University of Oregon

Affiliated with the Department of
Planning, Public Policy & Management

SOCIO-ECONOMIC MEASURES FOR INTENSIVELY MONITORED WATERSHEDS:
The Middle Fork John Day Effectiveness Monitoring Project

Year 2 Report

Michael Hibbard and Susan Lurie

Report for the Oregon Watershed Enhancement Board

October 29, 2010

The research for this report was supported by a grant from the Oregon Watershed Enhancement Board.

ABOUT THE *INSTITUTE FOR POLICY RESEARCH AND INNOVATION*

The University of Oregon established the ***Institute for Policy Research and Innovation*** (***IPRI***) in July, 2004. ***IPRI*** facilitates and supports policy-relevant research by faculty and graduate students across a range of public problems and issues. The Institute emphasizes the creation and dissemination of knowledge about classes of public problems and issues. It does not address solutions to specific problems or issues, a task that is more appropriate for government agencies and consultants.

Dissemination is a distinguishing feature of ***IPRI***. Research done through the institute is meant to kindle serious, informed public dialogues around policy issues. In addition to funded grants and contracts leading to reports, books, scholarly papers, and theses, the Institute organizes and supports a variety of forums through which decision makers and the general public can engage the ideas developed by faculty and graduate students. Examples of dissemination "products" from ***IPRI*** include presentations to community forums, policy makers, and the like; discussion papers for public forums; and op-ed pieces.

Acknowledgements

We are grateful to the people of Grant County without whose ongoing help and cooperation this project would have been impossible. We especially want to thank the Grant County Court—Judge Mark Webb and Commissioners Boyd Britton and Scott Myers; the Grant County Chamber of Commerce, Sharon Mogg, Executive Director; Grant County Economic Development Officer Sally Bartlett; Mike Billman, Malheur Lumber Company; Amy Charette, North Fork John Day Watershed Council; Jason Kehrberg, Grant County Soil and Water Conservation District; and Les Zaitz, Grant County Economic Council.

Authors

Michael Hibbard is the Director of ***IPRI*** as well as professor in the Department of Planning, Pubic Policy & Management. Hibbard's expertise is in community and regional development, with a special interest in the social impacts of economic change, especially natural resource and agricultural development on small towns and rural regions. He has consulted and published widely in that field. He received his PhD in regional planning from UCLA.

Susan Lurie is a Faculty Research Associate at Oregon State University's Institute for Natural Resources. Her professional interests include network organizations in natural resource planning and policy, regional-scale integrated resource planning and management, institutions and civic capacity for community-level problem solving and sustainability, and how rural communities can benefit from the new natural resource economy. She received her PhD from the School of Natural Resources and Environment at the University of Michigan.

SOCIO-ECONOMIC MEASURES FOR INTENSIVELY MONITORED WATERSHEDS:
The Middle Fork John Day Effectiveness Monitoring Project

Year 2 Report

Executive Summary

This report describes the accomplishments in the second and final year of a project to develop a set of measures to monitor the socio-economic effects on the local community of the stream restoration efforts on the upper Middle Fork John Day River. A panel of Grant County residents helped develop the following metrics to reflect locally specific issues and interests. Detailed protocols for producing the metrics are found in Appendix B.

Direct effects: measures of the socio-economic output from doing restoration projects on the upper Middle Fork John Day River

- Number and size (in dollars) of restoration contracts
- Local/non-local firm? (local = Grant County)
- % of contract dollars spent locally
- % of employees who are local residents (local = Grant County)

Summary of restoration contracts in the upper Middle Fork project area:

	2007	2008	2009
Total Dollars Spent on Restoration Contracts	$1,251,839	$924,719	
Number of Restoration Contracts	13	14	
Number of Local Contracting Firms	3	3	
Number of Non-local Contracting Firms	6	17	

Outcome measures: measures of socio-economic changes that have occurred, that can be related to restoration projects and associated activities.

- Number of restoration contractors active in Grant County, according to Grant Soil and Water Conservation District (SWCD) records

As of September, 2010, the Grant SWCD reported 15 Grant County restoration contractors on their contractor list. They report that they also work regularly with 5 restoration contractors located in Harney and/or Baker counties, which might also be considered local for this purpose.

Restoration activity	Number of contractors bidding		
	2008	2009	2010
Materials suppliers	4	5	
Fabricators	N/A	5	
In-stream and habitant improvement projects	7	16	
Fencing	12	12	
Pre-commercial thinning	4	13	

- Grant County private landowners actively pursuing restoration projects, as measured by the number of projects on the Grant SWCD and North Fork John Day Watershed Council (NFJD WSC) project lists at the beginning of the year, plus the cumulative number completed in previous years:

	2008	2009	2010
Total projects completed in previous years	N/A	13	25
New Projects implemented	13	12	
Projects carried over to subsequent year	2	5	
Cumulative Total	15	25	

Discussion

1. The above two metrics attempt to document changes in the level of restoration activity on private lands across Grant County (not just in the IMW project area). Because they use data from Grant SWCD and NFJD WSC projects only, they show trends but are not a comprehensive measure of all restoration activity.
2. The fact that there are 15-20 local contractors, but 27 contractors bid on Grant SWCD projects in 2008, and 51 in 2009, shows that a number of out-of-area contractors are seeking work in Grant County.
3. The base year for measuring private landowners pursuing restoration is 2008, so the total number is understated. As well, the data are limited to people working with the SWCD and WSC. So again, this shows a trend, not a comprehensive measure.

- Restoration-related jobs in Grant County:

	2000		2009	
Organization	FTE	Employees	FTE	Employees
Grant County SWCD	4	5	7.5	8
North Fork John Day Watershed Council	1.5	2	3.75	4
Confederated Tribes of Warm Springs	2	2	6.4	10
Oregon Department of Fish and Wildlife	27.25	29	30.5	33
The Nature Conservancy	1	1	2.5	3
USFS - Malheur Forest Aquatics	6	6	7	7
Bureau of Reclamation	0	0	1	1
TOTAL	41.75	45	58.65	66

- Annual travel spending in Grant County (in $ millions), 2000-09

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
7.8	8.2	8.3	8.5	9.2	9.1	9.4	9.0	8.7	8.6

Source: http://www.deanrunyan.com/doc_library/ORImp.pdf

- Estimated number of jobs generated by travel spending in Grant County, 2000-09

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
190	200	200	200	210	210	210	190	180	180

Source: http://www.deanrunyan.com/doc_library/ORImp.pdf

Socio-economic Indicators: Measure overall conditions in the community. They paint a picture of the general health or overall socio-economic context within which restoration work is being done.[1]

Table 1, Grant County Population 1970-2008

	Grant County Total Population	Grant County pop as % of Oregon pop	Eastern Oregon Non-Metro pop as % of Oregon pop[2]
1970	7,095	0.34%	11.56%
1975	7,334	0.32%	11.24%
1980	8,208	0.31%	11.08%
1985	8,137	0.30%	10.99%
1990	7,870	0.28%	10.18%
1995	8,042	0.25%	9.99%
2000	7,903	0.23%	9.81%
2005	7,092	0.20%	9.37%
2006	7,020	0.19%	9.28%
2007	6,868	0.18%	9.20%
2008	6,864	0.18%	9.08%

[1] Source: Oregon regional Economic Analysis Project (OR-REAP) http://oregon.reaproject.org/reap-report.php

[2] "Eastern Oregon non-metro" is all counties east of the Cascades except Deschutes.

Table 2, Grant County Employment Change 1970-2008

	Grant County Employment[3]	% of Statewide Total	Grant County Job Ratio[4]	Job Ratio: % of U.S. Average
1970	3,451	0.37%	0.49	108.60
1975	3,432	0.31%	0.47	101.95
1980	3,760	0.28%	0.46	91.32
1985	3,903	0.28%	0.48	92.19
1990	4,360	0.27%	0.55	99.97
1995	4,479	0.34%	0.56	100.26
2000	4,356	0.21%	0.55	94.05
2005	4,194	0.19	0.59	101.36
2006	4,154	0.18%	0.59	100.32
2007	4,179	0.18%	0.61	102.02
2008	4,084	0.17%	0.59	99.64

[3] "Employment" is the number of jobs, full and part-time, plus proprietorships of unincorporated businesses. People holding more than one job are counted for each job they hold, so this is a job count, not a people count.
[4] "Job ratio" is employment/population.

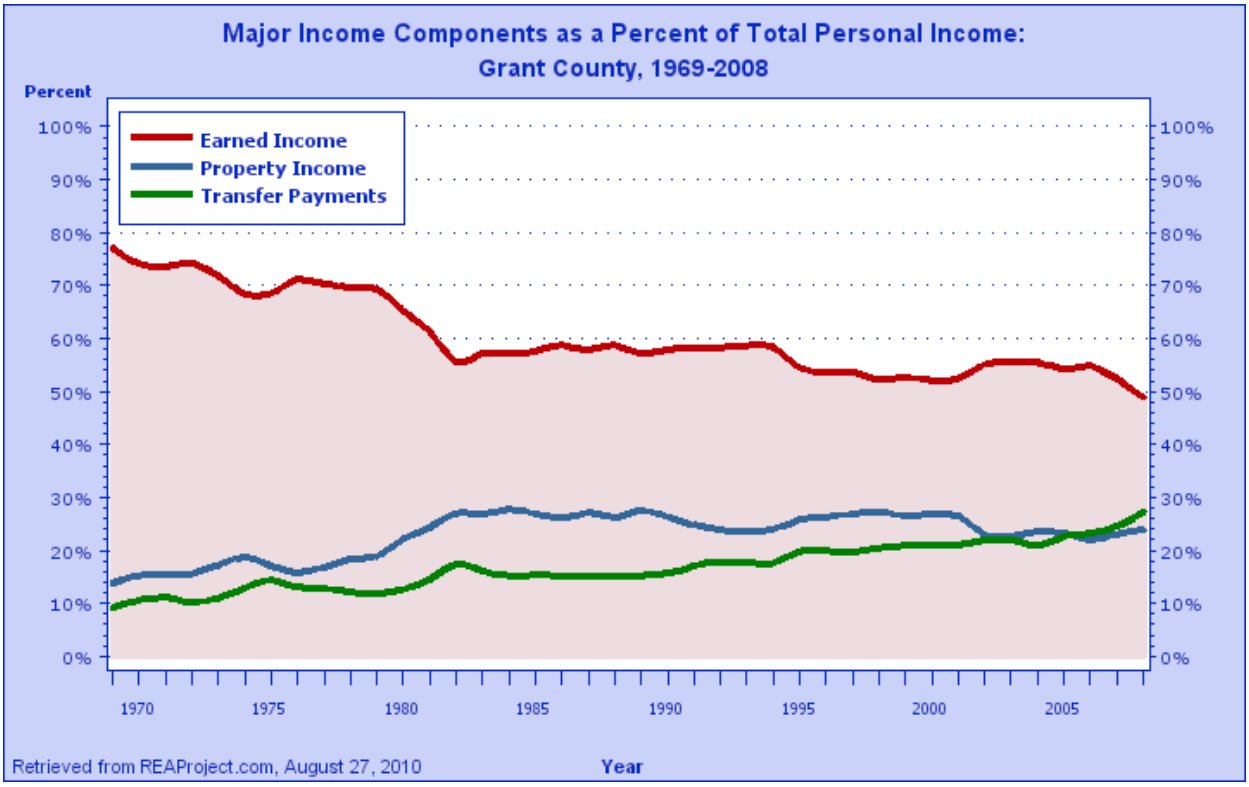
Table 3, Grant County Average Earnings per Job, 1970-2008

