Projecting Population Change in the Interior Columbia River Basin[1]

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Abstract

Management of ecosystems requires projecting the human population for a biologically significant timeframe, because the impacts of potential alternative ecosystem management strategies will differ depending on the size, location, and expectations of the human population. Increases since 1990 in the net migration rates are changing the expectations for projections of population in the interior Columbia River basin. We present two population projections: low and high. The low projections are from U.S. Bureau of the Census sources and essentially assume little net migration, which is generally a repeat of the 1980s when the basin was characterized by slight net out-migration. The high projections maintain higher net migration and higher rates of natural increase than the low projection. By 2040, the high projections are twice the low projections. Where the low projection has an annual increase of 0.3 percent, the rate of growth in the high projection is 1.6 percent per year.

Keywords: Population, migration.

Background and Rationale

Management of ecosystems on Federal lands takes place within a social context that, like biophysical settings, is constantly changing. Impacts of potential alternative ecosystem management strategies will differ depending on the size, location, and expectations of the human population. Likewise, these characteristics are associated with the location, type, and intensity of impacts on biophysical components. Management of ecosystems requires us to project the human population for a biologically significant timeframe, although doing so is fraught with uncertainty. By attempting to identify likely high and low population-change scenarios, we can avoid some of this uncertainty; and by indicating that we are primarily interested in orders of magnitude of change rather than precise figures, we focus discussion on possible futures rather than the accuracy of the projections.

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[1] The Interior Columbia Basin Ecosystem Management Project was organized to develop a scientifically sound, ecosystem based management strategy for FS- and BLM-administered lands in the interior Columbia River basin. The project's Science Integration Team developed an ecosystem management framework, a scientific assessment, and an evaluation of alternative management strategies. This paper is one of a series developed as background material for those documents. It provides more detail than was possible to disclose directly in the primary documents.

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Even though the interior Columbia River basin (ICRB) population tends to be concentrated (12 of the 100 counties account for half of the 1990 population), the basin is large enough to be characterized as predominantly rural, with the overall population density significantly below that of the U.S. average. Thus, population change needs to be understood within the context of the historical range of variability. For our purposes, this represents the 20th century. During this period, the predominant demographic change has been a pattern of rural-to-urban migration. The ICRB is no exception to this pattern, with increasing concentrations of the population in a few regional population centers. In the 1970s, the pattern of this migration reversed itself in what has been termed the "rural renaissance," where there was a significant shift in population toward rural areas, but primarily those near metropolitan areas (the shift to rural settings was a real one, however, not limited to expansion of metropolitan areas). In the 1980s, the pattern returned to the previous norm—in the ICRB nearly two-thirds of the counties reported population declines, with the exceptions principally being the places with higher populations. In the very late 1980s, another reversal to urban-to-rural migration has been noted (Johnson and Beale 1995).

The reasons for such patterns, are, of course, complex. They deal with some suggestion of an intrinsic rural residential bias, the relative advantages of cities versus rural areas in terms of services, transportation, employment opportunities, the effects of a severe recession in the early 1980s, and potential push factors such as crime, violence, and property values in large cities. In addition, the development of knowledge-based industries that exploit digital technologies permits many workers to be relatively independent of place of work and to work at home.

Projecting of population change involves understanding not only how these factors may affect relocation decisions but also how changes in age, ethnic background, religious preference, and fertility rates may impact population change. In designing our population projections, we had a need to account for these factors but to do this cost-effectively. Population change is fundamentally a function of natural increase (births minus deaths) and net migration (in-migration minus out-migration). Of the two major variables, net migration seems to be the more variable over the short term and, therefore, the more difficult to project into the future.

The Low Population Projection

For a low projection, we relied on the Bureau of Economic Analysis (BEA) population projections (U.S. Department of Commerce 1992). These projections are based primarily on estimates of economic growth rates occurring in two periods in the late 1970s and 1980s. The projections are disaggregated to increasingly finer levels of resolution, until the county level is reached. Population growth estimated in the two base periods are then dampened for projections into the future. This procedure results in population estimates that are low and also unlikely. The BEA projections essentially mean that natural increase accounts for all the population growth in the basin and maintains traditional rural-to-urban patterns of migration. Nevertheless, they represent one possible population future.

