



Environmental Jobs Within Industries

A special study on environmental job postings in Canada
December 2018

Canada 

Funded by the Government of Canada's
Sectoral Initiatives Program



About ECO Canada

Environmental Careers Organization of Canada (ECO Canada) is a not-for-profit organization that was founded in 1992 to help nurture Canada's growing environmental sector. For over 25 years, we've offered programs and services to help individuals build meaningful environmental careers, provide employers with resources to find and keep the best environmental practitioners and inform educators and governments of employment trends to ensure the ongoing prosperity of Canada's growing environmental sector.

Labour Market Intelligence

ECO Canada investigates current environmental skills and labour trends within the environmental employment sector and provides up-to-date, timely and relevant insights that can be applied in policy, business, and educational contexts. The complete collection of reports is available at eco.ca.

We are moving away from large multifaceted surveys as our primary source of labour market information (LMI) and are examining new ways of measuring environmental employment:

- Job posting analysis or real-time LMI to identify hiring trends and skills in demand
- Exploring demand and supply using secondary statistics, such as Statistics Canada and the Canadian Occupational Projection System. Economic growth factors are also factored in to create a demand forecast for environmental employment
- Sub-sector profiling with in-depth research on trends and issues driving growth or decline

ECO Canada welcomes comments and discussion of all its LMI reports. Contact research@eco.ca.

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Table of Contents

About ECO Canada	2
Synopsis	4
Introduction	5
Scope and Methodology	6
Environmental Job Postings by Industry	7
Over 60% of Environmental Job Postings in Q2 2018 Are in Five Sectors	7
Almost a Quarter of Job Postings in Utilities Sector Are Environmental	9
Key Findings and Insights	10
Appendix A: Number of Environmental Job Postings in Q2 2018 by Two-Digit NAICS	11
Appendix B: Environmental Job Posting Incidence Rates in Q2 2018 by Two-Digit NAICS	12

Synopsis

Advancements in web scraping systems have allowed ECO Canada to identify, analyze and report on environmental job posting numbers in Canada by period, geography, occupation, and environmental areas of practice, as they are defined in our [National Occupational Standards \(NOS\)](#) and sector/sub-sector model. This report is a special point-in-time analysis on environmental job posting data by industry, as defined by North American Industry Classification System (NAICS). In this report, we highlight industries at the two-digit NAICS level that are showing the largest number and/or highest proportion of English-language environmental job ads in Canada in the second quarter of 2018.

In Q2 2018, there were close to 3,300 new English-language environmental job postings in Canada.

Top five NAICS (two-digit level) with the largest number of environmental job postings in Q2 2018:

- Professional, scientific, and technical services (550 or 17% of environmental job ads)
- Educational services (418 or 13%)
- Public administration (393 or 12%)
- Manufacturing (353 or 11%)
- Administrative and support and waste management and remediation services (286 or 9%)

Top five NAICS based on proportion or incidence rate of environmental jobs in Q2 2018:

- Utilities (22.7%)
- Agriculture, forestry, fishing, and hunting (17.5%)
- Mining, quarrying, and oil and gas extraction (11.1%)
- Public administration (8.3%)
- Management of companies and enterprises (6.4%)

Note: Proportion or incidence rates are calculated as a percentage of environmental job ads to total jobs ads for each industry

This study confirms that environmental employment is found in every industry in Canada. The study however concludes that the number and/or proportion of environmental jobs differ within each industry.

This pilot study also paves a path for ECO Canada to further measuring and reporting environmental labour market data by industry – either for job posting or employment – thus providing a more comprehensive picture of the environmental labour market to employers, government, academia and individuals.

Introduction

Environmental Careers Organization of Canada (ECO Canada) regularly conducts research to identify and report on workforce needs and trends within Canada's environmental sector. As mentioned in our [labour market information publications](#), environmental employment does not align precisely with the National Occupational Classification (NOC) system used by Statistics Canada. This prompted the development and maintenance of ECO Canada's National Occupational Standards (NOS) and sub-sector model to more accurately portray and classify the environmental sector and its workforce.

