

## 7. Social Impact Analysis

### 7.1 Summary of Findings

Communities in the region of the lower Snake River can be characterized as primarily small rural towns that have moderate or low economic diversity and depend significantly on agricultural activities for their economic base. In addition to these rural communities, four areas of urban trade centers, Walla Walla, Pendelton/Hermiston, the Tri-Cities (Richland, Pasco, Kennewick), and the quad Cities (Lewiston, Clarkston, Pullman, and Moscow), provide high economic diversity and educational opportunities in the region. With the exception of the Tri-Cities region, both population and economic growth throughout the region have lagged behind general Pacific Northwest states and national growth trends. The two key industries that historically formed the base and currently provide an important component of the regional economy have been manufacturing of wood products and agricultural production. These two industries, though, have not been the engines of growth in the last decade, and agriculture particularly has experienced absolute declines in terms of employment and percentage of regional income. It is not anticipated that these sectors will be the engines of future regional growth. The agricultural sector will potentially be affected most significantly by Alternative 4, Dam Breaching.

The Social Analysis Report (Foster Wheeler Environmental, 1999) identified social impacts to nine focus communities, or case studies, taking into account the phases of project development for each of the alternatives under consideration to improve juvenile salmon migration through the four lower Snake River projects. These communities were chosen to capture a range of direct positive and negative impacts across types of communities and the geographic scope of the study area. This Social Analysis Report provides additional detail data and analysis to the conclusions presented in this section.

From the analysis of the nine case study communities, it appears that changes in the physical, biological, and economic human environment would have both adverse and beneficial impacts on communities throughout the study region. Each of the Alternatives under consideration would create winners and losers, both socially and economically, within and between communities and the subregions. Many of the economic and social losses for one community or group may present opportunities for gains by another community or group.

### Major System Improvements, Alternatives 2 and 3

Alternatives 2, Maximum Transport, and 3, Major System Improvements, would have little effect on the economic and physical human environment for most communities throughout the region and would provide a degree of economic security for those communities and businesses (grain farms, bulk commodity shippers, and irrigated agriculture) that use the lower Snake River system. Some communities, particularly in the upriver region, that depend on the salmon and steelhead fishery both socially and economically would be adversely affected by the lower probabilities of salmon recovery. Overall changes in regional employment would be minor as a result of implementing these actions. They will consist primarily of employment associated with increased Corps spending. Additionally, all communities in the region would be adversely affected by the lower probability of salmon recovery and eventual delisting due to the continued Federal oversight of local and regional

economic development activities and the continuing uncertainty about the future of the lower Snake River projects.

### **Dam Breaching Alternative**

Alternative 4, Dam Breaching, would change the economic and physical environment of the study region. Although the social and economic environment of the region is constantly changing due to market forces and demographic changes, this type of change to the human built environment would present economic uncertainty, stress, and fear for some residents of the region. For other residents, it would represent hope for recovering endangered anadromous fish populations.

### **Employment Impacts of Alternative 4**

The overall employment effects of Alternative 4 would result in a net gain to communities in the upriver subregion, a net loss to communities in the reservoir subregion, and no change in the downriver subregion. The allocation of the total long-term employment changes under Alternative 4, including total jobs lost and net changes in employment, are presented by subregions in Tables 7-1 and 7-2. Table 7-3 shows the total short-term, primarily construction-related, employment changes by subregion. The regional economic analysis prepared for this study developed estimates for each year of the 100 year study period. High, medium, and low estimates were developed for project year 20 and presents the range—low, medium, high—of projected impacts for that year. This provides a different perspective to the estimates presented in Section 6, Regional Economic Analysis, which are point estimates based on mid-point numbers or “most likely” estimates, with averages shown when effects vary by year over a number of years.

The jobs presented in Tables 7-1 through 7-3 represent both full- and part-time employment. The standard conversion of full- and part-time jobs to full-time equivalents is 0.88. In other words, the overall job losses and gains shown in the tables could be multiplied by 0.88 to obtain a full-time equivalency (FTE) of employment. The conversion for the agricultural and service sectors would be slightly lower than the average (0.81) and slightly higher than the average for the government and transportation and public utilities sectors (0.96).

The total job losses forecast for each region would represent approximately 3.0 percent, 0.6 percent, and 0.3 percent of the reservoir, downriver, and upriver subregions’ total employment, respectively, regardless of whether the high, medium, or low forecasts were considered (Table 7-1). The exception to this is the reservoir region where the low forecast would be approximately a 2.0 percent loss. Overall employment changes for the entire Pacific Northwest would range between 0.1 and 0.07 percent. This includes the low, medium, and high estimates. Most of these job losses are related to employment associated with irrigated agriculture on the Ice Harbor Reservoir, the Corps’ operations of the four lower Snake River facilities, and the effects of increased power rates throughout the Pacific Northwest. Table 7-1 highlights only those jobs that would be lost as a result of implementation of Alternative 4 and does not include jobs that would be gained by less efficient energy production and grain transportation modes and increased travel and tourism activity.

As can be seen in Table 7-2 the combination of scenarios by subregion would not significantly change the net employment effects of Alternative 4. On the level of the Pacific Northwest region, total long-term net employment changes would range from a 0.02 percent decrease in the best case scenario to the worst case scenario of a 0.06 percent decrease in regional employment after 10

**Table 7-1.** Forecast Direct, Indirect and Induced Long-term Employment Losses by Subregion (Alternative 4)<sup>1,2,3/</sup>

Range of Employment Losses	PNW Job Losses	PNW Jobs	Losses as a Percentage of		Losses as a Percentage of			Losses as a Percentage of		Losses as a Percentage of		
			PNW Employment	Reservoir Region Losses	Reservoir Jobs	Reservoir Subregion Employment	Downriver Losses	Downriver Jobs	Downriver Region Employment	Upriver Losses	Upriver Jobs	Upriver Employment
High	(6,621)	5,703,840	(0.116)	(2,681)	92,535	(2.90)	(906)	151,124	(0.60)	(253)	75,081	(0.34)
Medium	(6,047)	5,703,840	(0.106)	(2,673)	92,535	(2.89)	(887)	151,124	(0.59)	(245)	75,081	(0.33)
Low	(4,166)	5,703,840	(0.073)	(1,717)	92,535	(1.86)	(463)	151,124	(0.31)	(239)	75,081	(0.32)

1/ Employment losses outside of lower Snake River region primarily related to the impacts of increased power rates on households, farms, industry, and commercial consumers throughout the PNW.

The uncertainty associated with these estimates corresponds to the uncertainties faced by each of the DREW study teams.

2/ Percentages of employment changes calculated based on the existing 1997 employment structure of the study area. Considering the recent and short-term projected economic growth in the region, these percentages should be considered conservative. Both gains and losses as percentages may be smaller considering the growing employment base, but this static snapshot provides a relative comparison of the impacts.

3/ Long term effects are those that are permanent and lasting through the period of analysis.

**Table 7-2.** Net Long-Term Changes by Subregion and Pacific Northwest (Alternative 4)<sup>1,2/</sup>

	PNW Region Net		Reservoir Region		Downriver Region		Upriver Region	
	20 year net forecast	20 yr. % net change	20 year net forecast	20 year % net change	20 year net forecast	20 year % net change	20 year net forecast	20 year % net change
Net worst case (low gains/high losses)	(3,354)	(0.06)	(1184)	(1.28)	13	0.01	116	0.15
Net Best case (high gains/low losses)	(899)	(0.02)	(220)	(0.24)	455	0.30	129	0.17
Net most likely (low gains/med. losses)	(2,780)	(0.05)	(1176)	(1.27)	32	0.02	123	0.16

1/ Totals may not add up to regional summary due to the allocation of power impacts by population distribution. Positive impacts of recreation are constrained by DREW recreation team and A-Fish team estimates. The uncertainty associated with these estimates corresponds to the uncertainties faced by each of the DREW study teams and the regional model.

2/ Long term effects are those that are permanent and lasting through the period of analysis.

**Table 7-3.** Short-term Employment Changes by Subregion (Alternative 4)<sup>2/</sup>

Average Short-Term Gains <sup>1/</sup>	PNW Distribution (Jobs)	PNW % Change	Reservoir Impacts (Jobs)	Reservoir % Change	Upriver Impacts (Jobs)	Upriver % Change	Downriver Impacts (Jobs)	Downriver % Change
Average	20,790	0.36	9,536	10.31	2,294	3.06	8,959	5.93
Total Employment	5,703,840		92,535		75,081		151,124	

1/ Used mid-point or average number of jobs created as a result of short-term construction. A number of the impacts have a wide range of variation depending on the magnitude of construction and the length of the time period. The subregion totals differ from those presented in Table 6-19 because this presentation allocates all of the projected job changes to a subregion.

2/ Short term effects are those that could occur in 10 years.

years. The major factors driving this range of uncertainty are the estimates associated with power rate impacts and with recreational employment impacts. Again, the reservoir region would have the most significant decreases. The downriver region might also see a net decrease in employment from 0.051 to 0.036 percent. The upriver and downriver regions would have a positive change in regional employment ranging from a 0.15 to 0.17 percent increase for the upriver region to a 0.01 to 0.03 increase in the downriver region.

The incomes associated with these gains and losses would not be equal. Although the indirect and induced employment effects would ripple through all sectors of the regional economy, the income differences in direct employment could be identified. Lost direct employment would be associated with irrigated farm owners and full-time and seasonal workers, as well as Corps' employment related to the operations and management of the lower Snake River facilities. Direct employment gained would be associated with the operations and maintenance of new power plants and increased recreation and tourism. The average wage of Corps employees in the Walla Walla District is approximately \$45,000; this is significantly above the regional per capita or median income. On the other hand, approximately 2,563 part-time and seasonal employees work on the farms on the Ice Harbor Reservoir. According to the Washington State Employment Security Department, the average hourly wage for seasonal agricultural workers in southeastern Washington was \$6.27, with or an annual salary of \$12,500 for full-time workers.

According to the IMPLAN model, the average income per direct, indirect, and induced job created by the operations of new power facilities was approximately \$27,000 per year. Because recreation and tourism are not distinct industries, the median wage in Riggins, Idaho, a town with a strong recreation and tourism base, was used to examine the income effects of increased employment in recreation. In 1994, earnings per worker were approximately \$19,000 dollars, although this may be somewhat misleading because Riggins is an isolated community with a relatively low cost of living. Short-term construction employment is forecast assuming that changes are made to existing infrastructure. None of the changes made is included in the Corps implementation plan, except for those expenditures associated directly with implementation of Alternative 4.

Table 7-3 shows that average short-term employment change would contribute significantly to each of the study subregions. The reservoir region would experience approximately a 10 percent increase in regional employment, while the downriver and upriver subregions would experience increases of 5.9 and 3.0 percent, respectively.

### **Impacts by Subregion**

The most significant social impact to the downriver region communities including Pasco, Kennewick, and Umatilla, would be the potential lost agricultural employment from the Ice Harbor pool and the supply uncertainty faced by food processors and fruit packers. This direct employment loss might be partially offset by the expected increase in transportation and power-generation-related employment. Increased flow of commerce into these communities would contribute to traffic safety and congestion concerns. Another significant social impact is the fear that the breaching of the four lower Snake River projects would lead to the inevitable breaching of projects on the Columbia River and the effect of this fear on investments in the region.

The most significant impacts to communities in the reservoir region, including the case study communities of Pomeroy, Colfax, and Clarkston, would be the loss of Corps employment and the increased financial pressure on family farms caused by increased transportation, storage, and

handling costs for agricultural products. This added pressure to an already depressed agricultural sector might lead to an increased rate of farm consolidation for those farms not fully owned and those with a high debt-to-equity ratio, increased stress in the farm sector, and an increased rate of loss for rural farm population. This impact would significantly affect the largest number of communities in both the reservoir and upriver regions. In addition, communities in the reservoir region would be affected by the short-term loss of recreation access and the increased flow of truck traffic on the two east-west highways (US12 and SR 26) that cross the region.

The most significant impact to communities in the upriver subregion including Lewiston, Orofino, and Riggins would be the expected increase in the recreation and tourism industry with a free-flowing river condition. Lewiston and Orofino face economic uncertainty because it is unknown how significantly the loss of river navigation would affect the forest products industry. Additionally, the effects of increased transportation costs to farmers would be the most significant in Latah, Nez Perce, Idaho, and Lewis counties in Idaho.

### **Effects Widely Dispersed Across the PNW**

Although electrical rate increases would be expected across all communities and industries in these subregions, as well as across the states of Washington, Oregon, Idaho, and Montana, the estimated 2.8 to 9.4 percent increase for residential rates is relatively small considering the existing low electricity costs. These increases are not expected to have significant social or economic impacts in any of the focus communities under consideration, although those communities that purchase electricity from rural cooperatives or public utility districts might be more at risk for the higher rate increases. Effects on the aluminum industry are unknown, but significant regional impacts could occur, depending upon who pays the increased costs.

### **Responses to a Changed Social Environment**

The responses of communities, industries, and individuals to these changes in the physical, biological, and economic human environment might be categorized as economic and social. According to the Independent Economic Analysis Board of the Northwest Power Planning Council, the response to the economic impacts described above would either be a migration of individuals and businesses seeking new opportunities, or the reemployment of human and capital resources in their next-best use within the community (IEAB-NWPPC, 1999).

Social responses might include mobilizing resources to minimize adverse impacts, charting a new vision for the community, and taking advantage of new opportunities. Each community is distinct in its ability to respond to these challenges and overcome obstacles in its developmental path. Community size has been identified as a critical factor to a community's ability to adapt to change. Communities may have less diverse economic bases and fewer human resources to draw upon in challenging times. In the case of communities affected by potential changes, almost all of them have recently responded to economic booms and busts, as well as declining returns in the historically important agricultural sector. Social and economic impacts projected by this study, in the context of recent historical changes and each community's potential responses, are discussed in Section 6.4.

