

EARLY ENGAGEMENT ON AMENDING THE WASTEWATER SYSTEMS EFFLUENT REGULATIONS

**Municipalities Newfoundland and Labrador
September 29, 2020**



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

OBJECTIVES OF TODAY'S MEETING

- Overview of the framework for wastewater in Canada
 - *Fisheries Act*
 - *Wastewater Systems Effluent Regulations (WSER)*
 - Present key features of WSER
 - Proposed amendments and initial analysis
 - Timelines and engagement initiatives
 - Introducing the Northern Regulatory Framework
-

OVERVIEW OF THE FRAMEWORK FOR WASTEWATER IN CANADA



IMPACT OF WASTEWATER RELEASES

- Wastewater represents the largest source of pollution to water by volume
- Wastewater contains deleterious substances that are known to have environmental, ecosystem, and human health impacts
- Although wastewater treatment can remove high percentages of contaminants, treated effluent still contains deleterious substances
- Level of treatment varies significantly across Canada

WASTEWATER MANAGEMENT IN CANADA

- Federal Regulatory Framework
 - *Fisheries Act*,
 - *Wastewater Systems Effluent Regulations (WSER)*, 2012
- Provinces/Territories
 - Acts & Regulations specific to each jurisdiction
 - Issue permits/licences/certificates of authorization
- Communities/Municipalities
 - Construct and operate the sewer collection systems and wastewater treatment plants
 - Source control using sewer bylaws

FEDERAL REGULATORY FRAMEWORK

- ***Fisheries Act***

- Canada's oldest and strongest legislation for the protection of fisheries and water resources
- ECCC responsible for the administration and enforcement of the pollution prevention provisions which prohibit the deposit of a deleterious substance into water frequented by fish unless authorized by regulation

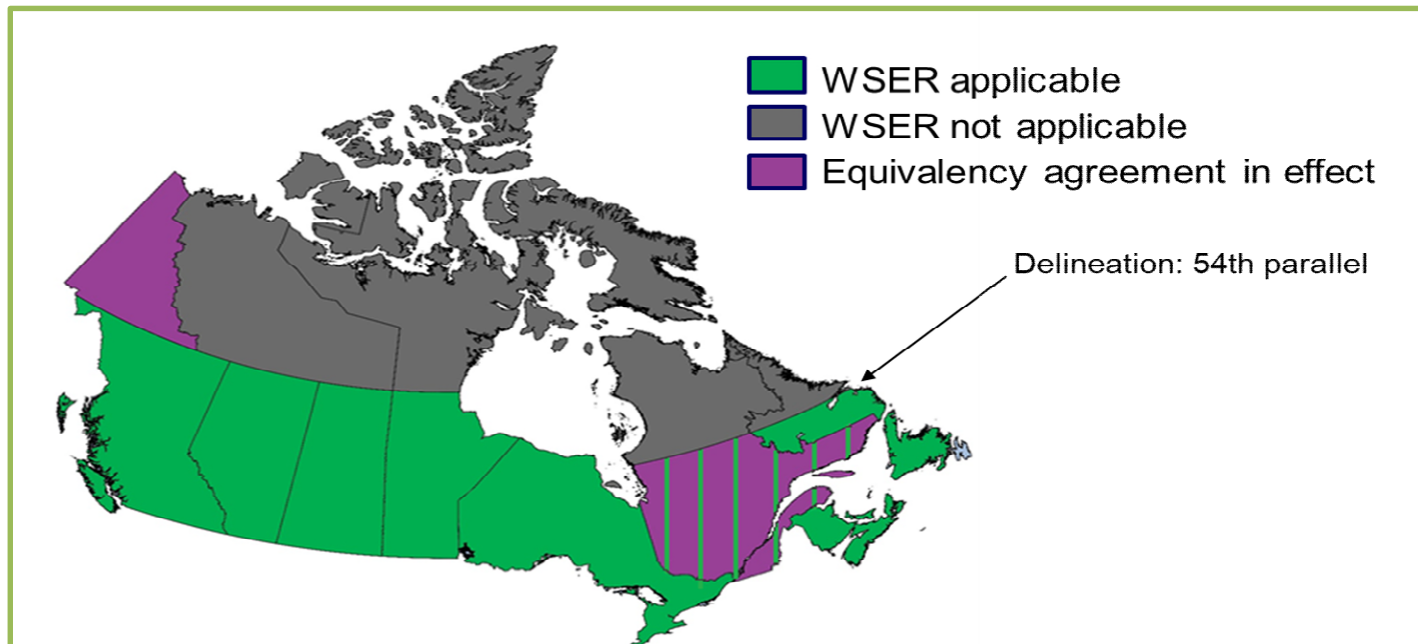
- ***Wastewater Systems Effluent Regulations (WSER)***

