

CLOSED

關閉 ¡Playa Cerrada! Cấm Vào 폐쇄함

NO SWIMMING

禁止游泳 ¡Se prohíbe nadar!
Cấm Bơi Lội 수영 금지

NO WADING

禁止戲水 ¡Se prohíbe bañarse!
Cấm Vào Nước 물놀이 금지



WATER POLLUTED!

水質汚染 ¡Água Contaminada! Nước Bị Ô Nhiễm 오염된물

STAY OUT OF THE WATER!

禁止下水 ¡Quédese fuera del agua! Tránh vào nước 물에는 들어가지 말것

Health Jurisdiction _____

Contact Phone _____

Contact the BEACH Program at (360) 480-4868
or at: www.ecy.wa.gov/programs/eap/beach/



For shellfish safety information at this beach:
www.doh.wa.gov/shellfishsafety.htm
or call 1-800-562-5632.



Beach Environmental Assessment
Communication and Health (BEACH) Program



Nearshore
bacteria data for
the Regional
Stormwater
Monitoring
Program.

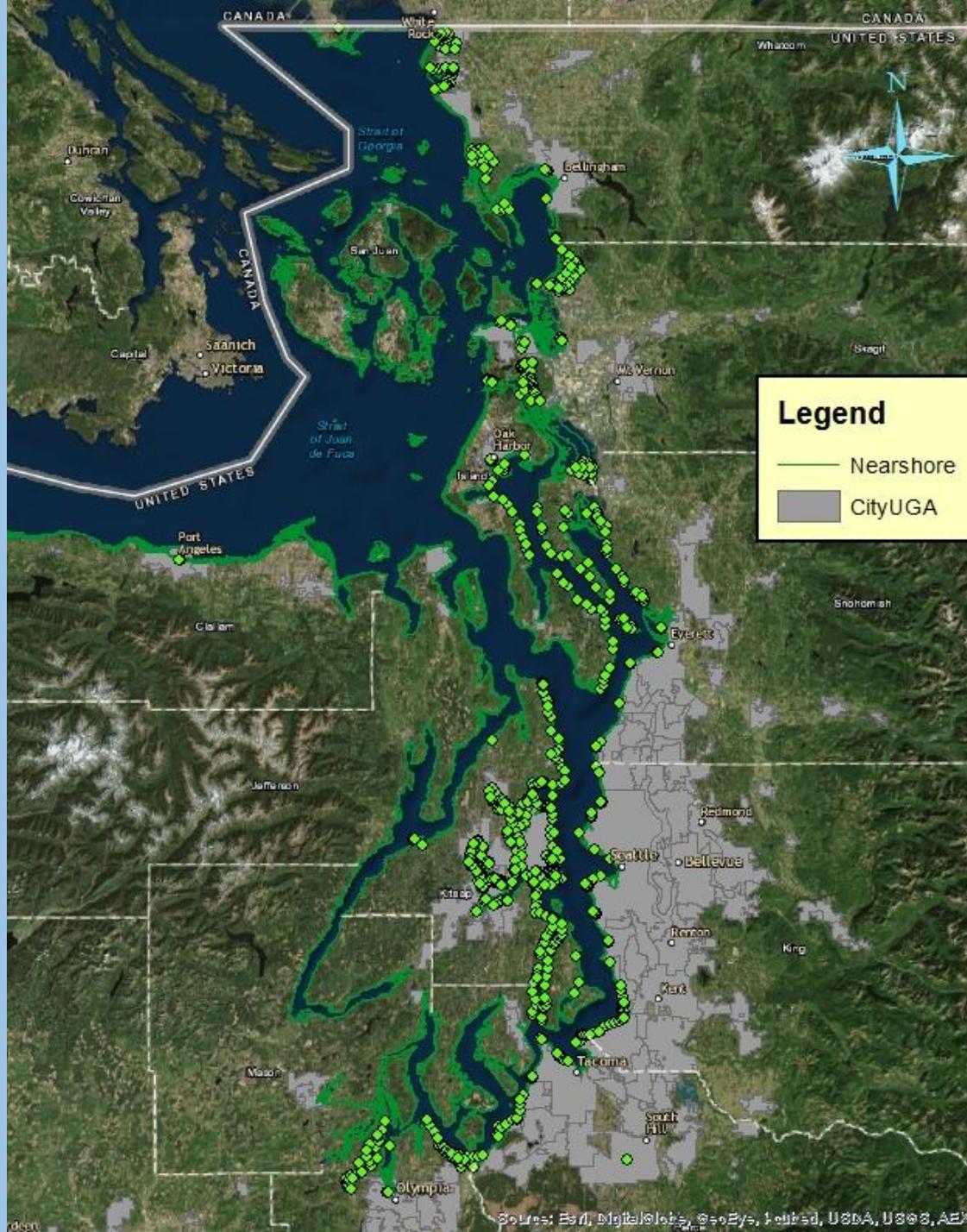
Who we contacted for 2010 – 2015 nearshore bacteria data:

- Federal Agencies
- State Agencies
- Counties
- Local Health Departments
- Waste Water Treatment Plants
- Cities
- Conservation Districts
- Tribes
- Volunteer Organizations such as Surfriders and Beach Watchers.

Nearshore Bacteria Data Sources, 2010 – 2015

- Fecal Coliform: 26,354 data points
- Enterococci: 14,700 data points
- *E-coli*: 848 data points

| Entity | Fecal Coliform | Enterococci | <i>E-coli</i> |
|----------------------------------|----------------|-------------|---------------|
| Department of Health - Shellfish | 73.6% | 0.0% | 0.0% |
| Department of Ecology - BEACH | 0.6% | 84.5% | 0.0% |
| Counties | 21.6% | 8.7% | 0.0% |
| Tribes | 3.5% | 6.8% | 100.0% |
| Cities | 0.4% | 0.0% | 0.0% |
| Marine Resource Committees | 0.3% | 0.0% | 0.0% |
| Waste Water Treatment Plants | 0.0% | 0.0% | 0.0% |
| Conservation Districts | 0.0% | 0.0% | 0.0% |



Puget Sound Sub-regions

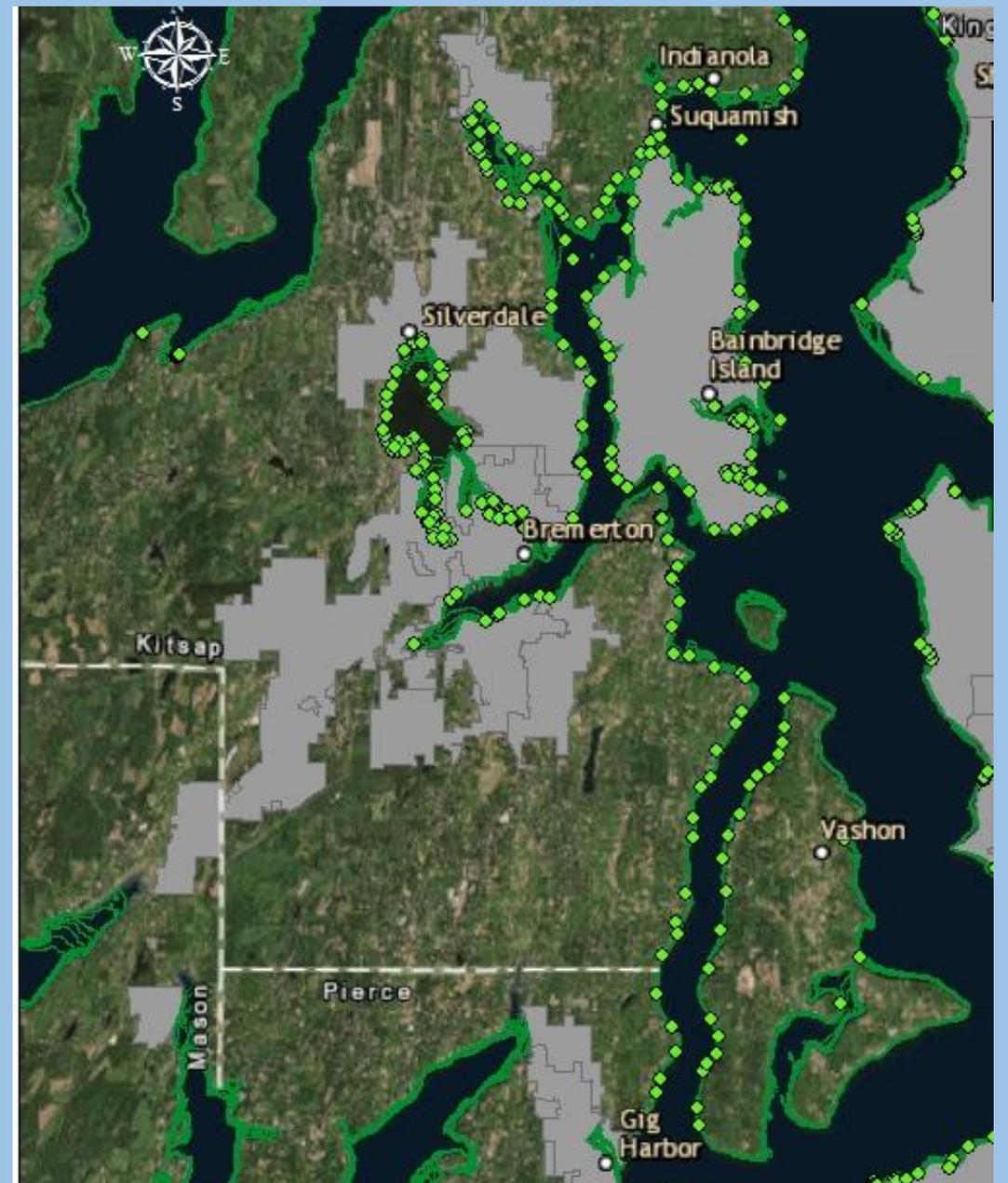
- Strait of Juan de Fuca
- Strait of Georgia
- North Central Sound
- West Central Sound
- East Central Sound
- South Sound

