

OCCUPATIONAL LANDSCAPE



HYDROLOGIST & HYDROGEOLOGIST

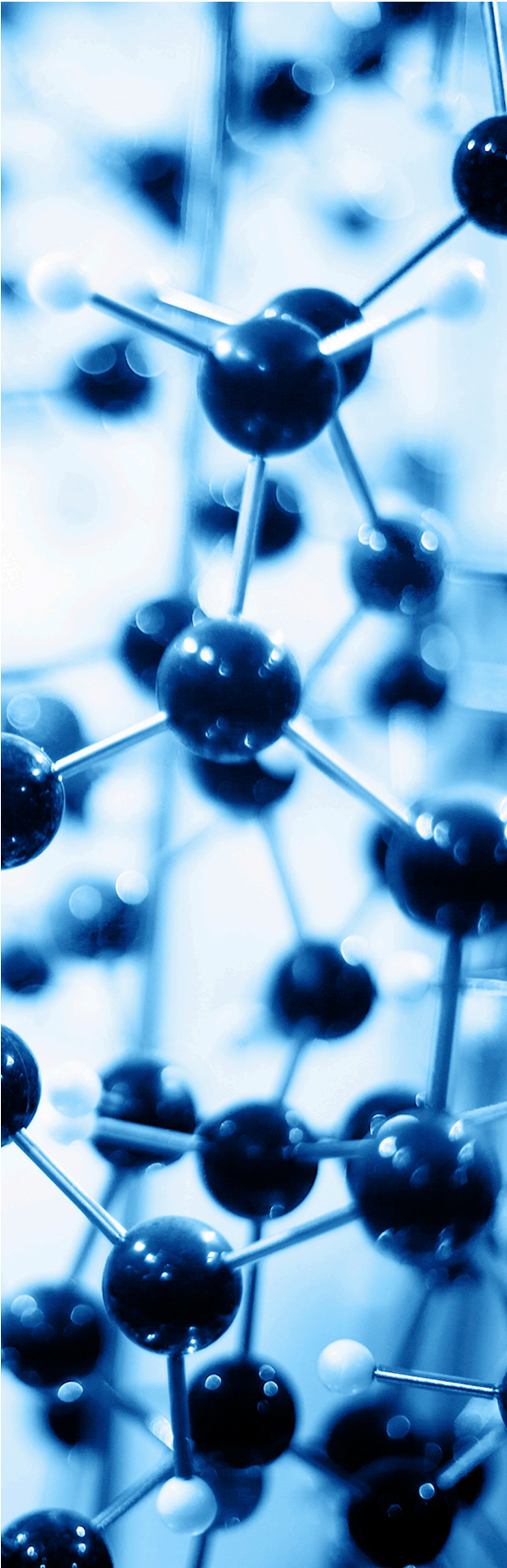
ECO Canada has developed the Occupational Landscape report to provide insight on twelve professions working with or in the Environmental sector. This report is about Hydrologists and Hydrogeologists and provides information on the top Canadian universities, the outlook for the industry, what components play a factor in its growth, the provincial and compensation breakdown, as well as past trends that have been tracked by ECO Canada.

Hydrologists study the dynamic nature of surface water, and examine issues such as precipitation pathways, the relationship between rainfall and runoff, and the effects of precipitation on soils and various landscapes. They are also involved in projects to determine and promote sustainable usage of water sources to conserve supplies.¹

Hydrogeologists research the distribution, circulation and physical properties of groundwater, as well as study the form and intensity of precipitation, its effect on soil, movement through the earth and eventual return to the ocean and atmosphere.²



ECO CANADA



Pre Career

Hydrologists and Hydrogeologists are part of the larger National Occupational Classification of Geologists, Geochemists and Geophysicists. Over the 2008-2010 period, this occupation saw very strong employment growth and a large increase in its average hourly wage. Employment in 2010 was 34,995, with the median age of workers at 42. It is projected that there will be 39,950 workers employed in this occupation by 2020, with an average of approximately 1,370 job openings each year from 2011-2020.³

Over the 2011-2020 period, it is expected that jobs in this occupational classification will experience a balance in labour demand and supply, with the majority of job openings resulting from retirements.⁴

Top Canadian Universities

Higher education is particularly important for Hydrologists and Hydrogeologists. Data suggests that a Master's degree is the new normal for most working in this occupation; in 2006 nearly half of workers (46%) held more than a Bachelor's degree.⁵ Because higher education is so crucial to this occupation, here are the top undergraduate universities in Canada for this occupation:⁶

- University of British Columbia
- University of Toronto
- McGill University
- Western University
- University of Alberta
- University of Calgary
- University of Victoria
- University of Waterloo
- Dalhousie University
- McMaster University

Government Scan

Canada's different levels of government have different jurisdictional roles related to water management; however there is much collaboration between federal and provincial/territorial governments. This shared responsibility necessitates close collaboration and communication between jurisdictions.⁷ Recent federal studies have focused on sustainable water resource management, particularly in relation to rising global demand for and pressure on water resources.