	Earnings (Current $)	Grant County %. of U.S. Average	Grant County % of Oregon Average	Eastern Oregon Non-Metro as % of Oregon Average
1970	6,030	79.88	82.64	89.23
1975	8,711	81.05	84.70	94.74
1980	13,689	86.13	88.55	91.34
1985	15,347	71.88	80.74	85.69
1990	17,491	65.84	74.81	81.91
1995	20,048	63.26	69.54	78.84
2000	22,403	56.13	61.68	75.83
2005	27,386	58.20	66.03	78.06
2006	29,448	60.33	68.42	77.48
2007	28,502	57.32	65.38	77.77
2008	27,587	54.89	62.82	78.55

Table 4, Grant County Per Capita Income 1970-2008

	Per Capita Income (Current $)	Grant County %. of U.S. Average	Grant County % of Oregon Average	Eastern Oregon Non-Metro as % of Oregon Average
1970	3,686	90.25	93.86	95.57
1975	5,460	88.46	88.28	100.50
1980	8,810	87.31	87.35	93.22
1985	11,503	78.59	85.66	86.08
1990	14,837	76.66	82.91	82.51
1995	18,283	78.60	81.15	79.69
2000	21,427	70.67	74.61	75.90
2005	26,888	75.90	82.67	78.67
2006	28,540	75.71	82.35	77.39
2007	29,687	75.36	83.07	78.15
2008	29,957	74.58	82.38	80.26

Figure 1[5]



[5] **Earned income** is defined as "compensation for labor services," wages and salaries paid for work. **Property income** represents payments in the form of dividends, interest and rent for the services of capital owned by persons. **Transfer Payments** are payments that are not related to the provision of services. The most important are social security and disability payments. The next largest category is medical payments, programs as Medicare, and Medicaid. Medical payments have driven much of the rapid growth in transfer payments over the past decade. Further down in size are income maintenance programs such as Family Assistance, Food Stamps and Supplemental Security Income (SSI). Unemployment Insurance is another category. Veterans' benefits is the remaining important source of transfer payments.

Figure 2

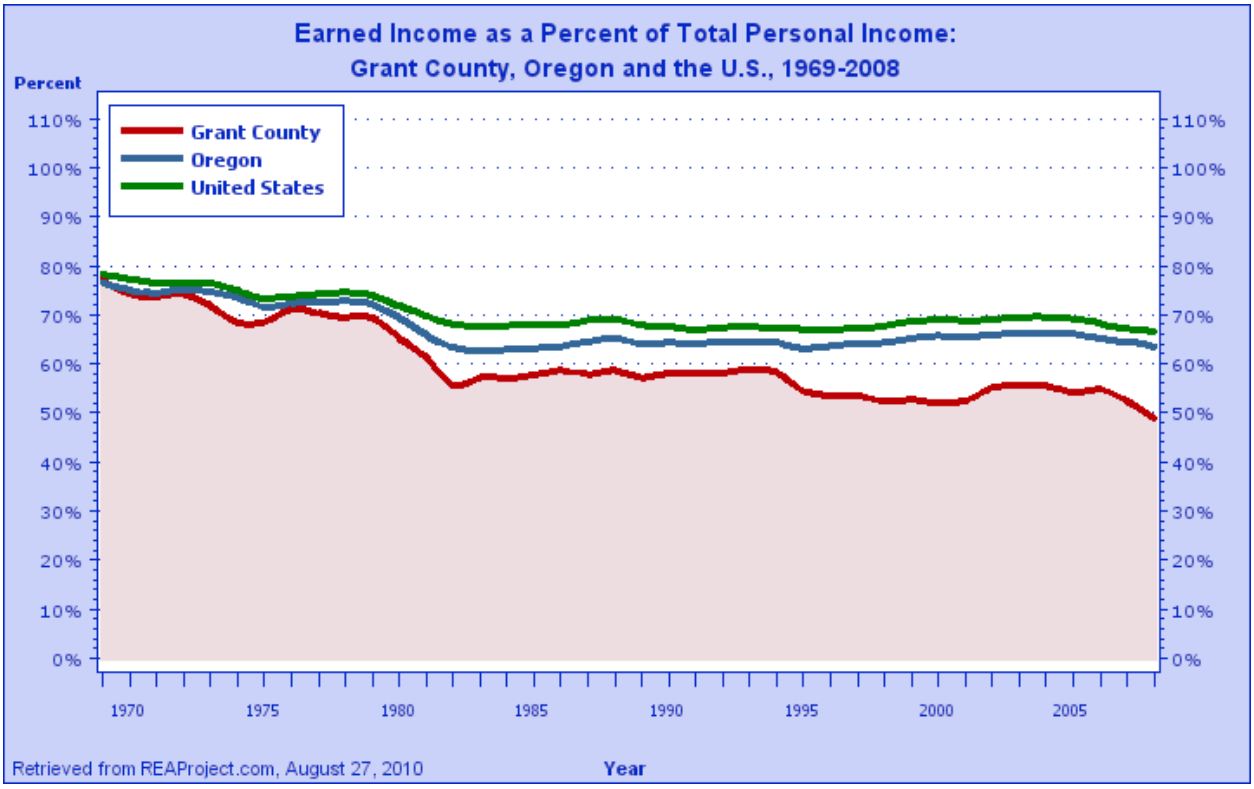


Table 5, Major Components of Personal Income in Grant County, Selected Years

	Earned Income as % of Total	Property Income as % of Total	Transfer Payments as % of Total
1970	74.2%	15.3%	10.6%
1980	65.2%	22.1%	12.7%
1990	58.0%	26.4%	15.6%
2000	52.1%	26.9%	21.0%
2008	48.9%	23.8%	27.3%

Table 6, Grant County Full-time and Part-time Employment by Major Industry

Employment by Place of Work	2006	2007	2008
Total Employment	4,154	4,179	4,084
By Type:			
Wage and Salary Employment	2,780	2,769	2,608
Proprietors Employment	1,374	1,410	1,476
Farm Proprietors	385	376	378
Nonfarm Proprietors	989	1,034	1,098
By Industry:			
Farm Employment	491	478	479
Nonfarm Employment	3,663	3,701	3,605
Private Employment	2,627	2,679	2,572
Forestry, Fishing, Related Act., & Other	275	285	245
Mining	10	14	18
Utilities	D[6]	D	D
Construction	240	237	D
Manufacturing	309	297	D
Wholesale Trade	55	58	58
Retail Trade	424	427	420
Transportation & Warehousing	D	D	D
Information	52	55	53
Finance & Insurance	100	104	107
Real Estate & Rental & Leasing	123	D	D
Professional & Technical Services	106	112	114
Management of Companies & Enterprises	0	0	0
Administrative & Waste Services	110	105	108
Educational Services	D	D	D
Health Care & Social Assistance	D	D	D
Arts, Entertainment & Recreation	52	55	55
Accommodations & Food Services	228	231	216
Other Services, Except Public Admin.	204	2 05	207
Government & Government Enterprises			

[6] D = Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the total.

Federal, Civilian	1,036	1,022	1,033
Federal Military	250	246	253
State and Local	21	20	19
State Government	765	756	761
Local Government	115	118	120
	650	638	641

Table 7, Economic Diversification Index

Hachman Index by County, 2009, 2006, 2003, 2001 and 1999*

	2009		2006		2003		2001		1999	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Oregon	1.000		1.000		1.000		1.000		1.000	
Baker	0.482	13	0.442	14	0.421	13	0.419	14	0.463	15
Benton	0.300	23	0.292	24	0.273	25	0.283	23	0.292	26
Clackamas	0.855	1	0.851	1	0.820	3	0.804	3	0.802	4
Clatsop	0.310	21	0.320	19	0.298	20	0.282	24	0.396	20
Columbia	0.485	12	0.405	15	0.353	17	0.342	17	0.377	21
Coos	0.268	26	0.266	26	0.275	24	0.286	21	0.377	22
Crook	0.293	24	0.292	23	0.259	26	0.222	26	0.282	27
Curry	0.363	16	0.384	16	0.390	15	0.414	15	0.410	17
Deschutes	0.755	4	0.755	4	0.751	4	0.757	4	0.784	5
Douglas	0.446	14	0.457	12	0.420	14	0.469	11	0.486	11
Gilliam	0.066	35	0.078	35	0.080	35	0.057	35	0.138	35
Grant	0.093	33	0.107	32	0.117	32	0.133	31	0.144	33
Harney	0.146	30	0.176	29	0.173	28	0.178	27	0.229	28
Hood River	0.306	22	0.338	17	0.294	22	0.285	22	0.304	24
Jackson	0.647	7	0.632	7	0.647	7	0.609	7	0.803	3
Jefferson	0.072	34	0.084	34	0.088	34	0.071	34	0.227	29
Josephine	0.696	5	0.685	5	0.708	5	0.730	5	0.753	6
Klamath	0.617	8	0.608	8	0.583	8	0.574	9	0.658	8
Lake	0.100	32	0.113	31	0.118	31	0.141	30	0.143	34
Lane	0.827	3	0.834	3	0.832	1	0.831	1	0.848	1
Lincoln	0.319	20	0.297	22	0.280	23	0.297	20	0.304	25
Linn	0.543	9	0.571	9	0.573	9	0.585	8	0.621	9
Malheur	0.326	19	0.319	20	0.325	19	0.324	19	0.343	23
Marion	0.491	11	0.501	10	0.500	10	0.485	10	0.481	13
Morrow	0.103	31	0.103	33	0.098	33	0.129	32	0.152	32
Multnomah	0.838	2	0.836	2	0.828	2	0.827	2	0.832	2
Polk	0.217	27	0.205	27	0.179	27	0.254	25	0.425	16
Sherman	0.064	36	0.045	36	0.046	36	0.048	36	0.076	36
Tillamook	0.289	25	0.281	25	0.298	21	0.336	18	0.402	18
Umatilla	0.357	18	0.326	18	0.341	18	0.353	16	0.483	12
Union	0.502	10	0.455	13	0.460	11	0.467	12	0.479	14
Wallowa	0.169	28	0.185	28	0.159	30	0.176	28	0.216	30
Wasco	0.357	17	0.315	21	0.361	16	0.158	29	0.397	19
Washington	0.656	6	0.660	6	0.661	6	0.641	6	0.661	7
Wheeler	0.148	29	0.174	30	0.172	29	0.107	33	0.157	31
Yamhill	0.443	15	0.473	11	0.457	12	0.448	13	0.510	10

* The 2001 - 2009 Hachman Index values are based on 3-digit NAICS industry breakouts while the 1999 values are based on 2-digit SIC industry breakouts.