A High Population Projection

For a higher projection, we dealt directly with historical and projected rates of natural increase as well as more recent rates of net migration in the basin. The natural rate of increase (births minus deaths) was estimated by using U.S. Bureau of the Census figures (U.S. Department of Commerce 1992) for 1995 and by decade beginning
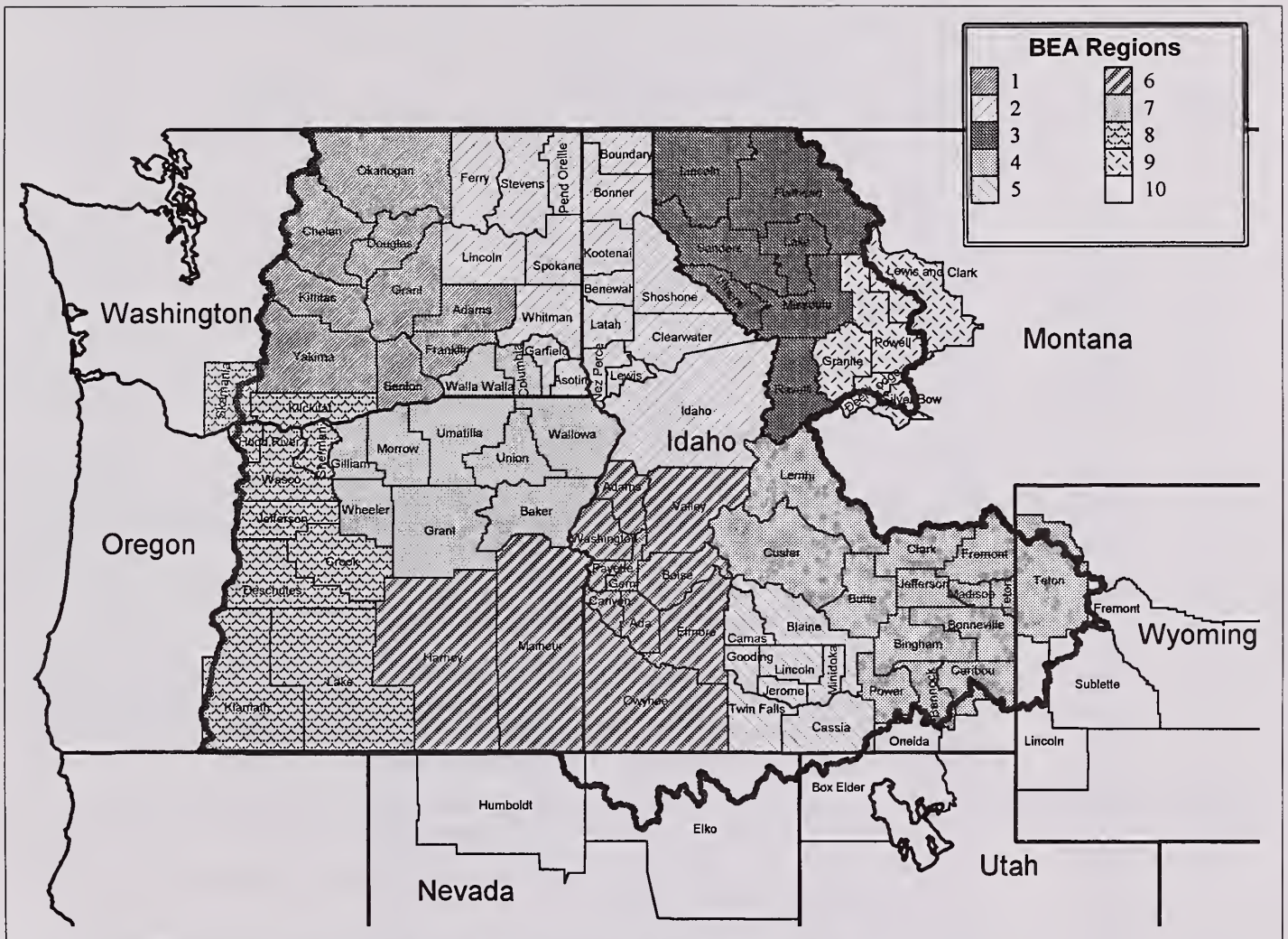
Figure 1—Bureau of Economic Affairs (BEA) economic regions for the interior Columbia River basin.