#### **7.1.1 Summary Comparison of Impacts by Community**

The significance of changes in the physical, biological, and socioeconomic environment in each of the nine focus communities was evaluated based on the criteria indicated in Table 7-4. The

significance of the socioeconomic factors was determined as the difference between each alternative and the base case, Alternative 1, in both the short-term predevelopment and implementation and the long-term post-implementation phases. Some of the criteria are based on quantitative economic forecasts developed by other study teams, while others are based upon descriptions of physical changes in the study region. The economic impacts were estimated by disaggregating the regional employment and income effects identified in the regional study. Other criteria and the qualitative and quantitative data were developed specifically in the DREW Social Analysis Report (DREW Social Analysis Workgroup, 1999). A thorough literature review was conducted to determine how rural agricultural communities in eastern Washington and throughout the United States have been affected by economic and infrastructure changes. For more details on the methodology and the literature review, see the DREW Social Analysis Report (DREW Social Analysis Workgroup, 1999).

### **7.1.2 Mitigation Potential**

Total long-term employment losses across the Pacific Northwest forecast by the regional study indicate that between approximately 4,166 and 6,621 jobs might be lost as a result of Alternative 4. Total jobs gained are forecast between 3,796 and 4,722 after 20 years. Some of these job losses represent identifiable dislocated or displaced workers, while others (such as those related to power rate increases) are dispersed and difficult to identify. Of these losses, approximately 3,500 direct job losses might be classified as dislocated. In addition to these losses, the regional study estimated gains in recreation and tourism and associated industrial sectors and in power generation and related sectors. These jobs, in addition to the short-term construction jobs created by Alternative 4, might provide new economic opportunities in the region that would help mitigate potential losses. Direct, indirect, and induced employment losses based on middle estimates are distributed throughout the three subregions as follows: upriver—245 jobs, reservoir—2,673, downriver—887. The state distribution of employment losses based on middle estimates is approximately 4,585, 582, and 810 for the states of Washington, Idaho, and Oregon, respectively.

Approximately 67 communities in the lower Snake River subregion would be adversely affected by increased transportation costs. An additional 15 communities outside the designated study area would also be affected by increased transportation costs. These affected communities are primarily smaller than 1,000 inhabitants, but would also include the larger cities of Lewiston, Clarkston, Pasco, Kennewick, Richland, and Walla Walla.

Overall adverse community level social impacts within the nine case study communities, as identified through the Social Analysis Report and through Community-Based Impact Assessments (Harris, et al., 1999) conducted by the University of Idaho, include the following:

1. Decreased net farm income and increased financial pressure on dryland farmers throughout the region, particularly for those farms close to the Lower Snake River
2. Risk of increased consolidation of family farms and decline in rural farm population
3. Decreased county property tax base in 20 regional counties from decreased farm land value and potential loss of irrigated lands
4. Dislocated full-time and seasonal workers from Ice Harbor irrigated agricultural lands and loss of a source of local school revenue for communities close to the reservoir
5. Minor realignment of communities' economic bases and changed potential for future growth.

**Table 7-4. Significance of Changes in the Physical, Biological, and Socioeconomic Environments**

Alternative	Indicators/Impact Measure	Evaluation Criteria	Clarkston	Collax	Kennewick	Lewiston	Orofino	Pasco	Pomeroy	Riggins	Umatilla
<b>Power</b>											
4	Residential Rate Increases	Residential Rate Increase > 5 percent			X			X			
4		Residential Rate Increase < 5 percent	X	X		X	X		X	X	X
4	Rate Employment Impacts	Decrease in Employment > 1 percent									
4		Decrease in Employment < 1 percent	X	X	X	X	X	X	X	X	X
4	Power Provider Rate Risk	Public Owned Utility			X			X		X	
4		Investor Owned Utility	X	X		X	X		X		X
4	Fixed Income Ratepayers	Poverty Rate >10 percent of all families	X		X			X		X	X
4		Poverty Rate < 10 percent of all families			X	X	X		X		
4	New Power Plant Operation	Increase in Employment > 1 percent									
4		Increase in Employment < 1 percent				X		X			X
4	ST: New Plant Construction	Increase in Regional Employment > 5 percent			X			X			X
4		Increase in Regional Employment < 5percent									
4		Within 50 miles of Potential Plant Siting				X		X			X
<b>Recreation</b>											
4	Non-fishing River Recreation	Increase in Employment > 1 percent	X	X					X		
4		Increase in Employment < 1 percent			X	X		X			
4	Anadromous Fishing Recreation	Short-term Displacement	X	X	X	X		X	X		
4		Short-Term Crowding			X			X			X
4		Increase in Employment > 1 percent									X
4		Increase in Employment < 1 percent	X	X	X	X	X	X			
4		Short-term Displacement	X			X	X	X			
4		Short-Term Crowding					X	X			
4	Site Access	Local Fishing Opportunities	X	X	X	X	X	X	X	X	X
4		Decrease in Site Access > 25 percent	X	X		X			X		
4		Decrease in Site Access <25 percent			X		X	X		X	X

ST=short-term employment associated with construction.

Uncertainty related to employment percentages is a result of uncertainties faced by other DREW workgroups, dynamics of local economies, and methodology for allocating regional impacts to local geographic area.

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**Table 7-4. Significance of Changes in the Physical, Biological, and Socioeconomic Environments**

Alternative	Indicators/Impact Measure	Evaluation Criteria	Clarkston	Colfax	Kennewick	Lewiston	Orofino	Pasco	Pomeroy	Riggins	Umatilla
4	Site Services	Decrease in Site Services > 25 percent	X	X		X			X		
4		Decrease in Site Services < 25 percent			X		X	X		X	X
4	Elderly Recreationists	Over 65 years > 20 percent	X	X					X		
4		Over 65 years < 20 percent			X	X	X	X		X	X
<b>Transportation</b>											
4	Transportation Related Employment	Increase in Employment > 1 percent									
4		Increase in Employment < 1 percent	X	X	X	X	X	X	X		
4	Farm Spending Related Employment	Decrease in Employment > 1 percent		X							
4		Decrease in Employment < 1 percent	X			X	X		X	X	
4	Dryland Farm Income	Decrease in Total County Farm Income > 10 Percent		X						X	
4		Decrease in Total County Farm Income < 10 percent	X			X	X	X	X		
4	County Property Tax Revenue	Decrease in Property Tax Revenue > 2 percent									
4		Decrease in Tax Revenue < 2 percent									
4	County Sales Tax Revenue	Increase in Sales Tax Revenue									
4		Decrease In Sales Tax Revenue									
4	ST: Road, Rail and Infrastructure	Increase in Employment > 1 percent	X	X	X	X			X		
4		Increase in Employment < 1 percent					X	X			
4	Road, Rail and Infrastructure Maintenance	Increase in Employment > 1 percent									
4		Increase in Employment < 1 percent									
4	Grain Transportation Costs	Increase in Avg. Cost > 15 cents per bushel	X	X		X	X				X
4		Increase in Avg. Cost < 15 cents per bushel						X	X		
4	Farm Consolidation (Dryland)	Risk of Increased rate of Farm Consolidation	X	X		X	X		X	X	
4	Transportation Costs (other Shippers)	Increase in Transportation Cost	X	X		X	X		X	X	
4	Transportation Capacity Uncertainty	Increase in Transportation Uncertainty	X	X	X	X	X	X	X	X	
4	Highway Congestion	Increase in Traffic Volume > 2 percent						X	X		
4		Increase in Traffic Volume < 2 percent	X	X	X	X					
4		Decrease in Traffic Volume					X			X	

ST=short-term employment associated with construction.  
 Uncertainty related to employment percentages is a result of uncertainties faced by other DREW workgroups, dynamics of local economies, and methodology for allocating regional impacts to local geographic area.

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**Table 7-4.** Significance of Changes in the Physical, Biological, and Socioeconomic Environments

Alternative	Indicators/Impact Measure	Evaluation Criteria	Clarkston	Colfax	Kennewick	Lewiston	Orofino	Pasco	Pomeroy	Riggins	Umatilla
4	Highway Safety	Increase in Highway Safety					X			X	
4		Decrease in Highway Safety	X	X	X	X		X	X		
<b>Water Supply</b>											
4	Dislocated Agricultural Workers/Spending	Decrease in Employment > 1 percent				X		X			
4		Decrease in Employment < 1 percent									X
4	Farm Income	Decrease in Total County Farm Income > 10 Percent						X			
4		Decrease in Total County Farm Income < 10 percent									
4	County Property Tax Revenue	Decrease in Property Tax Revenue > 2 percent									
4		Decrease in Tax Revenue < 2 percent									
4	ST: Pump/Well Modifications	Increase in Employment > 1 percent	X			X					
4		Increase in Employment < 1 percent		X	X		X	X	X		
4		Increased costs for well irrigators/users	X			X		X	X		
	Effects on Food Processors	Decrease in local produce				X		X			X
<b>Implementation/Avoided Costs</b>											
4	ST: Implementation Employment	Increase in Employment > 1 percent	X	X			X		X		
4		Increase in Employment < 1 percent			X	X		X			X
3		Increase in Employment < 1 percent	X	X	X	X	X	X	X		
4	Outside Workers	Increase in Outside Workers >10 percent	X						X		
4		Increase in Outside Workers < 10 percent		X	X	X		X			
4	Human Movement Patterns	Loss of Project Bridges within 50 miles		X	X			X	X		
4	Operations Employment	Decrease in Employment > 1 percent		X					X		
4		Decrease in Employment < 1 percent	X		X	X		X			X
3		Increase in Employment > 1 percent									
3		Increase in Employment < 1 percent	X		X	X		X	X		X
<b>Anadromous Fish Recovery</b>											
4/3	ST: Social Cohesion	Increased Social Cohesion		X	X			X	X	X	X

ST=short-term employment associated with construction.  
 Uncertainty related to employment percentages is a result of uncertainties faced by other DREW workgroups, dynamics of local economies, and methodology for allocating regional impacts to local geographic area.

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**Table 7-4. Significance of Changes in the Physical, Biological, and Socioeconomic Environments**

Alternative	Indicators/Impact Measure	Evaluation Criteria	Clarkston	Colfax	Kennewick	Lewiston	Orofino	Pasco	Pomeroy	Riggins	Umatilla	
4/3		Decreased Social Cohesion	X			X	X					
4	Recovery Uncertainty/Risk	Lower Uncertainty of Salmon Recovery	X	X	X	X	X	X	X	X	X	
3		Higher Uncertainty of Salmon Recovery	X	X	X	X	X	X	X	X	X	
3	Business Uncertainty/Risk	Lower Economic Uncertainty/Risk	X	X	X	X	X	X	X	X	X	
4		Higher Economic Uncertainty/Risk	X	X	X	X	X	X	X	X	X	
3	Extinction Risk/Existence Value	Higher Extinction Risk	X	X	X	X	X	X	X	X	X	
4		Lower Extinction Risk	X	X	X	X	X	X	X	X	X	
4	<b>Other Social Effects</b> Population Impacts	Decrease in Population > 5 percent						X				
4		Decrease in Population < 5 percent		X	X				X			
4		Increase in Population > 5 percent										
4		Increase in Population < 5 percent		X		X	X				X	X
4	Total Long-Term Employment	Employment Losses > 5 percent										
4		Employment Losses < 5 percent	X	X	X	X	X	X	X		X	
4		Increase Net Employment > 1 percent										
4		Increase Net Employment < 1 percent	X			X	X				X	X
4		Decrease Net Employment > 1 percent										
4	Total Short-Term Employment	Decrease Net Employment < 1 percent		X	X			X	X			
4		Increase in Employment > 5 percent	X	X					X			
4	Total Subregional Employment	Increase in Employment < 5 percent			X	X	X	X			X	
4		Increase Net Employment > 1 percent				X	X	X		X		
4		Increase Net Employment < 1 percent			X	X	X	X				
4		Decrease Net Employment > 1 percent	X	X					X			
4		Decrease Net Employment < 1 percent									X	
4	Aesthetics	ST Exposed Shoreline	X	X	X	X	X	X	X			
4		LT Revegetated Shoreline	X	X	X	X	X	X	X			

ST=short-term employment associated with construction.

Uncertainty related to employment percentages is a result of uncertainties faced by other DREW workgroups, dynamics of local economies, and methodology for allocating regional impacts to local geographic area.

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Many of these community-level and employment impacts would be caused by increased transportation costs for trucking grain and by the loss of irrigated agriculture on the Ice Harbor Reservoir at the costs described in the Navigation and Water Supply reports. These impacts could be minimized or eliminated in part by mitigation spending to modify the irrigation pumps and direct upgrades to expand rail capacity in the region. Another strategy would be to directly subsidize the farms currently shipping on the lower Snake River. The costs of these mitigation measures have been discussed in the transportation and irrigation reports. In the absence of direct mitigation, employment- and community-level impacts could be mitigated or minimized as described below and as illustrated in the Mitigation Section of the Social Analysis Report.

Potential mitigation expenditures for 3,500 dislocated workers have been estimated at between \$45.1 and \$48.1 million to address employment losses through job retraining, income support, and academic training. Potential mitigation for 82 affected communities has been estimated at between \$4.3 and \$12.9 million, based on previous Federal and state mitigation expenditures used to address the impacts of free trade, old-growth forest conservation, and dislocated workers.

Under Alternative 2, the lower probability of salmon recovery and eventual increased or resumed harvest would affect approximately 10 communities in the lower Snake River region, an unknown number of tribal communities, and an unknown number of coastal fishing communities. No estimate for future mitigation is given under this alternative. One proxy might be the opportunity cost of foregone fishing revenue as forecast by the Recreation Team and the Anadromous Fish Economic Team.