The same challenge applies when it comes to aligning environmental employment to the North American Industry Classification System (NAICS). The reality is that environmental employment, which we define as workers in occupations requiring specialized environmental skills and training, exists in practically every industry and occupation in Canada.

Developments in job postings data collection methods allow us to filter and present environmental job posting data by NOS but also by NOC and NAICS. In previous environmental [job posting trends reports](#), we include data and analysis on environmental job postings by NOC.

This report is a pilot study to map environmental job posting data by NAICS. In this report, we highlight industries at the two-digit NAICS level that are showing the highest number and/or proportion of environmental job ads. While job ads do not reflect current employment, they are an indication of hiring/recruitment trends, as well as a leading indicator of future employment numbers.

It is important to note that this report has some limitations. Mapping environmental job posting numbers to NAICS is a new ECO Canada initiative and as a result, are only available for Q2 2018. This provides a point-in-time snapshot of industry and, with regular data collection, will eventually pave the way for comparative, trends and predictive analytics.

Understanding NOC and NAICS

The National Occupational Classification (NOC) is the national reference on work performed by Canadians in the labour market. The NOC provides a framework for collecting, analyzing and disseminating occupational data for labour market information and employment-related program administration. It comprises more than 30,000 occupational titles gathered into 500 Unit Groups, organized according to 4 skill levels and 10 skill types. Unit Groups are based on similarity of skills, defined primarily by functions and employment requirements. Each Unit Group describes main duties and employment requirements as well as providing examples of occupational titles. See: [About the NOC](#)

The North American Industry Classification System (NAICS) is an industry classification system developed by the statistical agencies of Canada, Mexico and the United States. NAICS is designed to provide common definitions of the industrial structure of the three countries and a common statistical framework to facilitate the analysis of the three economies.

NAICS is a comprehensive system encompassing all economic activities. It has a hierarchical structure. At the highest level, it divides the economy into 20 sectors. At lower levels, it further distinguishes the different economic activities in which businesses are engaged. See: [Introduction to NAICS](#).

Scope and Methodology

Job Posting Data

ECO Canada began performing job posting data collection and analysis in 2013. During that pilot year, algorithms based on keywords, key phrases and more advanced artificial intelligence techniques were developed to identify and classify environmental job ads. Environmental jobs are also classified into environmental areas of practice or sub-sectors as outlined in our National Occupational Standards (NOS) for environmental employment. For the purpose of this report and analysis, job postings or ads refer to the number of new job postings within the second quarter of 2018 where employers have posted in various job boards including their own websites.

Job posting data are subject to limitations. ECO Canada's research team uses a special software which collects job postings across the country except in the territories. In addition, the current system only tracks English-language based job postings, which likely understates the number of jobs postings in French speaking provinces. Last but not least, jobs may also be advertised but not filled, or some jobs may never be advertised at all, or the turnover rates in some occupations are higher than others.

North American Industry Classification System

The North American Industry Classification System (NAICS) includes a broad range of occupations and sub-industry categories as one drills down from the two-digit to the six-digit NAICS code. Data in this report covers two-digit NAICS code (Table 1). Job postings data, which indicates recruitment activity, allows us to highlight sectors that have a high number and/or proportion of environmental job ads. It should be noted that NAICS are distinct from ECO Canada's NOS and sector/sub-sector model.