- WSER came into force in 2012, with national effluent quality standards coming into effect in 2015
- It ensures consistent environmental protection across Canada
- Standards can be achieved by using secondary* wastewater treatment

*Solids removal and biological process to break down contaminants

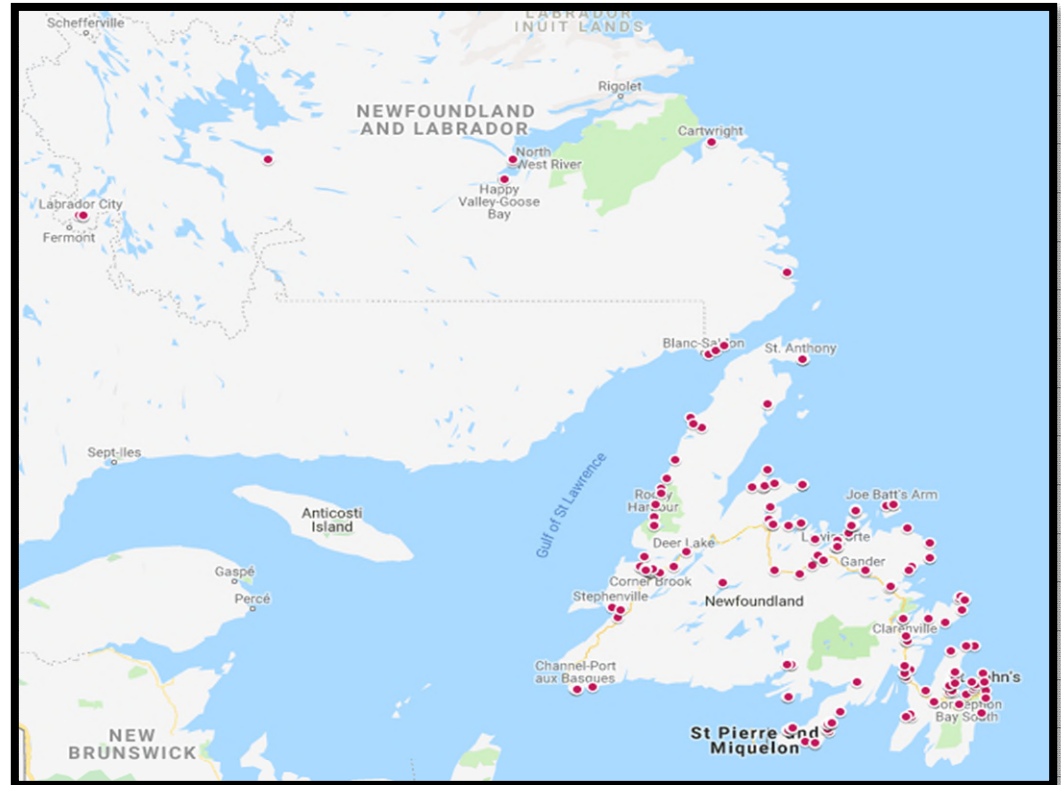
WSER STATS

- ~1,600 wastewater systems regulated under WSER
- 5.7 billion m³ per year of effluent discharged
- 77% of systems across Canada are in compliance with WSER's effluent quality limits



WASTEWATER IN NEWFOUNDLAND AND LABRADOR

- 206 wastewater discharge points
 - 117 municipalities
- Of those:
 - 184 are believed to have no or partial treatment
 - 22 are believed to have secondary treatment