in 2001 and going to 2040. We adjusted national figures for the regional pattern because the latter has tended to be about 22 percent higher. We also made sub-regional adjustments in natural increases by using BEA definitions of economic regions (see fig. 1). These adjusted subregional estimates were then applied to individual counties. Net migration was estimated from recently released components of population-change figures for 1990 to 1994 (U.S. Department of Commerce 1995). For net migration, counties were grouped into three categories by using Johnson and Beale's (1995) classification: recreational, metropolitan, and nonmetropolitan. Net migration differed significantly for each category. Six counties in the region were classified as metropolitan, 21 as recreational, and 73 as nonmetropolitan. Net migration rates were then applied to each of these counties beginning in 1995. Beginning in 2001, migration rates were dampened each 10 years, ending with zero net migration in 2030.
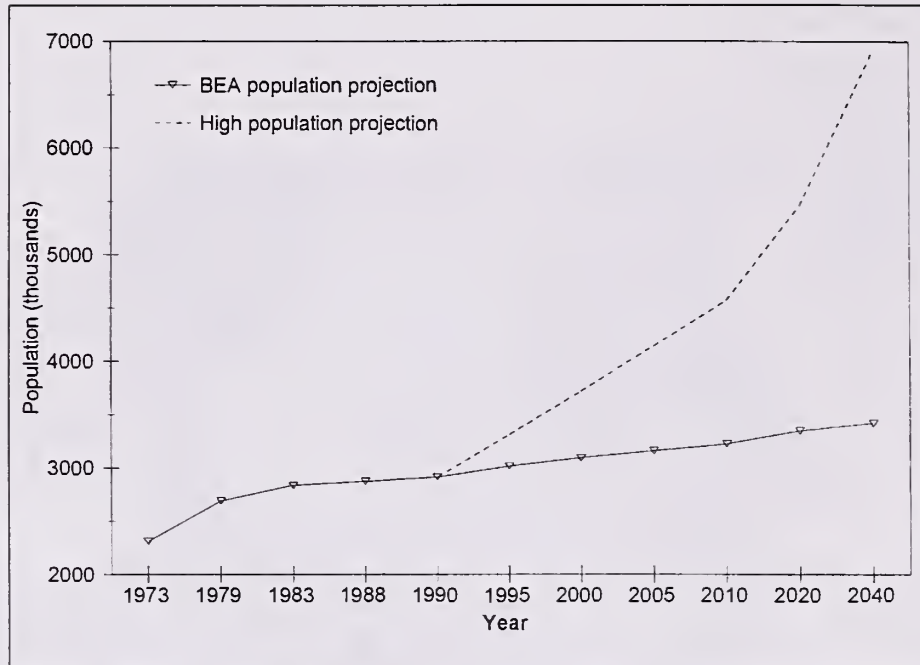
Figure 2—Interior Columbia River basin total population.

These procedures resulted in decadal populations for the basin as shown in figure 2. The population estimates differ dramatically, yet both scenarios are within the range of possibility. Even at the highest population level, overall population densities in the region remain significantly below the national average.

Basic Assumptions

All projections depend on their underlying assumptions. In this case there are five primary assumptions, each described as follows:

1. The 1994 population and 1990-94 migration rates are from census estimates. The basic data are shown in table 1.

2. The county groupings are from the proposed redefinition of the BEA economic areas (Federal Register 11/7/94, 59[214]:55416-55420).

3. Natural rates of increases were computed for each county for the 1980s (1981-90) decade (using BEA data; see table 1). The average was computed for each BEA economic region, the region (0.88 percent), and the ratio of the region to the Nation (1.1944). See table 2 for the details.