### **7.1.3 Unresolved Issues**

At this time, the assessment of social impacts to the region and to focus communities is incomplete due to unresolved key issues such as the following:

1. Lack of an industry-specific study detailing how the forest products industry of North Central Idaho might be affected by increased transportation costs
2. Actual magnitude of net county tax impacts resulting from increased road maintenance activity and decreased agricultural land values for dryland farms and irrigated farms under Alternative 4
3. The expected rate response for alternative modes of transportation and the effects of the rate changes on shippers under Alternative 4
4. The degree of linkages between agricultural products from Ice Harbor and downriver food processors and alternative supply quantities under Alternative 4.

The remainder of this section presents the purpose and methods of the study, a characterization of the study region, a brief description of the case study community baselines, a more detailed comparison of alternatives by community and potential responses, and a discussion of the compensation or mitigation potential.

## **7.2 Introduction**

### **7.2.1 Purpose**

The purpose of this Social Analysis Section is to examine the range of potential social impacts that may occur as a result of implementing one of the four alternatives. This report focuses on the

potential community level impacts resulting from changes in the local and regional biological, economic, and physical environment. While other reports addressing the economic impacts of the proposed alternatives focus on national economic development (NED), this report attempts to outline the distributional and equity effects on specific communities within the broader regional context. Communities are the focus of this report because it is at this level that social impacts resulting from resource policy changes may be most keenly felt (Force and Machlis, 1997). This study has been designed to meet the requirements specified in the WRC Guidelines (WRC, 1983). The key issues addressed include the following:

- What the social impacts will be and when (timing)
- Who will be affected
- How they will be affected (beneficial/adverse)
- How much they will be affected
- How the communities may respond.

By answering these questions through the use of qualitative and quantitative data in the examination of nine case study communities, the social analysis provides a greater understanding of the anticipated impacts and highlights the need for and location of potential mitigation measures. Uncertainty exists throughout this analysis because of the uniqueness of the proposed actions and the unknown nature of how markets, communities, and political entities will respond to the implementation of these actions, particularly the natural river drawdown alternative. The degree and magnitude to which the proposed alternative will affect communities throughout the region depends in large part on how these communities, industries, families, and individuals respond to potential and actual changes.

### **7.2.2 Scope**

The scope of the analysis in this report covers the potential social impacts associated with the four main alternatives under consideration by the Corps. These alternatives include the base case or existing condition (Alternative 1), existing conditions with maximum transport (Alternative 2), major system improvements (Alternative 3), and natural river drawdown or dam breaching (Alternative 4). The effects of Alternatives 2 and 3 on the human environment generally do not differ significantly, and will be discussed together.

The geographic scope of the analysis is limited to communities within the lower Snake River region. This region includes the counties listed in Table 7-5 and approximately 101 communities within these counties. For the purpose of analysis, the potentially affected lower Snake River region was divided into three subregions to explore the differential effects of the proposed alternatives: downriver, reservoir, and upriver. The counties that comprise these subregions and the combined lower Snake River study area are identified in Table 7-5. For a more complete description of the definition, justification, and delineation of the subregions see the Regional Economic Report (AEI, 1999).

**Table 7-5.** Regional Analysis Study Area

<b>Downriver Subregion</b>	<b>Reservoir Subregion</b>	<b>Upriver Subregion</b>
<b>Oregon</b>	<b>Washington</b>	<b>Idaho</b>
Gilliam	Adams	Clearwater
Hood River	Asotin	Custer
Morrow	Columbia	Idaho
Sherman	Garfield	Latah
Umatilla	Walla Walla	Lemhi
Wasco	Whitman	Lewis
		Nez Perce
		Valley
<b>Washington</b>		<b>Oregon</b>
Benton		Wallowa
Klickitat		
Skamania		
Franklin		

There are three distinct time phases to this analysis. Impacts do not occur just during the most intensive phases of project implementation, but also before and after implementation (Grambling and Freudenburg, 1992). The first phase includes the planning and decision-making period of the feasibility study from the initiation of the feasibility study and environmental impact statement (EIS) scoping to the final selection of a preferred alternative. The second phase includes the implementation phase, proposed from 2002 to 2012, depending on the alternative selected (Corps Implementation Report, 1999). The third phase includes the post-implementation social effects. Potential community-level impacts were examined across these three phases, but were limited to an overall study period of 20 years because forecasting the non-economic social impacts of the alternatives would be limited by the high degree of variability of social systems.

The scope of this social analysis neither provides a comprehensive assessment of all the communities within the defined study region, nor are the communities selected for this analysis representative of all communities in the region. Rather, the intent of the study is to provide decision-makers with information regarding the various impacts across a range of case study communities likely to be affected by the proposed alternatives. Tribal communities are not examined as part of this study. A study entitled “Tribal Circumstances and Perspectives,” prepared by the CRITFC, documents the tribal perspective concerning the potential social, cultural, and economic effects of the proposed alternatives on tribal populations (Meyer Resources, 1999).

### **7.2.3 Methodology**

In order to address the key study questions, the following steps were taken to obtain reliable information on potential social impacts:

- 1) Develop an understanding of the issues raised in the original scoping the Corps conducted in 1995 and the public information meetings the Corps conducted during this study.

- 2) Select key focus communities to capture the range of possible direct impacts.
- 3) Select appropriate social indicators for the types of anticipated social impacts.
- 4) Describe the trends and history of the region and case study communities.
- 5) Develop estimates of potential impacts, the magnitude of these impacts, and the range of community responses using information provided by the DREW work teams, NMFS, secondary data analysis, key informant interviews, and a thorough literature review.

This analysis is supplemented by information obtained through a series of interactive community forums, which included each of the focus communities. The community forum information includes each community's perceptions of its history, an assessment of its current situation, and a projection of potential social impacts under each of the proposed alternatives. For more information on the methodology and findings of the community-based assessments, see Harris et al., 1999.

### **7.2.3.1 Selection of Focus Communities**

Secondary data sources, including the 1990 Census of Population and Housing and the 1992 Census of Agriculture, as well as preliminary impacts identified by the Drawdown Regional Economic Workgroup (DREW) study teams, were consulted to evaluate communities for inclusion as case study focus communities. The study team examined the potential impacts of the three alternatives under consideration to identify a group of focus communities that met the following criteria:

- Communities that might experience large potential impacts (positive or negative) as a result of the project alternatives
- Communities that are diverse in size, economic activity, and potential socioeconomic impacts (level, type, and timing of impacts).

Table 7-6 lists the communities selected as focus communities for this study.

## **7.3 Characterization of Study Region and Communities**

### **7.3.1 Characteristics of Communities**

The communities located throughout the study area are diverse in terms of their size, economic activity, and relationship to the lower Snake River. The purpose of this section is to describe these basic characteristics in order to put the analysis of the focus communities into the context of the other 101 communities in the study region.

Communities in Washington State (45) represent nearly 50 percent of the communities in the study region, with Oregon and Idaho almost equally represented with 29 and 27 communities, respectively. With the exception of four communities in the upriver region, the Oregon communities are downstream of the Lower Snake River Project. Two-thirds of the communities in Washington are located directly around the reservoirs. Approximately half of the Idaho communities are located at the eastern, upstream end of the reservoirs.

**Table 7-6.** Selected Focus Communities

<b>Region</b>	<b>Focus Community</b>	<b>Size</b>	<b>Primary Economic Activities</b>	<b>Primary Direct Impacts</b>
Reservoir	WA: Clarkston	6,860	Medical services, wholesale & retail trade	Navigation, implementation, recreation, A-fish, power
	Colfax	2,865	Agriculture, state/local government, wholesale & retail trade	Transportation, recreation
	Pomeroy	1,475	Agriculture, state/local/Federal government	Navigation, recreation, implementation
Downriver	WA: Kennewick	48,010	Wholesale & retail trade, services, F.I.R.E	Navigation, recreation, irrigation, implementation, power
	Pasco	22,370	Agriculture, transportation	Navigation, recreation, irrigation, implementation, power
	OR: Umatilla	3,155	Agriculture, state/local/Federal government	Recreation, navigation, irrigation
Upriver	ID: Lewiston	30,271	Manufacturing, wholesale & retail trade	Navigation, implementation, A-fish, power, recreation
	Orofino	3,122	Timber, agriculture, state/local/Federal government	A-fish
	Riggins	495	Travel & tourism, ag., state/local/Federal government	Recreation, A-fish

### 7.3.1.1 Population

The total population of the study area was approximately 582,124 in 1995. Population is distributed unevenly among the 25 counties and three subregions that comprise the study area. The downriver subregion, which extends from the confluence of the Snake and Columbia rivers to below Bonneville Dam, is the most populated, accounting for 278,429, or approximately 48 percent, of the study region's 1995 population.

In general the geographic area of northeastern Oregon, southeastern Washington, and north central Idaho is sparsely populated and rural. The size of communities ranges from small rural towns with populations less than 200 to cities with populations from 8,000 to almost 50,000. In general the communities in the lower Snake River study area are small. Sixty-six percent have populations lower than 1,500, and 60 percent have populations lower than 1,000. The major population centers are the Tri-Cities (Richland, Kennewick, and Pasco), Walla Walla, the Quad-Cities (Pullman, Moscow, Lewiston, and Clarkston), and Hermiston/Pendleton. Only five communities in the study region have populations that exceed 20,000. These larger population cities serve as regional trade and educational centers and provide a diversity of employment opportunities from manufacturing and professional services to tourism. These cities make up a large share of the economically diverse communities in the region.

### **7.3.1.2 Population Trends**

Most rural areas in the dryland agricultural region of the Palouse (eastern Washington and north central Idaho) exhibited very slow growth over the 1980s and 1990s, while some rural areas offering high quality scenery and recreation have grown rapidly since 1990 (Johnson and Beales, 1994). Almost all the communities in the subregions have increased in population since 1990 and are expected to see moderate population growth over the next 15 years (Idaho, Washington, and Oregon State Population Estimates, 1996 and 1997).

### **7.3.1.3 Economic Characteristics**

The economy of the Pacific Northwest has undergone substantial change over the past three decades. In terms of job formation it has grown much faster than the nation as a whole with total employment in the states of Washington, Oregon, and Idaho increasing by more than 210 percent. Employment in the 25-county study area increased by about 74 percent from 1970 to 1995. The total number of jobs in both the region and the study area has increased even as employment in historically important job sectors, such as manufacturing, logging, mining, farming, and ranching, has declined or remained stagnant. At the aggregate level, employment in the study area increased in nearly all sectors between 1970 and 1995. These patterns appear to be broadly similar across all three subregions, with absolute increases in all sectors with the exception of the farm and military sectors in the reservoir and upriver subregions and the mining sector in the downriver subregion. Employment in the farm sector declined by 14.1 and 20.9 percent in the reservoir and upriver subregions, respectively. The downriver subregion, by contrast, experienced a 9 percent increase in farm employment.

Most of the region's towns are small and, therefore, have narrow economic bases with fewer industries and fewer firms per industry than larger communities. Agriculture dominates in these small communities. Almost half of the communities in the region have 20 percent or more of their employment in agriculture, while 68 percent of the communities have 11 percent or more employment in the agricultural sector.

### **Per Capita Income**

Average per capita income in the 25-county study area was \$17,570 in 1995, with little variation across the three subregions. The states of Washington, Oregon, and Idaho had respective per capita incomes of \$23,974, \$21,915, and \$19,199 in 1995. U.S. per capita income in 1995 was \$23,359. The below average per capita income in the region indicates that many of these counties exhibit relatively high levels of poverty and unemployment.

### **Sources of Personal Income**

Nonfarm earnings are the largest source of personal income in all three subregions. In 1995, nonfarm earnings as a percentage of total personal income ranged from 55.3 percent in the reservoir subregion to 65 percent in the downriver subregion.



## Land Tenure Characteristics

Agricultural land tenure has undergone significant changes in all three subregions. In all cases, these changes have involved a decrease in the number of farms and an increase in average farm size. The downriver subregion has the largest number of farms and acres farmed of the three subregions. Between 1959 and 1992, this subregion lost 1,279 farms or 18.4 percent of the 1959 total. The reservoir and upriver subregions over this period lost 1,544 and 1,537 farms, respectively, or 34.1 and 32.6 percent of their 1959 totals.

This has not, however, been a simple linear decline. Rather, all three subregions experienced both increases and decreases in the number of farms between 1959 and 1992. The average size of farms also fluctuated over this period. In general, the trend has been toward increasing farm size in all three subregions.

### 7.3.2 Focus Community Baseline Profiles

Community profiles were prepared in the Social Analysis Report (Foster Wheeler, 1999). The profiles describe why each community was selected and provide an overview of historical community trends. They also outline each community's social, cultural, and economic relationship to the lower Snake River. Information related to four dimensions of community life—the people, the economy, the place, and vision and vitality—from 1970 to the present is also presented in these profiles. The information from these profiles provides the basis for evaluating the potential impacts and community responses. Much of this information is included in case-by-case discussions in Section 7.4. To organize the assessments of social impacts, communities were organized by these four dimensions of community. The people (demographics) dimension relates to the characteristics of individuals or households in the community and changes. The economic (jobs and wealth) dimension relates to the major businesses and sources of jobs in the community. The place (character) dimension refers to the built and natural environment of the community. The vision and vitality (organization and leadership capacity) dimension refers to the characteristics of the community's social organizations and ability to accomplish goals. The following sections provide a brief description of the community selection criteria and community history in order to frame the subsequent discussion of community-level impacts for the salmon recovery alternatives under consideration.

#### 7.3.2.1 Clarkston, Washington

Clarkston is located in Asotin County, across the Snake River from Lewiston at the confluence of the Snake and Clearwater rivers. It was selected as a focus community because of anadromous fish runs, navigation, construction, and recreation opportunities along the Snake River.