WASTEWATER SYSTEMS EFFLUENT REGULATIONS

KEY FEATURES



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

APPLICATION

- WSER applies to wastewater systems that:
 - deposit effluent from a final discharge point
 - are designed to collect, or that collects, an average daily volume of 100 m³ or more of influent (no dwellings)
 - regulated systems typically serving populations of 250 people or more



WASTEWATER SYSTEMS

“means any work or undertaking, at least part of which is located on land, that is used for the collection and deposit of wastewater, whether or not the wastewater is treated”

- It includes:
 - Site that has a wastewater lagoon
 - Sewer system with a mechanized treatment plant
 - Sewer system with one or more raw sewage outfalls
 - Consolidated wastewater system (10 or more outfalls) *

* 10 or more raw sewage outfalls can be deemed to be one “future” system, with monitoring efforts centered around the final discharge points with the greater risk to the environment

NATIONAL EFFLUENT QUALITY STANDARDS

Deleterious Substances	Limit
Carbonaceous Biochemical Oxygen Demand	≤ 25 mg/L
Total Suspended Solids	≤ 25 mg/L
Total Residual Chlorine	≤ 0.02 mg/L
Un-ionized Ammonia	≤ 1.25 mg/L

The effluent must also not be acutely lethal to rainbow trout using prescribed methods

OTHER FEATURES OF THE REGULATIONS

Depending on the type of treatment and/or average daily flow:

Monitoring Requirements:

- Final Discharge Points
 - Average daily volume
 - Composition of the effluent
 - Toxicity of the effluent*
- Combined Sewer Overflow Points (because of precipitation)
 - Volumes

Reporting Requirements: (at site, electronic submission in ERRIS)

- Identification report
- Monitoring reports
- Combined sewer overflow (CSO) reports

*only required for systems depositing more than 2,500 m³/day

TRANSITIONAL AND TEMPORARY AUTHORIZATIONS

- Regulations provide a mechanism to apply for authorizations for systems to deposit effluent that does not meet the quality standards at the final discharge
- **Three** types of authorizations (via the final discharge point only):

Temporary Bypass Authorization	Issued to allow for construction work, maintenance or in response to an anticipated event beyond owner or operator control (minimum 45 days notice)
Temporary Authorization to Deposit Un-ionized Ammonia	Issued for systems acutely lethal due to unionized ammonia, but otherwise compliant with TSS/CBOD effluent quality standards
Transitional Authorization	Issued to allow for wastewater system upgrades

PROPOSED AMENDMENTS TO THE *WASTEWATER SYSTEMS EFFLUENT REGULATIONS* AND INITIAL ANALYSIS



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

PROPOSED AMENDMENTS

- ECCC is considering amendments to the WSER on:
 1. Transitional Authorizations
 2. Temporary Bypass Authorizations
- ECCC will also take this opportunity to clarify, simplify or revise administration provisions

1. TRANSITIONAL AUTHORIZATIONS



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

OBJECTIVE OF TRANSITIONAL AUTHORIZATION

- The current WSER allowed for a **one-time opportunity** to receive an extension, called a Transitional Authorization (TA), to meet the national effluent quality standards beyond 2015
- Owners had until **June 2014** to apply. Systems without a TA have been subject to the effluent quality limits since 2015
- ECCC issued TAs based on the level of risk, using a point based system based on effluent quality, annual average daily volume, and sensitivity of the receiving environment

Level of Risk	Extension period	Point based risk assessment
High Risk	End of 2020	≥ 70
Medium Risk	End of 2030	50 to < 70
Low Risk	End of 2040	< 50

TA ELIGIBILITY

- Collect data at the final discharge point for 12 consecutive months over a 15 month period defined immediately before the day on which the application is made
- Can apply if the average concentration of CBOD or TSS exceed 25 mg/L, depending on the type of treatment and average daily volume
 - During 12 consecutive months
 - Any 3 consecutive months
 - Any 3 months
- System was not designed to meet the limits

TA APPLICATION PROCESS

- Administrative information
- Selected period of 12 consecutive months
- Rationale for why a transitional authorization is required
- Plan(s) for the modifications to be made
- Latitude and longitude of final discharge point
- Points and information used in risk assessments
 - Average CBOD, TSS, NH_3 and chlorine concentrations
 - Average daily volume of effluent deposited
 - Descriptions of the receiving environment
 - If applicable – combined sewer overflow information
- Signed statement