Table 1—Basic census data

County, state	BEA subregion[a]	Births	Deaths	Net migration[b]	Natural rate of increase 1990	1990-94 migration	1994 population	County typology
		– – – Number of people – – –			Percent	– Number of people –		
Okanogan, WA	1	5,648	3,108	147	0.76	1,225	35,781	1
Chelan, WA	1	8,293	4,845	3,741	.66	1,198	55,915	1
Franklin, WA	1	8,199	2,365	(3,386)	1.56	1,441	42,711	2
Benton, WA	1	19,632	6,149	(10,367)	1.20	10,900	129,295	2
Yakima, WA	1	34,166	15,811	(2,040)	.97	4,735	207,683	2
Kittitas, WA	1	3,161	2,082	769	.40	2,464	29,726	3
Grant, WA	1	9,369	3,745	612	1.03	4,261	62,310	3
Adams, WA	1	2,843	1,005	(1,502)	1.35	361	15,046	3
Douglas, WA	1	3,674	1,741	2,128	.74	2,876	30,372	3
Kootenai, ID	2	9,900	5,254	5,379	.67	15,510	87,277	1
Benewah, ID	2	1,454	735	(1,074)	.91	402	8,539	1
Bonner, ID	2	4,031	2,121	549	.72	4,757	31,890	1
Spokane, WA	2	55,099	30,037	(5,533)	.69	21,736	395,874	2
Shoshone, ID	2	2,227	1,704	(5,818)	.38	(8)	13,871	3
Lewis, ID	2	580	390	(792)	.54	273	3,838	3
Whitman, WA	2	4,484	2,177	(3,635)	.59	(948)	38,865	3
Lincoln, WA	2	1,229	1,115	(854)	.13	576	9,428	3
Idaho, ID	2	2,087	1,299	(1,774)	.57	631	14,588	3
Garfield, WA	2	312	285	(247)	.12	89	2,305	3
Clearwater, ID	2	1,296	772	(2,409)	.62	441	9,061	3
Stevens, WA	2	4,844	2,407	(468)	.79	4,838	36,388	3
Ferry, WA	2	932	428	(20)	.80	522	7,033	3
Latah, ID	2	4,583	1,880	(835)	.88	582	32,276	3
Nez Perce, ID	2	4,633	3,230	(869)	.42	2,025	36,348	3
Asotin, WA	2	2,560	1,686	(92)	.50	1,887	19,788	3
Boundary, ID	2	1,316	606	333	.85	622	9,189	3
Pend Oreille, WA	2	1,325	866	(124)	.51	1,217	10,317	3
Flathead, MT	3	8,878	4,434	2,808	.75	6,766	67,285	1
Mineral, MT	3	564	278	(646)	.86	281	3,633	3
Ravalli, MT	3	3,222	2,235	1,530	.39	5,391	30,700	3
Lake, MT	3	3,590	1,948	343	.78	2,218	23,653	3
Missoula, MT	3	12,277	4,936	(4,670)	.93	4,238	85,669	3
Sanders, MT	3	1,301	879	(428)	.49	938	9,733	3
Lincoln, MT	3	2,917	1,335	(1,853)	.90	526	18,409	3
Teton, ID	4	715	224	51	1.43	655	4,269	1
Lemhi, ID	4	1,201	665	(1,097)	.78	421	7,425	1
Teton, WY	4	1,934	453	336	1.33	1,323	13,152	1
Custer, ID	4	791	321	278	1.14	(234)	3,984	1
Caribou, ID	4	1,722	484	(2,970)	1.78	(32)	7,182	3
Butte, ID	4	596	267	(753)	1.13	50	3,044	3
Jefferson, ID	4	3,762	995	(1,528)	1.67	514	18,427	3
Madison, ID	4	5,065	801	(70)	1.80	(1,586)	23,743	3
Power, ID	4	1,239	443	(554)	1.12	421	7,891	3
Clark, ID	4	168	71	(133)	1.27	5	814	3
Bingham, ID	4	8,331	2,390	(4,847)	1.58	1,159	40,990	3
Fremont, ID	4	2,173	787	(1,262)	1.27	(16)	11,525	3
Bannock, ID	4	13,370	4,226	(8,539)	1.38	1,596	70,932	3
Bonneviille, ID	4	14,868	4,061	(4,580)	1.50	2,305	79,213	3

Table 1—Basic census data (continued)

County, state	BEA subregion[a]	Births	Deaths	Net migration[b]	Natural rate of increase 1990	1990-94 migration	1994 population	County typology
		— — — Number of people — — —			Percent	— Number of people —		
Blaine, ID	5	1,953	537	2,295	1.04	1,683	15,990	1
Camas, ID	5	132	67	(156)	.89	62	793	1
Cassia, ID	5	4,296	1,414	(2,777)	1.48	58	20,811	3
Jerome, ID	5	2,720	1,190	(1,232)	1.01	742	16,597	3
Twin Falls, ID	5	9,154	4,788	(3,713)	.81	2,986	58,462	3
Gooding, ID	5	1,867	1,158	(950)	.61	681	12,678	3
Lincoln, ID	5	538	332	(334)	.62	229	3,570	3
Minidoka, ID	5	3,994	1,351	(3,000)	1.37	111	20,699	3
Valley, ID	6	1,041	449	(87)	.97	1,362	7,636	1
Canyon, ID	6	15,310	7,211	(1,779)	.90	9,675	104,431	2
Ada, ID	6	31,554	12,147	13,243	.94	27,624	243,337	2
Elmore, ID	6	5,400	1,081	(4,679)	2.04	(921)	22,589	3
Adams, ID	6	494	267	(320)	.70	530	3,850	3
Gem, ID	6	1,873	1,219	(782)	.55	1,416	13,467	3
Washington, ID	6	1,319	997	(575)	.38	490	9,149	3
Owyhee, ID	6	1,508	686	(702)	.98	194	9,052	3
Payette, ID	6	2,629	1,525	(495)	.67	1,949	18,956	3
Malheur, OR	6	4,858	2,400	(3,316)	.94	242	27,421	3
Boise, ID	6	430	208	288	.63	875	4,498	3
Harney, OR	6	1,143	697	(1,700)	.63	(45)	7,067	3
Wheeler, OR	7	144	150	(111)	-.04	203	1,578	3
Wallowa, OR	7	1,038	694	(706)	.50	554	7,466	3
Baker, OR	7	2,159	1,807	(1,169)	.23	951	16,274	3
Walla Walla, WA	7	6,663	4,760	(899)	.39	2,833	52,582	3
Columbia, WA	7	565	528	(70)	.09	45	4,102	3
Grant, OR	7	1,175	755	(777)	.53	(41)	7,929	3
Union, OR	7	3,574	2,008	(1,889)	.66	935	24,590	3
Gilliam, OR	7	267	161	(446)	.62	118	1,851	3
Umatilla, OR	7	10,171	5,327	(4,456)	.82	1,260	63,068	3
Morrow, OR	7	1,336	574	(656)	1.00	650	6,647	3
Hood River, OR	8	2,787	1,499	(220)	.76	104	17,989	1
Deschutes, OR	8	9,926	5,162	8,052	.64	14,054	90,923	1
Wasco, OR	8	3,085	2,209	(925)	.40	626	22,607	1
Skamania, WA	8	1,142	469	(303)	.81	464	8,958	3
Klickitat, WA	8	2,533	1,427	(312)	.67	748	17,281	3
Crook, OR	8	2,030	1,301	291	.52	1,528	15,895	3
Klamath, OR	8	8,814	5,032	(5,197)	.66	1,389	60,484	3
Sherman, OR	8	273	178	(349)	.50	(52)	1,901	3
Lake, OR	8	1,163	629	(880)	.74	34	7,330	3
Jefferson, OR	8	2,626	1,001	452	1.19	1,003	15,564	3
Deer Lodge, MT	9	1,286	1,436	(2,090)	-.15	(68)	10,229	3
Lewis and Clark, MT	9	7,566	3,461	351	.86	2,724	51,523	1
Silver Bow, MT	9	4,846	4,477	(4,520)	.11	525	33,814	3
Granite, MT	9	415	298	(269)	.46	97	2,655	3
Powell, MT	9	941	690	(589)	.38	160	6,792	3

