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PEOPLE 2013: BC Sub-provincial Population Projections

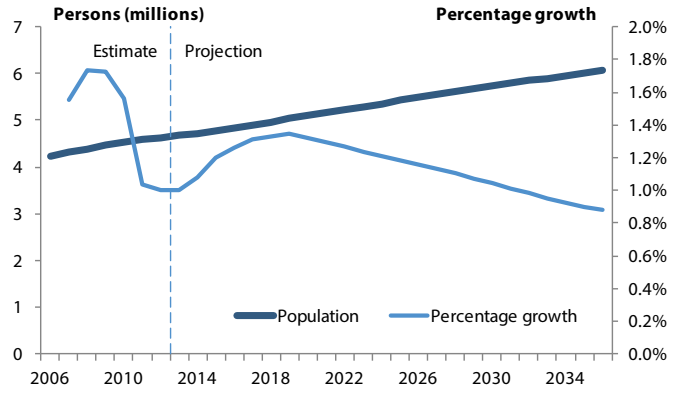
WRITTEN BY FRANK IP AND WERNER GRUNDLINGH

Introduction

PEOPLE 2013 (**P**opulation **E**xtrapolation for **O**rganizational **P**lanning with **L**ess **E**rror) is BC Stats' latest population projection. This projection covers the period 2013 to 2036, with information available for numerous provincial geographies including Local Health Area, Health Service Delivery Area, Health Authority, School District, College Region, Regional District and Development Region.

2013 Projection Highlights

It is expected that the B.C. population will grow at an annual rate of 1.3% per year over the next decade from 4,669,022 persons in 2013 to 5,229,463 in 2022. After which growth will slow to just below 1.0% towards the end of the projection period with 6,057,948 persons in 2036.



Source: BC Stats and Statistics Canada

The Lower Mainland, home of more than 60 per cent of the province's residents in 2013, is expected to see highest population growth among all other development regions. In fact, three quarters of the total B.C. population increase by 2036 will happen in the Lower Mainland. The Northeast development region will see strongest and consistent population growth among all development regions outside the Lower Mainland. The population trend in the North Coast, Nechako, Kootenay and North Coast will remain relatively flat.

	Population as of July 1 (000s)			Averag annual growth
Development regions	2013	2022	2036	2013-2036
Vancouver Island/Coast	795	867	970	0.7%
Mainland/Southwest	2,837	3,250	3,869	1.2%
Thompson Okanagan	546	601	682	0.8%
Kootenay	154	159	165	0.2%
Cariboo	164	168	173	0.2%
North Coast	60	61	62	0.1%
Nechako	40	41	41	0.1%
Northeast	74	83	95	1.0%
B.C. Total	4,669	5,229	6,058	1.0%