Table 1: NAICS Canada 2017 Structure at the Two-Digit Level

Code	Sectors	Sub-Sectors
11	Agriculture, forestry, fishing and hunting	5
21	Mining, quarrying, and oil and gas extraction	3
22	Utilities	1
23	Construction	3
31-33	Manufacturing	21
41	Wholesale trade	9
44-45	Retail trade	12
48-49	Transportation and warehousing	11
51	Information and cultural industries	6
52	Finance and insurance	5
53	Real estate and rental and leasing	3
54	Professional, scientific and technical services	1
55	Management of companies and enterprises	1
56	Administrative and support, waste management and remediation services	2
61	Educational services	1
62	Health care and social assistance	4
71	Arts, entertainment and recreation	3
72	Accommodation and food services	2
81	Other services (except public administration)	4
91	Public administration	5
Total		102

Environmental Job Postings by Industry

In this section we report the top industries with environmental job postings in the second quarter of 2018 from two perspectives:

1. Industries with the greatest number of environmental-related new job postings
2. Industries with a higher proportion of environmental to total new job postings

Over 60% of Environmental Job Postings in Q2 2018 Are in Five Sectors

In the second quarter of 2018, there were close to 3,300 new job ads attributed to Canada's environmental sector. Out of this total, 2,000 or over 60% of environmental job ads were within five sectors, as per two-digit NAICS:



Professional, scientific, and technical services (550 or 17% of environmental job ads in Q2 2018)

Environmental consulting service companies, including independent contractors typically fall within the professional, scientific, and technical services sector (NAICS 54). It is therefore not surprising to see that the largest number of environmental jobs were classified within this sector. In fact, the environmental areas of practice with the highest number of job postings within this sector are:

- Water Quality (142 job ads in Q2 2018)
- Natural Resource Management (134)
- Energy (110)
- Research and Development (96)
- Waste Management (92)¹



Educational services (418 or 13% of environmental job ads in Q2 2018)

The growing number of grassroots environmental education and training programs within the education services sector (NAICS 61) may have contributed to the large number of environmental jobs within the second quarter of 2018. This could be spurred by several factors, including increasing demand for environmental workers and heightened attention to environmental issues, and trends both in Canada and internationally. It would be interesting to understand if this sector undergoes seasonal hiring trends to determine whether demand for environmental and total jobs in this sector fluctuate or are fairly consistent throughout the year.

¹ An environmental job ad may be counted under more than one environmental area of practice. See our [National Occupational Standards](#) guide to learn about ECO Canada's classification of environmental practice areas.



Public administration (393 or 12% of environmental job ads in Q2 2018)

Similar to educational services, large numbers of environmental job ads within the public administration sector are likely due to an increasing focus on environmental issues, trends and programs within all levels of government. Unlike education services sector, however, environmental job ads within public administration fall primarily within:

- Natural Resource Management (211 job ads in Q2 2018)
- Waste Management (120)
- Water Quality (100)²



Manufacturing (353 or 11% of environmental job ads in Q2 2018)

Within the manufacturing sector, environmental job ads are distributed across the different areas of practice; however, Environmental Health and Safety had the highest number of new job postings within the sector (70 job ads in Q2 2018).



Administrative and Support and Waste Management and Remediation Services (286 or 9% of environmental job ads in Q2 2018)

As expected, the majority of environmental jobs within administrative & support, and waste management & remediation services fall within the Waste Management area of practice.

Refer to Appendix A for a complete breakdown of environmental job posting distribution by two-digit NAICS.

It is important to note that identifying an industry with a high number of environmental job postings does not mean all jobs in that industry are environmental. It merely means that trends in this industry will likely impact the overall environmental labour force.

A second way to identify an industry that could have an impact on the environmental sector is by deriving the proportion or incidence rate of environmental jobs within each NAICS. This is calculated as a percentage of environmental job ads to total jobs ads for each industry.

² An environmental job ad may be counted under more than one environmental area of practice. See our [National Occupational Standards](#) guide to learn about ECO Canada's classification of environmental practice areas.

Almost a Quarter of Job Postings in Utilities Sector Are Environmental

In [previous job posting trends studies](#), we assessed that environmental job postings make up 2.0% to 2.2% of total new job postings in Canada each year. We refer to this percentage as the incidence rate. The second quarter of 2018 saw the incidence rate land slightly above the annual average – at 2.3% (or 3,300 environmental to 145,250 total job ads in Canada).