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Table 1—Basic census data (continued)

County, state	BEA subregion[a]	Births	Deaths	Net migration[b]	Natural rate of increase 1990	1990-94 migration	1994 population	County typology
		— — — Number of people — — —			Percent	— Number of people —		
Humboldt, NV	10	2,036	768	2127	.99	1,304	15,261	1
Elko, NV	10	4,425	1,510	13346	.87	4,386	40,399	1
Fremont, WY	10	7,207	2,727	(9,810)	1.33	289	35,128	1
Sublette, WY	10	859	340	(224)	1.07	462	5,375	1
Box Elder, UT	10	8,185	2,221	(2,701)	1.63	213	38,750	3
Lincoln, WY	10	3,080	851	(1,781)	1.77	482	13,665	3
Oneida, ID	10	634	365	(35)	.77	112	3,657	3

[a] Subregion 1 = Tri-Cities, subregion 2 = Spokane, subregion 3 = Missoula, subregion 4 = Idaho Falls, subregion 5 = Twin Falls, subregion 6 = Boise, subregion 7 = Pendelton, subregion 8 = Redmond-Bend, subregion 9 = Butte, subregion 10 = Elko.

[b] Numbers in parentheses are negative.

Source: U.S. Department of Commerce 1995.

Table 2—Census bureau data for net migration and birth and death rates

BEA subregions	Births	1980-90 deaths	Net migration[a]	Natural rate of increase[b] 1990
	— — — — Number of people — — — —			Percent
Tri-Cities	94,985	40,851	(9,898)	0.99
Spokane	102,892	56,992	(18,283)	.66
Missoula	32,749	16,045	(2,916)	.78
Idaho Falls	55,935	16,188	(25,668)	1.47
Twin Falls	24,654	10,837	(9,867)	1.01
Boise	67,559	28,887	(904)	.95
Pendleton	27,092	16,764	(11,179)	.59
Redmond-Bend	34,379	18,907	609	.66
Butte	15,054	10,362	(7,117)	.47
Elko	26,426	8,782	922	1.28
Total	481,725	224,615	(84,301)	.88[c]

[a] Numbers in parentheses are negative.
[b] Computed as [(birth minus death) ÷ population].
[c] The computed basin average for natural rate of increase.

4. Assumed annual rates of natural increases were taken from a census publication (Day 1992) and modified for the higher rates in the basin. These projections are:

Year	United States	Basin[2]
	– – – Percent – – –	
1992	0.72	0.88
2000	.52	.62
2010	.51	.61
2020	.47	.56
2030	.34	.41
2040	.27	.32

Natural rates of increase by county were modified so that the ICRB total equaled that shown above and the ratios of individual counties to the ICRB average (observed 1981-90) were preserved.

5. We assigned one of three codes to each county for migration assumptions (see table 1). The typology was based on Johnson and Beale's (1995) classification of recreation counties. The codes were:

Codes	Migration rates
	Percent per year
1—recreation county	2.66
2—metropolitan	1.77
3—other	1.22

Migration rates were calculated as the average rates (1990-94) of those counties classified into each typology. Projected migration rates were adjusted each decade by multiplying by the following factors:

Year	Factor
1994	1.0
2000	.8
2010	.6
2020	.4
2030	0
2040	0

The migration rate assumption for recreation counties in 2000, for example, is 2.66(0.8)=2.13 percent.