Source: BC Stats

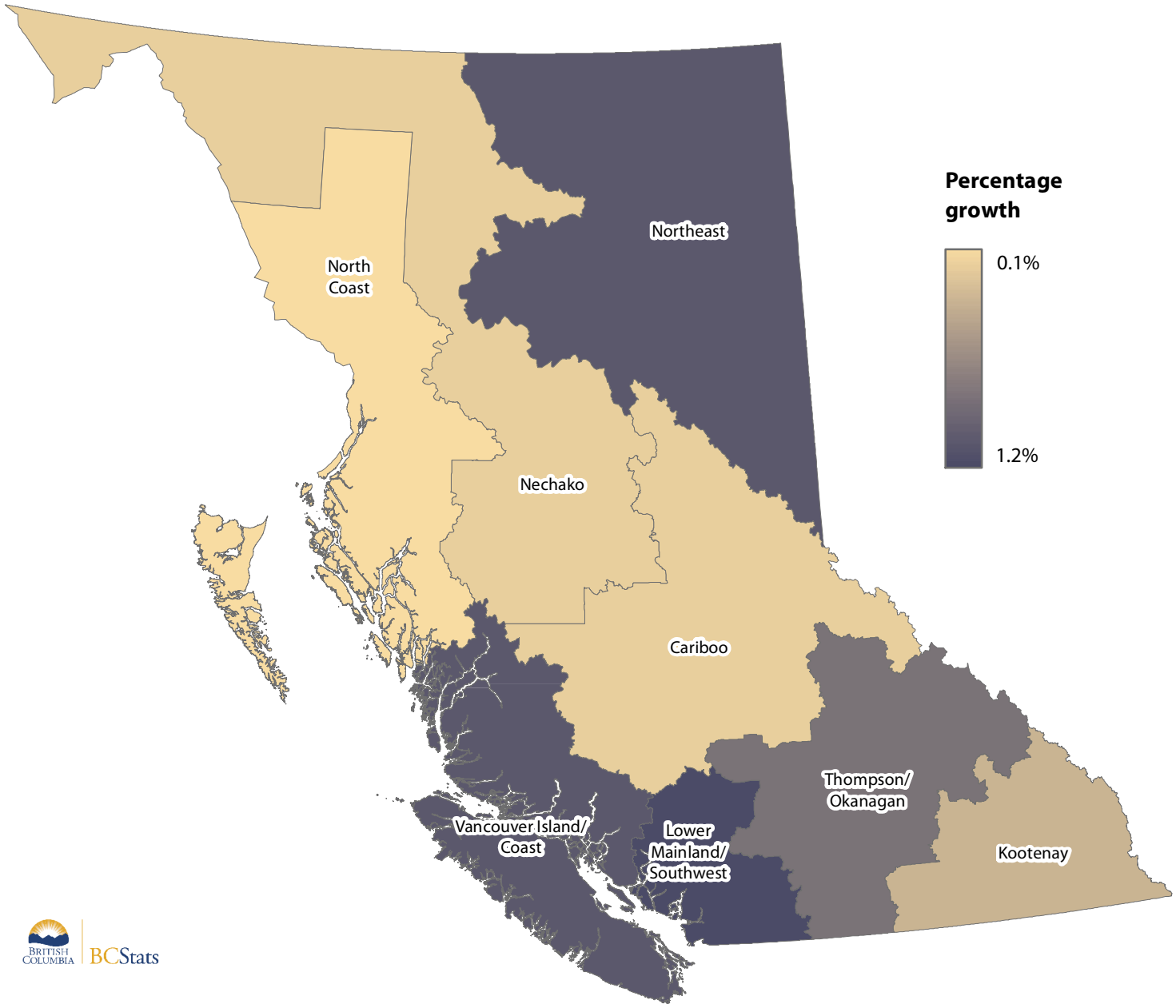
In 2013, both males and females aged 50 years old make up the largest share of the provincial population. These individuals belong to the "baby-boomer" population who were born in or around the 1950's and will evetually be replaced in the labour force by the "baby-echo" cohort who is now aged 20-40 years.

Average annual percentage growth

British Columbia Development Regions

PEOPLE 2013

Projection period: 2013-2036



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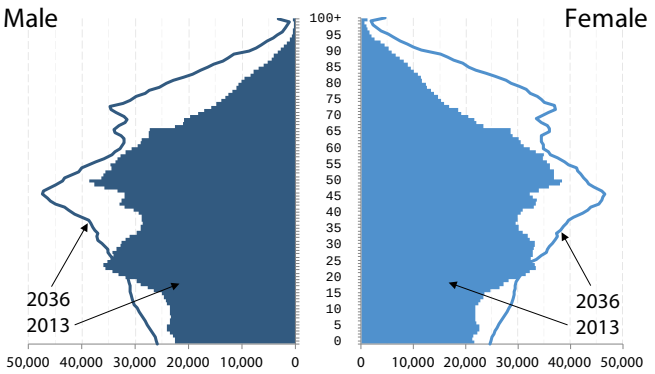
BRITISH COLUMBIA POPULATION – 2013 VERSUS 2036



Source: BC Stats

Except for those in the age group of 20-25, BC population in all other ages are expected to be larger in 2036 than today. However, other things being equal, this future increase in absolute size of work force population will not necessarily imply a more prosperous economic future as the every young and very old population are expected to grow even faster. The senior and youth dependency ratios are expected to jump considerably througout the projection period. For example, the number of seniors to be "supported" by 100 workers will increase from 25.9 in 2013 to 43.5 in 2036.

BRITISH COLUMBIA POPULATION DEPENDENCY RATIOS

	2013	2036
Youth (Age 0-19)	953,357	1,127,593
Senior (Age 65+)	765,488	1,494,239
Worker (Age 20-64)	2,950,177	3,436,116
Youth dependency	32.3	32.8
Senior dependency	25.9	43.5
Total dependency	58.3	76.3

Dependency ratio = selected group per 100 workers (age 20-64)
Source: BC Stats

Background

Each year BC Stats produces a new set of sub-provincial population projections by age and gender. The reference date for the projections is July 1st of each year and the projection release date is usually in the early part of the fourth quarter. Currently, the projections are prepared for twelve sub-provincial geographies including the regional districts, local health areas, school districts and various other B.C. administrative boundaries.