The industries by two-digit NAICS that have environmental job posting incidence rates above the 2.3% average in Q2 2018 are:



Utilities (22.7%)



Agriculture,
forestry,
fishing, and
hunting (17.5%)



Mining,
quarrying,
and oil and
gas extraction
(11.1%)



Public
administration
(8.3%)



Management
of companies
and enterprises
(6.4%)



Professional,
scientific and
technical
services (4.4%)



Administrative
and support
and waste
management
and
remediation
services (4.0%)



Educational
services (3.6%)



Wholesale trade
(3.0%)



Construction
(2.5%)



Real estate
and rental and
leasing (2.4%)

Refer to Appendix B for full list of two-digit NAICS and environmental job incidence rates.

Close to a quarter of total job postings in the Utilities sector are environmental and could largely be attributed to developments around clean tech particularly within energy efficiency and renewable energy. Natural resource sectors such as agriculture, forestry, fishing, and hunting, as well as mining, quarrying and oil and gas extraction also tend to have a high portion of environmental to total jobs. This is, again, not surprising as we've consistently reported that a greater portion of environmental employment exists within the [Natural Resource Management](#) area of practice. Public administration and management of companies and enterprises also have a considerable portion of environmental job postings – more than double the average incidence rate.

Key Findings and Insights

This special study confirms that environmental employment is found in every industry in Canada, however, the number and/or proportion of environmental jobs tend to differ within each industry. This study also marks an important step in building a framework to more closely align ECO Canada's data on environmental employment with Statistics Canada NAICS to provide a more comprehensive picture of the environmental labour market.

Top five NAICS based on magnitude

- Professional, scientific, and technical services
- Educational services
- Public administration
- Manufacturing
- Administrative and support and waste management and remediation services

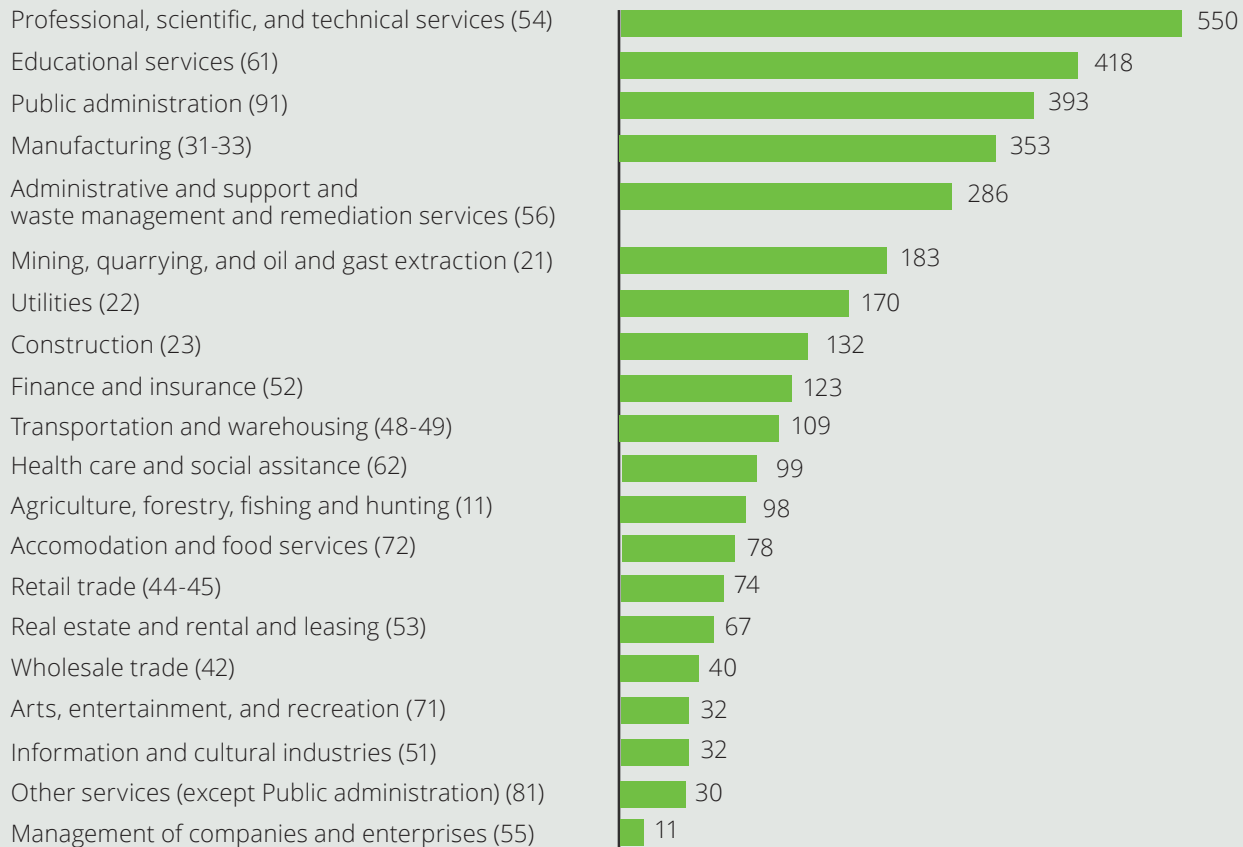
Top five NAICS based on proportion or incidence rate