Population projections were computed as $Population_{t+1}$ = $population_t$ + (natural rate of $increase_{t+1}$ * $population_t$) + (migration $rate_{t+1}$ * $population_t$). Projections are shown in table 3.

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[2] Basin data are for 1990 not 1992.

Table 3—Population projections by county

County and state by subregion[a]	Year					
	1995	2000	2005	2010	2020	2040
	Number of persons					
Subregion 1:						
Okanogan, WA	36,933	42,581	48,182	53,805	64,360	72,559
Chelan, WA	57,667	66,235	74,687	83,115	98,764	110,279
Franklin, WA	44,009	50,335	56,676	63,239	76,318	91,297
Benton, WA	132,827	149,906	166,726	183,770	216,662	250,546
Yakima, WA	212,957	238,323	263,016	287,680	334,216	378,323
Kittitas, WA	30,179	32,297	34,257	36,115	39,363	41,809
Grant, WA	63,590	69,665	75,505	81,320	92,328	104,033
Adams, WA	15,397	17,074	18,713	20,379	23,632	27,456
Douglas, WA	30,921	33,509	35,957	38,344	42,718	46,832
Total, Subregion 1[b]	625,826	712,136	801,769	895,113	1,087,771	1,402,569
Subregion 2:						
Kootenai, ID	90,016	103,412	116,632	129,818	154,318	172,404
Benewah, ID	8,824	10,229	11,631	13,052	15,760	18,012
Bonner, ID	32,905	37,875	42,792	47,714	56,910	63,893
Spokane, WA	404,987	448,533	490,286	531,179	605,987	668,111
Shoshone, ID	14,079	15,051	15,949	16,797	18,274	19,358
Lewis, ID	3,901	4,196	4,472	4,737	5,209	5,605
Whitman, WA	39,520	42,599	45,486	48,268	53,274	57,620
Lincoln, WA	9,550	10,114	10,626	11,097	11,878	12,291
Idaho, ID	14,831	15,973	17,041	18,069	19,913	21,490
Garfield, WA	2,335	2,472	2,596	2,710	2,900	2,998
Clearwater, ID	9,215	9,941	10,623	11,281	12,468	13,512
Stevens, WA	37,061	40,239	43,252	46,202	51,641	56,882
Ferry, WA	7,164	7,782	8,369	8,943	10,005	11,034
Latah, ID	32,899	35,848	38,660	41,432	46,599	51,795
Nez Perce, ID	36,905	39,513	41,929	44,221	48,236	51,291
Asotin, WA	20,105	21,591	22,976	24,299	26,646	28,552
Boundary, ID	9,364	10,192	10,979	11,754	13,194	14,622
Pend Oreille, WA	10,484	11,267	11,997	12,696	13,939	14,962
Total, Subregion 2[b]	783,189	864,071	944,912	1,026,117	1,184,896	1,411,800

Table 3—Population projections by county (continued)

County and state by subregion[a]	Year					
	1995	2000	2005	2010	2020	2040
	Number of persons					
Subregion 3:						
Flathead, MT	69,445	80,032	90,524	101,050	120,785	136,028
Mineral, MT	3,703	4,031	4,345	4,653	5,226	5,798
Ravalli, MT	31,165	33,341	35,354	37,259	40,586	43,071
Lake, MT	24,089	26,147	28,099	30,008	33,525	36,903
Missoula, MT	87,360	95,369	103,028	110,606	124,808	139,382
Sanders, MT	9,888	10,615	11,292	11,938	13,083	14,006
Lincoln, MT	18,768	20,467	22,089	23,692	26,685	29,722
Total, Subregion 3[b]	244,498	271,571	298,986	326,872	382,558	468,197
Subregion 4:						
Teton, ID	4,431	5,236	6,061	6,923	8,646	10,381
Lemhi, ID	7,665	8,842	10,011	11,185	13,392	15,120
Teton, WY	13,639	16,056	18,521	21,083	26,159	31,105
Custer, ID	4,125	4,823	5,527	6,252	7,663	8,951
Caribou, ID	7,376	8,310	9,242	10,213	12,177	14,730
Butte, ID	3,109	3,419	3,718	4,019	4,593	5,224
Jefferson, ID	18,907	21,219	23,515	25,891	30,660	36,719
Madison, ID	24,387	27,502	30,611	33,853	40,425	49,004
Power, ID	8,060	8,861	9,636	10,413	11,897	13,528
Clark, ID	832	920	1,006	1,093	1,261	1,454
Bingham, ID	42,026	47,004	51,925	56,993	67,088	79,654
Fremont, ID	11,785	13,028	14,237	15,461	17,831	20,553
Bannock, ID	72,606	80,615	88,456	96,443	112,086	130,641
Bonneville, ID	81,158	90,487	99,671	109,086	127,707	150,427
Total, Subregion 4[b]	302,081	351,559	405,058	463,009	590,708	846,120
Subregion 5:						
Blaine, ID	16,544	19,275	22,022	24,830	30,252	35,032
Camas, ID	819	949	1,079	1,211	1,461	1,667
Cassia, ID	21,318	23,750	26,142	28,590	33,424	39,292
Jerome, ID	16,936	18,542	20,085	21,620	24,520	27,586
Twin Falls, ID	59,557	64,730	69,644	74,464	83,378	92,080
Gooding, ID	12,893	13,905	14,855	15,772	17,424	18,871
Lincoln, ID	3,631	3,918	4,188	4,448	4,918	5,333
Minidoka, ID	21,184	23,503	25,772	28,080	32,592	37,917
Total, Subregion 5[b]	153,597	173,898	194,968	216,908	262,309	338,724