Tracking these metrics on a regular basis can help the county in several ways. First, they can help determine if restoration is contributing to the local economy, and in what ways. Having a series of restoration related metrics helps focus attention and awareness regarding the relationship between restoration and local economic activity. Furthermore, awareness regarding any existing relationships may suggest ways that the community can enhance the stream of dollars coming from restoration and associated amenity values.

SOCIO-ECONOMIC MEASURES FOR INTENSIVELY MONITORED WATERSHEDS:
The Middle Fork John Day Effectiveness Monitoring Project

Year 2 Report

Introduction

This report describes the accomplishments in the second and final year of a project to develop a set of measures to monitor the socio-economic effects on the local community of the stream restoration efforts on the upper Middle Fork John Day River.

In recent years there has been substantial investment across the Pacific Northwest in efforts to recover salmon and steelhead populations. Stream restoration has been and will continue to be a major part of that effort. Restoration projects are aimed at improving salmon and steelhead habitats and increasing water quality and quantity. There is a significant need for systematic data on the effects of restoration projects. One of the most active locations for restoration is the upper Middle Fork John Day River. Thus, the National Oceanic and Atmospheric Administration (NOAA), in coordination with the Oregon Watershed Enhancement Board (OWEB) has designated the upper Middle Fork as an intensively monitored watershed (IMW). The intent is to track various conditions over at least the next ten years. Most IMW monitoring will be bio-physical (e.g., stream water temperature, fish populations, groundwater levels). However, there is also interest in the possible socio-economic effects of restoration. The purpose of this project was to develop a limited number of measures that can be used to monitor the socio-economic effects on the local community of the restoration efforts on the upper Middle Fork. Detailed protocols for producing the metrics are found in Appendix B.

Year 1[7]

The original agreement for Year 1 (2008-09) of the IMW socio-economic monitoring project called for:

1) Identification of a set of socio-economic measures and protocols for collecting data; and
2) Identification of a "host organization" to maintain and regularly update the data and make it available to researchers, decision makers, and community groups.

A subsequent amendment called for the additional outcome of:

3) The first round of data collection for the identified measures.

[7] / The full Year 1 report is included as Appendix A of this report.

In Year 1, through a participatory process with a cross-section of Grant County citizens we developed three types of measures:

- Direct effects: measures of the socio-economic output from doing restoration projects on the upper Middle Fork John Day River (6 measures identified)
- Outcome measures: measures of specific changes that have occurred, that can reasonably be tied to restoration projects and related activities (5 measures identified)
- Socio-economic Indicators: measures of overall conditions in the community; they paint a picture of the general health or overall socio-economic context within which restoration work is being done (7 measures identified)

We also developed protocols to collect data for 16 of these 18 measures, and carried out the first round of data collection. The final two measures were to be developed during Year 2:

- An index of economic diversification in Grant County
- Measures of change in land use/land management practices

The North Fork John Day Watershed Council (NFJD WSC) agreed to serve as the host organization for the socio-economic monitoring. They will take ongoing responsibility for collecting, storing, and disseminating the socio-economic measures.

Year 2

The activities for Year 2 flow directly out of Year 1 of the project:

- Work with the NFJD WSC to establish the data storage and dissemination system
- Develop two final measures and data collection protocols
- Collect 2009 data on all 18 measures and enter it into the NFDJ WSC system

As the project moved forward, opportunities to simplify the data collection process presented themselves, but they required some modification of the measures developed in Year 1.

1) A systematic inventory of all restoration work in the IMW project area was developed, allowing ongoing collection of "direct socio-economic effects" data on all projects.
2) A new web-based data source from the U.S. Bureau of Economic Analysis was made available through a partnership between OSU and PSU making the "socio-economic indicators" easily accessible.

The modifications were adopted after field testing them with our on-the-ground "expert panel" in Grant County.

Socio-Economic Measures for the Upper Middle Fork John Day Intensively Monitored Watershed

Environmental maintenance, restoration, and enhancement have an immediate ecological goal such as restoration of fish runs; however, they also have broader effects on the environment and associated human communities. For example, a 2005 study of Oregon's watershed councils found that every dollar of administrative support supplied to a watershed council by the state generates more than five additional dollars for the watershed council's local economy.[8]

Dollar impact is only one measure of the way environmental restoration and management can directly affect the socio-economic health of a community. Other typical examples are jobs created or maintained and local businesses supported. Beyond **direct effects**, another important socio-economic measure is the outcomes of environmental restoration/management. Typical **outcome measures** include changes in land values, resource (crops, livestock, timber) production, and tourist activity. It is also useful to monitor overall **indicators** of community socio-economic health, such as employment, household income, and business start-ups.

A panel of Grant County residents helped develop the following metrics to reflect locally specific issues and interests. Tracking them on a regular basis can help the county in several ways. First, they can help determine if restoration is contributing to the local economy, and in what ways. Having a series of restoration related metrics helps focus attention and awareness regarding the relationship between restoration and local economic activity. Furthermore, awareness regarding any existing relationships may suggest ways that the community can enhance the stream of dollars coming from restoration and associated amenity values.

Direct Effects: Measures of the socio-economic output from doing restoration projects on the upper Middle Fork John Day River

- Number and size (in dollars) of restoration contracts
- Local/non-local firm? (local = Grant County)
- % of contract dollars spent locally
- % of employees who are local residents (local = Grant County)

[8] Understanding the Community Economic and Social Impacts of Oregon's Watershed Councils. See at http://www.oregon.gov/OWEB/docs/other/Hibbard_Lurie_WSCimpacts_final.pdf

Summary of restoration contracts in the upper Middle Fork project area:

	2007	2008	2009
Total Dollars Spent on Restoration Contracts	$1,251,839	$924,719	
Number of Restoration Contracts	13	14	
Number of Local Contracting Firms	3	3	
Number of Non-local Contracting Firms	6	17	

Outcome Measures: Measures of socio-economic changes that have occurred, that can be related to restoration projects and associated activities.

- Number of restoration contractors active in Grant County, according to Grant Soil and Water Conservation District (SWCD) records:

As of September, 2010, the Grant SWCD reported 15 Grant County restoration contractors on their contractor list. They report that they also work regularly with 5 restoration contractors located in Harney and/or Baker counties, which might also be considered local for this purpose.

Restoration activity	Number of contractors bidding		
	2008	2009	2010
Materials suppliers	4	5	
Fabricators	N/A	5	
In-stream and habitant improvement projects	7	16	
Fencing	12	12	
Pre-commercial thinning	4	13	

- Grant County private landowners actively pursuing restoration projects, as measured by the number of projects on the Grant SWCD and North Fork John Day Watershed Council (NFJD WSC) project lists at the beginning of the year, plus the cumulative number completed in previous years:

	2008	2009	2010
Total projects completed in previous years	N/A	13	25
New Projects implemented	13	12	
Projects carried over to subsequent year	2	5	
Cumulative Total	15	25	

Discussion

1. The above two metrics attempt to document changes in the level of restoration activity on private lands across Grant County (not just in the IMW project area). Because they use data from Grant SWCD and NFJD WSC projects only, they show trends but are not a comprehensive measure of all restoration activity.
2. The fact that there are 15-20 local contractors, but 27 contractors bid on Grant SWCD projects in 2008, and 51 in 2009, shows that a number of out-of-area contractors are seeking work in Grant County.
3. The base year for measuring private landowners pursuing restoration is 2008, so the total number is understated. As well, the data are limited to people working with the SWCD and WSC. So again, this shows a trend, not a comprehensive measure.

- Restoration-related jobs in Grant County:

	2000		2009	
Organization	FTE	Employees	FTE	Employees
Grant County SWCD	4	5	7.5	8
North Fork John Day Watershed Council	1.5	2	3.75	4
Confederated Tribes of Warm Springs	2	2	6.4	10
Oregon Department of Fish and Wildlife	27.25	29	30.5	33
The Nature Conservancy	1	1	2.5	3
USFS - Malheur Forest Aquatics	6	6	7	7
Bureau of Reclamation	0	0	1	1
TOTAL	41.75	45	58.65	66

- Annual travel spending in Grant County (in $ millions), 2000-09

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
7.8	8.2	8.3	8.5	9.2	9.1	9.4	9.0	8.7	8.6

Source: http://www.deanrunyan.com/doc_library/ORImp.pdf

- Estimated number of jobs generated by travel spending in Grant County, 2000-09

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
190	200	200	200	210	210	210	190	180	180

Source: http://www.deanrunyan.com/doc_library/ORImp.pdf

Socio-economic Indicators: measure overall conditions in the community. They paint a picture of the general health or overall socio-economic context within which restoration work is being done.[9]

Table 1, Grant County Population 1970-2008

	Grant County Total Population	Grant County pop as % of Oregon pop	Eastern Oregon Non-Metro pop as % of Oregon pop[10]
1970	7,095	0.34%	11.56%
1975	7,334	0.32%	11.24%
1980	8,208	0.31%	11.08%
1985	8,137	0.30%	10.99%
1990	7,870	0.28%	10.18%
1995	8,042	0.25%	9.99%
2000	7,903	0.23%	9.81%
2005	7,092	0.20%	9.37%
2006	7,020	0.19%	9.28%
2007	6,868	0.18%	9.20%
2008	6,864	0.18%	9.08%

[9] Source: Oregon regional Economic Analysis Project (OR-REAP) http://oregon.reaproject.org/reap-report.php

[10] "Eastern Oregon non-metro" is all counties east of the Cascades except Deschutes.

Table 2, Grant County Employment Change 1970-2008

	Grant County Employment[11]	% of Statewide Total	Grant County Job Ratio[12]	Job Ratio: % of U.S. Average
1970	3,451	0.37%	0.49	108.60
1975	3,432	0.31%	0.47	101.95
1980	3,760	0.28%	0.46	91.32
1985	3,903	0.28%	0.48	92.19
1990	4,360	0.27%	0.55	99.97
1995	4,479	0.34%	0.56	100.26
2000	4,356	0.21%	0.55	94.05
2005	4,194	0.19	0.59	101.36
2006	4,154	0.18%	0.59	100.32
2007	4,179	0.18%	0.61	102.02
2008	4,084	0.17%	0.59	99.64

[11] "Employment" is the number of jobs, full and part-time, plus proprietorships of unincorporated businesses. People holding more than one job are counted for each job they hold, so this is a job count, not a people count.
[12] "Job ratio" is employment/population.