Nearshore Bacteria Data Areas 2010 - 2015

| Areas | Fecal Coliform | Enterococci | <i>E-coli</i> |
|-------------------|-----------------------|--------------------|----------------------|
| Juan de Fuca | 0.0% | 2.6% | 0.0% |
| Strait of Georgia | 17.5% | 17.0% | 100.0% |
| North Central | 18.8% | 17.2% | 0.0% |
| West Central | 42.0% | 24.3% | 0.0% |
| East Central | 10.1% | 31.4% | 0.0% |
| South Sound | 11.6% | 7.5% | 0.0% |



Port Angeles: Phase II City



West Central: Kitsap County: Phase II County

Technical Memo with:

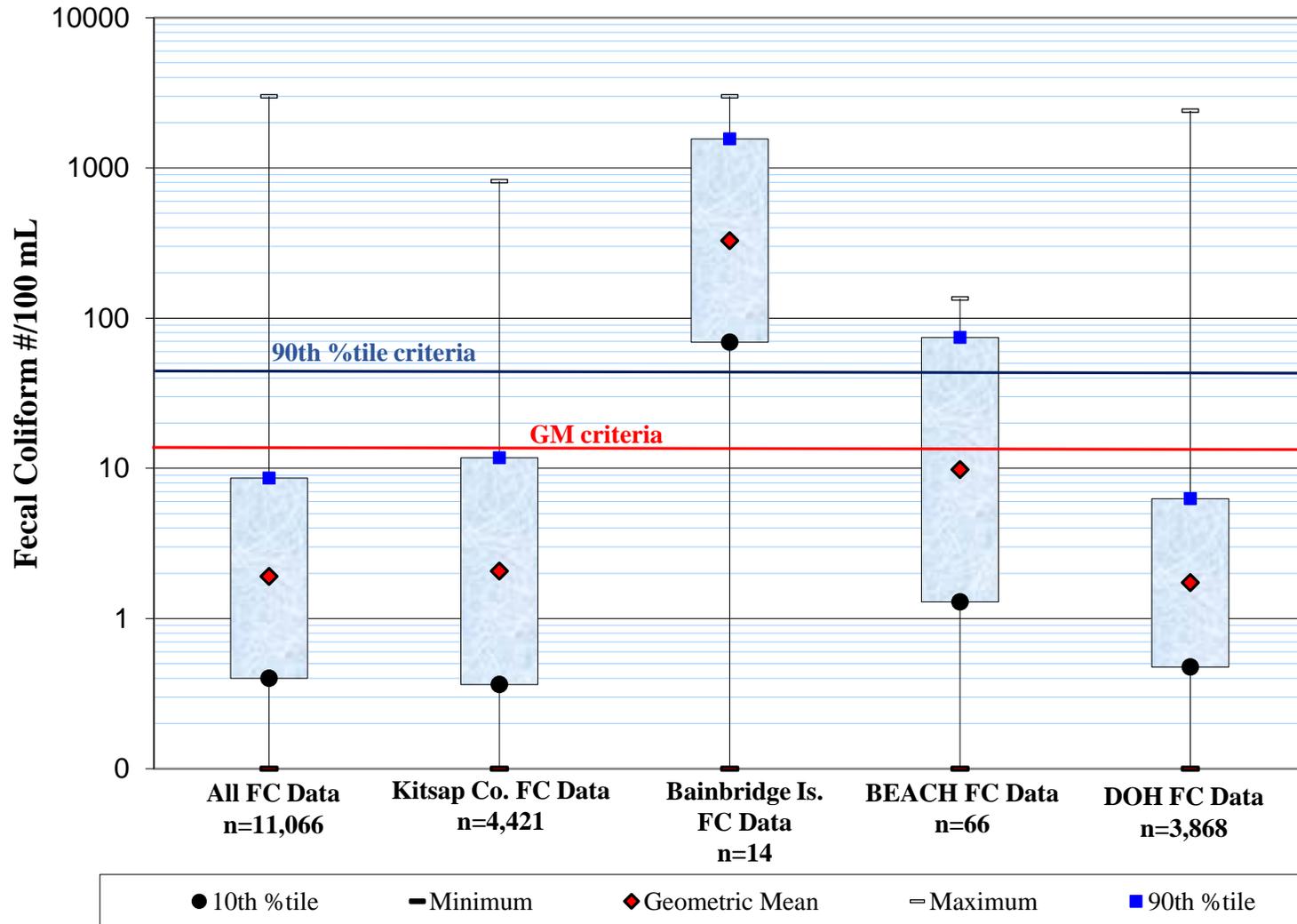
Summary Statistics by Sub-Region

Calculated the geometric mean and 90th percentile by bacterial indicator for:

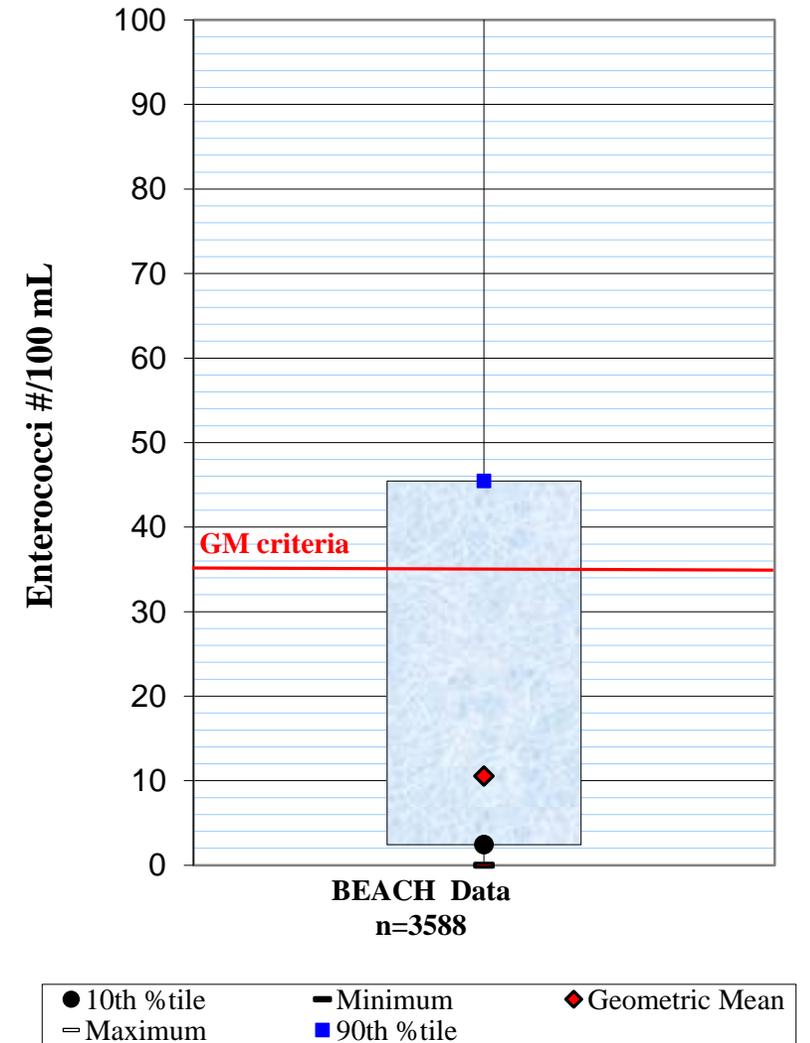
- All data, and for each entity that had data for the 2010 – 2015 period.
- For each year, 2010 – 2015.
- For the 2010 – 2015 period for wet (October – April) and dry season (May – September).

