

HOW THE POPULATION PROJECTIONS WERE DEVELOPED

Preliminary low, medium, and high projections of the populations of the United States, the Pacific Northwest Region, and the States of Washington, Oregon, and Idaho to 1960, and 1975, prepared by the Census Bureau were presented to the Columbia Basin Inter-Agency Committee at Boise, Idaho, October 24, 1951. They are shown statistically in Table 1 and graphically for the national population in Chart IIA.

The Census Bureau preliminary projections for the Pacific Northwest were obtained by projecting the percentages of the future national population expected in the Region and its component states, and then applying the projected percentages to projections of the national population. The projected percentages were derived on the assumption that the differential between rates of growth of the Pacific Northwest population and the national population would gradually diminish to zero in the year 2000, at which time the growth rate of the Region would equal the national rate. The methods and further assumptions used by the Census Bureau in making its preliminary projections for the Pacific Northwest Region and states are described in detail in Appendix I.

Over the last hundred years, population has been growing more rapidly in the Pacific Northwest than in the Nation because of continual net migration into Washington and Oregon, and higher than national average birth rates in Idaho. The factors and conditions that induce net migration into the Region are still influential and should continue to induce further net in-migration.

Moreover, numerous studies indicate that the Pacific Northwest has exceptional potentialities for development of its vast natural resources and economic expansion during the next twenty-five years. These potentialities are so great that their realization would tend to maintain, and might even increase rather than diminish, the relatively higher rate of population gain in the Region. As will be shown later, the prospects appear especially favorable for large net migration into the Region during 1960-1975.

The Census Bureau assumption that the differentials between rates of population growth in the Nation and the Region will steadily diminish to the year 2000 does not give adequate recognition to the outlook for population increase in the Pacific Northwest. Its projections will

a/ Projections of the populations of each of the 48 states to 1955 and 1960 have since been published in Census Bureau release Series P-25, No. 56, dated January 27, 1952. All Census Bureau projections 1960-1975 shown in this report are preliminary figures prepared as rough guides for planning and administrative purposes by agencies represented on the Columbia Basin Inter-Agency Committee.

therefore be reviewed and appraised in light of recent studies and long-term plans for conservation and development of natural resources in the Pacific Northwest, and the expected effects of such development on population growth.

The preliminary projections by the Census Bureau, however, provide a valuable background and framework for more intensive study of the probable size of the populations of the Region and its states in 1960 and 1975. They are also helpful by showing the close relationships between rates of population growth in the Nation and the Pacific Northwest, and the wide range within which their future populations may vary.

Because the Census Bureau projections for the Pacific Northwest Region and states are based on projections of the national population, the national projections will be reviewed first.

National Population Projections Cover A Wide Range

The low, medium, and high projections of the total population of the United States (including armed forces overseas and within the Nation) in 1960 shown in Table 1 were developed by the Census Bureau as described in its Current Population Reports, Series P-25, No. 43, August 10, 1950. The Census Bureau projections of the national population 1960-1975 are unpublished preliminary projections. They appear to have been based on low, medium, and high projections of crude birth rates 1960-1975 approximately as shown in Chart III.

The spread between the low and high projections of the national population in 1960 and 1975 is unusually wide. This is chiefly the result of assumptions that produce a wide divergence in projected crude birth rates, as shown in Chart III.

Most population analysts have expected that the national crude birth rate would decline somewhat from its post-war peak of 27 per thousand population in 1947. The precipitous and continuing drop shown for the low projection, however, seems unreasonably severe. Even allowing for the reduction in the proportion of women in the child-bearing ages, 15-44, in the 1950-1960 population, compared to the proportion in the 1930's, it does not now seem likely that the birth rate would decline so rapidly and so far below the low figures reached during the depression decade.

The crude birth rate for the medium projection also falls below the depression low of 18.4 by 1954, declines to 16.6 by 1959, and continues at approximately this low level to 1975.

Even for the high projection, the birth rate drops sharply from its 1947 peak to 21.8 in 1959, and then continues at about this level to 1975.

During 1950 and 1951 the national crude birth rate remained well above the rates for those years assumed in making the low projection of the national population in 1960. Realization of the low projection of 161,679,000 for the United States population in 1960 would now require an even sharper and greater decline in the crude birth rate during the remaining eight years than that shown for the low projection in Chart III. A decline of such severity would be unprecedented and outside the realm of reasonable expectancy.

Hence, it now seems reasonable to expect that unless the Nation suffers some devastating destruction during 1952-1960, the national population in the latter year would range somewhere between a low projection of about 166,000,000 and the high projection of 180,276,000^{a/}.

The low and declining birth rates shown for the low projection, 1960-75, also seem unreasonably severe. The rates shown for the medium and high projections, 1960-75, appear to indicate a more probable range. A national population somewhere between 175 million and 225 million in 1975 therefore appears much more likely than any figure less than 175 million, barring some unforeseeable disaster.