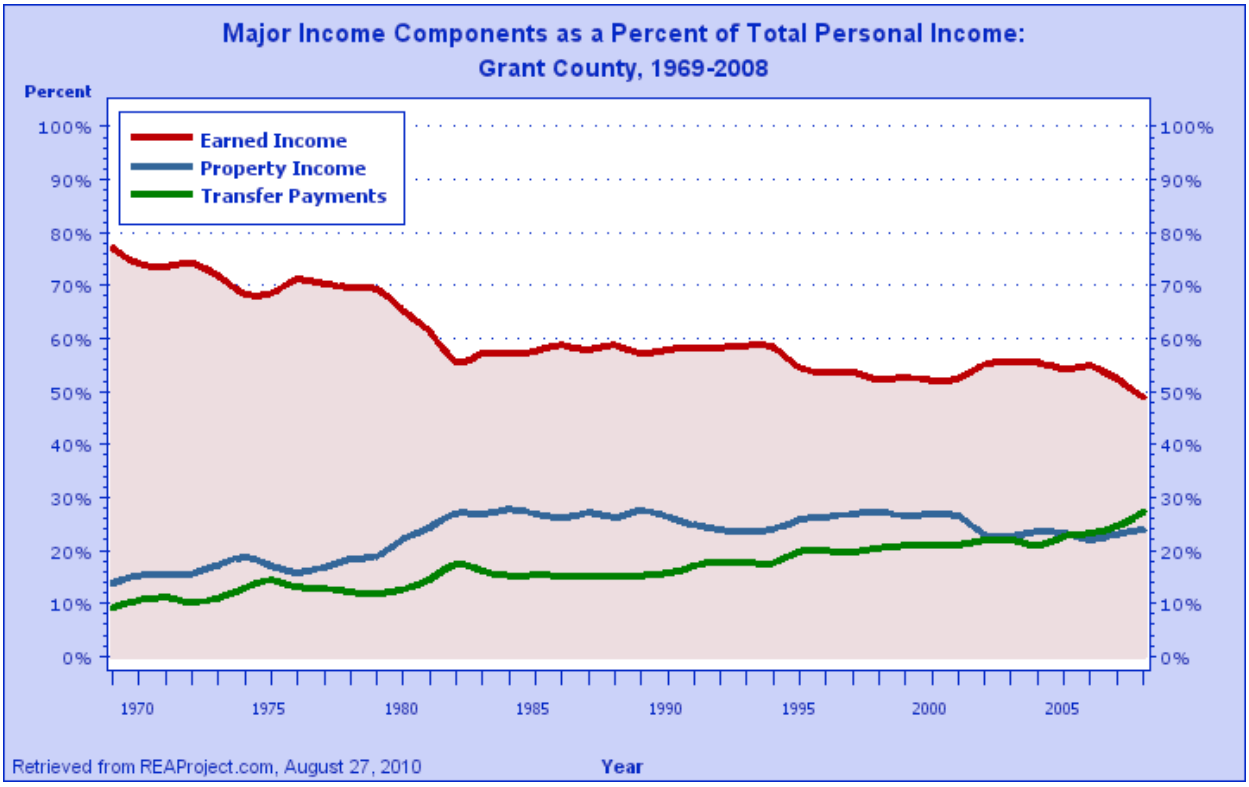
Table 3, Grant County Average Earnings per Job, 1970-2008

	Earnings (Current $)	Grant County %. of U.S. Average	Grant County % of Oregon Average	Eastern Oregon Non-Metro as % of Oregon Average
1970	6,030	79.88	82.64	89.23
1975	8,711	81.05	84.70	94.74
1980	13,689	86.13	88.55	91.34
1985	15,347	71.88	80.74	85.69
1990	17,491	65.84	74.81	81.91
1995	20,048	63.26	69.54	78.84
2000	22,403	56.13	61.68	75.83
2005	27,386	58.20	66.03	78.06
2006	29,448	60.33	68.42	77.48
2007	28,502	57.32	65.38	77.77
2008	27,587	54.89	62.82	78.55

Table 4, Grant County Per Capita Income 1970-2008

	Per Capita Income (Current $)	Grant County %. of U.S. Average	Grant County % of Oregon Average	Eastern Oregon Non-Metro as % of Oregon Average
1970	3,686	90.25	93.86	95.57
1975	5,460	88.46	88.28	100.50
1980	8,810	87.31	87.35	93.22
1985	11,503	78.59	85.66	86.08
1990	14,837	76.66	82.91	82.51
1995	18,283	78.60	81.15	79.69
2000	21,427	70.67	74.61	75.90
2005	26,888	75.90	82.67	78.67
2006	28,540	75.71	82.35	77.39
2007	29,687	75.36	83.07	78.15
2008	29,957	74.58	82.38	80.26

Figure 1[13]



[13] **Earned income** is defined as "compensation for labor services," wages and salaries paid for work. **Property income** represents payments in the form of dividends, interest and rent for the services of capital owned by persons. **Transfer Payments** are payments that are not related to the provision of services. The most important are social security and disability payments. The next largest category is medical payments, programs as Medicare, and Medicaid. Medical payments have driven much of the rapid growth in transfer payments over the past decade. Further down in size are income maintenance programs such as Family Assistance, Food Stamps and Supplemental Security Income (SSI). Unemployment Insurance is another category. Veterans' benefits is the remaining important source of transfer payments.

Figure 2

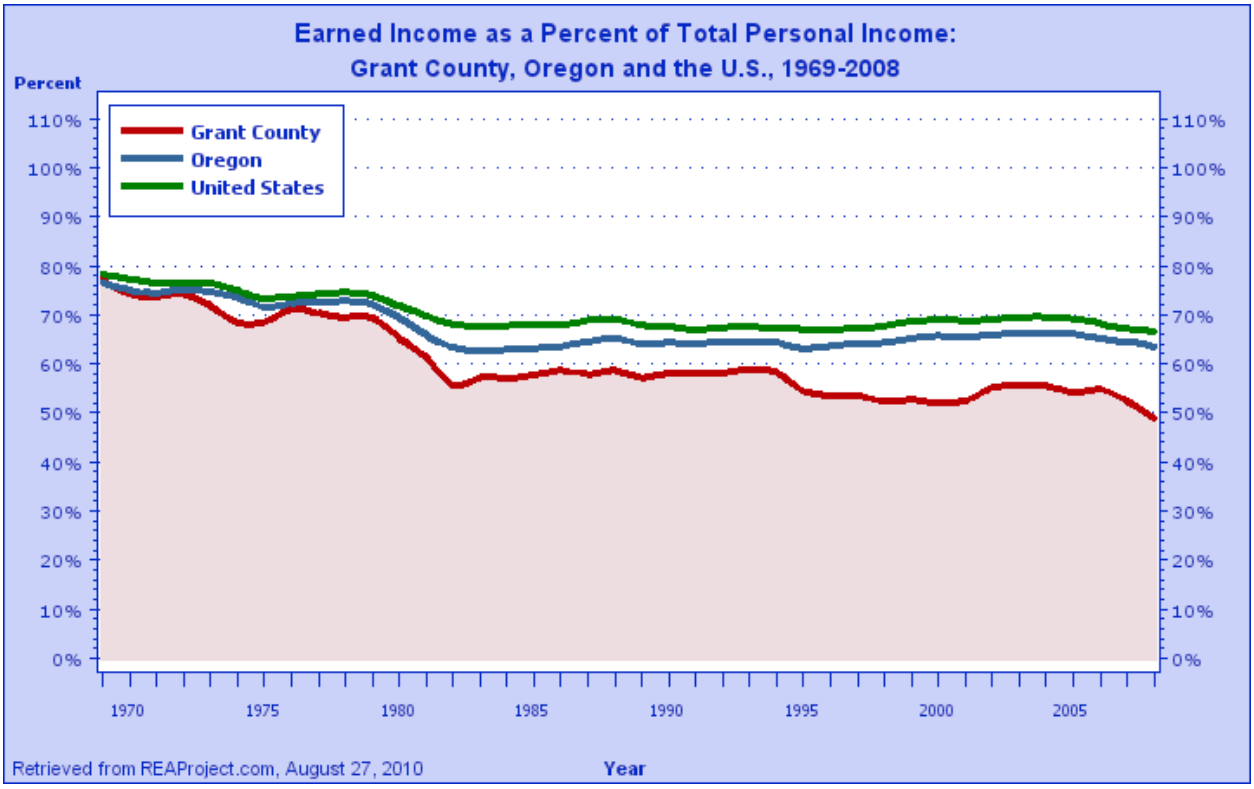


Table 5, Major Components of Personal Income in Grant County, Selected Years

	Earned Income as % of Total	Property Income as % of Total	Transfer Payments as % of Total
1970	74.2%	15.3%	10.6%
1980	65.2%	22.1%	12.7%
1990	58.0%	26.4%	15.6%
2000	52.1%	26.9%	21.0%
2008	48.9%	23.8%	27.3%

Table 6, Grant County Full-time and Part-time Employment by Major Industry

Employment by Place of Work	2006	2007	2008
Total Employment	4,154	4,179	4,084
By Type:			
Wage and Salary Employment	2,780	2,769	2,608
Proprietors Employment	1,374	1,410	1,476
Farm Proprietors	385	376	378
Nonfarm Proprietors	989	1,034	1,098
By Industry:			
Farm Employment	491	478	479
Nonfarm Employment	3,663	3,701	3,605
Private Employment	2,627	2,679	2,572
Forestry, Fishing, Related Act., & Other	275	285	245
Mining	10	14	18
Utilities	D[14]	D	D
Construction	240	237	D
Manufacturing	309	297	D
Wholesale Trade	55	58	58
Retail Trade	424	427	420
Transportation & Warehousing	D	D	D
Information	52	55	53
Finance & Insurance	100	104	107
Real Estate & Rental & Leasing	123	D	D
Professional & Technical Services	106	112	114
Management of Companies & Enterprises	0	0	0
Administrative & Waste Services	110	105	108
Educational Services	D	D	D
Health Care & Social Assistance	D	D	D
Arts, Entertainment & Recreation	52	55	55
Accommodations & Food Services	228	231	216
Other Services, Except Public Admin.	204	2 05	207

[14] D = Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the total.