### History

In 1899, a bridge across the Snake River connected Lewiston and Jawbone Flats, the area officially incorporated as Clarkston in 1902. Agriculture, particularly berry production, dominated the town's economy in the early 1900s. By the 1950s, agricultural production grew to include grains and hay, peas, and other fruits. Livestock were also raised. Transportation was by railroad and boat which brought supplies up from Portland and grain down on the return trip. As water transportation on the Snake improved into Hells Canyon, Clarkston became a gateway for tourists. Lower Granite Dam was completed in 1975, flooding much of the fruit orchards and beef processing plants along the

river. A second bridge linking Clarkston and Lewiston was constructed in 1982. Today, Clarkston remains active as a regional trading center via its port, while agricultural production, outdoor recreational opportunities, and a growing retiree population add to its diversity.

### **7.3.2.2 Colfax, Washington**

Colfax is located in Whitman County in the heart of the Palouse, the dryland wheat, barley, pea, and lentil region of eastern Washington and north central Idaho. It is approximately 19 miles north of the lower Snake River. It was selected as a focus community primarily because of navigation and recreation opportunities and access.

#### **History**

Incorporated in 1870, Colfax is the oldest town in eastern Washington. It was originally a sawmill town with cattle ranches and farms but, over the years, agriculture became the primary industry. Colfax became the county seat in 1871. A series of floods and fires threatened to destroy the community, but the residents rebuilt. In 1963 the Corps constructed a concrete flood control project to eliminate the flooding problem in the downtown area. With the arrival of slack water, the Port of Whitman County established new sites on the lower Snake River at Almota and Wilma. Colfax has recently completed a downtown revitalization project to widen Main Street, beautify the downtown, and enhance the business climate. The Port has also recently established a small industrial park on the outskirts of town.

### **7.3.2.3 Pomeroy, Washington**

Pomeroy is located in Garfield County approximately 15 miles south of the lower Snake River in southeastern Washington. US 12 passes through town and connects Pomeroy to Clarkston and Lewiston to the east and Walla Walla and the Tri-Cities to the west. Pomeroy was selected because of navigation and recreation concerns.

#### **History**

Established in 1864, Pomeroy quickly experienced a rapid wave of population migration due to its location on the stagecoach line between the towns of Walla Walla and Lewiston. The economy was based primarily on cattle and vegetable farming. By 1878, the town had grown into a service and trade center containing a flour mill, retail stores, and a hotel. Arrival of the Starbuck-Pomeroy rail branch in 1885 further expanded Pomeroy's population, while serving as the major source of transportation for agricultural products. A pea cannery was built in 1942 and remained operational until the 1960s. The construction of Little Goose Dam in 1970, followed by Lower Granite Dam in 1975, significantly increased the local population and economic base in Pomeroy, as construction workers and their families moved in. The rail line was abandoned in 1981. In the 1990s, Pomeroy experienced many infrastructure improvements to its Main Street.

### **7.3.2.4 Kennewick, Washington**

Kennewick is located in Benton County across the Columbia River from Pasco. It was selected as a focus community because of navigation, recreation, irrigation, and power concerns.

## History

Incorporated in 1904, Kennewick is the largest community of the Tri-Cities. It began as a predominantly agricultural-driven economy, linked to the Northern Pacific Railroad route which moved its products to markets. World War II brought new prosperity to the region. In the 1940s, the plutonium production facilities at the Hanford Project were created. Hanford employees greatly expanded Kennewick's population, and the retail base grew to meet the needs of the increasing population. With the development of the Columbia Basin Project, irrigated agriculture expanded around the community, contributing to its rapid growth. Suspension of work at Hanford in the early 1980s and downsizing in the mid-1990s have greatly affected the economy of the community.

### 7.3.2.5 Pasco, Washington

Pasco is located in Franklin County to the north of the confluence of the Snake and Columbia rivers. Pasco and the other Tri-Cities create a hub of human and commodity movements through the lower Columbia Basin. Pasco was selected as a focus community because of water supply issues, navigation/transportation, power, recreation opportunities and sites, and anadromous fish runs.

## History

Officially incorporated in 1891, Pasco attributes its establishment and early growth to railroad construction near the Snake and Columbia rivers in the 1870s. Steam-powered boats provided transportation into the region before the arrival of the railroad. Pasco soon moved from a single economy of rail to livestock and agricultural production made possible by pumping water from the rivers for irrigation in the 1890s. A more intensive irrigation project was developed in 1910. Airmail service to Pasco began in 1926, and a new airport by the rail was dedicated in 1929. In 1943, the Hanford nuclear project began. Although Pasco is located on the opposite side of the Columbia River from the Hanford facilities, it did receive some population and economic spillover, particularly with the 1985 creation of the I-182 highway bridge which connects Pasco to Richland. Suspension of work at Hanford in the early 1980s and downsizing in the mid-1990s have adversely affected the economy of the community. Work on environmental restoration in Hanford continues to provide economic benefits to Pasco. Dry land and irrigated agriculture in the surrounding countryside continues to play an important role in Pasco's development.

### 7.3.2.6 Umatilla, Oregon

Umatilla is located in Umatilla County, downstream from the confluence of the Snake and Columbia rivers on the Columbia River. Umatilla was selected as a focus community because of navigation/transportation, recreational opportunities and sites, and irrigation.

## History

Initially called Columbia, the town of Umatilla was founded in 1863 as a site for transferring gold on the Columbia River to the Walla Walla route. When mining declined, the town stagnated, but then grew into a local service center for increasing irrigated agricultural activity. The building of the Umatilla Army Depot in the 1940s and the McNary Dam in the 1950s contributed to a population boom. In 1963, a major portion of Umatilla was destroyed because of flooding caused by the John Day Dam, built 40 miles downriver.

### **7.3.2.7 Lewiston, Idaho**

Lewiston is located in Nez Perce County at the confluence of the Clearwater and Snake rivers. Three major US highways in the region intersect in Lewiston and provide access to eastern Washington, northern Idaho, Montana, and southern Idaho. It was selected as a focus community for the following reasons: navigation at the Port of Lewiston (the only seaport in Idaho), recreational opportunities and access along the lower Snake River, construction impacts associated with implementation, and anadromous fish runs on the Snake and Clearwater rivers.

#### **History**

Founded in May 1861, Lewiston was the second permanent settlement in Idaho and the first incorporated town. Because of its location on the junction of the Snake and Clearwater rivers and seasonal navigation on the lower Snake River, Lewiston served as a supply center for regional mining operations. Following the gold boom, Lewiston continued to grow as a regional shopping, market, and distribution center for agricultural and timber operations. The Port of Lewiston was established in 1958. The Lewiston Orchards were annexed in 1969, doubling the town's area and population. The construction of the Lower Granite Dam in 1975 brought slackwater to Lewiston, making it the most inland port on the 460-mile Columbia-Snake River transportation system.

### **7.3.2.8 Orofino, Idaho**

Orofino is located in Clearwater County, 45 miles upstream from the lower Snake River at the confluence of the Northfork and the Clearwater rivers. US 12, the major highway connecting Lewiston to Montana, passes through the middle of town. National Forests, wild and scenic rivers, the Dworshak Reservoir, and the Selway-Bitterroot Wilderness Area are close by.

Orofino was selected because of the anadromous fish runs on the Clearwater River, the sport fishing industry related to those runs, and the current conflict over flow augmentation from the Dworshak Reservoir that affects recreation, but that is required under the 1995 Biological Opinion. Orofino markets itself as the "Steelhead Capital of the World" and boasts the world's largest steelhead fish hatchery.

#### **History**

Orofino's history is centered on its natural resources. Gold prospectors first settled Orofino in 1861 and then demolished it when ore deposits were found beneath the town. Orofino was later rebuilt in a different location at the confluence of Orofino Creek and the Clearwater River. In 1889, the Northern Pacific Railroad began service to the town, and the first post office was established in 1897. Starting in the 1900s, wood production dominated the economy and continues to do so today. Orofino was incorporated in 1925. By 1940, it was an established center for white pine logging. Agriculture also grew. In 1962, the Lewis and Clark Highway was completed and was seen as a source of economic stimulation for tourism and commerce. In 1968, construction began on Dworshak Dam, contributing to population increases. Much of the population remained post-construction. Although timber production has declined over the past decade due to diminishing supplies of timber from National Forest lands, new opportunities in recreational tourism were created from the Clearwater River and the Dworshak Reservoir. The nation's largest steelhead

hatchery contributes to this tourism. The listing of Snake River salmon has negatively impacted these recreational developments.

### **7.3.2.9 Riggins, Idaho**

Riggins is located in Idaho County, upstream from the lower Snake River along the Salmon River, a tributary to the Snake River. A major north-south highway (US 95) passes through the middle of town. Riggins was selected as a focus community because of the anadromous fish runs on the Salmon River, the recreational and sport fishing on the Salmon River, and the effects of listed salmon stocks on whitewater recreation.

### **History**

The discovery of gold first attracted settlement in the Riggins area, which was officially named in 1908. Mining was replaced by livestock raising, which remained prominent until the 1950s. National Forests were established nearby. With the Civilian Conservation Corps (CCC) program of the 1930s, as well as other Federal projects, many roads, trails, fences, and water developments were established. During World War II, a sawmill was built, and logging became a dominant industry. The 1982 fire that destroyed the mill forced the community to rebuild their economy. The residents who stayed shifted to a recreation-based economy of fishing, river floating, and hunting, made possible by the resources of the Salmon River. In 1982, there was only one river outfitting company. Now, Riggins boasts 15, plus six motels, five restaurants, and three real estate agencies, among other services. The Salmon River Economic Development Association was formed in 1992 to assess the economic health of the area. Since its inception, many city improvements have occurred. Additionally, a medical clinic recently opened, the Goff Bridge has been replaced, and a new water system is being coordinated with the improvement of US 95.

## **7.4 Description and Comparison of Community Social Impacts**

### **7.4.1 Comparison of Alternatives by Community**

A major limitation to the evaluation of social impacts at the community level is the availability of information regarding the economic impact on key sectors in the study area. Although this study has described the impacts to farms at the county level, and the regional study team conducted a sensitivity impact analysis of decreased land under production, it is not possible to predict how many farms would be affected and the level of that impact on a given community. In addition, no information exists to forecast the employment impacts on other waterway shippers such as forest products and their linkages to other mills in northeastern Oregon and north central Idaho. Finally, who will pay for increased electrical rates, how they pay, and how much they will pay have not been defined, thus this analysis used a mid-point estimate where Federal beneficiaries of BPA power would pay the costs.

In the absence of this information, the discussion of community-level impacts should be considered as preliminary. Notwithstanding these limitations, the following discussion will illustrate who may be affected, how they may be affected, and how they may respond to changes in the operation of the four lower Snake River facilities. Although the impact matrix and evaluation of impacts are presented in Table 7-4 by resource change, the discussion will put these changes into the context of the four dimensions used for the description of the base case. These dimensions are jobs and wealth

(economics), place (character of the natural and built environment), vision and vitality (social organization and leadership), and people (demographic changes and effects on individual populations). Discussions of the community-level impacts include the direct and indirect impacts, as identified in this study and the other Corps' studies. References to employment include direct, indirect, and induced employment changes in the community. The focus community analysis conducted is supplemented by the perceptions of community members who participated in the community-based assessments conducted by the University of Idaho (for detailed methodology and findings see Harris, et al., 1999). Finally, the communities' prior experience with change events will place the identified impacts into an historical context.

#### **7.4.1.1 Clarkston, Washington**

The socioeconomic impacts of the three alternatives on the community of Clarkston could include changes in recreation activities, navigation/transportation, water supply, implementation, anadromous fish recovery, and costs of electrical power. Table 7-4 presents a matrix of the various impacts and the effects of the proposed alternatives. Alternatives 2 and 3 affect the probability of anadromous fish recovery while having minimal effect on the physical or economic human environment. Alternative 4 could have significant effects on specific populations in Clarkston. It would create both winners and losers through the loss of a navigable waterway, a shift in transportation modes, a change in recreational opportunities and access, an increased chance of anadromous fish recovery, and minor increases in power rates. In addition, the community could experience a dramatic short-term change in the character of the community as the reservoir is drained and a new shoreline is formed around the city. It is expected that Clarkston would realize short-term increases in implementation and municipal and industrial (M&I) water-supply, modification-related employment, as well as a temporary influx of outside workers. Overall, the community could experience both increases and decreases in employment, with a projected net gain in employment. Perhaps the most significant effect on the community could be the stranded social costs of planning and development activities structured around the continued existence of the four lower Snake River facilities and a navigable waterway.

#### **Jobs and Wealth**

Overall, Alternatives 2 and 3 provide a higher degree of certainty about the economic future of Clarkston. They do not adversely affect jobs and wealth directly, although the lower probability of salmon recovery may indirectly affect those businesses related to recreational fishing. Alternative 4 adversely affects future economic certainty and increases future economic risks, because not all of the indirect and induced effects of these changes are known. For example, it is unclear how the increased capital costs of pump and well modifications would affect local pulp and paper operations, the golf course, or irrigators along the Lower Granite pool.

Negative impacts on community employment from Alternative 4 could result from a reduction in county-wide farm income, loss of Corps-related jobs, loss of water-related port operations, loss of tour-boat-related employment, short-term decreased recreational opportunities, and increased residential electrical rates. Farmers and other shippers currently using the waterway to ship bulk products could experience increased costs to ship their goods. This might have a negative effect on employment in those economic sectors. Only Corps-related employment is projected to exceed a 1 percent decrease.

Positive impacts on community employment from Alternative 4 could result from increased truck transportation, post-implementation increases in river-recreation-related activities, increased anadromous fishing opportunities, road maintenance, and the short-term increases in employment from implementation activities and modifications to wells and water pumps.