TA CONDITIONS AND COMPLIANCE OBLIGATIONS

- Effluent must contain less than 1.25 times the average concentrations of deleterious substance presented in the TA application:
 - CBOD
 - TSS
 - Un-ionized ammonia
- Similar monitoring, reporting and record keeping requirements at final discharge point
 - Exception: no acute lethality testing required
- Progress reports submitted to ECCC on a regular reporting schedule

CONSIDERATIONS

- More than **230 systems** spread in **130 communities** across Canada are exceeding WSER effluent limits and their owners did not apply for a TA
 - 184 systems are located in 93 NL communities
 - 37 communities have at least 2 wastewater systems (e.g. raw discharge outfalls)
- These systems have been out of compliance since 2015 with both WSER and the *Fisheries Act*
- While communities have expressed a desire to comply with WSER, there is no authority in the regulations to issue TAs after the 2014 deadline
- Concerns of enforcement action and lack of funding have been raised

PROPOSED AMENDMENTS ON TAS

Provide a new opportunity for owners of wastewater systems to receive a Transitional Authorization

- These amendments would apply to wastewater systems that would be eligible to receive a TA to the end of 2030 or 2040
- The amendments would be based on:
 - Current eligibility criteria
 - Existing system of points at the final discharge points
 - Existing system of points at combined sewer overflows

PROJECTIONS OF NEW TAS (CURRENT ANALYSIS)

A number of simulations can be run to determine the possible extension period for wastewater systems susceptible to require a TA

Conditions and Assumptions:

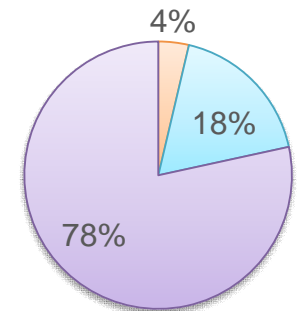
- Based on data reported in ERRIS in from 2016 to 2019
 - 162 of 184 NL systems reported enough data to run one or more simulations
 - 22 of 184 NL systems did not provide enough during those years to run any simulations (representing 7 communities)
- Ammonia concentrations not available
 - Not a reporting requirement under WSER since 2014
- Two theoretical TA date estimations were made for each year
 - Un-ionized ammonia exceeds effluent limit
 - Un-ionized ammonia does not exceed effluent limit
- Type of receiving environment assumed in a few cases

ILLUSTRATIVE EXAMPLE: TA PROJECTION DATES

- Selection of effluent quality monitoring period to calculate TA compliance date is key element of analysis – many scenarios are being assessed
 - Example shows scenario of using average of all available monitoring data currently in ERRIS
- The absence of data or small data sets available in some communities can limit options
- Monitoring and reporting data in ERRIS will be essential in order to apply for a TA
 - 22 wastewater systems in NL did not provide sufficient data for analysis

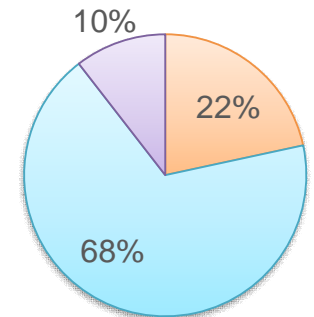
All data in ERRIS

- No ammonia exceedance



2020 2030 2040

- Ammonia exceedance



2020 2030 2040

LET'S HAVE A DISCUSSION ON AMENDING TRANSITIONAL AUTHORIZATIONS



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

2. TEMPORARY BYPASS AUTHORIZATIONS



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

OBJECTIVE OF BYPASS AUTHORIZATIONS

- Temporary bypass authorizations allow municipalities to temporarily exceed effluent quality limits when undertaking regular maintenance, repairs and upgrades to wastewater treatment plants
- These activities aim to ensure the longevity and proper functioning of wastewater infrastructure
- In the current WSER, temporary bypass authorizations may be issued by the authorization officer to eligible applicants, as long as conditions are met
- Authorizations set the period for which wastewater release may occur