Government & Government Enterprises	1,036	1,022	1,033
Federal, Civilian	250	246	253
Federal Military	21	20	19
State and Local	765	756	761
State Government	115	118	120
Local Government	650	638	641

Table 7, Economic Diversification Index

Hachman Index by County, 2009, 2006, 2003, 2001 and 1999*

	2009		2006		2003		2001		1999	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Oregon	1.000		1.000		1.000		1.000		1.000	
Baker	0.482	13	0.442	14	0.421	13	0.419	14	0.463	15
Benton	0.300	23	0.292	24	0.273	25	0.283	23	0.292	26
Clackamas	0.855	1	0.851	1	0.820	3	0.804	3	0.802	4
Clatsop	0.310	21	0.320	19	0.298	20	0.282	24	0.396	20
Columbia	0.485	12	0.405	15	0.353	17	0.342	17	0.377	21
Coos	0.268	26	0.266	26	0.275	24	0.286	21	0.377	22
Crook	0.293	24	0.292	23	0.259	26	0.222	26	0.282	27
Curry	0.363	16	0.384	16	0.390	15	0.414	15	0.410	17
Deschutes	0.755	4	0.755	4	0.751	4	0.757	4	0.784	5
Douglas	0.446	14	0.457	12	0.420	14	0.469	11	0.486	11
Gilliam	0.066	35	0.078	35	0.080	35	0.057	35	0.138	35
Grant	0.093	33	0.107	32	0.117	32	0.133	31	0.144	33
Harney	0.146	30	0.176	29	0.173	28	0.178	27	0.229	28
Hood River	0.306	22	0.338	17	0.294	22	0.285	22	0.304	24
Jackson	0.647	7	0.632	7	0.647	7	0.609	7	0.803	3
Jefferson	0.072	34	0.084	34	0.088	34	0.071	34	0.227	29
Josephine	0.696	5	0.685	5	0.708	5	0.730	5	0.753	6
Klamath	0.617	8	0.608	8	0.583	8	0.574	9	0.658	8
Lake	0.100	32	0.113	31	0.118	31	0.141	30	0.143	34
Lane	0.827	3	0.834	3	0.832	1	0.831	1	0.848	1
Lincoln	0.319	20	0.297	22	0.280	23	0.297	20	0.304	25
Linn	0.543	9	0.571	9	0.573	9	0.585	8	0.621	9
Malheur	0.326	19	0.319	20	0.325	19	0.324	19	0.343	23
Marion	0.491	11	0.501	10	0.500	10	0.485	10	0.481	13
Morrow	0.103	31	0.103	33	0.098	33	0.129	32	0.152	32
Multnomah	0.838	2	0.836	2	0.828	2	0.827	2	0.832	2
Polk	0.217	27	0.205	27	0.179	27	0.254	25	0.425	16
Sherman	0.064	36	0.045	36	0.046	36	0.048	36	0.076	36
Tillamook	0.289	25	0.281	25	0.298	21	0.336	18	0.402	18
Umatilla	0.357	18	0.326	18	0.341	18	0.353	16	0.483	12
Union	0.502	10	0.455	13	0.460	11	0.467	12	0.479	14
Wallowa	0.169	28	0.185	28	0.159	30	0.176	28	0.216	30
Wasco	0.357	17	0.315	21	0.361	16	0.158	29	0.397	19
Washington	0.656	6	0.660	6	0.661	6	0.641	6	0.661	7
Wheeler	0.148	29	0.174	30	0.172	29	0.107	33	0.157	31
Yamhill	0.443	15	0.473	11	0.457	12	0.448	13	0.510	10

* The 2001 - 2009 Hachman Index values are based on 3-digit NAICS industry breakouts while the 1999 values are based on 2-digit SIC industry breakouts.

Ongoing Socio-Economic Monitoring

This project has accomplished its purposes. It has engaged key members of the Grant County community in a significant discussion of the restoration economy in Grant County and eastern Oregon more broadly. It has identified a robust set of measures that can help explain the socio-economic effects of restoration projects in the upper Middle Fork on the local community. And it has enlisted a local organization to accept ongoing responsibility for collecting, storing, and updating the socio-economic measures. But that is just the beginning of what should be an ongoing process.

Socio-economic measures have no intrinsic meaning. They only take on meaning when they are used to inform public discussions and decisions – for policymaking, for management of the IMW, and for public education/citizen action. Having tangible measures that illustrate the potential of the restoration economy can help the local community realize its contribution; however, designing appropriate ones that can be reasonably monitored and interpreted is not a straight-forward task. This first iteration is based on expert guesswork about what measures are likely to be useful. As the community engages the measures for these purposes they will need to change and evolve. The community will learn which of the measures are helpful, which need to be revised, and which should be abandoned. As well, they will identify possible new measures that need to be tested. That is why the community needs to embrace the IMW socio-economic monitoring project. It is a work-in-process, under construction by the community, to be used by the community in the service of building a local restoration economy that makes sense to them.

SOCIO-ECONOMIC MEASURES FOR INTENSIVELY MONITORED WATERSHEDS:
The Middle Fork John Day Effectiveness Monitoring Project

Introduction

In recent years there has been substantial investment across the Pacific Northwest in efforts to recover salmon and steelhead populations. Stream restoration has been and will continue to be a major part of that effort. Restoration projects are aimed at improving salmon and steelhead habitats and increasing water quality and quantity.

One of the most active locations for restoration is the upper Middle Fork John Day River. Between 2007 and 2011, fifteen restoration projects are planned on the main stem of the upper Middle Fork and twenty-two are scheduled for the tributaries, with plans for a large number of additional projects of varying size and scope to be implemented over the next 10 years.

There is a significant need for systematic data on the effects of restoration projects. The National Oceanic and Atmospheric Administration (NOAA), in coordination with the Oregon Watershed Enhancement Board (OWEB) has designated the upper Middle Fork as an intensively monitored watershed (IMW). The intent is to track various conditions over at least the next ten years. Most IMW monitoring will be bio-physical (e.g., stream water temperature, fish populations, groundwater levels). However, there is also interest in the possible socio-economic effects of restoration. The purpose of this project was to develop a limited number of measures that can be used to monitor the socio-economic effects on the local community of the restoration efforts on the upper Middle Fork.

Current thinking holds that the process of developing accurate community socio-economic measures requires meaningful involvement from the local community. In keeping with that thinking, we used participatory processes to engage a cross-section of Grant County residents as well as other people knowledgeable about the upper Middle Fork IMW project. The result was a collection of possible measures which we assessed for their technical feasibility. The technical assessment led to a set of proposed indicators that we circulated to the community. As the measures were being finalized, OWEB asked us to move beyond developing the measures and also do a first round of data collection on them.

The balance of this report consists of: 1) a discussion of the background issues and the study questions; 2) the research methods used; 3) the results of the research; 4) the final set of measures; and 5) some brief conclusions.

Background

Communities and the Restoration Economy

One of the most significant developments in natural resource planning and management in the past fifteen years has been the emergence of the restoration economy – also referred to as conservation-based development, sustainable livelihood, and the conservation economy, among other terms. The central focus of the restoration economy is resource management. However, it explicitly considers the local economy and community as well. It holds that "ecological integrity, economic opportunity, and community are inextricably linked in the long run" (von Hagen & Fight, 1999, 3). It entails projects, programs, and policies that aim to "meld ecology with economics and the needs of community . . . (Weber, 2000, p. 238).

The restoration economy is not just a wishful concept. Western Governors' Association Policy Resolution 09-11 (http://www.westgov.org/wga/policy/09/restoration.pdf) points to a variety of tribal and state-level environmental maintenance, restoration, and enhancement policies and programs in Montana, Arizona, New Mexico, South Dakota, and Oregon, all aimed at restoring landscapes and contributing to local economies.

Oregon has been in the vanguard in this effort. A key example is the state's experience with watershed restoration and specifically local watershed councils and the state agency that supports them, the Oregon Watershed Enhancement Board (OWEB). It is clear that the purpose of OWEB and the watershed councils is environmental restoration and management. At the same time, however, Oregon law (ORS 541.353) declares that "the long-term protection of the water resources of this state, including sustainable watershed functions, is an essential component of Oregon's environmental and economic stability and growth" (emphasis added). Consistent with this, OWEB declares in its mission statement that its purpose is "to help create and maintain healthy watersheds and natural habitats that support thriving communities and strong economies" (http://www.oregon.gov/OWEB/about_us.shtml, emphasis added).

OWEB and the local watershed council are involved with many, though not all, upper Middle Fork restoration projects. Still, the level of restoration activity and the desire to monitor its socio-economic effects reflect Oregon's interest in understanding the restoration economy. The restoration economy is not a substitute for such traditional industries as agriculture, timber, and mining, but can play an expanding role in diversifying the economy. When restoration is seen through the lens of economic opportunity, the argument around jobs versus the environment becomes moot.

It is argued that restoration can provide jobs throughout the restoration cycle, from initial studies, to engineering and design, to construction jobs during the on-the-ground phase. It is further claimed that upon completion, the restored landscapes provide new opportunities for businesses as well as cleaner water and healthier, diverse fish, wildlife, and plant communities.

However, restoration efforts have rarely included effectiveness monitoring programs to determine what benefits they have provided – either bio-physical or socio-economic – and so conclusions are largely based on intuition rather than empirical information. Socio-economic

measures that focus on restoration activities and potential spillover effects such as increased local amenity and recreation values and business opportunities can help assess if and how restoration benefits the local economy and identify what workforce training might be useful to help local residents take advantage of new opportunities. In addition, socio-economic measures can increase awareness of the possible advantages to identifying and encouraging restoration work.

In sum, socio-economic measures serve two functions: they provide tangible evidence of restoration's economic contributions and they help local citizens think about and develop new relationships to their natural resource assets.

Socio-Economic Monitoring of Ecosystem Restoration

Socio-economic monitoring has a long history in the United States. The U.S. Census, first taken in 1791, is considered one of the most important sources of information on the social aspects of American growth and development (Innes 1990). Over the years socio-economic measurement has arisen in bursts of popularity and then waned, mainly because of the technical difficulties involved. It peaked in the 1920s, then in the 1960s, and now again (Guy and Kibert 1998).

There has been substantial research on the potential uses of socio-economic measures. McCool and Stankey (2004) find that they can help describe the existing conditions of systems, facilitate evaluation of the performance of various management actions, and alert users to impending changes in social, cultural, economic, and environmental systems. Other researchers emphasize the value of socio-economic measures for evaluation and performance assessment (Bowen and Riley 2003; Conley and Moote 2003). And finally, socio-economic measures can be used as educational or communicative tools to build community awareness (Beratan, et al. 2004, Rydin, Holman & Wolff 2003).

While technical difficulties in developing socio-economic measures remain, and there is some debate as to the level of technicality in which indicators should be created, research suggests that indicators should be transparent and embedded in the local culture and knowledge (Fraser, et al. 2006). The process of developing accurate community socio-economic measures requires meaningful involvement from the local community (McCool and Stankey 2004, Fraser, et al. 2006, Rydin, Holman and Wolff 2003).

Three guiding principles for community socio-economic monitoring on the upper Middle Fork IMW project can be distilled from the research.

- The measures should be context-specific (i.e., the upper Middle Fork and Grant County).
- Both experts (including agency officials, scientists and academics) and local residents should be involved in the process of developing the measures.
- The measures should be useful for policymaking, management of the IMW, and public education/citizen action.