A 2006 report suggested that over 1.4 billion people currently live in river basins where the use of water exceeds minimum recharge levels, leading to severe water stress.⁸ It is projected that global water demand will increase by 55% between 2000 and 2050.⁹ A variety of organizations around the world are focusing on exploring the use of sustainable, alternative water resources and innovative technologies.

With a strong focus on water use, distribution, treatment and sources in provinces like Alberta and Ontario following significant summer flooding, the role of Hydrologists and Hydrogeologists will further develop as a key component in predicting and mitigating future disasters.

As the government puts more focus on sustainable water management, there may be an increased demand for Hydrologists and Hydrogeologists, particularly in regions that have a demonstrated need for further studies and research such as Alberta, where new proposed legislation would restrict or prevent building in floodways.

Provincial Trends

The following information covers the broader National Occupational Classification of Geologists, Geochemists and Geophysicists unless otherwise noted, as information specific to Hydrologists and Hydrogeologists is not readily available.¹⁰

British Columbia¹¹ – Due to the relatively limited number of experience workers available to fill job openings, employment prospects for this occupation are expected to be good. Workers are expected to be based in the Lower Mainland more than other areas of B.C. New graduates will be needed in field-oriented jobs, as older workers may have moved to senior positions or no longer wish to work in the field.

Alberta¹² – 93% of people employed in this occupation work in mining and oil and gas extraction, as well as professional, scientific and technical services. Hydrologists and Hydrogeologists will be a key element as the oil sands industry works towards reducing or eliminating the need for water in oil sands production. The employment outlook for this occupation is fair, with an expected annual below average growth of 2.3% from 2012 to 2016 in Alberta. Job openings are anticipated to result from new job creation and employment turnover, which is expected to increase as members of the baby boom generation retire.

Saskatchewan¹⁰ – Employment prospects for this occupation are good, with stronger employment growth expected when compared with other occupations, especially in the Regina – Moose Mountain region. Additionally, there will be fewer unemployed, experienced workers competing for jobs.

Manitoba¹⁴ – The employment outlook for this occupation is limited, with a starting/average wage of \$45,800/\$80,100. Job seekers may wish to seek higher education, as master's degrees are recommended for this occupation.

Ontario¹⁰ – Employment prospects are expected to be good in Ontario. Hydrogeologists may find increasing opportunities given growing concerns about water and soil contamination and the need for environmental remediation. Competition for jobs is expected to be stiff for new graduates; however senior workers and those with considerable education and work experience should have good opportunities.

Quebec¹⁰ – In most regions, there are few and infrequent job opportunities for this occupation. The Abitibi-Témiscamingue region has the highest employment outlook, with almost three-quarters of workers employed in the mining industry. Job opportunities are expected to come primarily from sectoral growth, and to a lesser degree the need to replace retiring workers.

New Brunswick¹⁵ – Hydrologists and Hydrogeologists may find increasing opportunities in this province over the next few years as water as an alternative energy source is explored in the renewable energy industry. Wind farms already contribute power to the electricity grid, and Atlantic Canada is quickly emerging as a world leader in tidal energy research.

Nova Scotia¹⁵ – The employment forecast in Nova Scotia is limited to fair, because only a small number of people work in this occupation in the local areas. There is little turnover among those employed in government positions. However, like New Brunswick, the research being done to harness the tidal energy of the world's highest and most powerful tides in the Bay of Fundy should provide good opportunities for Hydrologists and Hydrogeologists.

PEI¹⁰ – Employment opportunities are limited in this province, as there are very few workers in this occupation in the local area. Employment prospects are considered to be below average or relatively weak.

Newfoundland & Labrador¹⁰ – In most regions of this province there is limited opportunity for employment in this occupation, except for in the Avalon Peninsula region, where the employment prospect forecast is good. Jobs are expected to become available due to both new growth as well as the replacement of those retiring from their positions.

Yukon¹⁰ – Future job prospects for this occupation are expected to be above average, as a result of both the creation of new jobs and retirement.