West Central Sound Fecal Coliform and Enterococci Data, 2010 - 2015

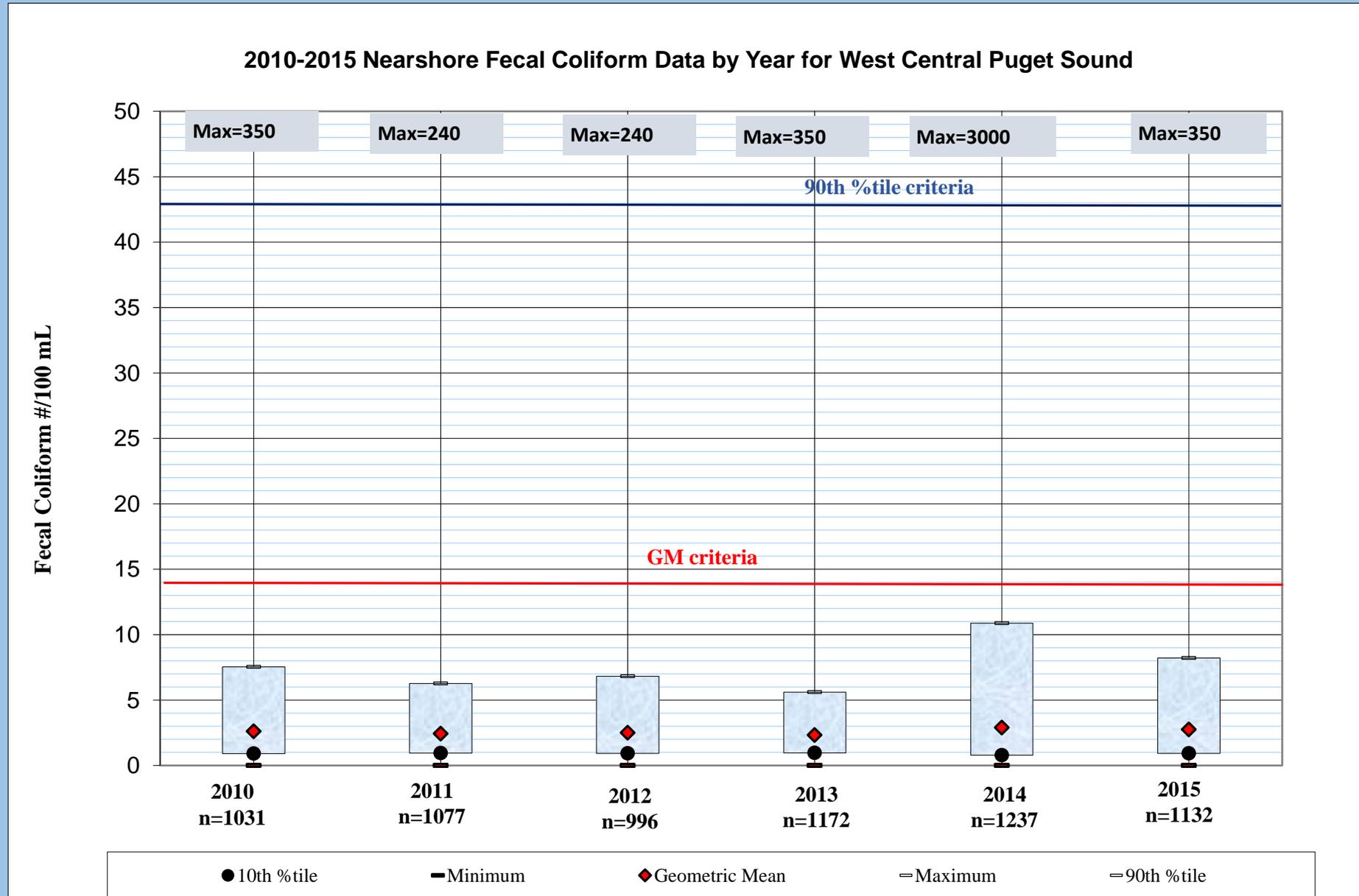
2010-2015 Nearshore Fecal Coliform Data for West Central Puget Sound