Goals of this Project

The original goals of this project as described in the work plan were to:

1. Develop a set of 4-6 socio-economic indicators, in collaboration with the community, keeping in mind that indicators are not specific cause-and-effect measures. They aim to measure the socio-economic health of the system, not the specific consequences of specific watershed management activities; and
2. Create a system to collect, assess, and report the indicator data

As the project went forward, and especially as we engaged the community, it became clear that the original goals were too limited. First, the community and the IMW project need a broader array of measures than indicators alone. Second, creating a system to collect, assess, and report the data requires creating a set of protocols for collecting the data. Third, at OWEB's request we agreed to amend the original work plan to include an initial round of data collection for the measures that were developed.

The expanded goals are as follows. Details are described in the Methods section of this report.

1. Produce three sets of measures:
   - Direct effects - measures of the socio-economic output from doing restoration projects on the upper Middle Fork John Day River
   - Outcome measures: measures of specific changes that have occurred, that can be tied to restoration projects and related activities.
   - Socio-economic Indicators: measures of the overall socio-economic health of the community

2. Develop data collection protocols for each measure

3. Produce a first round of data for each measure

4. Identify a "host organization" in the community to maintain and regularly update the data, and make it available to researchers, decision makers, and community groups

Methods

Based on the three guiding principles discussed above, we created a five-step process to accomplish the project goals.

1. Organize a small "expert panel" of locally involved people from diverse backgrounds who are known to have a good understanding of how restoration and other watershed activities connect to the socio-economic health of the community.

2. Engage the expert panel in a workshop process to identify a draft set of measures.

3. Confirm the technical feasibility of the measures (are the data available and accessible at a reasonable cost in time and money?), develop data collection protocols, and conduct an initial round of data collection.

4. Ground-truth the indicators through a community education/public involvement process.

5. Create a system to collect, assess, and report the measures.

We began with a review of relevant local plans and other documents, followed by open-ended interviews with twelve Grant County residents chosen for their knowledge of the local economy and/or environmental restoration efforts. The information thus gleaned informed the first meeting with our expert panel of eight Grant County leaders, chosen to give us a cross-section of viewpoints and expertise

- Sally Bartlett, Grant County Economic Development Coordinator
- Mike Billman, Malheur Lumber Company and Blue Mountain Forest Partnership
- Amy Charette, NFJD WSC Coordinator
- Jeff Fields, The Nature Conservancy
- Jason Kehrberg, Grant County SWCD Director
- George Meredith, rancher
- Rick Minster, OECDD Regional Development Officer
- Mark Webb, Grant County Judge

The outcome of the meeting was a preliminary set of proposed measures. From our initial analysis of the proposed measures as well as follow-up interviews, it became clear that we needed to move beyond socio-economic indicators and think about other types of measures. Drawing on a parallel project on socio-economic measures by Hibbard (Hibbard, Gurwitz, and Roark 2009), and on the literature generally, we developed three sets of measures: direct effects, outcomes, and indicators.

As we were conducting our technical analysis on the three types of measures, we presented and discussed them at a face-to-face meeting of the IMW Working Group. We followed up by circulating the measures for comments, questions, and suggestions to the expert panel and other Grant County community members.

Next we presented and discussed the proposed measures at meetings of the Grant County Chamber of Commerce and Grant County Court. In advance of those presentations, a draft of the possible metrics was circulated.

Before finalizing the measures and beginning to create a system to collect, assess, and report them, we met with Greg Sieglitz and Cyrus Curry of OWEB for an interim review. Following that, we presented and discussed the final measures with members of the expert panel and others in Grant County, for final sign-on.

As a final step, the North Fork John Day Watershed Council – which is an active member of the IMW Working Group – agreed to accept ongoing responsibility for collecting, storing, and updating the socio-economic measures, with Hibbard's and Lurie's continuing oversight. There is consensus community support for this.

Results: Developing the Measures

In this section we discuss each of the measures suggested for inclusion as part of the IMW's socio-economic monitoring and explain its disposition. The discussion is organized into the three types of measures: 1) Direct Effects of restoration and monitoring work; 2) Outcomes, specific changes that have occurred, that can be tied to restoration projects and related activities; and 3) Indicators of overall community socio-economic health.

Direct effects: measures of the socio-economic output from doing restoration projects on the upper Middle Fork John Day River

- Number and size (in dollars) of restoration contracts
- Local/non-local firm? (local = Grant County)
- % of contract dollars spent locally
- % of employees who are local residents (local = Grant County)

This information is available but has to be collected by hand, through an annual review of all restoration and monitoring contracts on all land in the upper MFJD watershed. Based on interviews and reviews of contract records across several organizations, it is apparent that ongoing collection of this data will require the development of work sheets to insure that the information is uniformly collected over time.

- Total CREP (Conservation Reserve Enhancement Program) and BPA dollars paid annually to landowners in the project study area

The aim of this suggested measure is to track the amount of subsidy flowing into the project area to support restoration-oriented land management practices. This could be a useful measure but evidently only two landowners in the project area are currently receiving CREP dollars. We recommend dropping the idea of using CREP dollars and continuing to search for a more appropriate measure of the subsidy to landowners. One interesting possible measure is the

Freshwater Trust's water lease/acquisitions, funded through the Columbia Basin Water Transaction Program. The following table shows this program's subsidies in the Middle Fork John Day IMW project area for the past several years.

Year	$ Amount	# Agreements	Agreement Type
2001	25,000	1	Standard Lease
2002	30,000	1	Standard Lease
2003	50,000	1	Standard Lease
2004	69,000	2	Water Use Agreement
2005	68000	3	Water Use Agreement
2006	700,000	1	Forbearance Agreement
2007	90,000	1	Time Limited Transfer
TOTAL	**1,032,000**		

- Number of new agency contract support jobs

"Contract support jobs" proved to be an illusive concept. It was agreed to change this to "Restoration related jobs," operationally defined as changes over time in the size and job titles of the principal local organizations actively involved in restoration work within the IMW project area.

- Sizes of contracting firms

"Size" of contracting firm is also an illusive concept. It might mean capitalization, market value, or number of employees, for example. In any case, this is generally not publicly available information. It was decided to drop this measure.

Outcome measures: measures of specific changes that have occurred, that can be tied to restoration projects and related activities.

- Changes in land use/land management practices – on public, tribal and private lands throughout Grant County.

This proposed measure includes a wide variety of things, from land management agency policy changes and specific projects to shifts in ranch land management from stock and/or crop production to ecosystem management outcomes to housing subdivisions.

General trends in land use/management change are widely known among the relevant Grant County social networks, as are specific examples. However, no one is collecting the data necessary to systematically track these changes. Creating a system to do so would be highly desirable but would be expensive and time-consuming. Fortuitously, a Portland State University graduate student who is interested in socio-economic monitoring and in land use changes associated with environmental restoration has agreed to take on the task of developing both qualitative and quantitative data for this measure. And she has her own grant funding to support the work over the next year (FY 2010).

- Tourism/outdoor recreation, such as fishing, birding, hiking, biking, motor biking, and hunting

We have been unable to locate reliable data on specific types of tourism/recreation activities in Grant County. However, overall travel impacts are tracked at the county level in several ways by Dean Runyan Associates, a firm engaged in economic and market research related to travel, tourism and recreation. It was agreed to use the following measures:

  - Annual travel spending in Grant County
  - Estimated number of jobs generated by travel spending in Grant County
  - Total local lodging tax receipts for Grant County

- Camping activity: data such as "camping days" at federal, state and county facilities in Grant County.

There are numerous Forest Service campgrounds as well as one state campground in Grant County. We have data from the state and the Forest Service has promised to provide its data, but has not yet been able to supply it. The measure of camping activity will be included in the 2010 report.

- Job substitutions (i.e.., declines in resource extraction paired with increases in ecology)

This proposed measure presents a variety of technical problems. The major one is that because of its small population most of the relevant employment and firm data for Grant County is not publicly available. It was decided to drop this measure.

- Crop productivity

This proposed measure could be thought of in terms of two geographic areas, the upper MFJD watershed itself – the IMW study area, and the downstream area to Kimberly. However, crop production on the upper MFJD is limited to a small amount of meadow hay. And downstream conditions are confounded by the presence of numerous other tributaries. It was decided to drop this measure.

- New business start-ups and relocations to Grant County, especially among firms directly or indirectly linked to restoration work

There is no systematic tracking of firms operating the Grant County. Such data sources as business licenses, tax records, and Oregon Bureau of Labor and Industry records capture very few of the small businesses in Grant County. It was decided to drop this measure.

Socio-economic Indicators: measure overall conditions in the community. They paint a picture of the general health or overall socio-economic context within which restoration work is being done.

- Population
    - Total
    - By age
    - By income
    - By education

The Portland State University Population Research Center makes annual estimates of total population and population by age for all Oregon counties. Two useful measures of income are available from the Oregon Business Development Department (formerly the Oregon Economic and Community Development Department), per capita personal income and median household income.

Data on educational attainment seem to be available only from the ten year census, which is not frequent enough to be useful. It was decided to drop this measure.

- Jobs by type
- Firms by type

These are closely related concepts, and data availability is a problem because of the small population of Grant County, as noted above. However, the Oregon Employment Department makes employment estimates in broad categories. It was decided to replace these proposed measures with the Employment Department metric, "Nonfarm employment." It is organized into such categories as mining and logging, construction, manufacturing, leisure and hospitality, and retail trade.

- Overall county-level economic activity

There is no county-level equivalent to the national or state GDP. One good indicator of overall economic activity is total payroll, the data for which are also available in broad categories from the Oregon Employment Department.

- Economic diversification index

One measure of the socio-economic health of a community is the diversity of its economy. It is argued that a more diverse economy will have less ups and downs over time, and those ups and downs will be less extreme. A typical economic diversification index compares the employment distribution of a subject area (e.g., Grant County) with a reference area (e.g., Oregon as a whole). Although the data are available, creating an economic diversification index is expensive and time-consuming. It is impossible to put it into place for this report, but Hibbard has agreed to develop it during 2010.

To sum up, the process resulted in a total of seventeen measures, five direct effect measures, five outcome measures, and seven indicators.

Adopted Measures

Direct effects

- Number and size (in dollars) of restoration contracts
- Local/non-local firm? (local = Grant County)
- % of contract dollars spent locally
- % of employees who are local residents (local = Grant County)

Summary of restoration contracts in the upper Middle Fork project area, 2007 and 2008.

	2007	2008
Total Dollars Spent on Restoration Contracts	1,251,839	924,719
Number of Restoration Contracts	13	14
Number of Local Contracting Firms	3	3
Number of Non-local Contracting Firms	6	9
% of Contract Dollars Spent Locally	31.29100467	62.93
Number of Local Contract Employees	13	17

- Number of new "restoration-related" jobs

Restoration-related jobs in Grant County, 2000 and 2009.