The effects of these changes on the largest employers could demonstrate the degree to which there would be winners and losers in Clarkston. A wood products corporation, largest employer in the Lewiston-Clarkston valley, could be negatively affected by higher shipping costs for some of its products. On the other hand, asphalt companies could benefit from both the short-term construction-related implementation activities and the long-term road maintenance.

## **Place**

Clarkston's natural and built environment could change dramatically under Alternative 4 much like it did 25 years ago when the pools were filled and orchards were inundated. Adverse impacts from the loss of the Lower Granite pool include the short-term exposure of shoreline and mudflats. The community could lose recreational access sites at Chief Lookingglass Park and Nisqually John Landing, as well as losing some recreational site services at Chief Timothy State Park, Hells Canyon Resort, Southway Park, and Hells Gate State Park. In addition, the community could have some short-term displacement from steelhead and salmon fishing, as well as displacement from other river-related recreation. The identity of the community as a working water port could also be adversely affected, although it would still retain its identity as a Snake River community and the gateway to Hells Canyon.

Another adverse effect of Alternative 4 could be an increase in truck traffic through the community and the county with a corresponding increased risk of traffic accidents. Additionally, the financial pressures exerted on local farmers from higher transportation costs may lead to a greater consolidation of farms and a change in the rural-urban interface of Clarkston.

Long-term benefits of Alternative 4 could include the revegetation and restoration of the normative Snake River and the community shoreline. Additionally, the increase of salmon would benefit the identity of the community as a place where salmon continue to exist, and local fishermen continue to pursue this element of the Clarkston's quality of life. Alternatives 2 and 3 have higher risks associated with salmon recovery and may, therefore, adversely affect the community's quality of life.

## **Vision and Vitality**

Alternatives 2, 3, and 4 could all adversely affect Clarkston's vision and vitality by decreasing the social cohesion of the community over the issue of salmon recovery and the best way to achieve that goal. Adverse effects of a change in the economic direction and identity of the community under Alternative 4 might include a pessimistic vision of not being able to control the community's future. The community has worked to develop recreational opportunities associated with the lower Snake River reservoirs, to bring tour boats from Portland into the community, to use the port as a development mechanism, and to develop retirement opportunities. Many of these plans could be significantly affected under this alternative. Additionally, the negative short- and long-term effects on both local and county property values and property tax revenue might create difficulties in

obtaining sufficient funding to pursue new avenues of economic development and maintain the current level of community services.

## **People**

Changes in the physical and economic human environment could affect distinct populations in the community. The high number of fixed-income families may have to pay a larger proportion of their income to power bills. The growing elderly population in Clarkston might be physically unable to engage in the new recreational opportunities on a free-flowing lower Snake River. Finally, the influx of short-term, outside workers might disrupt traditional community patterns, although the number of forecast workers could be relatively small compared to the workforce that originally constructed the lower Snake facilities.

The forecast increase in long-term employment under Alternative 4 suggests that population trends should continue to increase. Given the uncertainties associated with the business climate, however, overall population might remain stable or decrease slightly given short-term job losses.

## **Historical Change Events and Potential Responses**

Clarkston has a relatively high economic diversity and has undergone significant economic peaks and valleys over the past 25 years. During the construction of Lower Granite Dam and the dikes in the valley, unemployment was at an historical low. During the recession of the early 1980s, Asotin County lost over 1,200 jobs between 1980 and 1984. Clarkston has also experienced periodic layoffs in the wood manufacturing industry in the valley.

Given the estimated impacts described above, the historical adaptation to economic and physical changes in the community, and the current economic diversity of the community, it appears that the changes in the human environment would be within historical bounds.

### **7.4.1.2 Colfax, Washington**

The socioeconomic impacts of the three alternatives on the community of Colfax could include the effects of changed recreation activity, navigation/transportation, water supply, implementation, anadromous fish recovery, and power costs. Table 7-4 presents a matrix of the various impacts and the effects of the proposed alternatives. Alternatives 2 and 3 affect the probability of anadromous fish recovery, while having minimal effect on the physical or economic human environment. Alternative 4 could have significant effects on specific populations in Colfax. It could adversely affect the community primarily through the loss of a navigable waterway, a corresponding shift in transportation modes to more expensive rail and truck movements, a decrease in countywide net farm income, and a drop in property values for agricultural lands. It is expected that Colfax would realize short-term increases in implementation and well-modification-related employment, as well as a small temporary influx of outside workers. Overall, the community could experience both increases and decreases in employment, with a projected net loss in employment. The most significant effect on the community could be the additional financial pressures on grain farms from increased transportation, storage and handling costs, and uncertainty as to how the transportation system and individual farms would respond. The cumulative effects of Alternative 4 and the proposed phase-out of the loan deficiency payments under the Freedom to Farm Act could create even greater uncertainty for individual farmers and farm communities like Colfax.



## **Jobs and Wealth**

Overall, Alternatives 2 and 3 would not adversely affect jobs and wealth directly. They could provide a higher degree of certainty about the economic future, although the degree of future regulatory oversight under these alternatives is unknown. Alternative 4 could adversely affect future economic certainty and increase future economic risks because not all of the indirect and induced effects of these changes are known. For example, it is unknown if some agricultural lands would go out of production or if none would go out of production, how many farm owners might be forced to sell, and how many would seek other employment.

Negative impacts on Colfax's employment from Alternative 4 could result from increased residential electrical rates, reduction in county-wide farm income, loss of Corps-related jobs, loss of water-related port operations, and short-term, decreased recreational opportunities. Farmers currently using the waterway to ship grains could experience increased costs to ship their goods. This could have a negative effect on farm income and further decrease jobs that support farm household expenditures. Total county farm income would probably decrease by at least 10 percent. The associated decrease in household spending would probably reduce employment in Colfax by more than 1 percent. With transportation, storage, and handling costs expected to increase an average of 17 cents per bushel for all grain production in the county, the value of agricultural land surrounding Colfax might be expected to fall by up to \$140 per acre.

Positive impacts on community employment from Alternative 4 could result from an increase in truck and rail transportation employment, post-implementation increases in river recreation-related activities, increased anadromous fishing opportunities, and ongoing road maintenance. The increase in trucking- and rail-transportation-related employment might be higher than predicted by the allocation of employment impacts due to the large volumes of grain produced in the lands surrounding Colfax and the position of Colfax on the highway that would carry a large amount of the traffic. Short-term increases in employment could result from implementation activities, modifications to wells along the river, and upgrades to road and rail infrastructure.

## **Place**

Colfax's natural and built environment may not change dramatically under Alternative 4. Changes would occur in the surrounding patterns of land ownership and in the access and recreational opportunities available on the nearby lower Snake River. Adverse impacts from the loss of the Lower Granite pool could include the loss of developed access at recreational sites such as Wawawai County Park, Ilia Dunes Landing, Willow Landing, Little Goose Landing, and Lyons Ferry Marina. Additionally, recreation services may diminish at sites such as Boyer Park and Marina, Central Ferry State Park, and Chief Timothy State Park. In addition, the community could experience short-term losses in recreational steelhead and salmon fishing and other river-related recreation as boat ramps are modified and the riverbank is revegetated. The identity of the community as agricultural may not be adversely affected by Alternative 4. The community should still continue to be the heart of the Palouse and a leader in wheat and lentil production.

Another adverse affect of Alternative 4 could be the financial pressures higher transportation costs would exert on local farmers. This might lead to a greater consolidation of farms and a decrease in the number of community members either directly or indirectly active in the farming industry. With or without a navigable waterway, Colfax would continue to be a transportation hub for the

movement of grain commodities produced in Whitman and neighboring counties. Truck traffic patterns could shift from a north-south to an east-west orientation with an estimated slight increase in overall traffic through town. This might be economically beneficial, but would increase congestion and impact safety through downtown and on Washington Route 26 westbound. Finally, Colfax could lose a river crossing at the Lower Granite facility. This crossing provides an alternative transportation corridor between Colfax and Pomeroy in Garfield County.

Long-term benefits of Alternative 4 could include the revegetation and restoration of the normative Snake River. Additionally, the increase of salmon would benefit the identity of the community as a place where salmon would continue to exist and local fishermen would continue to pursue this element of the Colfax's quality of life. Alternatives 2 and 3 could have higher risks associated with salmon recovery and might adversely affect this element of Colfax's quality of life.

### **Vision and Vitality**

Alternatives 2, 3, and 4 could adversely affect Colfax's vision and vitality by decreasing the social cohesion of the community over the issue of salmon recovery and the best way to achieve that goal. The community has been united in its opposition to Alternative 4. Adverse effects of a change in the economic direction and identity of the community under Alternative 4 might challenge the leadership and vision of the community to provide a cost-effective way to transport the large volumes of grains to market. One key factor is the uncertainty about the capacity of alternative modes of transportation to handle the volume of production currently shipped on the lower Snake River.

The community has worked with the Port of Whitman County to develop successful industrial and shipping facilities. Some of these developments such as industrial parks sited away from the river may be unaffected by the change in the waterway, while other facilities on the river may become obsolete. Perhaps the most significant impact on the vision and vitality of the community would be the expected drop in property tax revenue both from agricultural and non-agricultural lands. The community could face raising tax rates or cutting social services. Neither of these choices is harmonious with the community's future plans and could limit investments in the economic diversification efforts. One ameliorating factor could be that property tax revenue would not change overnight, but rather would be phased in over a 5-year period of decreased farm income being capitalized into the land.

### **People**

Changes in the physical and economic human environment could affect distinct populations in the community. The poverty rate in Colfax is relatively low, as is the over-65 population; thus, large segments of the population may not be affected adversely by the increased electrical rates or the changes in slackwater recreation opportunities. Colfax might see a short-term influx of outside workers during the implementation, but this probably would not be a significant impact. The expected increased rate of land consolidation in the farm sector might contribute to a reduction in rural farm population.

Overall, the expected decrease in net employment under Alternative 4 suggests that community population would decrease slightly.

## Historical Change Events and Potential Responses

Colfax's economy exhibits moderate economic diversity and has not experienced major economic peaks and valleys over the past 25 years, aside from the large cyclical swings in commodity prices and production yields. Community members have existed with the uncertainty associated with a farm-centered economy and lifestyle. Nevertheless, there is a strong cultural norm to make things work and build a future in this community.

Given the estimated impacts described above, the historical adaptation to economic and physical changes in the community, and the current economic diversity of the community it appears that the changes in the human environment might exceed historical experience in this community.

### 7.4.1.3 Pomeroy, Washington

The socioeconomic impacts of the three alternatives on the community of Pomeroy could include the effects of changed recreation activity, navigation/transportation, water supply, implementation, anadromous fish recovery, and power costs. Table 7-4 presents a matrix of the various impacts and the effects of the proposed alternatives. Alternatives 2 and 3 could affect the probability of anadromous fish recovery, while having a minimal effect on the physical or economic human environment. Alternative 4 could have significant effects on specific populations in Pomeroy. It could adversely affect the community primarily through the loss of a navigable waterway, a corresponding shift in transportation modes to more expensive rail and truck movements, a decrease in countywide net farm income, and a drop in property values for agricultural lands. Pomeroy probably would realize short-term increases in implementation- and well-modification-related employment, as well as a significant temporary influx of outside workers. Overall, the community could experience both increases and decreases in employment, with a projected net loss in employment. The most significant effect on the community could be the additional financial pressures on grain farms from increased transportation, storage, and handling costs and the uncertainty as to how the transportation system and individual farms would respond. The cumulative effects of Alternative 4 and the proposed phase-out of the loan deficiency payments under the Freedom to Farm Act could create an even greater uncertainty to individual farmers and farm communities like Pomeroy.

## Jobs and Wealth

Overall, Alternatives 2 and 3 may not adversely affect jobs and wealth directly and could provide a higher degree of certainty about the economic future. Alternative 4 could adversely affect future economic certainty and increase future economic risks because not all of the indirect and induced effects of these changes are known. For example, it is unknown if some agricultural lands would go out of production or, if none went out of production, how many farm owners might be forced to sell out and seek other employment.

Negative impacts on Pomeroy's employment from Alternative 4 could result from reduction in countywide farm income, loss of Corps-related jobs, increased residential electrical rates, and short-term decreased recreational opportunities. Farmers currently using the waterway to ship grains could experience increased costs to ship their goods. This could have a negative effect on farm income and further decrease jobs that support farm household expenditures. Total county farm income probably could decrease less than 10 percent. The change in direct, indirect, and induced

employment from a decrease in farm household spending probably would decrease employment in Pomeroy by less than 1 percent. With transportation, storage, and handling costs expected to increase an average of 7 cents per bushel of total grain production, the value of agricultural land surrounding Pomeroy might be expected to fall by up to \$40 to \$50 per acre.

Positive impacts on community employment from Alternative 4 could result from an increase in truck and rail transportation employment, post-implementation increases in river-recreation-related activities, increased anadromous fishing opportunities, and ongoing road maintenance. The increase in trucking- and rail transportation-related employment might be higher than predicted by the allocation of employment impacts. Both the large volumes of grain produced in the lands surrounding Pomeroy and the position of Pomeroy on the highway that could carry a large load of the traffic from Idaho counties to ports on the Columbia River indicate that Pomeroy would see higher levels of transportation-related employment. Short-term increases in employment could result from implementation activities, modifications to wells along the river, and upgrades to road infrastructure.

## **Place**

Pomeroy's natural and built environment may not change dramatically under Alternative 4. Changes could occur in the surrounding patterns of land ownership and in the access and recreational opportunities available on the nearby lower Snake River. Adverse impacts from the loss of the Lower Granite pool could include the loss of developed access at recreational sites such as Wawawai County Park, Iliia Dunes Landing, Willow Landing, Little Goose Landing, and Lyons Ferry Marina. Access to Boyer Park and Marina by crossing the Lower Granite facility would be lost. Additionally, recreation services could be diminished at sites such as Boyer Park and Marina, Central Ferry State Park, and Chief Timothy State Park. The community may also experience short-term losses in recreational steelhead and salmon fishing and other river-related recreation, as boat ramps were modified and the riverbank was revegetated. The identity of the community as agricultural should not be adversely affected by Alternative 4.