PROPOSED AMENDMENTS ON PLANNED RELEASES

Expand the existing temporary bypass provisions to include planned releases of wastewater from overflows points when municipalities need to maintain, repair, and/or upgrade their wastewater treatment plants and sewer systems

- ECCC is considering setting clear conditions to authorize these releases, which could include:
 - Notification provisions
 - Mitigation measures
 - Enhanced monitoring requirements
 - Additional reporting requirements
- ECCC will consider best practices and available solutions to avoid planned releases, reduce their frequency and duration, mitigate their effects and eliminate them in the longer-term

LET'S HAVE A DISCUSSION ON AMENDING TEMPORARY BYPASS AUTHORIZATIONS



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

PROPOSED TIMELINES

- ECCC is planning early discussions and engagements with Indigenous peoples, regulatees and stakeholders in early fall 2020
- Formal consultations will be initiated during winter 2021
- Targeting proposed amendments for publication in *Canada Gazette*, Part I, in late 2021 or early 2022

Given current situation, ECCC is seeking feedback on consultation timelines

PROPOSED ENGAGEMENT INITIATIVES

Recent Initiatives

- A Notice of Intent has been published in *Canada Gazette*, Part 1 on June 27, 2020
- A *Consulting with Canadians* website is available to the public
- Email to all regulatees July 7, 2020

Other possible Initiatives

- Virtual information/engagement sessions
- Email campaigns, surveys, conference and workshop presentations
- Pamphlet, videos and info on website
- General email inbox for direct, specific questions and comments

Given current situation, ECCC is seeking feedback on consultation approaches

OTHER POLICY INITIATIVES: NORTHERN REGULATORY FRAMEWORK

- The WSER do not apply to wastewater systems located in the North
 - North of parallel 54 in Québec and Newfoundland and Labrador, Nunavut and Northwest Territories
- Unless authorized by regulations, Northern wastewater systems are subject to the general prohibition under subsection 36(3) of the *Fisheries Act*
- ECCC is proposing to develop a northern regulatory framework to authorize Northern wastewater discharge, early engagement took place during summer 2019
- ECCC will be initiating consultations with Northern representatives before the end of 2020 to seek input and comments on a possible path forward

PROVIDE FEEDBACK

- ECCC invites all interested parties to provide comments or submit questions :
 - Via mail or telephone :

Wastewater Program, ECCC,
Telephone: 819-420-7727
351 St. Joseph Boulevard
Gatineau QC, K1A 0H3
 - Via email : ec.eaux-usees-wastewater.ec@canada.ca



THANK YOU



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

MORE INFORMATION ON WSER

- The *Wastewater Systems Effluent Regulations* are available online at: <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2012-139/FullText.html>
- Additional information may also be obtained on the Canada.ca website: <https://www.canada.ca/wastewater>
- WSER videos on compliance and reporting are available at: <https://www.youtube.com/playlist?list=PLF90V7foF0CemVXJIRj4IINlgloRguRA7>
- Fisheries Act Compliance and Enforcement Policy <https://www.canada.ca/en/environment-climate-change/services/environmental-enforcement/publications/compliance-enforcement-policy-fisheries-act.html>



SYSTEM OF POINTS AT FINAL DISCHARGE POINT FOR TRANSITIONAL AUTHORIZATIONS

(Schedule 2)

Item	Conditions and Water	Criteria	Points
1	Average daily volume* in m ³	(a) > 100 and ≤ 500	5
		(b) > 500 and ≤ 2 500	10
		(c) > 2 500 and ≤ 17 500	15
		(d) > 17 500 and ≤ 50 000	25
		(e) > 50 000	35
2	Average concentration* of CBOD and TSS in the effluent in mg/L	(CBOD + TSS) / 5	Per formula
3	If chlorine or one of its compounds was used in the treatment of wastewater	(a) average concentration* of TRC in the effluent > 0.02 mg/L	10
		(b) effluent is not dechlorinated before it is deposited	10
4	Maximum concentration* of un-ionized ammonia in mg/L expressed as nitrogen (N), at 15°C ± 1°C.	≥ 1.25	20
5	Water where effluent is deposited via the final discharge point	(a) open marine waters	5
		(b) marine port waters	10
		(c) lake, natural wetland, reservoir, estuary, enclosed bay	20
		(d) watercourse with bulk flow ratio > 100	15
		(e) watercourse with bulk flow ratio ≥ 10 and ≤ 100	20
		(f) watercourse with bulk flow ratio < 10	25
		(g) shellfish harvesting area within 500 m of the point of entry where effluent is deposited in the water via the final discharge point	20