Assumptions Made For Pacific Northwest Projections

In developing the projections recommended herein, it has been assumed that during the period of the forecast:

1. The existing political, economic, and social organization of the United States will remain substantially as it is,
2. No all-out war or other national disaster will occur,
3. No large-scale epidemic, earthquake, or other devastation will occur in the Pacific Northwest.

The rate of population growth in the Pacific Northwest will be determined largely by

- a. Future levels of economic activity, employment, and real income nationally, as mentioned before.

The level and trends of national employment and income have marked effects on both births and internal migration. When employment and incomes are at high levels, and especially when they are rising, marriage and fertility rates also are usually high, and people will take more chances on moving to a new location than when payrolls

^{a/} The Census Bureau release, Series P-25, No. 59, estimates that on March 1, 1952 the population of the U.S., including armed forces overseas was 156,197,000. Census Bureau Release, Series P-25, No. 58, dated April 17, 1952 shows a revised low projection of 165,174,000 and a revised high projection of 179,812,000 for the population of the United States in 1960.

are shrinking and hard times prevail. Conversely, internal migration is usually smallest and birth rates are lowest when employment and incomes are declining, or are at low levels.

- b. The relative rates of economic development and of creation of new opportunities in the Pacific Northwest compared with those in other areas of the Nation.

Other factors affecting the rate of population growth in the Region are:

- c. The size of the population pool from which most of the migrants to the Pacific Northwest would come, i.e. the size of the population in the Nation outside the Region. As the national population increases the pool of potential migrants also expands.
- d. The size of the resident population in the Region. As the population grows, natural increase tends to become larger. Net migration also tends to rise because of the increase in economic opportunities with a larger population and because of the increase in relatives and friends of potential migrants that a larger population would contain.

Disregarding all other influences, continued population growth in both the Nation and the Region would indicate a gradually rising volume of net migration into the Pacific Northwest for as long as its economy expands commensurately.

The high population projections recommended hereinafter, therefore, are based on the combination of national and local factors and conditions most favorable to population growth in the Region deemed likely to be realized during the forecast period. They assume sustained high levels of employment in the Nation and the Pacific Northwest together with the most rapid development of natural resources and economic activity anticipated in the Region during the forecast period.

Conversely, the low projections are based on the combination of national and local factors and conditions most adverse to population growth in the Region deemed likely to occur during the period of the forecast. They assume that a reduced level of economic activity roughly equivalent to unemployment of 10 to 12 percent of the labor force might occur in the Nation and the Region during one-half or more of the forecast period, with commensurate adverse effects on birth rates and expansion of economic opportunities in the Pacific Northwest.

Natural Increase And Net Migration In P.N.W. States

Development of population projections for the Pacific Northwest states requires consideration of both the net migration and natural increase components of past and future growth.

Net in-migration has been the principal source of population increase in Washington and Oregon. For these states, net migration has exceeded natural increase (excess of births over deaths) in each census decade 1880-1950.

In Idaho, however, natural increase was the predominant source of population growth in each of the three decades, 1920-1950.

The approximate amounts of natural increase and of net migration in Washington, Oregon, and Idaho during each of the last three census decades are shown in Table 3.

Approximate estimates of the amounts of natural increase and of net migration in each of the preliminary population projections for Washington, Oregon, and Idaho are also shown in Table 3. The procedure in making these estimates is described in Appendix II.

The Census Bureau's projections indicate that natural increase will constitute a larger proportion of population growth in Washington and Oregon than it has in the past. This would be expected for the reason that, as the population of a state becomes larger, its excess of births over deaths also increases and usually to a greater extent than its net in-migration.

The average annual net migration comes out approximately the same for the corresponding projection (high, medium, or low) for Washington and for Oregon during both 1950-60 and 1960-75. Also it is slightly higher for the corresponding projection during 1950-60 than for the 1960-75 period. This relationship appears questionable.

The average annual net migrations shown for the low projections for Washington and Oregon are above those recorded in the 1920-30 and 1930-40 census decades. Those indicated for the high projections, however, are about twice the amounts for the low projections, but are below those experienced during 1940-50 for the respective states.

The Bureau's projections for Idaho all indicate that natural increase will continue to be the chief source of its population growth. A net out-migration is indicated for each Idaho projection, except the high figure for 1950-1960.

The question is--Do the amounts and interrelationships of natural increase and of net migration indicated by the preliminary projections appear logical and reasonable in light of experience and the outlook for economic development in Washington, Oregon, and Idaho, or should they be modified, and, if so, to what extent?

To determine the answer, it is necessary to appraise the probable effects of demographic and economic factors on net migration and on natural increase in each of these states during 1950-1960 and 1960-1975.