Another adverse affect of Alternative 4 could be the financial pressures exerted on local farmers from higher transportation costs. This might lead to a greater consolidation of farms and a decrease in the number of community members either directly or indirectly active in the farming industry. Without a navigable waterway and access to the ports of Whitman and Garfield counties, Pomeroy would be on the major transportation route for the movement of grain and other commodities from Idaho and Asotin County. Truck traffic patterns may increase total vehicle traffic on US 12 through Pomeroy by more than 2 percent. This might be economically beneficial to roadside services, but would be adverse for congestion and safety through downtown and on US 12 westbound. Finally, Pomeroy could lose a river crossing at the Lower Granite facility. The crossing currently provides an alternative transportation corridor between Pomeroy and Colfax in Whitman County.

Long-term benefits of Alternative 4 could include the revegetation and restoration of the normative Snake River. Additionally, the increase of salmon would benefit the identity of the community as a place where salmon would continue to exist and local fishermen would continue to pursue this element of Pomeroy's quality of life. Alternatives 2 and 3 would have higher risks associated with salmon recovery and might adversely affect this element of Pomeroy's quality of life.

## **Vision and Vitality**

Alternatives 2, 3, and 4 could adversely affect Pomeroy's vision and vitality by decreasing the social cohesion of the community over the issue of salmon recovery and the best way to achieve that goal. Changes in the economic direction and base of the community under Alternative 4 might challenge the leadership and vision of the community to provide cost-effective means of transporting the large volumes of grains to market since Pomeroy does not currently have rail access in the county. Additionally, leadership may be challenged to further enhance economic diversification efforts and to develop a recreational sector with a new type of tourism in mind.

Perhaps the most significant impact on the vision and vitality of the community may be the expected drop in property tax revenue both from agricultural and non-agricultural lands. The community could face raising tax rates or cutting social services. Neither of these choices is harmonious with the community's future plans and could limit investments in the economic diversification efforts. One ameliorating factor could be that property tax revenue would not change immediately but, rather, would be phased in over a 5-year period of decreased farm income.

## **People**

Changes in the physical and economic human environment could affect distinct populations in the community. The poverty rate in Pomeroy is relatively low, but Pomeroy has the highest median age and largest percentage of people over 65 in the study region. This retirement population could be adversely affected by loss of slack-water recreational opportunities on the lower Snake River.

Another significant impact for Pomeroy could be the short-term influx of outside workers during implementation. Pomeroy and Garfield County housed large numbers of outside workers during the construction of the last two lower Snake River facilities. The community and the county experienced the social stresses and economic boom associated with that activity. The level of workforce anticipated for the implementation of Alternative 4 is not expected to be as large or to extend over as long a period as the prior construction. These workers might, however, have different values and habits than the local residents and might cause short-term stress to the community.

Overall, the expected decrease in net employment under Alternative 4 indicates that community population could decrease slightly. In addition, the expected increased rate of land consolidation in the farm sector might contribute to further reduction in rural farm population and hinder attempts to keep young community members in the town.

## **Historical Change Events and Potential Responses**

Pomeroy's economy exhibits moderate economic diversity and has experienced major economic peaks and valleys over the past 25 years including the boom and bust of the Lower Granite Dam construction and the large cyclical swings in the commodity prices and production yields. Community members have existed with the uncertainty associated with an agriculturally centered economy and lifestyle.

Given the estimated impacts described above, the historical adaptation to economic and physical changes in the community, and the current economic diversity of the community, it appears that the changes in the human environment might not exceed historical experience in Pomeroy.

#### **7.4.1.4 Kennewick, Washington**

The socioeconomic impacts of the three alternatives on the community of Kennewick could include the indirect effects of irrigation, navigation/transportation, recreation activity, power costs, power production implementation, and anadromous fish recovery. Table 7-4 presents a matrix of the various impacts and the effects of the proposed alternatives. Alternatives 2 and 3 affect the probability of anadromous fish recovery while having minimal effect on the physical or economic human environment. Alternative 4 could have minor direct effects on Kennewick but might have significant indirect effects since Kennewick is the retail and service center for the Tri-Cities and the surrounding region. The loss of Ice Harbor irrigated agriculture probably could produce the most significant impacts. Beneficial effects might come from siting new power plants, increased operations and maintenance employment, and related spending, as well as anadromous fish recovery. Increased transportation activity in the Tri-Cities, primarily Pasco, probably would also produce economic benefits for Kennewick.

Kennewick probably would realize short-term increases in implementation and power plant construction employment. Overall, the community could experience both increases and decreases in employment, with a projected net loss in employment. Perhaps the most significant effect on the community could be the loss of agricultural production due to the drawdown of the Ice Harbor pool and the uncertainty regarding the effect of those losses on the community economic structure. Aside from the specific physical and economic changes in Kennewick, a significant impact might be the fear that the successful breaching of the lower Snake River projects could jeopardize the future viability of the Columbia River waterway and the values it holds for Kennewick residents.

#### **Jobs and Wealth**

Overall, Alternatives 2 and 3 may not adversely affect jobs and wealth directly and could provide a higher degree of certainty about the economic future. Alternative 4 could adversely affect future economic certainty and could increase future economic risks because not all of the indirect and induced effects of these changes are known.

Negative indirect impacts on Kennewick's employment from Alternative 4 could primarily result from the loss of irrigated agriculture and increased residential electrical rates. The water supply analysis indicated that modifying the Ice Harbor pumps would cost more than the total land value or the value of the crops produced. The effect could be that Ice Harbor irrigated farm owners may not be able to make the necessary modifications and operations would cease. The effects of this economic loss to the region could indirectly impact the large service and retail sectors and, to a lesser degree, the agricultural service sectors in Kennewick. Losses are estimated at approximately 2 percent of total employment. The effects of increased residential electrical rates are estimated at below 1 percent. Total direct, indirect, and induced employment losses are estimated to be less than 2.5 percent of Kennewick's total employment.

Positive impacts on community employment from Alternative 4 could result from the operations and maintenance of new power plants in the region; increased trucking, rail, and barge transportation;

post-implementation increases in river recreation-related activities; and road maintenance. Short-term increases in employment could result from power plant construction, transportation infrastructure upgrades, and implementation activities. The long-term gains could probably be less than a 1 percent increase in Kennewick's total employment.

The positive and negative effects of these employment changes may be felt primarily in the service and retail and wholesale trade sectors. It does not appear that any one business or service would be disproportionately affected. Overall, the most significant effect of Alternative 4 could be the heightened uncertainty about the fate of the Columbia River.

## **Place**

Kennewick's natural and built environment may not change significantly under Alternative 4. Adverse impacts from the breaching of the four lower Snake River facilities could eliminate nearby developed recreational access sites such as the North Shore Ramp, Ayer Boat Basin, and Lyons Ferry Marina. Kennewick may also lose some developed recreational site services at Charboneau Park, Levy Landing, Fishhook Park, and Windust Park. Although this represents a small fraction of the recreational slack water recreational sites in the region, a more significant impact might be the short-term crowding at Columbia River sites from lower Snake River displaced recreationists. The identity of the community as a riverside retail and service urban center may not be affected adversely by this alternative.

Another indirect effect on Kennewick's place could be the increased traffic into the Tri-Cities. Traffic increases probably would not occur in the city of Kennewick, but could occur across the Columbia River in Pasco. Overall traffic volumes on highways from eastern Washington feeding into the Tri-Cities probably could increase between 2 and 6 percent. Some of this traffic might alter movement patterns by Kennewick commuters and might provide additional employment and income to Kennewick.

Long-term benefits of Alternative 4 could include the revegetation and restoration of the normative Snake River and the shoreline. Additionally, the increase of salmon would benefit the identity of the community as a place where salmon would continue to exist, and local fishermen would continue to pursue this element of the Kennewick's quality of life. Alternatives 2 and 3 could have higher risks associated with salmon recovery and might adversely affect the community's future quality of life.

## **Vision and Vitality**

Alternatives 2, 3, and 4 could all adversely affect Kennewick's vision and vitality by decreasing the social cohesion of the community over the issue of salmon recovery and the best way to achieve that goal. The Chamber of Commerce has issued a position paper on the breaching of the lower Snake River facilities and has joined in rallies to save the dams. One significant impact on the vision and vitality of Kennewick of each of the alternatives, but primarily from Alternative 4, could be the fear that successfully breaching the dams or the continued listing of the salmon and steelhead as endangered would lead to the eventual breaching of the Columbia River facilities. The proposed alternatives of this study are seen as a first step to the removal of dams that provide the navigable waterway and recreational benefits to the community. Kennewick has been actively developing its waterfront, green areas, and Clover Island, and the fear of future loss of its waterfront represents a significant effect of each of the study's alternatives.

## People

Changes in the physical and economic human environment could affect distinct populations in the community. Benton County has been designated as an economically distressed area and has a high level of poverty. More than 10 percent of the families are classified as below the poverty line. Families on low or fixed incomes may have to spend a larger portion of their income on electrical bills. The forecast decrease in net long-term employment under Alternative 4 signifies that population trends might not continue to increase at current or historical rates, although the community's thriving economy probably could continue to grow and attract new community members.

## Historical Change Events and Potential Responses

Kennewick's economy exhibits high economic diversity and has experienced major economic peaks and valleys over the past 25 years. These trends are associated primarily with activities at the Hanford Reservation. Community members have existed with the uncertainty associated with the level of government activity on the reservation and have built a strong, retail-based community around that uncertainty. In the 1980s, suspension of work on the WPPSS facilities resulted in a loss of 15,000 jobs in the Tri-Cities area. During the 1990s, the Tri-Cities have lost an estimated 6,700 jobs since peaking in 1994. Approximately 1,000 jobs per year have been associated with Hanford workplace reductions. During this recent downturn, the community has not lost population, and school enrollment has continued to grow.

Given the estimated impacts described above, the historical adaptation to economic and physical changes in the community, and the current economic diversity of the community, it appears that the changes in the human environment would not exceed historical experiences in Kennewick.

### 7.4.1.5 Pasco, Washington

The socioeconomic impacts of the three alternatives on the community of Pasco could include the effects of irrigation, navigation/transportation, recreation activity, power costs, implementation, and anadromous fish recovery. Table 7-4 presents a matrix of the various impacts and the effects of the proposed alternatives. Alternatives 2 and 3 affect the probability of anadromous fish recovery, while having a minimal effect on the physical or economic human environment. Alternative 4 could have significant effects on specific populations in and around Pasco. It could create both winners and losers through the shift in transportation modes and nodes, changes in recreational opportunities and access, lost irrigation acreage and employment, construction and operation of new power plants, loss of power produced at the four projects, and an increased chance of anadromous fish recovery.

Additionally, the community could experience a dramatic short-term change in the character of the community as grain from eastern Washington, Idaho, Montana, and North Dakota shipped on the lower Snake River is rerouted into the Pasco port and through the Pasco rail yards. It is expected that Pasco could realize short-term increases in implementation and power plant construction employment. Overall, the community could experience both increases and decreases in employment, with a projected net loss in employment. Perhaps the most significant effect on the community could be the loss of agricultural production on the Ice Harbor Reservoir and the uncertainty of those losses on the community economic structure. Aside from the specific physical and economic changes in Pasco, a significant impact might be the fear that a successful breaching of



the lower Snake River facilities could jeopardize the future viability of the Columbia River waterway.

## **Jobs and Wealth**

Overall, Alternatives 2 and 3 may not adversely affect jobs and wealth directly and could provide a higher degree of certainty about the economic future. Alternative 4 could adversely affect future economic certainty and increase future economic risks because all of the indirect and induced effects of these changes are not known. For example, it is unclear how the loss of irrigated agricultural production from Ice Harbor Reservoir may affect the growing food processing facilities in Pasco or how displaced agricultural workers would adapt to lost employment.

Negative impacts on Pasco employment from Alternative 4 could result from the loss of irrigated agriculture, higher residential electrical rates, reduction in countywide farm income, and a loss of Corps-related jobs. The water supply analysis indicated that modifying the Ice Harbor pumps could cost more than the total land value or the value of the crops produced. Ice Harbor irrigated farm owners may not be able to make the necessary modifications and operations could cease. Approximately 20 percent of the land is located in Franklin County, and much of the agricultural service sector that supplies these farms could be affected. The direct, indirect, and induced employment losses in Pasco in just the agriculture/agricultural services sector are estimated to be approximately 9 percent of the agricultural sector, although the total loss of employment from this change is estimated to be less than 2.5 percent of Pasco's total employment. None of the other negative employment effects decreases employment by more than 1 percent. Total direct, indirect, and induced employment losses are estimated to be less than 2.5 percent of Pasco's total employment.

Positive impacts on community employment from Alternative 4 could result from increased trucking, rail, and barge transportation, post-implementation increases in river-recreation-related activities; road maintenance, short-term increases in employment from power plant construction, transportation infrastructure upgrades, implementation activities; and modifications to lower Snake River wells. With Pasco becoming the closest port to eastern Washington and Idaho grain production, significant quantities of grain are forecast to move through the port rail and barge facilities. In effect, Pasco could receive a high percentage of the jobs lost by Lewiston, Clarkston, and the other lower Snake River water port operations. These gains are estimated to be less than a 1 percent increase in Pasco's total employment.

The effects of these employment changes on the largest employers in the community demonstrate the degree to which there will be winners, losers, and uncertain futures associated with Alternative 4. Local manufacturing operations depend to an unknown degree upon fiber plantations along the Ice Harbor Reservoir. The loss of these plantations could place financial pressure on their operations, and a long-term investment could be stranded. Railroads, on the other hand, could stand to gain or capture traffic volume as farmers and other shippers searched for cost-effective means to ship their products to Portland. Finally, food processing plants could have a diminished source of primary product for food processing activities. The degree to which a decreased supply of agricultural products could affect employment is unknown.

