

Metro Vancouver
SUSTAINABLE REGION SCHOLARS
UBC Sustainability Scholars Program
Summer 2018

Title of Research Project:

Estimating the impact of residential disposal of fats, oil and grease on the regional wastewater system

1. How will this project make a contribution to regional sustainability?

Fats Oils and Grease (FOG) is a major regional issue for the wastewater system. Metro Vancouver and its member municipalities spend an estimated \$2.7 million annually to manage FOG in the wastewater collection system. FOG hardens in sewers, resulting in clogs, plumbing problems and can contribute to sewage overflows into the environment. FOG is generated by both the residential and Industrial, Commercial and Institutional (ICI) sectors. The issue of FOG in the wastewater system is one that Metro Vancouver addresses through regulatory (food services bylaw) and educational (regional grease campaign) means. Understanding the relative contributions of various sectors will help inform source control initiatives to reduce FOG in the system.

This project will help inform regional sustainability by estimating the quantity of FOG disposed 'down the drain' (i.e. through sinks, food grinders and toilets) by residents in Metro Vancouver by using regional food diary information.

This project will also assist Metro Vancouver in determining the impact of residential food waste grinders (also known as 'garburators' or 'food waste disposers') on the wastewater system by providing region-specific information on the FOG loading that food grinders contribute to the wastewater system. Metro Vancouver's provincially approved Integrated Liquid Waste and Resource Management Plan (ILWRMP) requires Metro Vancouver to investigate the implications of the use of domestic food grinders. The Integrated Solid Waste and Resource Management Plan (ISWRMP) encourages source separation of organics and the highest and best use of organic material. In 2015, Metro Vancouver introduced the Organics Disposal Ban to target organics for recycling and energy recovery to reduce the disposal of organic materials.

The project will contribute to regional sustainability by determining key information to inform policies that encourage and incentivise sustainable management of (unavoidable) food waste.

2. The purpose of the project is:

The purpose of this project is to estimate the FOG loading that residential food waste contributes to the wastewater system.

Food waste containing FOG is routinely disposed by residents 'down the drain' to the wastewater system via the sink, food grinders or the toilet. The aim of this project is to estimate the FOG loading from food waste disposed 'down the drain' using the information collected in detailed food diaries.

Submit applications here: <http://bit.ly/2DC2jpp>

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3. Outline the scope of project and how the scholar's work will be used by Metro Vancouver:

As part of Metro Vancouver's "Love Food, Hate Waste" campaign, residential volunteers kept food diaries which detailed the amount of and type of food waste they disposed of through the:

- i. Garbage
- ii. Green Bin
- iii. Sink
- iv. Toilet
- v. Food Grinder

The scholar will use the region-specific information contained in the food diaries to determine the FOG loading put 'down the drain' (i.e. food disposed in sinks, toilets and food grinders).

The scope will require a (short) literature review of the information available specifically on residential FOG loadings. The main scope of the project will be to determine the FOG loading using the information contained in the food diaries together with available nutritional information on the various foods disposed 'down the drain' in the region.

The scholar will produce a report outlining the results of the literature review. The report will also include the database used to estimate FOG loading (to include food types, quantities disposed, FOG content, FOG loading). Source Control Program staff will work with the student on developing the categories required in the database. It is expected that the report will provide a discussion on the results and the FOG loading associated with each method of disposing food 'down the drain' (toilets/sinks/food grinders).

4. Project Deliverables:

- a) Literature review
- b) Database used in the analysis
- c) Written report summarizing results with recommended source control initiatives and/or further research required
- d) Final report or executive summary for the UBC Sustainability Scholars Program online project library.

5. Time Commitment

- This project will take **250** hours to complete.
- This project must be completed between **01 May 2018** and **10 August 2018**
- The scholar is expected to complete an average of **15** to **20** hours per week.

Scholar to be available, either in person or by telephone as agreed, for project start-up meeting, periodic status updates and draft and final report presentations.

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6. Describe the required/preferred skill set and knowledge base for a Scholar

- Excellent research and writing skills.
- Strong analytical skills
- Ability to work independently
- Demonstrated time management skills
- Deadline oriented
- Familiarity with creating and analysing databases
- Strong technical writing skills
- Experience or background in Food Science / Chemistry / Environmental Science / Environmental Health Science,
- Experience or background in Chemical Engineering or Environmental Engineering or Civil Engineering

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