Factors That Induce Net Migration Into Washington And Oregon

The principal causes of the continual migration into Washington and Oregon in past decades have been:

1. The relatively mild climate and scenic and recreational attractions of these states.
2. A generally higher rate of economic development and expansion of employment and incomes in those states than in the Nation as a whole.
3. A widespread belief among residents of other areas that economic opportunities are better in Washington or Oregon and that they can make a better living there than where they are. The vast natural resources awaiting development in the Pacific Northwest reinforce this opinion.

These three influences are still prevalent and should continue to induce net migration into Washington and Oregon for a long time to come.

Why Net In-Migration Was So Large During 1940-1950

The unprecedented net migrations of 388,000 into Washington, and of 285,000 into Oregon during 1940-1950 were caused by an unusual combination of favorable events and circumstances, as follows:

1. The huge demand for materials and equipment needed to win the war which brought an immense expansion of job opportunities, especially in aircraft assembly and ship-building in Washington and Oregon.
2. A more rapid increase of population of working age than of employment in these states during the previous decade, 1930-1940, with consequent underdevelopment of their economies in relation to their populations at the outbreak of the war.

3. An immense postwar demand for lumber and agricultural products, pulp and paper, aluminum and other materials produced in the Pacific Northwest (caused by deferment of construction and civilian goods manufactures during the war), which created thousands of new jobs in the Region.
4. A large increase in available low-cost electric power and establishment of a great aluminum reduction industry in the Region.
5. A 15-year backlog of deferred private expansion of productive facilities, especially of manufacturing capacity.

Outlook For Economic Expansion In Washington And Oregon 1950-60

With sustained high levels of national employment and income during the 1950-60 decade, net migrations into Washington and Oregon may logically be expected to exceed those of the 1920-30 and 1930-40 decades. But, unless all-out war should occur, it does not seem likely that employment opportunities in these states would expand as rapidly over the whole ten-year period as they did during 1940-50.

The postwar backlog of national demands for housing and for consumer's goods manufactured in the Pacific Northwest had largely been filled by 1950.

Although employment and production have increased in both the Nation and the Region since April 1950, the Region has not experienced as great an expansion of its manufacturing activity and plant capacity relative to the national expansion as it did during the war production period 1942-1945. Nor is it likely to do so during the rest of the defense emergency period, because of the acute shortage of electric power.

The expansion of manufacturing employment, especially in the production of aluminum and other items for defense purposes, would be much greater in Washington and Oregon during 1950-1954 if more electric power could be quickly provided for industrial use. While there is now a large demand for electric power for defense production in the Pacific Northwest, the further enlargement of generating capacity in the Region probably will proceed at a slower rate than during 1940-50, and be more strung out over the current decade.

The expansion of job opportunities and of industrial employment in these states, particularly Oregon, may therefore be expected to

increase more slowly in the first half of the current decade than it did during 1940-45 when electric power output more than doubled in the Region and tens of thousands of jobs in aircraft plants and shipyards were created almost over-night. Consequently, net migration into Washington and Oregon may be expected to be smaller during 1950-60 than it was in the last decade.

Projections For Washington And Oregon 1950-60

In general, the Census Bureau projections reflect this outlook. For Washington, the Census Bureau's high projection indicates an average annual net in-migration of about 30,900 for 1950-60, substantially below the 38,800 average in 1940-50.

The high projection for Oregon indicates an annual average net in-migration of about 26,700 per year during 1950-60. This, however, is only slightly below the annual average of 28,500 in the war boom decade 1940-50. It seems a little high in view of the outlook for economic expansion in Oregon in the current decade. An annual average of 24,000 per year, or 240,000 for the whole decade, is suggested as a more probable maximum for Oregon during 1950-60. Such an assumption, however, would reduce the 1960 high population projection for Oregon by less than 30,000.

The natural increases shown by the high projections for Washington and Oregon 1950-60 appear reasonable, and it is suggested that they be accepted.

As would be expected (for reasons stated above) the high population projections for Washington and Oregon 1950-60 show a slower rate of increase than that of the wartime decade 1940-50. They appear to be reasonable maximums for these two states, and it is suggested that they be used as high projections.

The Census Bureau high projections show population increases during 1950-1960 of 679,000 for Washington and 508,000 for Oregon. Those are not far from the 1950-1960 high population gains of 640,000 for Washington and 517,000 for Oregon indicated by earlier projections made by others in 1948^a.

^a/ A Century Of Population Growth, State of Washington 1860-1960, by Calvin F. Schmid, Vincent A. Miller, and Horace William Mooney, and Estimates Of Population Of The State Of Oregon For 1948-1960, by Elon Moore and John F. Staehle, published by the Pacific Coast Board Of Inter-Governmental Relations in People, Jobs, And Income On The Pacific Coast 1949-1960.