Table 3—Population projections by county (continued)

County and state by subregion[a]	Year					
	1995	2000	2005	2010	2020	2040
	Number of persons					
Subregion 6:						
Valley, ID	7,895	9,173	10,454	11,756	14,253	16,387
Canyon, ID	107,018	119,439	131,485	143,456	165,871	186,470
Ada, ID	249,456	278,868	307,456	335,955	389,563	439,768
Elmore, ID	23,248	26,447	29,677	33,083	40,115	49,721
Adams, ID	3,918	4,240	4,543	4,838	5,376	5,871
Gem, ID	13,689	14,732	15,707	16,643	18,318	19,732
Washington, ID	9,286	9,928	10,521	11,081	12,056	12,772
Owyhee, ID	9,234	10,098	10,927	11,749	13,299	14,917
Payette, ID	19,288	20,851	22,323	23,751	26,346	28,704
Malheur, OR	27,965	30,541	33,007	35,448	40,028	44,750
Boise, ID	4,575	4,939	5,280	5,611	6,208	6,738
Harney, OR	7,188	7,759	8,295	8,814	9,752	10,584
Total, Subregion 6[b]	483,038	541,574	601,842	664,142	791,886	1,005,645
Subregion 7:						
Wheeler, OR	1,596	1,679	1,754	1,821	1,927	1,962
Wallowa, OR	7,586	8,147	8,670	9,169	10,056	10,776
Baker, OR	16,498	17,540	18,493	19,380	20,883	21,817
Walla Walla, WA	53,378	57,100	60,545	63,803	69,493	73,735
Columbia, WA	4,154	4,393	4,610	4,808	5,134	5,294
Grant, OR	8,059	8,667	9,235	9,780	10,751	11,562
Union, OR	25,019	27,038	28,939	30,781	34,127	37,152
Gilliam, OR	1,883	2,031	2,170	2,305	2,548	2,761
Umatilla, OR	64,251	69,838	75,147	80,356	89,991	99,408
Morrow, OR	6,782	7,422	8,037	8,647	9,800	11,014
Total, Subregion 7[b]	189,519	206,412	223,108	239,709	271,758	317,112
Subregion 8:						
Hood River, OR	18,568	21,408	24,224	27,052	32,359	36,483
Deschutes, OR	93,753	107,585	121,213	134,779	159,902	178,134
Wasco, OR	23,266	26,470	29,587	32,640	38,145	41,572
Skamania, WA	9,126	9,917	10,669	11,406	12,769	14,098
Klickitat, WA	17,583	19,003	20,340	21,637	23,992	26,123
Crook, OR	16,152	17,359	18,486	19,564	21,482	23,062
Klamath, OR	61,535	66,480	71,133	75,642	83,818	91,177

Table 3—Population projections by county (continued)

County and state by subregion[a]	Year					
	1995	2000	2005	2010	2020	2040
	Number of persons					
Subregion 8: (continued)						
Sherman, OR	1,931	2,074	2,207	2,334	2,559	2,742
Lake, OR	7,463	8,089	8,682	9,260	10,320	11,319
Jefferson, OR	15,905	17,530	19,105	20,691	23,740	27,161
Total, Subregion 8[b]	265,014	295,243	325,566	356,105	415,787	497,444
Subregion 9:						
Deer Lodge, MT	10,337	10,835	11,276	11,664	12,262	12,361
Lewis and Clark, MT	53,228	61,605	69,963	78,414	94,412	107,469
Silver Bow, MT	34,244	36,242	38,051	39,708	42,449	43,841
Granite, MT	2,697	2,892	3,073	3,246	3,551	3,792
Powell, MT	6,894	7,371	7,812	8,228	8,954	9,488
Total, Subregion 9[b]	107,098	117,302	127,270	137,035	155,352	177,279
Subregion 10:						
Humboldt, NV	15,782	18,348	20,922	23,543	28,578	32,913
Elko, NV	41,737	48,312	54,869	61,497	74,078	84,371
Fremont, WY	36,430	42,895	49,490	56,344	69,933	83,199
Sublette, WY	5,562	6,487	7,418	8,372	10,218	11,862
Box Elder, UT	39,747	44,545	49,299	54,211	64,037	76,418
Lincoln, WY	14,032	15,803	17,568	19,405	23,118	28,181
Oneida, ID	3,724	4,041	4,341	4,634	5,174	5,712
Total, Subregion 10[b]	157,456	184,542	213,591	244,769	311,983	431,827
Total[b]	3,311,316	3,718,309	4,137,069	4,569,778	5,455,007	6,896,716