- Utilities
- Agriculture, forestry, fishing, and hunting
- Mining, quarrying, and oil and gas extraction
- Public administration
- Management of companies and enterprises

Although we have established there are limitation to job scraping/job posting data, the findings in this report are largely consistent with ECO Canada's [Profile of Canadian Environmental Employment](#) study published in 2017 which was a comprehensive survey of environmental employers. We have greater confidence that job posting data is a reasonable indicator of environmental labour market activity.

Going forward, ECO Canada will continue to gather and report on environmental job postings and employment, including labour demand and supply projections by key industries and sectors in Canada. We will do so using annual data to factor out seasonal hiring trends, improve accuracy and analytics, including the introduction of trends analysis.

Appendix A: Number of Environmental Job Postings in Q2 2018 by Two-Digit NAICS



Appendix B: Environmental Job Posting Incidence Rates in Q2 2018 by Two-Digit NAICS

Sector (NAICS)	Total Number of Job Postings (All Industries)	Number of Environmental Job Postings	Environmental Job Posting Incidence Rate
Accommodation and food Services (72)	15,712	78	0.5%
Administrative and support and waste management and remediation services (56)	7,160	286	4.0%
Agriculture, forestry, fishing and hunting (11)	559	98	17.5%
Arts, entertainment, and recreation (71)	1,848	32	1.7%
Construction (23)	5,221	132	2.5%
Educational services (61)	11,621	418	3.6%
Finance and insurance (52)	22,632	123	0.5%
Health care and social assistance (62)	11,891	99	0.8%
Information and cultural industries (51)	9,089	32	0.4%
Management of companies and enterprises (55)	173	11	6.4%
Manufacturing (31-33)	9,333	353	3.8%
Mining, quarrying, and oil and gas extraction (21)	1,643	183	11.1%
Other services (except Public Administration) (81)	3,117	30	1.0%
Professional, scientific, and technical services (54)	12,428	550	4.4%
Public administration (91)	4,375	393	8.3%
Real estate and rental and leasing (53)	2,771	67	2.4%
Retail trade (44-45)	16,110	74	0.5%
Transportation and warehousing (48-49)	7,148	109	1.5%
Utilities (22)	748	170	22.7%
Wholesale trade (42)	1,314	40	3.0%
Total	145,253	3,278	2.3%



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The opinions and interpretations in this publication are the author's and do not necessarily reflect those held by the Government of Canada.

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ECO Canada (2018)
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