The net migrations into Washington and Oregon 1950-60 indicated by the Census Bureau low projections, however, seem too high as probable minimums. The total net migration of 147,000 shown for Oregon in the current decade is greater than the 136,600 indicated for Washington. This does not seem justified by experience and the present economic outlook for the two states. Moreover, neither of these figures might be realized if economic activity in the Nation and the Region should decline materially from present high levels. Total net in-migrations of about 100,000 are suggested as more logical minimums for both Oregon and Washington during 1950-60.

On the other hand, the natural increases for the low projections for Washington and Oregon 1950-60 in Table 3 appear too low, because they assume an unreasonably precipitous decline in crude birth rates, as mentioned before, and shown in Appendix II.

Further evidence that natural increases in Washington and Oregon 1950-60 will exceed the low figures in Table 3 are provided by the reported excess of births over deaths of approximately 70,000 in Washington and about 45,000 in Oregon for the two years, January 1, 1950-January 1, 1952.

It therefore seems reasonable to expect that, even with a sharp decline in future birth rates, natural increase for the whole decade 1950-60 will be slightly above the lows of 232,000 shown for Washington and 151,000 for Oregon.

If net migrations into Washington and Oregon 1950-60 should total only 100,000 each as suggested above, minimum natural increases for these states would then be about 250,000 for Washington and 165,000 for Oregon. Their total population increases 1950-60 would then be 350,000 and 265,000 respectively. Adding these to the April 1950 figures, the low projection for Washington to 1960 would become 2,691,000 and for Oregon 1,798,000.

These would be only 18,000 and 33,000 respectively below the Census Bureau low projections. While they appear to be more logically founded low figures for 1960, they are so close to the Census Bureau low projections that most agencies would probably prefer to use the Bureau's published figures.

The population increase of 298,000 for Oregon during 1950-1960 shown by the Census Bureau low projection agrees closely with a

projected low increase of 307,000 for that state made by others in 1948 (see footnote on page 13).

The Census Bureau medium projections 1950-60 for Washington and Oregon are slightly nearer the low than the high projections for these states. This seems logical in light of the foregoing analysis, and it is suggested that they be used as medium projections.

Projections For Idaho, 1950-60

The natural increases and net migrations indicated for the Census Bureau's high and low projections for Idaho 1950-60 are inconsistent with experience and population trends for that state.

The Census Bureau high projection of 717,000 for Idaho shows a population increase 1950-60 of 123,000. Even with the highest projected birth rates for that state, a net in-migration of about 12,000 would still be required to reach the Census Bureau high figure.

The Census Bureau low projection of 643,000 for Idaho in 1960 indicates a natural increase of about 90,000 (using the lowest projected birth rates) together with a net out-migration of approximately 41,000.

But the very conditions that induce high birth rates throughout the Nation and large net in-migrations for Washington and Oregon (i.e., high or rising levels of national employment and income) are the conditions that tend to cause net out-migration from Idaho. Idaho is a sparsely settled and predominantly agricultural state. Net out-migrations from Idaho are chiefly movements of its residents to more attractive climates or to larger industrialized states.

This is evidenced by the net out-migration of about 47,000

during the prosperous 1920-30 decade, and of about 27,000 during the war and postwar boom years 1940-1950.

On the other hand, net in-migration to Idaho appears to be largest during periods that make for low birth rates, i.e., when employment and incomes nationally are declining, or are at low levels. This is evidenced by the net in-migration of approximately 27,000 to Idaho during the depression decade 1930-40. This in-migration was caused partly by the back-to-the-land movement of the early 1930's, partly by the settlement in Idaho of farm families from the drought and the dust bowl areas, but probably most of all by the absence of better jobs or business opportunities elsewhere during that decade.

A further development of irrigated agriculture and farm opportunities, together with a gradual increase of manufacturing, distribution, and service activities may be expected in Idaho during 1950-60. Increases in mining activity and the possible development of the large phosphate rock deposits in that state may also expand employment to some extent during the current decade. But if birth rates remain high and employment opportunities continue to expand in the more industrialized states during 1950-60 (as is assumed for the high projections for Washington and Oregon) a net out-migration from Idaho appears more likely than a net in-migration.

On the other hand, experience indicates that the less favorable economic conditions that would bring about the minimum birth rates might induce a concurrent net migration into Idaho.

In view of the foregoing, modified projections for Idaho 1950-60 are suggested, as follows:

	<u>Excess of Births Over Deaths</u>	<u>Approx. Net Migration</u>	<u>Numerical Increase</u>	<u>Percent Increase</u>
Low	107,000	-37,000	70,000	11.8
Medium	100,000	- 2,000	98,000	16.5
High	95,000	28,000	123,000	20.7

Adding these projections to the 1950 population produces the following suggested projections for the population of Idaho in 1960:

Low	594,000	+	70,000	=	664,000
Medium	594,000	+	98,000	=	692,000
High	594,000	+	123,000	=	717,000

Since birth rates in Idaho have been consistently above national averages, and also above those in Washington and Oregon, the suggested

low increase of 70,000 represents a logical minimum. It should be noted also that even if the estimated low birth rates should occur during 1950-60, net out-migration would have to exceed 22,000 before the state's population would fall below the suggested low projection of 664,000. The Census Bureau's low projection of 643,000 for Idaho in 1960 therefore seems unjustifiably low.