The production timing of PEOPLE follows a business cycle in which a set of population estimates are first prepared for the current calendar year. These estimates will be used as the base population for projections and are usually published in December of each year. Development of the projections usually starts in the second quarter of the subsequent year. For this report, the 2012 estimates were produced in December 2012, while the projections for 2013 onward were produced during the third quarter of 2013.

The sub-provincial population projection is controlled at the aggregate level by the provincial population projection. The provincial level projection sets the level for each component of population growth that all sub-provincial components should conform to.

Local Heath Areas (LHAs)—a health care related administrative region in B.C.—form the base geographic boundaries used in the population projection model. All other sub-provincial projections are derived from the LHA projections according to a pre-determined geographic relationship. The current projection covers the period 2013 to 2036 with 101 age groups (aged 0 up to 100 years old plus) and by gender (males, females and totals).

Methodology

British Columbia small area population projections result from the application of a "Component/Cohort-Survival" population model to assumptions dealing with fertility, mortality and migration.

The Component/Cohort-Survival method requires separate projections for each of the components of population change, namely fertility, mortality and migration. With this information, and with a base year age-specific estimate of population, a projection for any subsequent year is made by promoting each age group in the preceding year to the next highest age group, while at the same time taking into account the effects of net migration, deaths and births.

The BC Vital Statistics Agency provides BC Stats with up-to-date data regarding vital events within the province. This is used to build a historic picture of births and deaths at the small area level, and is used to forecast what might happen in the future. Vital events remain fairly stable over time. As such, it is expected that certain historical trends will continue within the foreseeable future, or over the projection period. Migration on the other hand is far more volatile. Government policy changes and/or regional economies could have a major short-term impact on migratory levels or, for example, major projects close to isolated areas may result in a large influx of new residents for a number of years.

BC Stats attempts to address these challenges through careful consideration of available information. With regards to assumptions for migration across the province, the Major Projects Inventory (MPI)[1] provides a tangible selection of large-scale infrastructure developments (roughly $15 million in capital costs) at varying stages of completion. Also, mine closures may have significant impacts on small areas in terms of movement of people. Migration assumptions are revisited annually to verify and possibly adjust previous considerations, due to the unpredictable nature of certain projects.

Over the past cycles of PEOPLE, the northern part of B.C. has seen major investments in infrastructure development. In part this may be due to neighbouring Alberta's natural resource developments. The northeast is also expected to undergo some intra- and interprovincial movement between LHAs as a result of the Site C development (an initiative of the province to become energy self-sufficient by 2016). Meanwhile, the Kitimat LNG project and surrounding developments along the North Coast are anticipated to provide some stimulus for growth in the population.

Discussion

The accuracy of the sub-provincial population projections hinges on a number of assumptions including the accurate projection of future migration levels, the quality of the base population and the reliabilty of the projected BC level population. It should also be noted that as the process of change is cumulative, the reliability of the projections may decrease over time. Historical data for international, interprovincial and intraprovincial migration at a sub-provincial level has proven to be very volatile. Factors such as relative economic conditions, changes in immigration policy, regional housing development and real estate prices can influence population mobility in a way that is difficult to foresee.

In this newly released projection, the base year population is obtained from BC Stats' current population estimates (July 1, 2012) that are in turn based on the the 2006 Census adjusted for net census undercoverage (NCU) and demographic growth since May 2006. The quality of the base year estimates is expected to deteriorate the further away one is from the census year (2006 in this case) on which the estimation was based. While the 2011 Census counts have

[1] Major Projects Inventory, Ministry of Jobs, Tourism and Skills Training, http://www.jtst.gov.bc.ca/ministry/major_projects_inventory/index.htm

been available for a number of months, new population estimates by age and gender based on the 2011 Census and adjusted for NCU will be available in November 2013. These definitive new population estimates will be incorporated into subsequent projections.

The new projections show some significant changes in the age and gender distributions when compared to the previous projections. This was mainly due to the change in methodology used to create the age and gender distribution in the base year population. New sub-provincial administrative data have become available and are utilized as input in the new method for estimating B.C. sub-provincial populations by age and gender. As a result, caution should be taken when comparing this new projection with previous releases by age and gender.

The above discussion highlights some of the challenges and limitations in the preparation of the annual sub-provincial population projections by age and gender. However, previously published evaluations and analyses have shown that the cohort-survival methodology employed is robust and reliable for producing useful small area population projections with acceptable accuracy. The quality of projected figures is expected to improve over the next few releases when the final 2011 post censal estimates are to be incorporated. The new algorithms used in deriving age and gender estimates for the base projection year will also help improve the projection results.