

Oregon DEQ Pretreatment Program

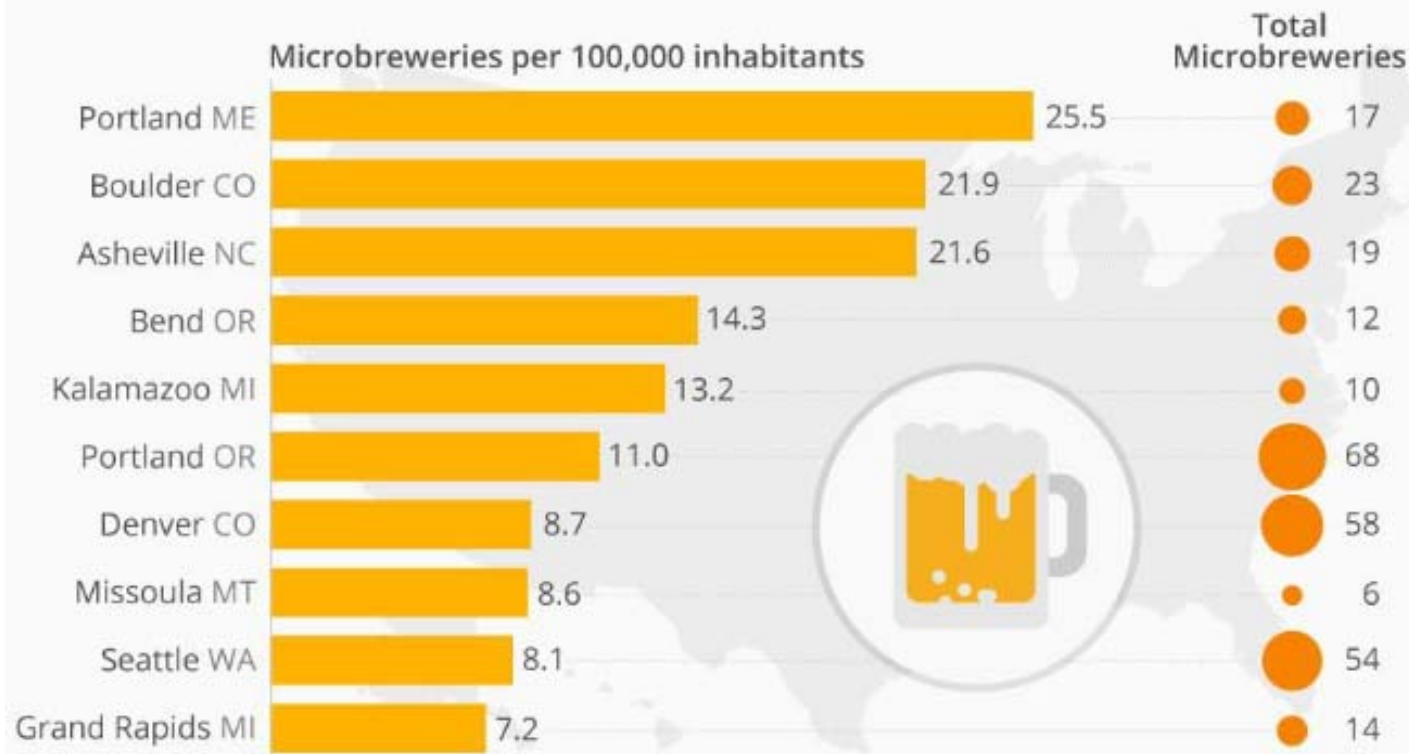
Regulation of Craft Breweries and other Fermented Beverages



City with most # or breweries per capita?

America's Craft Beer Capitals

Number of microbreweries per 100,000 inhabitants and in total across US cities in 2016



@StatistaCharts Source: Smartasset

Forbes statista

Average of beer to wastewater?

1:6

What do we have?

- Craft Breweries/Brew Pubs



What do we have?

- Wineries
- Distilleries
- Ciders
- kombucha Facilities
- Saki



What do we have?

- **Breweries**
 - In 2005 - 64 Breweries
 - In 2016 – 261 Breweries
 - Produced 7.18 million barrels of beer
 - Economic Impact – \$4.49 billion
 - 31,000 jobs created, direct/indirect
- **Wineries**
 - In 2016, 725 Wineries with 424 wineries crushing 61,614 tons of grapes

What do we have?



