as you can get on legally, you are legal. I don't believe in the circle the wagon thing neither, buying big blocks and just shut it down. (*Yellowstone County Residentialist*)

[There are] a few hunters that don't understand that you need to ask permission to cross your land to hunt, that's the only problem. Very few people bother me though. I try to get along with everybody. I'll let people come down here if they ask. (*Yellowstone County Residentialist*)

Quite honestly, if they're just pulling off for a few minutes to take a break, I don't really care. (*Yellowstone County Residentialist*)

It's not public access land, but anybody who asks me...I say,...'Tell me when you're coming, and if I say you can fish, don't tell somebody else'....People that I know who like to hunt and fish, they get to know the people. And when they get to know the people, they have lots of places to go. (*Yellowstone County Residentialist*)

I can tell you about the floaters. I've seen them pull up on the edge down there and empty their case of beer and throw the cans. It's just a mess. (*Yellowstone County Residentialist*)

Let me say this [about public access]: If somebody wanted to abuse something on someone's back yard and I'll just clean it up, is that ok? (*Yellowstone County Residentialist*)

The access problem: I would use it more if I had more available access....[The access] isn't the best....It isn't some place you could go down and launch a boat or something like that, or want to....There was another one closer, but when the river changed course that year, it left it high and dry. So it isn't even usable anymore. (*Yellowstone County Residentialist*)

We have had [problems] when the kids used to like to party in the park down here....One time I looked out the window and I saw flames going probably 30 feet up...and it happened to be on my property. And I called the sheriff's department and they got...things under control. But since they've put a lock on the gate into the park, that's pretty much put a stop to that. (*Yellowstone County Residentialist*)

If it was just the fisherman down there, they are no problems. But you get the kids wanting to party on the weekends....That's the people that give you the troubles....[The authorities] check it, but midnight on Friday or Saturday night they're not around when the parties are going and the screaming and the gun shots....We've asked [it to be closed at night], and they won't let that happen. (*Yellowstone County Residentialist*)

There is a recreation area down below here that we get a lot of fisher people in but we've not had any trouble with any of them....If we see somebody down there, we...say, 'I don't care if you have a fire down here....Just put it out. You know you got to be careful what's going on with us up here'....Kids party down there, but that's typical. (*Yellowstone County Residentialist*)

It is not really heavily used. It must just be a responsible bunch using the river. I have never had any problems whatsoever. (*Yellowstone County Residentialist*)

C. Water Quality

We came here, and there was a guy that used the river as a garbage dump. (*Yellowstone County Residentialist*)

Just polluted, people put so much stuff. It's just really dirty. (*Yellowstone County Residentialist*)

I know there's an awful lot of pollution around....My concern is with the refinery, but I have to be careful about that because they were there before I moved in and I know they were there before I moved in....I would like to see the refinery...closed, but that's wishful thinking. Quite honestly, I don't know what they do to [the river], but I'm sure there's something that goes on, even if they say there isn't. (*Yellowstone County Residentialist*)

I think most people are interested in better water quality, if you are encouraged to do it, rather than forced to do it. (*Yellowstone County Residentialist*)

The Yellowstone River really stinks after Laurel. I mean, not that I want to lose the refinery or anything....I don't know if it's necessarily the refinery or if it's just that it's more populated from Laurel to Billings, that stretch. I don't know really what the problem is. But there's no good fish after Laurel....Keeping it clean is my biggest thing. (*Yellowstone County Residentialist*)

D. Safety: Debris and Undercurrents

I also respect it deeply....It will kill you with no malice or forethought. You can go in a heartbeat. You know it is ignorance and stupidity [that] will get you killed....If you got those two mastered, then you're fine. (*Yellowstone County Residentialist*)

It was scary because the current right along here was deep, really deep and it would just swirl and at nights, it was loud from the current because it was fast moving. (*Yellowstone County Residentialist*)

I have the greatest respect for what the river can do. We lost a neighbor here two years ago. He hated the water, but he wanted to cool off and his family encouraged him to get in the water. He jumped in and never came back. We lost a guy off the bridge up here a little bit ago. The fire trucks and police and Sheriff's Department [all came and] I gave them ropes and life jackets. They came down to the river, and we haven't found the guy yet. I sure hope he doesn't come up here. (*Yellowstone County Residentialist*)

It's really high in the beginning of the summer so I try not to spend too much time around, just because it's pretty scary around the bank. (*Yellowstone County Residentialist*)

If you're going to go on the river, you've got to be able to control your canoe because, if you get close to a tree that's fallen into the water, you get sucked under....You're taking a pretty high risk. (*Yellowstone County Residentialist*)

But, I tell you what, as calm as this looks, and I found this out the hard way, because I fell out of the boat, underneath that water, it's moving and you can't stand up or get up or get out. (*Yellowstone County Residentialist*)

E. Exotic and Invasive Plants

We have...sprayed for and dug every noxious weed we can get after:...leafy spurge,...thistle. (*Yellowstone County Residentialist*)

The islands and the shores along the Yellowstone are rapidly becoming contaminated with noxious weeds, [and] leafy spurge and knapweed [are] the two big ones....I think everybody along the river needs to kill the weeds...[because] weeds contaminates the property owners down the stream. (*Yellowstone County Residentialist*)

There's an insect that will kill [leafy spurge]. A good friend of mine owns a ranch...[and has] some beetles that feed on leafy spurge, and he gave me some, but mine isn't concentrated enough now to give the beetles something to eat, so I don't think the beetles are helping me. But they're helping him. And that could be a good solution along this river where there's heavy concentrations of leafy spurge. Those beetles are species-specific; they feed on just the leafy spurge. That's a great way to control the leafy spurge. (*Yellowstone County Residentialist*)

F. Wildlife and Insects as Nuisances

Mosquitoes are really bad down here...The first case [of West Nile] in Yellowstone County was here...on a horse....They're so bad....I was doing work right around the front of the house...and I just couldn't put on enough mosquito spray to keep them off me....I had mosquito netting....I put that on and put a long sleeved shirt on and long pants and my pants tucked in my boots and gloves and that was the only way I could work outside. They were just swarming all around me. (*Yellowstone County Residentialist*)

In fact, the deer are a big problem....I try to grow trees and they have killed some young trees. They killed two last year....They are a nuisance. (*Yellowstone County Residentialist*)

Can we do anything about the mosquitoes?...We have mosquitoes by the jillions. (*Yellowstone County Residentialist*)

All the trees that were probably eight to ten years old were as thick as dog hair down there. So, we thinned them out and I...wanted to keep the biggest and healthiest ones. And as soon as we got half way through that one acre down there, the beavers hit us, and started taking everything....So we had a little on-going battle with the beavers, which I was losing badly....That's what killed the 100-year-old cottonwood out there. (*Yellowstone County Residentialist*)