Northwest Territories – N/A

Nunavut – N/A



Detailed Compensation

OVERALL INDUSTRY TRENDS:

Canadian Salary Increases for 2014. The overall average pay raise for 2014 is expected to be 2.6%.¹⁶

Provincial Breakdown:

- BC: 2.3%
- AB: 3.2%
- SK: 3.4%
- MB: 2.6%
- ON: 2.5%
- QC: 2.6%
- Atlantic Provinces: 2.1%
- NFLD: 4.0%
- Territories: TBD

The average salary in Canada is approximately \$69,408 for Hydrologists¹⁷ and \$70,878 for Hydrogeologists¹⁸. Below depicts how each province compares in salary for Canadians in professional, scientific and technical services.¹⁹

Hydrologist:

- BC: -0.41%
- AB: -0.02%
- SK: 1.00%
- Territories: -0.06%

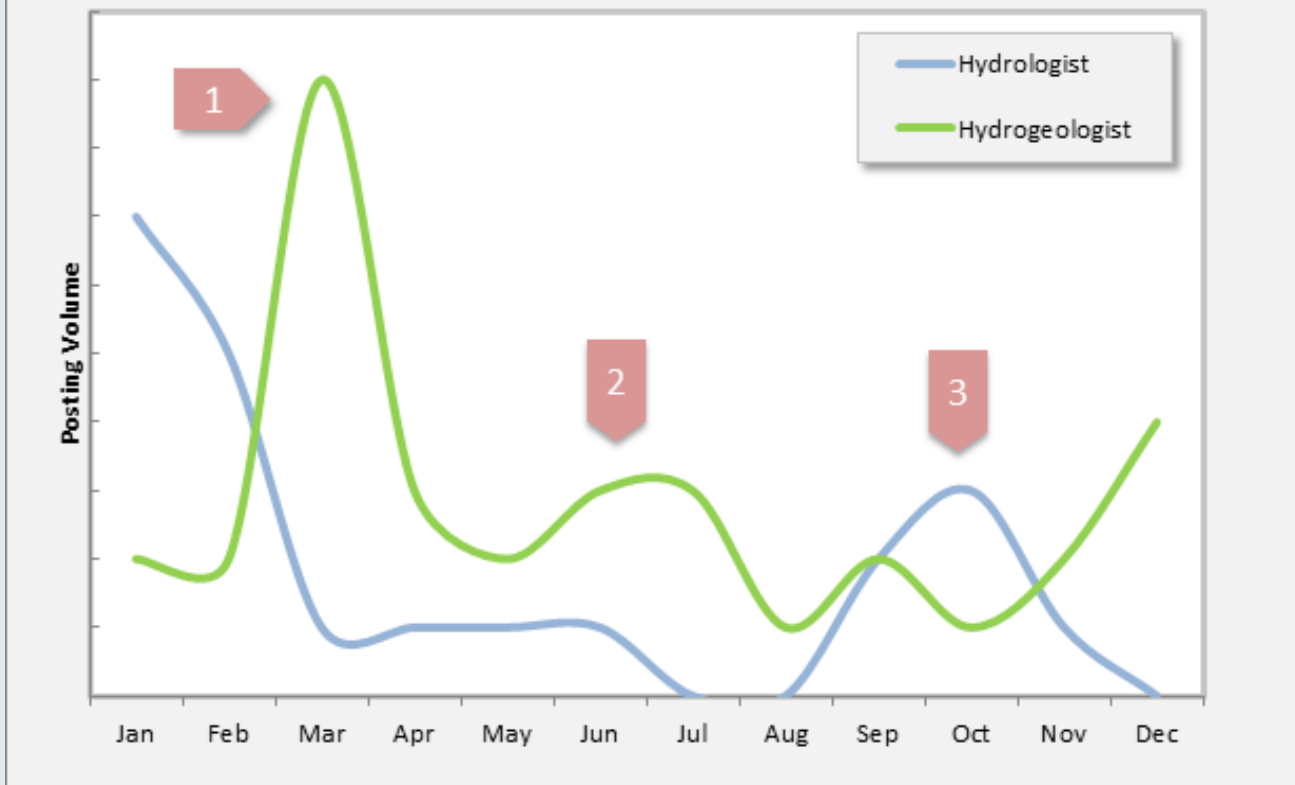
Hydrogeologist:

- BC: 0.08%
- AB: 0.21%
- ON: 0.07%
- QC: 0.22%

**Please note that data about these occupations is not available at this time for all provinces.*

ECO Canada Trends

Recruitment Trends on ECO Canada Job Board for Hydrologists & Hydrogeologists (5-Year Average)



What do these findings mean?

1. At the beginning of the year, Hydrologist recruitment is at its peak due to project-based hiring. Hydrogeologist recruitment begins increasing in February due to the need for frozen ground that can support heavy equipment to travel to project sites.
2. Recruitment for both Hydrologists and Hydrogeologists tends to experience a slight uptick in late spring/early summer, due to student hiring and summer turnover. There is less recruitment for Hydrologists in mid to late summer due to government legislations that prohibit bulk surface water removal.
3. Hydrologist recruitment experiences its second highest peak during the fall months, owing to the replacement of student workers and maneuvering of budgets. Hydrogeologists tend to see their second highest peak a bit closer to the end of the year, again as a result of budget usage.

With this information you will be able to tailor your hiring season during the low months so that you are not contending for the same talent as your competition. A good mix of passive employer branding and active recruiting done in an appropriate manner that speaks to your target audience will allow you to be the employer of choice.

Sources

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