The suggested high projection of 717,000 in 1960 is the same as the Census Bureau high figure.

It should be noted that both the medium and high projections of the Census Bureau, as well as those suggested here, indicate a larger numerical gain for Idaho during 1950-60 than the State experienced during 1940-50. This seems logical, in view of the state's larger population at the beginning of the current decade, its high birth rates during the two years, 1950-1951, and the outlook for continued population growth shown by the foregoing analysis.

It should be noted also that the ratio of the suggested high population increase to the suggested low increase for Idaho 1950-60 is $\frac{123,000}{70,000} = 1.77$. This is much smaller than the ratio of 2.51 shown by the Census Bureau projections. Corresponding ratios for the Census Bureau projections 1950-60 for Washington and Oregon are 1.85 and 1.70 respectively.

Since population growth in past decades has generally fluctuated within a narrower range in Idaho than in Washington and Oregon, the smaller ratio shown for the suggested Idaho projections appears more logical than the higher ratio indicated by the Census Bureau projections.

Projections For P.N.W. Region 1950-60.

It is emphasized again that the favorable economic conditions implicit for achievement of the high population projections for Washington and Oregon 1950-60 are the conditions that would tend to induce the largest net out-migration from Idaho, and the low population in 1960. Conversely, the less favorable economic conditions implicit in the low projections for Washington and Oregon would tend to induce the largest net in-migration to Idaho in that decade, and the high population in 1960.

Hence, in combining the projections for Idaho with those for Washington, Oregon, and the 11 northwestern Montana counties to obtain population figures for the Pacific Northwest Region, the low projection for Idaho should be combined with the high projections for the other areas. Likewise, the high projection for Idaho should be

combined with the low projections for the other areas, as shown in Table 5.

By such combination, the total high net in-migration to the Pacific Northwest Region comes out less than the arithmetical sum of the estimated high net in-migrations for its separate areas. This is to be expected, because part of the net in-migration to Washington and Oregon during good times would normally come from movement of Idaho residents to those two states. Moreover, it should be noted that for any given period, net migration among all the 48 states equals foreign immigration to the Nation.

Because projected changes for the population of the 11 northwestern Montana counties are relatively small, and data necessary for analysis of their natural increase and net migration are not available, it is suggested that the Census Bureau projections for these counties be accepted.

Population Projections For Pacific Northwest, 1960-75

The Census Bureau's medium and low projections for each Pacific Northwest state, 1960-75, all show smaller average annual numerical population gains than for the corresponding projections 1950-60. The Bureau's high projection for Idaho 1960-75 also shows a smaller average numerical gain per year than is indicated by the high projection for the 1950-60 period.

Only the high projections for Washington and Oregon show slightly greater average annual numerical increases 1960-75 than for 1950-60. This is the result of a larger average annual natural increase due to their larger populations during the latter period. The high annual average net in-migrations for these states 1960-75 are below those shown for 1950-60.

The Census Bureau projections for the Pacific Northwest states, 1960-75, appear too low. They do not adequately reflect the potentialities for increases of economic activity and population in the Region during that period.

Because of its vast undeveloped natural resources, the Pacific Northwest has exceptional opportunities for economic and population growth during the next 50 years. More than 30 million kilowatts of hydro-electric energy can be economically developed from falling water in the Columbia River Basin alone. Of this potential, less than 4 million kilowatts have been developed to date.

The outlook for expansion of economic activity and population in the Pacific Northwest after 1960 appears even more favorable than the outlook for the current decade. By 1960, the shortage of electric power and other adverse factors that are now retarding expansion of agriculture, industry, and business in the Region may be largely eliminated. Other factors favorable to high rates of economic expansion and net in-migration during 1960-75 are:

1. An unusually large number of young people will enter the working and marriageable ages throughout the Nation. This will enlarge the pool of potential migrants because the greater part of inter-state movement is of persons ages 15-40. It will also provide the larger consumer demand and labor force necessary for a substantial economic expansion in the Nation and Region.
2. Many of the large scale programs and projects now being planned for conservation and development of water, power, and land resources of the Region should be completed and in operation. By 1965, 8 to 10 million additional k.w. of low-cost hydro-electric power will probably be available. This would be nearly three times present generating capacity in the Region, and can be expected to induce a large expansion of light metal, electro-chemical, and other industries for which low-cost electric energy is an important factor.
3. Natural gas, and possibly petroleum also, may be brought into the Region by pipeline from Canada or other areas within the next 5 to 10 years. Since industrial development of the Region has been retarded by lack of abundant low-cost fuels, the importation of natural gas should further accelerate industrial and economic growth.
4. With ever-increasing drains on water supplies in other areas, the abundance of water along the Columbia River and in other parts of the Region should attract many industries requiring large quantities of low-cost water.
5. During 1960-1975, the Region's great forest products industries should be operating on a more sustained yield basis. In addition, the trend is toward more intensive manufacture of wood products with greater utilization of waste material. These anticipated shifts not only should offset a potential decline of wood using industries from depletion of forest resources, but also should induce their further development.