		2000		2009
Organization	FTE	Employees	FTE	Employees
Grant County Soil and Water Conservation District	4	5	7.5	8
North Fork John Day Watershed Council	1.5	2	3.75	4
Confederated Tribes of Warm Springs	2	2	6.4	10
Oregon Department of Fish and Wildlife	27.25	29	30.5	33
The Nature Conservancy	1	1	2.5	3
US Forest Service- Malheur Forest Aquatics	6	6	7	7
Bureau of Reclamation	0	0	1	1
TOTAL	41.75	45	58.65	66

Outcome measures

- Changes in land use/land management practices – on public, tribal and private lands throughout Grant County.
    - This measure will be developed during 2010.

- Annual travel spending in Grant County (in $ millions), 2000-07 (most recent year available)

2000	2001	2002	2003	2004	2005	2006	2007
7.8	8.2	8.3	8.5	9.2	9.1	9.4	9.8

  Source: http://www.deanrunyan.com/pdf/pdfor/or07pspendbycou.pdf

- Estimated number of jobs generated by travel spending in Grant County, 2000-07 (most recent year available)

2000	2001	2002	2003	2004	2005	2006	2007
190	200	200	200	210	210	210	210

  Source: http://www.deanrunyan.com/pdf/pdfor/or9107pemp.pdf

- Total local lodging tax receipts for Grant County (in $ thousands), 2000-07 (most recent year available

2000	2001	2002	2003	2004	2005	2006	2007
49.8	50.3	53.3	53.5	48.2	63.4	92.7	98.4

  Source: http://www.deanrunyan.com/pdf/pdfor/tot07p.pdf

- Camping Activity
    - This measure will be developed during 2010.

Socio-economic Indicators

- Total Population

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Oregon	3,436,750	3,471,700	3,504,700	3,541,500	3,582,600	3,631,440	3,690,505	3,745,455	3,791,060
% Change from last year		1.02%	0.95%	1.05%	1.16%	1.36%	1.63%	1.49%	1.22%
Grant County	7,950	7,800	7,750	7,650	7,750	7,685	7,630	7,580	7,530
% Change from last year		-1.89%	-0.64%	-1.29%	1.31%	-0.84%	-0.72%	-0.66%	-0.66%

Source: http://www.pdx.edu/prc/annual-oregon-population-report

- Population by Age Groups (less than 18 Years, 18-64 Years, and 65 Years and Older)

Grant County	Ages 0-17		Ages 18-64		Ages 65- Over		Total Population
	Population	% of Pop.	Population	% of Pop.	Population	% of Pop.	
As of 7/1/2008	1,600	21.20%	4,553	60.50%	1,377	18.30%	7,530
As Of 7/1/2002	1,925	24.80%	4,464	57.60%	1,361	17.60%	7,750

- Per capita personal income, 2000-2006 (most recent year available)

	2000	2001	2002	2003	2004	2005	2006
Oregon	$28,096	$28,518	$28,931	$29,565	$30,621	$31,599	$33,299
Grant Co.	$21,350	$23,877	$24,741	$25,490	$26,822	$26,744	$29,077
Grant as % of Oregon	76%	84%	85%	86%	88%	85%	87%

Source: http://www.oregon4biz.com/p/pcpi.pdf.

- Median household income, 2000-06 (most recent year available)

	2000	2001	2002	2003	2004	2005	2006	2007
Oregon	41,662	41,752	41,796	42,593	42,568	43,065	46,228	48,735
Grant Co.	33,369	32,903	33,343	32,934	34,475	34,441	36,629	36,011
Grant as % of Oregon	80%	79%	80%	77%	81%	80%	79%	74%

Source: http://www.oregon4biz.com/p/MedHouseInc.pdf.

- Grant County Non-Farm Employment

Grant Nonfarm Employment
(Not Seasonally Adjusted)

	Jul 2009	Jun 2009	Jul 2008	Change -month-	Change -year-	% Change -month-	% Change -year-
Total nonfarm employment	2,420	2,460	2,530	-40	-110	-1.6%	-4.3%
Total private	1,330	1,280	1,420	50	-90	3.9%	-6.3%
Mining and logging	30	30	30	0	0	0.0%	0.0%
Construction	140	130	150	10	-10	7.7%	-6.7%
Manufacturing	140	130	200	10	-60	7.7%	-30.0%
Trade, transportation, and utilities	380	360	370	20	10	5.6%	2.7%
Wholesale Trade	50	40	50	10	0	25.0%	0.0%
Retail trade	270	270	270	0	0	0.0%	0.0%
Transportation, warehousing, and utilities	60	50	50	10	10	20.0%	20.0%
Information	40	40	40	0	0	0.0%	0.0%
Financial activities	110	110	110	0	0	0.0%	0.0%
Professional and business services	100	90	130	10	-30	11.1%	-23.1%
Educational and health services	150	150	140	0	10	0.0%	7.1%
Leisure and hospitality	180	180	180	0	0	0.0%	0.0%
Other services	60	60	70	0	-10	0.0%	-14.3%
Government	1,090	1,180	1,110	-90	-20	-7.6%	-1.8%
Federal government	380	360	380	20	0	5.6%	0.0%
State government	170	170	170	0	0	0.0%	0.0%
Local government	540	650	560	-110	-20	-16.9%	-3.6%

Source: http://www.qualityinfo.org/olmisj/CES?action=rs54&areacode=04000023.

- Grant County Total Payroll

Grant County 2008
Covered Employment and Wages
Summary Report

NAICS	Industry	Ownership	Units	Employment	Payroll	Avg Pay
-	Total All Ownerships	All	343	2,413	$71,306,953	$29,551
-	Total Private Coverage	Private	279	1,393	$33,798,600	$24,263
-	Natural Resources & Mining	Private	35	144	$4,187,177	$29,078
111	Crop production	Private	2	(c)[15]	(c)	(c)
112	Animal production	Private	7	(c)	(c)	(c)
113	Forestry and logging	Private	13	(c)	(c)	(c)
115	Agriculture and forestry support activity	Private	13	61	$2,355,671	$38,618
-	Construction	Private	41	128	$3,206,870	$25,054
236	Construction of buildings	Private	17	26	$478,723	$18,412
237	Heavy and civil engineering construction	Private	8	65	$1,914,631	$29,456
238	Specialty trade contractors	Private	16	37	$813,516	$21,987
-	Manufacturing	Private	7	172	$5,466,791	$31,784
311	Food manufacturing	Private	1	(c)	(c)	(c)
321	Wood product manufacturing	Private	2	(c)	(c)	(c)
332	Fabricated metal product manufacturing	Private	2	(c)	(c)	(c)
339	Miscellaneous manufacturing	Private	2	(c)	(c)	(c)
-	Trade, Transportation. & Utilities	Private	62	357	$8,962,534	$25,105
-	Wholesale	Private	9	45	$1,064,224	$23,649
423	Merchant wholesalers, durable goods	Private	2	(c)	(c)	(c)
424	Merchant wholesalers, nondurable goods	Private	5	40	$923,201	$23,080
425	Electronic markets and agents and broker	Private	2	(c)	(c)	(c)

[15] (c) = Confidential

-	Retail	Private	36	257	$5,328,347	$20,733
441	Motor vehicle and parts dealers	Private	4	33	$1,123,109	$34,034
442	Furniture and home furnishings stores	Private	1	(c)	(c)	(c)
443	Electronics and appliance stores	Private	1	(c)	(c)	(c)
444	Building material and garden supply stores	Private	6	32	$615,196	$19,225
445	Food and beverage stores	Private	6	(c)	(c)	(c)
446	Health and personal care stores	Private	3	28	$528,381	$18,871
447	Gasoline stations	Private	3	12	$101,239	$8,437
448	Clothing and clothing accessories stores	Private	2	(c)	(c)	(c)
452	General merchandise stores	Private	2	(c)	(c)	(c)
453	Miscellaneous store retailers	Private	5	(c)	(c)	(c)
454	Nonstore retailers	Private	3	(c)	(c)	(c)
-	Transportation, Warehousing & Utilties	Private	17	54	$2,569,963	$47,592
221	Utilities	Private	2	(c)	(c)	(c)
484	Truck transportation	Private	12	16	$458,435	$28,652
491	Postal service	Private	1	(c)	(c)	(c)
492	Couriers and messengers	Private	2	(c)	(c)	(c)
-	Information	Private	7	41	$1,444,264	$35,226
511	Publishing industries, except Internet	Private	2	(c)	(c)	(c)
515	Broadcasting, except Internet	Private	2	(c)	(c)	(c)
517	Telecommunications	Private	3	23	$1,011,259	$43,968
-	Financial Activities	Private	25	86	$2,343,022	$27,244
-	Finance & Insurance	Private	12	68	$1,935,679	$28,466
522	Credit intermediation and related activities	Private	7	52	$1,546,606	$29,742
524	Insurance carriers and related activitie	Private	5	16	$389,073	$24,317
-	Real Estate Rental & Leasing	Private	13	18	$407,343	$22,630
531	Real estate	Private	11	(c)	(c)	(c)

532	Rental and leasing services	Private	2	(c)	(c)	(c)
-	Professional & Business Services	Private	25	100	$2,408,726	$24,087
-	Professional, Scientific & Technical Svcs	Private	18	58	$1,492,115	$25,726
-	Admin. & Support, Waste Mgmt & Remediation Svcs	Private	7	42	$916,611	$21,824
561	Administrative and support services	Private	5	(c)	(c)	(c)
562	Waste management and remediation service	Private	2	(c)	(c)	(c)
-	Education & Health Services	Private	21	129	$2,582,247	$20,017
-	Leisure & Hospitality	Private	28	170	$1,903,696	$11,198
-	Other Services	Private	29	67	$1,278,273	$19,079
811	Repair and maintenance	Private	6	24	$574,012	$23,917
812	Personal and laundry services	Private	1	(c)	(c)	(c)
813	Membership associations and organization	Private	18	39	$639,911	$16,408
814	Private households	Private	3	(c)	(c)	(c)
-	Private Non-Classified	Private	0	(c)	(c)	(c)
-	Total All Government	All Govt.	64	1,020	$37,508,353	$36,773
-	Total Federal Government	Federal Govt.	15	252	$13,102,813	$51,995
-	Natural Resources & Mining	Federal Govt.	2	197	$10,848,584	$55,069
-	Trade, Transportation. & Utilities	Federal Govt.	9	21	$778,147	$37,055
-	Leisure & Hospitality	Federal Govt.	1	22	$860,664	$39,121
-	Public Administration	Federal Govt.	3	12	$615,418	$51,285
-	Total State Government	State Govt.	13	135	$4,890,643	$36,227
-	Construction	State Govt.	2	19	$791,399	$41,653
-	Education & Health Services	State Govt.	2	32	$744,749	$23,273
-	Public Administration	State Govt.	8	82	$3,258,044	$39,732
-	Total Local Government	Local Govt.	36	633	$19,514,897	$30,829

-	Trade, Transportation. & Utilities	Local Govt.	2	17	$259,993	$15,294
-	Education & Health Services	Local Govt.	14	395	$13,612,560	$34,462
-	Leisure & Hospitality	Local Govt.	2	13	$166,908	$12,839
-	Other Services	Local Govt.	5	5	$25,536	$5,107
-	Public Administration	Local Govt.	13	202	$5,449,900	$26,980

Source:http://www.qualityinfo.org/olmisj/CEP?areacode=04000023&periodcode=01002008&action=summary&submit=Get+Report.