## Place

Pasco's natural and built environment may not change significantly under Alternative 4. Adverse impacts from the breaching of the four lower Snake River facilities could eliminate developed recreational access sites such as the North Shore Ramp, Ayer Boat Basin, and Lyons Ferry Marina. Pasco could also lose some developed recreational site services at Charboneau Park, Levy Landing, Fishhook Park, and Windust Park. Although this represents a small fraction of the slack water recreational sites in the region, a more significant impact might be the short-term crowding from lower Snake River displaced recreationists. The identity of the community as a riverside transportation and agricultural urban center may not be adversely affected by this alternative.

The most significant change could be the increased truck traffic into the ports. Increased truck traffic could converge from Interstate 395, US 12, and SR 124 into the port facilities. Truck traffic into the city from the north probably would rise between 6 and 21 percent above current truck traffic volumes. Overall vehicle traffic is expected to increase between 2 and 6 percent. Although this traffic represents an economic benefit to the community, it might congest the feeder streets to the port facilities and increase the safety risk within and outside of the city. This added traffic could also have a negative impact on the condition of city streets.

Long-term benefits of Alternative 4 could include revegetation and restoration of the normative Snake River and the shoreline. Additionally, the increase salmon would benefit the identity of the community as a place where salmon would continue to exist and local fishermen would continue to pursue this element of Pasco's quality of life. Alternatives 2 and 3 could have higher risks associated with salmon recovery and might adversely affect the community's future quality of life.

## Vision and Vitality

Alternatives 2, 3, and 4 could all affect Pasco's vision and vitality by decreasing the social cohesion of the community over the issue of salmon recovery and the best way to achieve that goal. The Chamber of Commerce has issued a position paper on the breaching of the lower Snake River facilities and has joined in rallies to save the dams. One significant impact on the vision and vitality of Pasco for each of the alternatives, but primarily for Alternative 4, could be the fear that successfully breaching the dams or the continued listing of the salmon and steelhead as endangered could lead to the eventual breaching of the Columbia River facilities. The proposed alternatives of this study are seen as a first step to the removal of the Columbia River dams that provide the navigable waterway and recreational benefits to the community. Alternative 4 might seriously challenge the leadership and vision of the community as community members work to address the large numbers of displaced full-time and seasonal workers from the irrigated lands on Ice Harbor. The community has worked to successfully develop the facilities at the Port of Pasco and to diversify the local economy by developing value-added food processing centers to the economic structure of Pasco. These plans and achievements might be affected adversely under this alternative.

Finally, the negative short- and long-term effects of lost agricultural production on both local and county property values and property tax revenue might create difficulties in obtaining enough funding to pursue new avenues of economic development and to maintain the current and anticipated increased levels of community services.

## People

Changes in the physical and economic human environment could affect distinct populations in the community. Franklin County has been designated as an economically distressed area and has a high level of poverty. More than 10 percent of families are classified as below the poverty line, and these numbers might increase with the loss of employment on the Ice Harbor irrigated lands. These families on low or fixed incomes could have to spend a larger portion of their income on electrical bills. In addition, farm workers displaced from the Ice Harbor lands are primarily Hispanic, and Pasco's population is more than 40 percent Hispanic. The concerns related to the disproportional negative impacts of this alternative are addressed in the EIS's environmental justice discussion.

The forecast decrease in net long-term employment under Alternative 4 signifies that population trends might not continue to increase at current or historical rates.

## Historical Change Events and Potential Responses

Pasco's economy exhibits high economic diversity and has experienced major economic peaks and valleys over the past 25 years. These changes are associated primarily with activities at the Hanford Reservation and the fortunes of agriculture. Community members have existed with the uncertainty associated with the level of government activity on the reservation and have built upon a strong transportation and agricultural base. Pasco has not been as directly affected by the benefits of the Hanford Reservation; nonetheless, some of the 15,000 jobs lost in the 1980s did occur in Pasco. More recently, the Tri-Cities have lost an estimated 6,700 jobs since peaking in 1994. Approximately 1,000 jobs per year have been associated with Hanford workplace reductions. During this recent downturn, the community has not experienced population declines, and school enrollment has continued to grow.

Given the estimated impacts described above, the historical adaptation to economic and physical changes in the community, and the current economic diversity of the community, changes in the human environment probably would not exceed historical experiences in Pasco. The direct effects on the agricultural sector might, however, be more significant than previous experiences in the absence of mitigation.

### 7.4.1.6 Umatilla, Oregon

The socioeconomic impacts of the three alternatives on the community of Umatilla could include the effects of irrigation, navigation/transportation, recreation activity, power costs, power production, implementation, and anadromous fish recovery. Table 7-4 presents a matrix of the various impacts and the effects of the proposed alternatives. Alternatives 2 and 3 may affect the probability of anadromous fish recovery while having minimal effects on the physical or economic human environment. Alternative 4 could affect Umatilla through the siting of power plants to replace the lost hydroelectric power generated by the four lower Snake River facilities. The loss of Ice Harbor irrigated agriculture might adversely affect Umatilla food processors who obtain a small portion of their product from the Ice Harbor farms. Beneficial economic impacts might result from siting new power plants in the region and the associated increased operations and maintenance employment and related spending. Although not predicted in the Corps transportation model, the Port of Umatilla might experience increased activity due to the presence of grain-loading facilities and the projected shortages of these facilities in the Tri-Cities area. Overall, the community could experience both

increases and decreases in employment, with a small projected net loss in employment. This net loss might change to a significant net increase if the replacement power plants were sited in Umatilla or nearby. Aside from the expected physical and economic changes in Umatilla, a significant impact might be the fear that the successful breaching of the lower Snake River facilities could jeopardize the future viability of the Columbia River Waterway and in particular the John Day dam.

## **Jobs and Wealth**

Overall, Alternatives 2 and 3 may have a higher degree of certainty about the economic future and may not adversely affect jobs and wealth directly. Alternative 4 could adversely affect future economic certainty and would increase future economic risks because not all of the indirect and induced effects of these changes are known.

Negative indirect impacts on Umatilla's employment from Alternative 4 could result from the loss of Ice Harbor irrigated agriculture and increased residential electrical rates. The water supply analysis indicated that modifying the Ice Harbor pumps could cost more than the total land value or the value of the crops produced. The effect could be that Ice Harbor irrigated farm owners would be unable to make the necessary modifications and operations would cease. The effects of this economic loss to the region could indirectly impact the agricultural and food-processing sectors in Umatilla. The magnitude of these effects on the food-processing sector are unknown. Sediment from the lower Snake River probably would not adversely affect irrigators out of the John Day pool. Overall employment losses are estimated to be approximately 1 percent of total employment. The effects of increased residential electrical rates are estimated at below 1 percent.

Positive impacts on community employment from Alternative 4 could result from the operation and maintenance of new power plants in the region. Short-term increases in employment could result from power plant construction, transportation infrastructure upgrades, recreation activities, and implementation. The long-term gains probably may be less than a 1 percent increase in Umatilla's total employment, but might be significantly higher if the new power plants were to be sited in the Hermiston/Umatilla/Bordman area. Total net employment changes are estimated to be less than a 1 percent decrease.

Overall, the most significant economic effect of Alternative 4 could be the heightened uncertainty about the fate of the Columbia River and the local irrigated agriculture that depends on river water.

## **Place**

Umatilla's natural and built environment may not change significantly under Alternative 4 unless the new power plants were sited close to the community. It is beyond the scope of this report to analyze the effects of a proposed power plant, but adequate environmental and socioeconomic assessments would be required. Adverse impacts on recreation sites within 50 miles of Umatilla could include the elimination of the North Shore Ramp. Umatilla could also lose some developed recreational site services at Charboneau Park, Levy Landing, and Fishhook Park. Although this represents a small fraction of the slack water recreational sites in the region, a more significant impact might be the short-term crowding at Columbia River sites from lower Snake River displaced recreationists. The identity of the community as the Walleye capital of the world would not be adversely affected by this alternative.

Long-term benefits of Alternative 4 could include the revegetation and restoration of the normative Snake River and the shoreline. Additionally, the increase salmon would benefit the identity of the community as a place where salmon would continue to exist, and local fishermen would continue to pursue this element of Umatilla's quality of life. Alternatives 2 and 3 could have higher risks associated with salmon recovery and might adversely affect future community quality of life.

### **Vision and Vitality**

Alternatives 2, 3, and 4 could all adversely affect Umatilla's vision and vitality by decreasing the social cohesion of the community over the issue of salmon recovery and the best way to achieve that goal. One significant impact on the vision and vitality of Umatilla of each of the alternatives, but primarily Alternative 4, could be the fear that successfully breaching the dams or the continued listing of the salmon and steelhead as endangered could lead to the eventual breaching of the Columbia River facilities. The proposed alternatives of this study are seen by community members as a first step to the removal of dams that provide the navigable waterway and recreational benefits to the community.

If the replacement power plants were sited near Umatilla or within Umatilla County, the community might achieve increased tax revenues to support essential county and community services.

### **People**

Changes in the physical and economic human environment could affect distinct populations in Umatilla. A relatively high level of poverty exists for families in Umatilla, and these families could be expected to expend a larger of their income on increased electrical bills. The small forecast decrease in net long-term employment under Alternative 4 signifies that population trends might not continue to increase at current or historical rates. It is likely that in both the short- and the long-term, population could increase if the replacement power plants were sited close to the community.

### **Historical Change Events and Potential Responses**

Umatilla's economy exhibits moderately high economic diversity and has experienced the cyclical flows associated with agriculture and food manufacturing. Irrigated agriculture expanded rapidly in the 1970s and 1980s. Recent years have seen a minor downturn in the food processing/manufacturing industries.

Given the estimated impacts described above, the historical adaptation to economic and physical changes in the community, and the current economic diversity of the community, it appears that the minor changes in the human environment could not exceed historical experiences in Umatilla.

#### **7.4.1.7 Lewiston, Idaho**

The socioeconomic impacts of the three alternatives on the community of Lewiston could include the effects of changed recreation activities, navigation and transportation, M&I water supply, implementation, anadromous fish recovery, and power costs. Table 7-4 presents a matrix of the various impacts and the effects of the proposed alternatives. Alternatives 2 and 3 could affect the probability of anadromous fish recovery, while having a minimal effect on the physical or economic human environment. Alternative 4 could have significant effects on the specific populations of

Lewiston. It could create both winners and losers through the loss of a navigable waterway, loss of power produced at the four projects, a shift in transportation modes, a change in recreational opportunities and access, and an increased chance of anadromous fish recovery. In addition, the community could experience a dramatic short-term change in the character of the community as the reservoir was drained and a new shoreline was formed around the city with the existing levees left high above the new water line. It is expected that Lewiston could realize short-term increases in implementation and M&I water supply modification-related employment, as well as a temporary influx of outside workers. Overall, the community could experience both increases and decreases in employment, with a projected net gain in employment. Perhaps the most significant effect on the community could be the stranded social energy and costs of developing activities and plans centered around the continued existence of the four lower Snake River facilities, a navigable waterway, and an inland port.

### **Jobs and Wealth**

Overall, Alternatives 2 and 3 may not adversely affect jobs and wealth directly and could have a higher degree of certainty about the economic future. Alternative 4 could adversely affect future economic certainty and increase future economic risks because not all of the indirect and induced effects of these changes are known. For example, it is unclear how the increased capital costs of pump and well modifications could affect local pulp and paper operations, the golf course, or local rock processors.

Negative impacts on Lewiston employment from Alternative 4 could result from a reduction in county-wide farm income, loss of Corps-related jobs, loss of water-related port operations, loss of tour boat-related employment, short-term decreased recreational opportunities, and an increase in residential electrical rates. Farmers and other shippers currently using the waterway to ship bulk products could experience increased costs to ship their goods. This might have a negative effect on employment in those and related economic sectors. None of the changes in the resource areas studied is projected to decrease employment in Lewiston by more than 1 percent.

Positive impacts on community employment from Alternative 4 could result from trucking transportation, post-implementation increases in river recreation-related activities, increased anadromous fishing opportunities, road maintenance, short-term increases in employment from implementation activities, and modifications to water pumps.

The potential effects of these changes on the largest employer, a local pulp and paper plant, demonstrate the degree of economic uncertainty associated with Alternative 4. It could be negatively affected by higher shipping costs for some of its products and by requirements to modify effluent and water intake systems. It is unknown how it would respond to these increased operational and capital costs, but these costs probably could be passed on to consumers.

### **Place**

Lewiston's natural and built environment could change dramatically under Alternative 4, much like it did 25 years ago when the levees were built, the Lower Granite pool filled, and slackwater reached Lewiston. Adverse impacts from the loss of the Lower Granite pool could include the short-term exposure of shoreline and mudflats and the isolation of the levee parks from the water. The community could lose recreational access sites at Chief Lookingglass Park and Nisqually John

Landing, as well as some recreational site services at Chief Timothy State Park, Hells Canyon Resort, Swallows Park, Clearwater Ramp, Southway Park, and Hells Gate State Park. In addition, the community could experience short-term losses in recreational steelhead and salmon fishing and other river-related recreation. The identity of the community as a working water port and the only inland water port in Idaho could also be adversely affected, although it could still retain its identity as a Snake River community surrounded by extensive natural features.

Another adverse affect of Alternative 4 could be the financial pressures exerted on local farmers from higher transportation costs. This might lead to a greater consolidation of farms and a change in the agricultural-urban identity of Lewiston.

Long-term benefits of Alternative 4 could include the revegetation and restoration of the normative Snake River and the community shoreline. Additionally, the increase of salmon would benefit the identity of the community as a place where salmon would continue to exist and local fishermen would continue to pursue this element of Lewiston's quality of life. Alternatives 2 and 3 could have higher risks associated with salmon recovery and might adversely affect future community quality of life.