2010-2015 Nearshore Enterococci Data for West Central Puget Sound

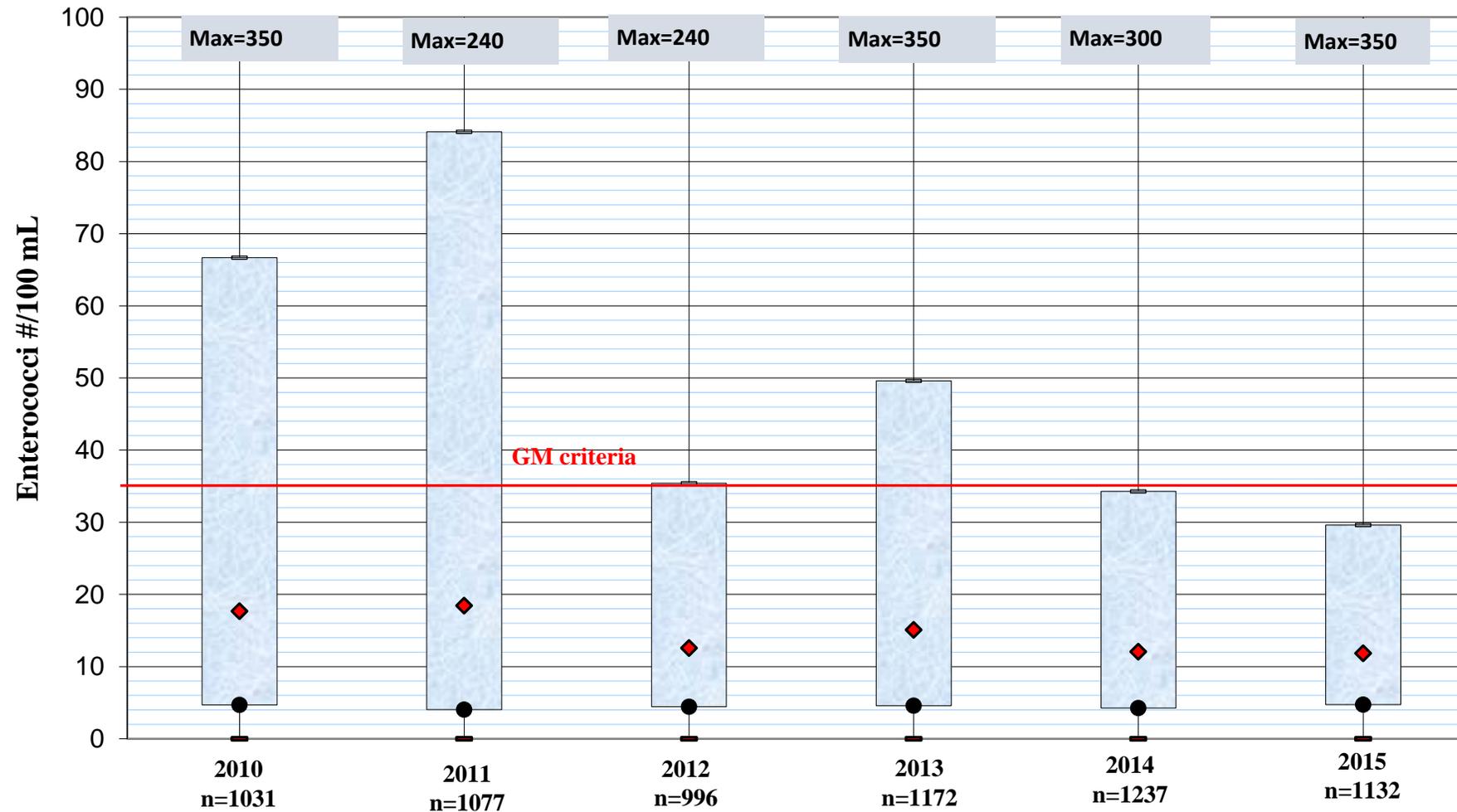


West Central Sound Fecal Coliform Data by year, 2010 - 2015



West Central Sound Enterococci Data by Year, 2010 - 2015

2010-2015 Nearshore Enterococci Data for West Central Puget Sound



● 10th %tile

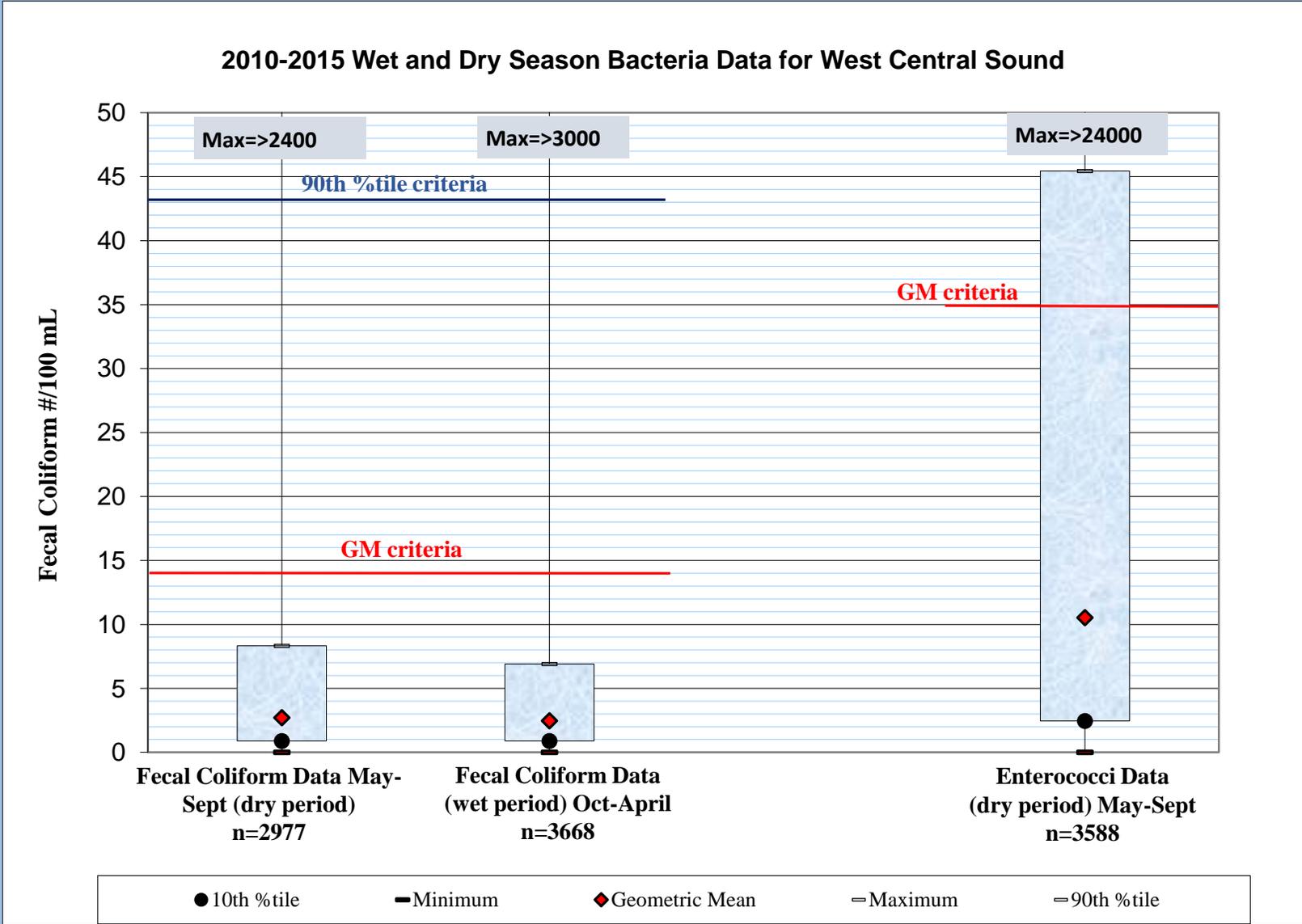
— Minimum

◆ Geometric Mean

— Maximum

— 90th %tile

West Central Sound Wet and Dry Season Fecal Coliform and Enterococci Data, for 2010 - 2015



Data Issues and Gaps

- **Large data set has numerous non-detects that results in low test statistics, is this representative?**
- **Are the DOH sites nearshore sites? Is this data comparable to wade in sampling?**
- **Storm event data not captured in this data set.**
- **Some Areas have more data than others. For example: Juan de Fuca, Port Angeles area very little data for fecal coliform.**

Thoughts on how to look at trends.

- **More specific questions are needed.**
- **Focus on core set of sites (like BEACH Program)**
- **Focus on small tributaries to nearshore.**