

# Waste Management in the Fraser River Basin

## Sewage Treatment

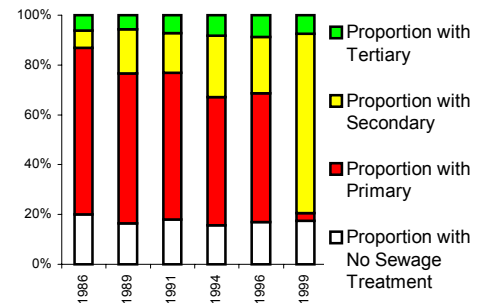
- Sewage treatment helps to remove suspended solids, biochemical oxygen demand (BOD), and fecal coliforms from wastewater before it is released into a water body. If not treated, these pollutants can contaminate the environment, can cause disease or death for many organisms, can cause excessive nutrients and algal growth (eutrophication), can smother and bury benthic species, and can reduce dissolved oxygen levels in the water column to potentially lethal levels. <sup>a</sup>
- There are 3 levels of sewage treatment, primary, secondary, and tertiary. Primary removes between 25-40% of the BOD, 40-60% of the total suspended solids (TSS), and 45-55% of fecal coliform (FC) levels. Secondary treatment removes 85-90% of both BOD and TSS, and 90-99% of coliform bacteria. Tertiary treatment removes an even higher percentage of BOD and TSS, as well as possibly removing substances such as nitrogen, phosphorus, and ammonia. <sup>a</sup>
- Approximately 83% of residents in the Fraser River Basin have some level of sewage treatment.
- In 1999, most Fraser River Basin residents are hooked up to secondary sewage treatment (69%). 7% are on tertiary treatment, 3% are on primary treatment, and 17% have no sewage treatment. Compared to 1986, 19% had no sewage treatment, 65% had primary treatment, 7% had secondary treatment, and 6% had tertiary treatment. <sup>b</sup>
- Two of the largest sewage treatment facilities in the Fraser River Basin, Annacis Island and Lulu Island Wastewater Treatment Plants, both serving the Greater Vancouver Regional District, have recently been upgraded from primary to secondary treatment, explaining increase in secondary treatment observed for residents of

Percent of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), and Fecal Coliforms (FC) Removed by Sewage Treatment

	TSS	BOD	FC
No Treatment	0	0	0
Primary Treatment	40-60%	25-40%	45-55%
Secondary Treatment	85-90%	85-90%	90-99%
Tertiary Treatment*	Up to 99.9%	Up to 99.9%	Up to 99.9%

\* Tertiary treatments are designed to also remove other contaminants from the sewage, such as nutrients, viruses, or some dissolved inorganic substances.

Proportion of Fraser River Basin Residents with Sewage Treatment 1986-1999



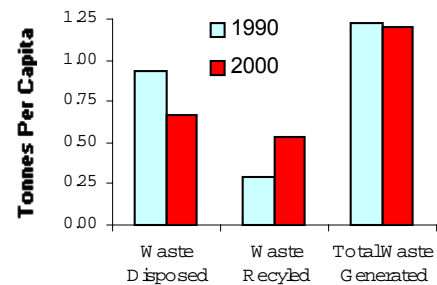
the Fraser River Basin as of 1999. <sup>a</sup>

## Garbage

- Between 1990 and 2000, the amount of solid waste being generated by Fraser River Basin municipalities decreased slightly from 1.23 tonnes per capita to 1.21 tonnes per capita. This waste generated is comprised of the amount of waste disposed to landfills and incinerators as well as the amount recycled. The amount of waste sent to landfills has decreased by 29% and the amount recycled has increased by 86%.  
<sup>c</sup>

- As of 2000, the proportion of waste being recycled in the Fraser River Basin increased from 24% to 45%. <sup>c</sup>
- Note: Data was based on Regional District summaries and not Fraser River Basin boundaries, and therefore the data includes some communities not located within the Fraser River Basin (e.g., the Greater Vancouver Regional District was included in the data, but contains some municipalities located either not within or only partially within the Fraser River Basin boundaries).

Municipal Solid Waste Trends in the Fraser River Basin 1990 - 2000



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### Source:

- Holmes, M., Bonner, M. The National Sewage Report Card (II). 1999. Sierra Legal Defence Fund. Vancouver, BC.*  
<http://www.sierralegal.org/reports/sewage.pdf>
- Municipal (Water) Use Database (MUD). Environment Canada.*  
[http://www.ec.gc.ca/water/en/manage/use/e\\_data.htm](http://www.ec.gc.ca/water/en/manage/use/e_data.htm)
- BC Ministry of Water, Land, and Air Protection, 2002. BC Municipal Solid Waste Tracking Report 2000. Pollution Prevention and Remediation Branch.* [http://wlapwww.gov.bc.ca/epd/epdpa/mpp/tracking\\_rpt2000.pdf](http://wlapwww.gov.bc.ca/epd/epdpa/mpp/tracking_rpt2000.pdf)