6. Large increases in irrigated land now being planned (3 million additional acres by 1975) should open up opportunities for thousands of farm families, and may reverse the current down trend in the Region's farm population.
7. Distribution and service activities in the Region may expand even more rapidly than its extractive and manufacturing activities, because the long-term trend is toward increasing proportions of employment in distribution and services.

In view of the exceptionally favorable long-term outlook for economic expansion in the Pacific Northwest, the chances appear good that the population of the Region may increase at a higher rate relative to population growth in the Nation during 1960-75 than during 1950-60. In other words, instead of experiencing a declining rate of growth relative to that of the Nation after 1960, as assumed by the Census Bureau, the reverse may well occur. It is suggested that this possibility should be recognized, at least in the high projection for the Region's population 1960-75.

The foregoing analysis indicates that for the same relative levels of national employment and national income in the two periods, net in-migration per year to the Pacific Northwest may be expected to average higher during 1960-75 than during 1950-60. With favorable conditions throughout the Nation and Region during the 15-year period average annual net in-migrations of 45,000 for Washington and 35,000 for Oregon might reasonably be realized during 1960-75, and are suggested for the high projections, as shown in Table 4.

The natural increases shown in Table 4 for the high projections for each Pacific Northwest state 1960-75 are based on the same average crude birth rates used in computing the natural increases shown in Table 3 for the Census Bureau high projections for the respective states.

Even with generally adverse conditions, average annual net in-migrations to Washington and Oregon should be somewhat above the 10,000 figure previously suggested for the low projections for these states 1950-60. Averages of 12,000 have been assumed as probable lows.

Moreover, birth rates assumed for the low projections of the national and regional populations 1960-75 appear too low for reasons mentioned before. Somewhat higher natural increases for the low projections for Washington, Oregon, and Idaho 1960-75 are therefore presented in Table 4, and described in detail in Appendix II.

During 1960-75, Idaho may become more industrialized, and employment opportunities may then expand at a rate commensurate with the large natural increase of its population. The general economic conditions which have caused net migration for Idaho to be inward or outward (as described on pages 15 and 16) may therefore have quite different effects during 1960-75 than during the current decade.

Because of its unusually high birth rates, the low and high projections of natural increase shown in Table 4 (assuming practically no net migration in either direction) appear to represent reasonable low and high projections for the population of Idaho in 1975.

The Census Bureau preliminary high projection for Idaho 1975 equals the projected high natural increase minus a net out-migration of only 3,000. It therefore seems acceptable as an approximate high projection.

The increase of only 15,000 for Idaho 1960-75 shown by the Census Bureau preliminary low projection, however, seems much too small. Even with a projected low average annual natural increase rate of only 5.8 per thousand population for Idaho 1960-75, the excess of births over deaths during the period would total about 60,000. The low projection of 724,000 for Idaho in 1975 shown in Table 5 is recommended.

A more diversified economic development in Idaho would tend to prevent net out-migration in periods of general prosperity and high employment. Greater industrialization also might tend to prevent net in-migration during periods of economic depression. Because of these possibilities, the high and low projections for Idaho in 1975 have been combined with the respective high and low projections for the other areas, as shown in Table 5, instead of the reverse combination described before for 1960.

The ratios of the high to the low population increases 1960-75 for Washington and Oregon shown by the recommended projections in Tables 4 and 5 are approximately the same as the corresponding ratios for the Census Bureau preliminary projections. For Idaho, however, the ratio of the high to the low increase 1960-75 of 2.97 for the recommended projections is much smaller than the 11.8 ratio shown by the Census Bureau preliminary projections.

Choosing The Projection To Use

The recommended high and low projections in Table 5 show the probable, or expected, range of population increase in the Pacific Northwest Region and states to 1960 and 1975.

The high projections represent the largest population figures judged likely to be achieved on the forecast dates. Likewise, the low projections indicate the smallest populations now expected on the forecast dates. Considering the assumptions and analysis on which the projections are based, it seems reasonable to believe that population figures somewhat below the high projections, but above the low projections, are more likely to be realized than either the high or the low figures.

Where single-figure forecasts are required, the recommended medium projections in Table 5 would generally appear to be the most logical figures to use. For certain purposes, however, it may be desirable to use a figure between the medium and high projections, or between the medium and low projections.