* During the data collection period

SYSTEM OF POINTS AT COMBINED SEWER OVERFLOWS FOR TRANSITIONAL AUTHORIZATIONS

(Schedule 3)

Item	Conditions and Water	Criteria	Points
1	The ratio* of the estimated average dry weather flow that circulates in the combined sewer at the overflow point to the estimated average dry weather flow that is deposited via the final discharge point	(a) $\geq 50\%$	35
		(b) $\geq 25\%$ and $< 50\%$	25
		(c) $\geq 10\%$ and $< 25\%$	15
		(d) $< 10\%$	10
2	The number of deposit via the overflow point*	> 25 deposits	35
		> 15 deposits and ≤ 25 deposits	25
		> 5 deposits and ≤ 15 deposits	15
		5 deposits or less	5
3	Water where effluent is deposited via each overflow point (the sum of points for all that apply)	(a) shellfish harvesting area within 500 m of any point of entry where effluent is deposited in the water via the overflow point	20
		(b) An area where an aquatic species that is a protected species frequents or is found, or that is a fish spawning area is, within 500 m of any point of entry where effluent is deposited in the water via the overflow point	10
		(c) lake, natural wetland, reservoir, estuary, or enclosed bay	10

* During the data collection period

WSER MONITORING REQUIREMENTS

At Final Discharge Point

- **Average daily volumes** (averaging period varying from **yearly**, **quarterly** and **monthly** depending on the type of treatment systems and daily average flow)
- **Analytical composition of the effluent (treated, partially treated or untreated)**
 - For intermittent wastewater systems:
 - **Every two weeks** for systems discharging for 30 days or more
 - **Once** for systems discharging for less than 30 days
 - For continuous wastewater systems:
 - **Quarterly** for systems discharging $\leq 2,500 \text{ m}^3/\text{day}$ with HRT of 5+ days (lagoons)
 - **Every two weeks** for continuous systems discharging $> 2,500 \text{ m}^3/\text{day}$ and $\leq 17,500 \text{ m}^3/\text{day}$
 - **Monthly** for continuous systems discharging $> 17,500 \text{ m}^3/\text{day}$ and $\leq 50,000 \text{ m}^3/\text{day}$
 - **Weekly** for continuous systems discharging $> 17,500 \text{ m}^3/\text{day}$ and $\leq 50,000 \text{ m}^3/\text{day}$
 - **Three days per week** for continuous systems discharging $> 50,000 \text{ m}^3/\text{day}$

WSER MONITORING REQUIREMENTS CONT'D

At Final Discharge Point (cont'd)

- **Acute lethality testing (normal frequency)**
 - **No testing** required for systems discharging $< 2,500 \text{ m}^3/\text{day}$
 - **Quarterly** for systems discharging $> 2,500$ and $\leq 50,000 \text{ m}^3/\text{day}$
 - **Monthly** for systems discharging $> 50,000 \text{ m}^3/\text{day}$
- **All tests must be conducted in an Accredited Laboratory**

At each combined sewer overflow point (because of precipitation)

- **Daily** volumes including dates and durations (hrs) when effluent was deposited
- Continuously measured or estimated

Monitoring equipment

- Calibration and maintenance records

WSER REPORTING REQUIREMENTS

- All wastewater system owners or operators are required to monitor, record information and submit reports on effluent quality and quantity to ECCC
- Reporting requirements include:
 - **Identification Reports (once)** - identifies system as part of regulated community
 - **Monitoring Reports** - ongoing data to assess compliance with effluent quality standards (each **year** or **quarter** depending on the type of system and average daily volume)
 - **Combined sewer overflow (CSO) reports** - information on deposits via overflows (**yearly** basis)
- Reports must preferably be submitted electronically using ERRIS online system