[a] Subregion 1 = Tri-Cities, subregion 2 = Spokane, subregion 3 = Missoula, subregion 4 = Idaho Falls, subregion 5 = Twin Falls, subregion 6 = Boise, subregion 7 = Pendelton, subregion 8 = Redmond-Bend, subregion 9 = Butte, subregion 10 = Elko.
[b] Total figures are calculated for each subregion and do not necessarily represent the sum of the counties in each BEA area.

Conclusions

The projections are summarized in figure 2 and table 4 (see p.14). By 2040, the high projections are twice the low projections. Where the low projection has an annual increase of 0.3 percent, the rate of growth in the high projection is 1.6 percent per year. Much of this higher growth results from higher net migration. The low projections essentially assume little net migration, which is generally a repeat of the 1980s when the basin was characterized by slight net out-migration. The high projections also maintain higher rates of natural increase than the low projection. This is a key assumption, especially after 2010, when natural rates of increase drop in various Bureau of the Census population forecasts.

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Table 4—Population projections

Projections and BEA subregion	Year										
	1973	1979	1983	1988	1990	1995	2000	2005	2010	2020	2040
	Thousands of persons										
Low projection:											
Tri-Cities	413.1	489.1	522.5	527.7	545.7	566.1	581.5	595.3	607.5	627.6	639.5
Spokane	581.8	649.4	675.7	681.8	691.7	716.1	734.0	749.8	764.1	790.1	807.7
Missoula	167.7	196.5	202.7	214.4	213.4	218.0	221.8	225.5	229.3	237.7	241.4
Idaho Falls	211.0	254.7	270.4	273.1	270.3	278.0	283.3	288.1	293.2	303.8	310.3
Twin Falls	114.4	131.1	142.4	139.9	136.8	140.7	143.4	146.0	148.7	154.2	157.4
Boise	299.6	365.8	388.4	403.8	408.3	428.3	443.5	457.0	470.3	495.0	511.6
Pendleton	152.3	172.9	181.7	174.8	176.0	181.3	185.1	188.4	191.3	197.2	200.2
Redmond-Bend	171.8	211.0	220.5	223.4	233.1	242.3	249.0	255.4	261.2	271.7	278.0
Butte	104.4	104.6	101.9	99.6	100.8	102.0	102.9	103.7	104.9	107.8	108.9
Elko	94.2	111.2	125.0	130.2	133.9	141.6	147.2	152.0	156.3	162.7	166.5
Total	2,310.3	2,686.3	2,831.2	2,868.7	2,910.0	3,014.4	3,091.7	3,161.2	3,226.8	3,347.8	3,421.5
High projection:											
Tri-Cities	413.1	489.1	522.5	527.7	545.7	625.8	712.1	801.8	895.1	1,087.8	1,402.6
Spokane	581.8	649.4	675.7	681.8	691.7	783.2	864.1	944.9	1,026.1	1,184.9	1,411.8
Missoula	167.7	196.5	202.7	214.4	213.4	244.5	271.6	299.0	326.9	382.6	468.2
Idaho Falls	211.0	254.7	270.4	273.1	270.3	302.1	351.6	405.1	463.0	590.7	846.1
Twin Falls	114.4	131.1	142.4	139.9	136.8	153.6	173.9	195.0	216.9	262.3	338.7
Boise	299.6	365.8	388.4	403.8	408.3	483.0	541.6	601.8	664.1	791.9	1,005.6
Pendleton	152.3	172.9	181.7	174.8	176.0	189.5	206.4	223.1	239.7	271.8	317.1
Redmond-Bend	171.8	211.0	220.5	223.4	233.1	265.0	295.2	325.6	356.1	415.8	497.4
Butte	104.4	104.6	101.9	99.6	100.8	107.1	117.3	127.3	137.0	155.4	177.3
Elko	94.2	111.2	125.0	130.2	133.9	157.5	184.5	213.6	244.8	312.0	431.8
Total	2,310.3	2,686.3	2,831.2	2,868.7	2,910.0	3,311.3	3,718.3	4,137.1	4,569.8	5,455.0	6,896.7