City of Portland
Environmental Services
working for clean rivers

Lower Columbia Estuary Partnership Science to Policy Summit

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What it can do:
Wastewater Treatment Plants are not like any other point source. We do not add pollution in order to make a product. We remove pollution in order to make our product: clean water. The treatment systems have evolved over time to treat the pollutants that are sent our way, concentrating on the biggest water quality problems first: "solids", pathogenic bacteria, and bulk nutrients. Because we've been doing such a good job of this, communities in the developed world are now focusing on pollutants with less immediate and widespread impacts.

What it can't:
Because wastewater treatment relies on biological processes, toxic chemicals can interfere with the treatment process. Some removal occurs, but systems are designed to handle the "big" things. In order to achieve sub-part-per-million concentrations of toxic chemicals, different technologies are needed. Existing treatment technologies for toxics include: chemically enhanced secondary treatment, micro filtration/reverse osmosis, and granular activated carbon. But, even these technologies cannot remove toxics down to the current water quality standards in Oregon[1]. To achieve these levels, new technologies will need to be developed.

What it costs:
If the existing technologies mentioned above are implemented, treatment costs are estimated to increase by approximately 70% (example: for a 5 mgd treatment plant costs per gallon would go from $17 to $29)[2]. Research into the cost effectiveness of treatment technologies has concluded that treatment had a net benefit up until the late 1980's, since then we've been spending more on treatment than we get back in both financial and non-financial benefits[3]. In fact, wastewater treatment costs have been rising faster than the rate of inflation[4]. But, just as important are the additional environmental impacts: increased land area for treatment plants, increased energy use and greenhouse gas emissions, increased chemical demand, and disposal of increased solid and contaminated liquid waste (brine).

Who pays:
Utilities generally charge based on volume. An exception is extra strength charges for highly concentrated wastewater (BOD and TSS). It would be very expensive to test every discharger for toxics and charge accordingly. So, the answer is: we all pay, whether or not we've reduced the toxics we use.

What's better:

It is biologically impossible for people to stop generating solids, pathogenic bacteria and nutrients; so these are not amenable to pollution prevention. This is not true for the types of toxics we're talking about today. Prevention can be done at the individual level; purchasing cleaners with the EPA Design for the Environment logo and without antimicrobial agents, disposing of unused drugs at law enforcement collection boxes instead of your toilet, using pesticides (including lawn herbicides) sparingly if at all, and using tunnel carwashes or washing your car on grass. But, to really solve the problem long-term, there will need to be a shift away from using toxics in manufacturing processes and products.

References:

[1]HDR, December 4, 2013, Treatment Technology Review and Assessment, (http://www.oracwa.org/documents/HDRAWB_Toxics_Tech_Report.pdf)
[2]Ibid
[3]Olmstead S.M. (2010). The economics of water quality. Review of Environmental Economics and Policy, 4(1), 44–62
[4]NACWA, 2013 Cost of Clean Water Index http://www.nacwa.org/images/stories/public/2014-05-08indexfinal.pdf