- Economic Diversification Index
  - This measure will be developed during 2010.

Ongoing Socio-Economic Monitoring

This project has accomplished its purposes. It has engaged key members of the Grant County community in a significant discussion of the restoration economy in Grant County and eastern Oregon more broadly. It has identified a robust set of measures that can help explain the socio-economic effects of restoration projects in the upper Middle Fork on the local community. And it has enlisted a local organization to accept ongoing responsibility for collecting, storing, and updating the socio-economic measures. But that is just the beginning of what should be an ongoing process.

Socio-economic measures have no intrinsic meaning. They only take on meaning when they are used to inform public discussions and decisions – for policymaking, for management of the IMW, and for public education/citizen action. Having tangible measures that illustrate the potential of the restoration economy can help the local community realize its contribution; however, designing appropriate ones that can be reasonably monitored and interpreted is not a straight-forward task. This first iteration is based on expert guesswork about what measures are likely to be useful. As the community engages the measures for these purposes they will need to change and evolve. The community will learn which of the measures are helpful, which need to be revised, and which should be abandoned. As well, they will identify possible new measures that need to be tested. That is why the community needs to embrace the IMW socio-economic monitoring project. It is a work-in-process, under construction by the community, to be used by the community in the service of building a local restoration economy that makes sense to them.

Works Cited

Beratan, Kathi K., Stanley J. Kabala, Shirley M. Loveless, Paula J.S. Martin, and Nancy P. Spyke. "Sustainability Indicators as a Communicative Tool: Building Bridges in Pennsylvania." *Environment and Monitoring Assessment*, 2004: 179-191.

Bowen, Robert E., and Cory Riley. "Socio-Economic Indicators and Integrated Coastal Management." *Ocean and Coastal Management*, 2003: 299-312.

Conley, Alexander, and Margaret A. Moote. "Evaluating Collaborative Natural Resource Management." *Society and Natural Resources*, 2003: 371-386.

Guy, Bradley G., and Charles J. Kibert. "Developing Indicators of Sustainability: US Experience." *Building Research and Information*, 1998: 39-45.

Fraser, Evan D.G., Andrew J. Dougill, Warren E. Mabee, Mark Reed, and Patrick McAlpine. "Bottom Up and Top Down: Analysis of Participatory Processes for Sustainability Indicator Identification as a Pathway to Community Empowerment and Sustainable Environmental Management." *Journal of Environmental Management*, 2006: 114-127.

Hibbard, Michael, Heather Gurwitz, and Teresa Roark. (2009). *A Guide for Developing Socio-Economic Measures for Oregon's Watershed Councils*. Eugene: University of Oregon Institute for Policy Research and Innovation.

Innes, Judith Eleanor. *Knowledge and Public Policy: The Search for Meaningful Indicators*. New Brunswick, New Jersey: Transaction Publishers, 1990.

McCool, Stephen F., and George H. Stankey. "Indicators of Sustainability: Challenges and Opportunities at the Interface of Science and Policy." *Environmental Management*, 2004: 294-305.

Oregon Watershed Enhancement Board (n.d.) Mission Statement (http://www.oregon.gov/OWEB/about_us.shtml, accessed September 15, 2009)

Rydin, Yvonne, Nancy Holman, and Ester Wolff. "Local Sustainability Indicators." *Local Environment*, 2003: 581-589.

Von Hagen, B & Fight, R. D. (1999) *Opportunities for Conservation-Based Development of Nontimber Forest Products in the Pacific Northwest.* General Technical Report PNW-GTR-473. (Portland: USDA Forest Service, Pacific Northwest Research Station).

Weber, E. (2000). A new vanguard for the environment: grass-roots ecosystem management as a new environmental movement. *Society and Natural Resources*, 13, pp. 237-259.

Western Governors' Association (2009). *The Restoration Economy*, Policy Resolution 09-11 (http://www.westgov.org/wga/policy/09/restoration.pdf, accessed September 15, 2009)

Direct Effects

1. Measures of the socio-economic output from doing restoration projects on the upper middle fork of the John Day River.
   - In order to collect data regarding the socio-economic output from restoration projects on the upper middle fork, a representative from each organization involved in restoration work needs to be contacted. The organizations, representatives, and contact info can be found in the table below. The necessary information for each project includes:
     1. The organization managing the funds
     2. Source of Funds
     3. Type of restoration project
     4. Name of Project
     5. Beginning and ending date of project
     6. Name of contractor hired
     7. Contractor's business location
     8. Contract size in Dollars
     9. Contract Dollars spent in Grant County

Data on projects, contracts, restoration-related jobs:

Amy Charette	North Fork John Day Watershed Council	541-421-3018	amy@nfjdwc.org
Brian Cochran	Warm Springs- Oxbow and Forrest Conservation Areas	541-553-2003	brian.cochran@wstribes.org
Linda Brown	Warm Springs- Private Lands Restoration	541-820-3568	jdborestoration@ortelco.net
Mark Crogan	Bureau of Reclamation	541-575-3033	MCroghan@usbr.gov
Holly Bentz	Forest Service- Aquatics Program	541-575-3012	hbentz@fs.fed.us
Jason Kehrberg	Grant County SWCD	541-575-0135 x3	jkehrberg@centurytel.net
Mark McCollister	The Freshwater Trust	503-222-9091 x15	mark@thefreshwatertrust.org
Jerry Ebeltoft and Margaret Carey	The Nature Conservancy	541-421-3037	jebeltoft@tnc.org
Russ Powell	ODFW- Fish Habitat Program	541-575-0561	russell.m.powell@state.or.us
Kelly Stoke	ODFW- Fish Screens Program	541-575-0561	Kelly.S.Stokes@state.or.us
Camping data			
Shannon Winegar	Malheur Forest Service	541 820-3863	
Patty Hammett	Malheur Forest Service	541-575-3144	
Water rights transfers			
Jeffrey Kee	Freshwater Trust	503-222-9091 x23	jeffrey@thefreshwatertrust.org

Outcome Measures

1. Number of restoration contractors active in Grant County
    - The Grant County Soil and Water Conservation District keeps a record of the number of restoration contract bidders on an annual basis. This information can be requested from the Grant County Soil and Water Conservation District.
        - Jason Kehrberg
          Grant SWCD District Manager
          (541) 575- 0135
          jkerhberg@centurytel.net

2. Grant county landowners interested in adopting restoration practices
    - The Grant County Soil and Water Conservation District also keeps records of the number of landowners applying for restoration related projects. However, some restoration projects are done in partnership with the North Fork John Day Watershed Council and are not included in the Grant County Soil and Water Conservation District's records in order to prevent a project from being counted twice. This information can be collected by requesting it from both the Grant County Soil and Water Conservation District and the North Fork John Day Watershed Council. The projects done in partnership between the two organizations should be omitted from the Grant County total and only counted for the North Fork John Day Watershed Council.

3. Restoration related jobs in Grant county
    - The 2000-09 comparison shows substantial change, but year-to-year comparisons are not us, so these data do not need to be collected regularly.

4. Annual travel spending in Grant County (in millions) 2000-2009
5. Estimated number of jobs generated by travel spending in Grant County 2000-2009
    - The economic and market research firm, Dean Runyan Associates, produces an annual report detailing the economic stimulus generated by travel spending in Oregon. The report provides detailed information for Grant County. The report can be obtained through the Dean Runyan website by completing the following steps:
        - http://www.deanrunyan.com
        - Travel Impact Studies
            - http://www.deanrunyan.com/index.php?fuseaction=Main.Travelstats&section=ImpactStudies
        - Oregon
            - http://www.deanrunyan.com/index.php?fuseaction=Main.TravelstatsDetail&page=Oregon
        - Full report for Oregon State Estimates
            - http://www.deanrunyan.com/doc_library/ORImp.pdf

Socio-economic Indicators

The Oregon Regional Economic Analysis Project (OR-REAP) is a source of demographic and economic data operated by the U.S. Bureau of Economic Analysis in conjunction with Oregon State and Portland State universities. Data regarding all of the socio-economic indicators are available through the OR-REAP website.

- http://oregon.reaproject.org/
- Each individual indicator can be found by selecting the required indicator from the navigational menu on the left side of the screen.
- After selecting the desired indicator, select the regions for which you want to generate the report from the Region Selection Menu found on the right side of the page.
- The website will then generate a report containing the desired information.

1. Grant County Population
   - Select Comparative Trends Analysis from the navigation menu
   - Select Population from the drop down menu
   - In the Region Selection Menu, select Grant County and Non-Metro Eastern Oregon
   - Select Generate and Display Report
2. Grant County Employment Change 1970-2008
   - Select Comparative Trends Analysis
   - Select Employment
   - In the Region Selection Menu on the right, select Grant County and Oregon
   - Select Generate and Display Report
3. Grant County Average Earnings per Job 1970-2008
   - Select Comparative Trends Analysis from the navigation menu
   - Select Average Earnings per Job from he drop down menu
   - In the Regional Selection menu, select Grant County and Non-Metro Eastern Oregon
   - Select Generate and Display Report
4. Grant County Per Capita Income 1970-2008
   - Select Comparative Trends Analysis from the navigation menu
   - Select Per Capita Income from the drop down menu
   - In the Regional Selection Menu, select Grant County and Non-Metro Eastern Oregon
   - Select Generate and Display Report
5. Major income components as a Percent of Total Personal Income
   - Select Major Components of Income from the navigational menu
   - Select Grant County from the Region Selection Menu
6. Earned income as a Percent of Total Personal Income
   - Select Major Components of Income from the navigational menu
   - Select Grant County from the Region Selection Menu
7. Major Components of Personal Income in Grant County, Selected Years
   - Select Major Components of Income from the navigational menu
   - Select Grant County from the Region Selection Menu
8. Grant County Full-time and Part-Time Employment by Major Industry
   - Select Full and Part-Time Employment from the navigational menu
   - Select Grant County from the Region Selection menu

9. Economic Diversification Index
    - The Hachman index is produced by the Oregon Employment Department (OED). It is not produced on a regular schedule. If/when an update is needed, contact

      Nick Beleiciks
      State Employment Economist
      Workforce and Economic Research
      Oregon Employment Department
      nick.j.beleiciks@state.or.us
      Phone: (503) 947-1267