Pure Water Brew

Portland OR-
September 2016

Home Brew Competition
for Feature Beer Made with
Water From Wastewater
Treatment Plant

Hosted by-
Clean Water Services

What is Brewery Waste



Brewery Wastewater

- 1 barrel = 31 Gallons of beer
- For 1 barrel of beer brewed, 4-10 barrels of WW produced.
- Avg. ratio is 1:6 in larger facilities and 1:4 in smaller breweries
- With reduction of water and WW, this number can go as low as 1:3

Brewery waste load and treatment cost

Here is the quick summary of various <u>monthly</u> surcharge rates, mostly on the west coast.		
Parameters in this example		
Gallons/month	20,000	24,000
BOD, mg/L	3,000	9,990
TSS, mg/L	550	4,400
	▲	▲
	With side stream	Without side stream
Monthly fees	▼	▼
Eugene, OR	\$253	\$304
Bend, OR	\$86	\$430
Portland, OR	\$292	\$1,716
Turlock, CA	\$176	\$455
Syracuse, NY	\$159	\$684
San Diego, CA	\$354	\$1,371
Escondido, CA	\$333	\$1,476
Help me add more towns to this list...		
<i>You can see high variations town to town.</i>		
<i>Also high variation with side streaming or not</i>		
<i>Keep in mind side streaming has costs of its own</i>		

Small Vs Large POTWs

- pre-treatment may be necessary to smaller wastewater treatment plants
- Larger plants may be able to handle waste, but higher fees for infrastructure

Pretreatment system
at a local brewery, pH
neutralization before
discharge →



Concerns for WWTP and Collection systems

- BOD/COD 1200-3000mg/l-3500-5000mg/l
- TSS 100-160 mg/l
- pH 3 –12
- Temperature up to 165 degrees Fahrenheit
- Hydrogen Sulfide & Sulfuric acid formation
- Capacity Issues, is the infrastructure able to support the discharge?
- Odor control complaints from public

Concerns for POTW and Collection systems



Stand pipe from pump station downstream of brewery, due to low pH, high temp & HS

How are they regulated?

- Individual discharge permits
- Discharge control authorization letters
- Best Management Practices (BMPs)
- Extra strength surcharge

Common BMP Examples

- Side-stream grain, wort, yeast, and turb
- Land apply high strength wastewater
- Send solids for animal feed
- Use cleaning/sanitizing solution for pH neutralization of wastewater
- Reduce water consumption
- Reduce chemical use

POTWs with approved IPP

- Large breweries regulated through SIU permit
- Small and mid-size breweries regulated through BMP based discharge authorization letters, and general permits
- Proactive
- Preventative
- Collaborative

POTWs without formal IPP

- No systematic permitting process currently in place
- Regulatory response is reactive to NPDES permit violation

Example 1 – Tillamook STP

- Population – 4,940
- Wastewater plant ADWF of 0.5 MGD AWWF of 4.0 MGD
- City has no approved IPP
- Have the 8th largest brewery in Oregon
- City contacted DEQ wanting to issue industrial discharge permit to the brewery
- DEQ working with the city to provide SUO review and feedback
- Other approved programs shared information on permit process and BMPs
- City is issuing permit
- No impact at the WWTP, no NPDES permit violation

Example 2 – Hood River STP

- Population – 7,700
- ADWF of 2.0 MGD AWWF of 4.0 MGD
- No approved IPP (Delisted)
- Full Sail Brewery, the 5th largest brewery in Oregon
- Hood River Juice, large IU
- 4 mid-size breweries
- City has local IPP and issues permits to Full Sail and HR Juice
- WWTP reaching capacity for BOD/TSS load
- DEQ will evaluate DMR and IU data to determine if pretreatment requirement is necessary in upcoming NPDES permit

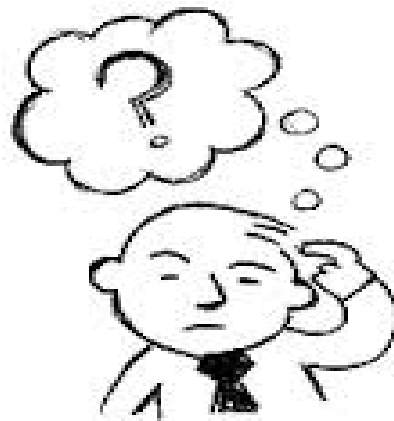
Example 3 – Astoria STP

- Population – 9,500
- ADWF of 4.2 MGD, AWWF of 12.6 MGD
- Facultative lagoon with mechanical aeration
- No approved pretreatment program
- Two mid-size breweries, 4 small breweries
- City has no pretreatment program
- Have BOD/TSS issues at the WWTP, especially in the summer months
- DEQ plans to include pretreatment requirements in the next NEPDES permit

Statewide regulatory streamlining

- Include Industrial User Survey requirements in NPDES permits
- DEQ reviews each survey
- If POTW has breweries causing impact, IPP requirements included in NPDES permit
- Collaboration b/n local approved programs and small communities on information sharing
- Promote the voluntary pretreatment program
- Facilitate Pollution Prevention practices
- Provide brewery BMP factsheets and brochures

Questions?



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