For example, the planning and timing of resource development projects in the Pacific Northwest may justifiably be based on population forecasts between the medium and high projections.

Achievement of the high projections would require that large-scale resource development projects needed for the creation of larger economic opportunities during the forecast period be planned and constructed well in advance of the larger population they are expected to serve. If the population projections on which the planning of such projects are based were too low, population growth might be retarded through inadequate development of natural resources. A more rapid development of such resources might have induced a greater expansion of economic opportunities in the Region with consequent increase in population. With its higher than national rate of population growth, any over-capacity of resources development in the Pacific Northwest would probably be of relatively short duration.

For other purposes, it may be desirable to use more conservative figures between the medium and low projections. For example, in computing future revenues to be obtained from the sale of water or power from development projects, or from revenue bonds issued to finance improvements, the amounts of income from which would be determined by the size of the future population, overestimation of the future population might cause financial difficulties.

Because of the variety of purposes for which population projections may be used, the rigid adoption of the medium figures for all single-figure projections is not suggested. The use of a population figure or figures within the probable range shown by the low and high projections in Table 5, however, is recommended.

Table 3 - POPULATION CHANGES, PACIFIC NORTHWEST STATES AND REGION,
BY DECADES 1920-50 WITH PROJECTED CHANGES TO 1960 AND 1975 ^{a/}

<u>Area</u>	<u>Percent Increase</u>	<u>Numerical Increase</u>	<u>Excess of births over Deaths</u>	<u>Approx. Net Migration</u>	<u>Average Annual Net Migration</u>
<u>Washington</u>					
1920-1930	15.2	206,775	97,069	109,706	10,971
1930-1940	11.1	172,795	56,225	116,570	11,657
1940-1950	37.0	642,772	255,000	388,000	38,800
<u>1950-1960</u>					
Low	15.7	368,000	232,000	136,000	13,600
Medium	21.2	496,000	285,000	211,000	21,100
High	29.0	679,000	370,000	309,000	30,900
<u>1960-1975</u>					
Low	11.0	299,000	109,000	190,000	12,667
Medium	21.7	615,000	321,000	294,000	19,600
High	35.5	1,072,000	667,000	405,000	27,000

<u>Oregon</u>					
1920-1930	21.8	170,397	52,746	117,650	11,765
1930-1940	14.2	135,898	28,627	107,271	10,727
1940-1950	39.6	431,657	147,000	285,000	28,500
<u>1950-1960</u>					
Low	19.4	298,000	151,000	147,000	14,700
Medium	25.1	385,000	185,000	200,000	20,000
High	33.1	508,000	241,000	267,000	26,700
<u>1960-1975</u>					
Low	15.0	274,000	70,000	204,000	13,600
Medium	26.0	499,000	205,000	294,000	19,600
High	40.3	823,000	442,000	381,000	25,400

a/ Numerical and percent increases of population are from preliminary projections by Census Bureau.

Table 3 - Continued

<u>Area</u>	<u>Percent Increase</u>	<u>Numerical Increase</u>	<u>Excess of births over Deaths</u>	<u>Approx. Net Migration</u>	<u>Average Annual Net Migration</u>
<u>Idaho</u>					
1920-30	3.0	13,166	61,000	-47,834	-4,783
1930-40	17.9	79,841	53,168	26,673	2,667
1940-50	12.1	63,764	90,400	-27,000	-2,200
<u>1950-60</u>					
Low	8.25	49,000	90,000	-41,000	-4,100
Medium	13.3	79,000	99,000	-20,000	-2,000
High	20.7	123,000	111,000	12,000	1,200
<u>1960-1975</u>					
Low	2.3	15,000	83,000	-68,000	-4,533
Medium	12.2	82,000	139,000	-57,000	-3,800
High	24.8	178,000	181,000	- 3,000	- 200

Pacific Northwest Region^{b/}

United States

	<u>Percent Increase</u>	<u>Numerical Increase</u>	<u>Percent Increase</u>	<u>Numerical Increase</u>
1920-30	14.3	389,877	16.1	17,064,426
1930-40	12.8	400,217	7.2	8,894,229
1940-50	32.8	1,154,468	14.5	19,028,086
<u>1950-60</u>				
Low	15.5	720,000	7.0	10,563,000
Medium	20.9	975,000	12.1	18,255,000
High	28.7	1,338,000	19.3	29,160,000
<u>1960-1975</u>				
Low	10.8	583,000	2.4	3,937,000
Medium	21.5	1,209,000	12.2	20,730,000
High	35.3	2,113,000	25.0	45,034,000

^{b/} States of Washington, Oregon, Idaho, plus 11 Northwestern Montana Counties west of the Continental Divide.

APPENDIX I

DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
WASHINGTON 25, D. C.