### **Vision and Vitality**

Alternatives 2, 3, and 4 all could adversely affect Lewiston's vision and vitality by decreasing the social cohesion of the community over the issue of salmon recovery and the best way to achieve that goal. The city council has debated the issue and been split in its position. Adverse effects of a change in the economic direction and identity of the community under Alternative 4 might seriously challenge the leadership and vision of the community. The community has worked successfully to develop the facilities at the Port of Lewiston and to diversify the local economy by enhancing recreational opportunities associated with the lower Snake River pools, Hells Canyon, and surrounding natural areas. They have also successfully developed green areas along the waterway, providing local recreational opportunities. The port serves as a vehicle for manufacturing and industrial growth through its industrial properties and loading facilities. Many of these plans and achievements could be significantly affected under this alternative. The Port of Lewiston is in a good position to continue to act as a development mechanism, using both rail and highway access, but this is not the current direction of the port's activities. Additionally, the negative short- and long-term effects on both local and county property values and property tax revenue might make it difficult to obtain enough funding to pursue new avenues of economic development and maintain the current level of community services.

### **People**

Changes in the physical and economic human environment could affect distinct populations in the community, although not to the degree seen in Clarkston. Families, including those on fixed incomes, could have to pay a larger proportion of their income to power bills. In addition, the influx of short-term outside workers might disrupt traditional community patterns, although the number of forecast workers is relatively small compared to the workforce required to construct the lower Snake River facilities.

The forecast increase in long-term employment under Alternative 4 signifies that population trends should continue to increase. Given the uncertainties associated with the business climate, however,

overall population might remain stable or decrease slightly given short-term job losses and uncertain responses from businesses.

### **Historical Change Events and Potential Responses**

Lewiston has a relatively high economic diversity and has undergone significant economic peaks and valleys over the past 25 years. During the construction of Lower Granite Dam and the Lewiston/Clarkston dikes, the valley unemployment was at an historical low. Lewiston lost over 1,000 jobs between 1981 and 1982. More recently, Nez Perce County lost approximately 300 manufacturing jobs between 1990 and 1991 and from 1994 to 1995.

Given the estimated impacts described above, the historical adaptation to economic and physical changes in the community, and the current economic diversity of the community it appears that the changes in the human environment would be within historical bounds.

#### **7.4.1.8 Orofino, Idaho**

The socioeconomic impacts of the three alternatives on the community of Orofino could include the effects of power costs, recreation activity, navigation and transportation, M&I water supply, implementation, and anadromous fish recovery. Table 7-4 presents a matrix of the various impacts and the effects of the proposed alternatives. Alternatives 2 and 3 could affect the probability of anadromous fish recovery, while having a minimal effect on the physical or economic human environment. Alternative 4 could have significant effects on specific populations in Orofino. It could create both winners and losers through an increased chance of anadromous fish recovery, a change in recreational opportunities and access, loss of a navigable waterway, loss of power produced at the four projects, and a shift in transportation modes. It is expected that Orofino could realize short-term increases in implementation, infrastructure improvements, and M&I water supply modification-related employment. Overall, the community could experience both increases and decreases in employment, with a projected net gain in employment. Perhaps the most significant effect on the community could be from the increased chance of wild salmon and steelhead runs on the Clearwater River and the enhanced status of Orofino as “Steelhead Capital of the World.”

### **Jobs and Wealth**

Overall, Alternatives 2 and 3 may not adversely affect jobs and wealth directly and could provide a lower degree of certainty about the economic future. It is not anticipated that these alternatives would significantly improve fish returns; therefore, the planned development of the tourism sector of the economy might not grow as anticipated. Alternative 4 could adversely affect future economic certainty in the forestry and agricultural sectors and could increase future economic risks because not all of the indirect and induced effects of these changes are known. For example, it is unclear how the increased transportation costs would affect the timber industry’s ability to sell wood chips or whether this increased cost would decrease the already unstable timber industry in Orofino. Alternative 4 could beneficially affect the future economic certainty of the tourism sector.

Negative impacts on community employment from Alternative 4 could result from increased transportation costs, reduction in countywide farm income, residential electrical rates, loss of Corps-related jobs, and short-term decreased recreational opportunities. Farmers and other shippers currently using the waterway to ship bulk products could experience increased costs to ship their



goods. This could have a negative effect on employment in those economic sectors. A small volume of grain currently moves from Clearwater County on the lower Snake River while a larger volume of wood products move to Lewiston for eventual shipment down the waterway. These decreases are not expected to be larger than 1 percent, although the magnitude of the effect on forest product manufacturers is unknown.

Positive impacts on community employment from Alternative 4 could result from increased truck transportation, increased anadromous fishing opportunities, and the short-term increases in employment from implementation activities and modifications to water pumps. The projected increases in wild fish returns after 20 years probably would increase employment by approximately 2 percent. Given the established sport fishing industry and strong retail trade sector in Orofino, the magnitude of this increase might be much greater given the potential future fish harvests.

Lumber companies are two of the largest employers in Orofino. The effects of increased transportation costs are unknown, but the increased financial obligations might adversely affect these employers.

## **Place**

Orofino's natural and built environment may not be significantly changed under Alternatives 2, 3, and 4. Flow augmentation water currently withdrawn from the Dworshak Reservoir would continue under each of the proposed alternatives and would have negative effects on the local reservoir recreational opportunities and reservoir tourism. The loss of the Lower Granite pool could adversely affect the community's access to recreation sites on the lower Snake River within 50 miles of Orofino. The community could lose recreational access sites, including Chief Lookingglass Park and Nisqually John Landing, as well as some recreational site services at Chief Timothy State Park, Hells Canyon Resort, Southway Park, and Hells Gate State Park. The short-term displacement of Snake River recreationists might create crowding on the Dworshak Reservoir and at sites on the Clearwater River. This might also provide a short-term economic benefit to the community. Finally, the financial pressures exerted on local farmers from higher transportation costs might lead to a greater consolidation of farms and a change in the rural land-use patterns around Orofino.

One long-term benefit of Alternative 4 could be the decrease in truck traffic along US 12 as grains from Montana and North Dakota moved to new transportation corridors. This could have a positive effect of lessening traffic congestion and improving highway safety, but it might also decrease the existing economic benefits of truck traffic.

Other long-term benefits of Alternative 4 could include the revegetation and restoration of the normative Snake River. Additionally, the increase of salmon would benefit the identity of the community as a place where wild salmon would continue to exist and local fishermen would continue to pursue this element of Orofino's quality of life. Alternatives 2 and 3 have higher risks associated with salmon recovery and might adversely community quality of life. The identity of the community as the Steelhead Capital of the World would be enhanced by Alternative 4 and adversely affected by alternatives 2 and 3.

## **Vision and Vitality**

Alternatives 2, 3 and 4 all adversely affect Orofino's vision and vitality by decreasing the social cohesion of the community over the issue of salmon recovery and the best way to achieve that goal. In addition, all of the alternatives could continue with flow augmentation over the protests of Orofino residents. The community has worked to develop recreation and tourism alternatives in steelhead fishing and reservoir recreation to diversify its predominately timber-dependent economy. Those plans specific to the Dworshak Reservoir could continue to be affected adversely by continued flow augmentation. Alternatives 2 and 3 could adversely affect development for the steelhead fishery and sportfishing industries. Alternative 4 could provide support these development efforts. Additionally, the negative effects of decreased farm income on both local and county property values and property tax revenue might create difficulties in obtaining sufficient funding to pursue new avenues of economic development and maintain the current level of community services.

## **People**

Changes in the physical and economic human environment could affect distinct populations in the community. The high number of fixed-income families could have to pay a larger proportion of their income for power bills.

The forecast increase in long-term employment under Alternative 4 suggests that recent population trends should continue to increase but, given the 10- to 20-year horizon for increased salmon populations, population might increase slightly.

## **Historical Change Events and Potential Responses**

Orofino has a relatively high economic diversity and has undergone significant economic shifts over the past 25 years. During the construction of Dworshak Dam, employment boomed. Throughout the 1980s and 1990s, the historically important timber industry experienced continuing employment decreases. Between 1980 and 1990, the population of Orofino shrunk by almost one-quarter or 1,000 people, primarily due to downturns in the timber industry.

Given the estimated impacts described above, the historical adaptation to economic and physical changes in the community, and the current economic diversity of the community it appears that the minor changes in the human environment could be within historical bounds.

### **7.4.1.9 Riggins, Idaho**

The socioeconomic impacts of the three alternatives on the community of Riggins could include the effects of changed recreation activity, navigation and transportation, anadromous fish recovery, and power costs. Table 7-4 presents a matrix of the various impacts and the effects of the proposed alternatives. Alternatives 2 and 3 could affect the probability of anadromous fish recovery, while having negative indirect effects on the physical or economic human environment. Alternative 4 could have significant effects on specific populations in Riggins and could create both winners and losers through an increased chance of anadromous fish recovery, a change in recreational opportunities and access, the loss of a navigable waterway, the loss of power produced at the four projects, and a shift in transportation modes. Overall, the community could experience both

increases and decreases in employment, with a projected net gain in employment. Perhaps the most significant effect on the community could be the increased chance of wild salmon and steelhead runs on the Salmon River and the potential economic benefits of increased sportfishing.

## **Jobs and Wealth**

Overall, Alternatives 2 and 3 may not adversely affect jobs and wealth directly and could provide a higher degree of certainty about the economic future. It is not anticipated that these alternatives would significantly improve fish returns; therefore, the planned development of the tourism sector of the economy might not grow as anticipated. While Alternative 4 could adversely affect future economic certainty and the health of the agricultural sector, it probably would beneficially affect the future economic certainty of the tourism sector.

Negative impacts on community employment from Alternative 4 could result from increased transportation costs, reduction in countywide farm income, and increased residential electrical rates. Farmers in the county currently using the waterway to move grains would experience increased transportation costs. This might have a negative effect on employment. A large volume of grain currently moves from Idaho County on the lower Snake River, and the county's farmers are expected to see the highest increase in shipping costs in the region. The reduction in total county farm income probably could be greater than 10 percent. These are significant impacts for the grain-producing regions of Idaho County on the Camas Prairie, but are not expected to significantly affect the economy of Riggins. Decreases in employment are expected to be less than 1 percent.

Positive impacts on community employment from Alternative 4 could result from increased anadromous fishing opportunities. The projected increases in wild fish returns after 20 years probably could increase employment by approximately 1 percent. Given the established sport fishing industry and the strong retail trade and service sectors in Riggins, the magnitude of this increase might be much greater given the potential future fish harvests.

## **Place**

Riggins' natural and built environment may not be significantly changed under Alternatives 2, 3, and 4. The short-term displacement of lower Snake River recreationists might create crowding at sites on the Salmon River. This might provide a short-term economic benefit to the community. The financial pressures exerted on local farmers from higher transportation costs might lead to a greater consolidation of farms and a change in the rural land-use patterns around Riggins.

One long-term benefit of Alternative 4 could be the decrease in truck traffic along US 95 as grains from Southern Idaho moved to new transportation corridors. This could have the positive effect of lessening traffic congestion and improving highway safety, but it might also decrease the existing economic benefits of through traffic.

Another long-term benefit of Alternative 4 could be the increased chance of salmon recovery. This could benefit the identity of the community as a place where wild salmon would continue to exist and local fishermen would continue to pursue this element of Riggins' quality of life. Alternatives 2 and 3 would have higher risks associated with salmon recovery and might adversely community quality of life.

## **Vision and Vitality**

Alternatives 2, 3, and 4 could affect Riggins' vision and vitality by decreasing the social cohesion of the community over the issue of salmon recovery and the best way to achieve that goal. The community has worked to develop recreation and tourism alternatives in steelhead fishing and whitewater rafting after the community sawmill burned down. Alternatives 2 and 3 could adversely affect the development of tourism related to anadromous fish. Alternative 4 could provide support for these development efforts. Additionally, the negative effects of decreased farm income on both local and county property values and property tax revenue might create difficulties in obtaining sufficient funding to pursue new avenues of economic development and maintain the current level of community services.

## **People**

Changes in the physical and economic human environment could affect distinct populations in the community. The high number of fixed-income families could have to pay a larger proportion of their income to power bills.

The forecast increase in long-term employment under Alternative 4 suggests that recent population trends could continue to increase, but given the 10- to 20-year horizon for increased salmon populations, population might increase slightly in the interim.

## **Historical Change Events and Potential Responses**

Riggins has moderate economic diversity and has undergone significant economic shifts over the past 25 years. The loss of the sawmill, the town's largest employer in 1982, was the most significant shift. The community relies on the seasonal and cyclical nature of the travel and tourism industry; thus it faces some economic uncertainty.

Given the estimated impacts described above, the historical adaptation to economic and physical changes in the community, and the current economic diversity of the community, it appears that the minor changes in the human environment are within historical bounds.

## **7.5 Mitigation Analysis**

### **7.5.1 Compensation Potential**

The employment impacts identified in the regional analysis could be addressed by providing targeted job retraining and education credits to dislocated workers. The effects on net farm income due to increased transportation costs could be mitigated through a program similar to the Conservation Reserve Program, whereby farmers would receive compensation equal to the transportation cost increases.

Community-level impacts could be addressed by providing block grants to affected communities in the region for economic diversification activities. For example, to mitigate farm communities most affected by the loss of river transportation, economic development programs similar to those mentioned above could be used to create more local value-added products and decrease dependency on the export of unprocessed grains to foreign markets.

Under Alternative 2, the lower probability of and the higher degree of risk associated with anadromous fish recovery, negative economic and social impacts to sport-fishing-dependent communities could develop. These communities might lose an important component of their economic base and might need assistance to transition to another non-fishery-dependent job base.