METHOD USED IN PROJECTING THE POPULATIONS OF THE STATES IN THE PACIFIC NORTHWEST TO 1975

The projections for the Pacific Northwest relate to the area consisting of Idaho, Oregon, Washington, and the following group of eleven counties in Montana: Deer Lodge, Flathead, Granite, Lake, Lincoln, Mineral, Missoula, Powell, Ravalli, Sanders, and Silver Bow. The method and assumptions described above were used with one minor exception, and were applied to data for the following area units: Idaho, Oregon, Washington, the eleven Montana counties taken as a whole, and the remainder of Montana taken as a whole. Since estimates of the populations of the counties of Montana for July 1, 1950 were not available, the ratios of the populations of the 11-county group and of the remainder of Montana to the State as a whole were extrapolated from April 1, 1950, rather than from July 1, as was done for the divisions and states.

The general design of the method used in preparing the population projections shown in Table 1 for the Pacific Northwest States and Region is the same as that described by Margaret Jarman Hagood and Jacob S. Siegel in the article "Projections of the Regional Distribution of the Population of the United States to 1975" published in the April 1951 issue of Agricultural Economics Research. The specific assumptions and details of computation are somewhat different, however; hence, the two sets of projections are not fully comparable.

First, the ratio of the total population of each division to the total population of the United States was computed for each decennial year to 1950 and projected to 1975 in such a way as to approach constancy. These projected ratios were then applied to the United States totals at the future dates. The ratio of the total population of each State for which a projection was to be prepared to the total population of the division containing it was then computed for each decennial year to 1950, projected to 1975, and then applied to the projected totals for the division. By use of our "low," "medium," and "high" projections of the total population of the United States at future dates, three series of projections for States and divisions were developed for 1955, 1960, and 1975.

In setting up the assumptions used in projecting the ratios, the divisions and States were divided into three groups: Those areas for which the ratios form a monotone sequence (constantly increasing or constantly decreasing) from 1920 to 1950, those areas for which the ratios

form a monotone sequence from 1930 to 1950 but not from 1920 to 1950, and those areas for which the ratios do not form a monotone sequence from 1920 to 1950 or from 1930 to 1950. For the first group it was assumed that the initial annual rate of change in the ratio--the change occurring between July 1, 1950, and July 1, 1951--was the same as the average annual rate of change for 1920-50, 1930-50, or 1940-50, whichever was the least (closest to zero). For the second group it was assumed that the initial annual rate of change was the same as the average annual rate for 1930-50 or 1940-50, whichever was the least. For the third group it was assumed that the initial annual rate of change was one-half of the average annual rate for 1940-50. It was also assumed that the rate of change assumed for 1950-51 would decrease linearly to zero by the period 2000-2001. These assumptions determine the change in the ratios during each 12-month period between July 1, 1950, and July 1, 1975. The projected annual rates of change were applied to estimates of the ratios for July 1, 1950, to determine the values of the ratios for July 1 of each year, 1951 to 1975. In computing the average annual rate of change in the ratios for various periods terminating in 1950, the values of the ratios on April 1, 1950 were used; however, in extrapolating the ratios, the initial annual rate of change was applied to an estimate of the ratio for July 1, 1950 (based primarily on population estimates published in Current Population Reports, Series P-25, No. 50). The values of the ratios for the divisions, for 1955, 1960, and 1975, were adjusted to add exactly to 1, as were the values of the ratios for the States within a given division.

The projections for each area are designed to represent the civilian population resident in the area plus the members of the armed forces residing in the area at the time of their entry into the military service, rather than the total population resident in the area. (The number of armed forces stationed in each area, the number of armed forces stationed overseas, and the net loss from the civilian population of each area to the armed forces, have varied greatly in the recent past and can vary greatly in the future, so that these factors can generally be regarded as disturbing the "normal" trend of the ratios and of the populations in a way which cannot be reliably predicted.) The census data for April 1, 1950 and the population estimates for July 1, 1950, from which current ratios were computed, were adjusted therefore to exclude members of the armed forces stationed in the area whose preservice residence was outside the area, and to include members of the armed forces, both at home and abroad, who resided in the area prior to military service. Census data for 1940 and prior years were not adjusted because of the small numbers involved. Hence, also, the projected ratios were applied, directly or indirectly, to projections of the total population of the United States including armed forces overseas (published for 1955 and 1960 in Current Population Reports, Series P-25, No. 43, or representing extensions of them for 1975). The projections for 1955, 1960, and 1975, and the figures for 1950 presented in the attached table should not be used in conjunction with estimates for dates after April 1, 1940, published in Current Population Reports, Series P-25, or in

conjunction with data from the 1950 Census, unless the differences in the treatment of the armed forces are taken into account.

Since the projections represent the results of the use of certain assumptions, they must be interpreted in the light of those assumptions. Other equally reasonable assumptions could have been used which would have produced somewhat different results. Also, any particular State projection may differ from the actual population of that State by a relatively large amount; for example, a figure for 1975 may differ by as much as 50 percent or even more.