

Salinity in Coastal Trunklines

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Environmental Services

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Operations Committee



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GWRS Final Expansion

- Substantially complete as of early Dec. 2022
 - Completed 90-day performance test
- OC San Plant No. 2 completely segregated
 - Reclaimable
 - Non-reclaimable
- Target
 - 170 MGD reclaimable flow from OC San
 - 130 MGD finished water
- Performance test
 - Higher salinity => higher pressure for RO units => higher cost

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2018 Estimated Salinity in Plant No. 2 Reclaimable Effluent

P2 TFSC Effluent

- Average: **2,400** mg/L total dissolved solid (TDS)

Blend of P2/P1 Flow at 50/120 MGD (P2=29.4%)

- Target: 1,400 mg/L
- Interstage booster pumps installed
- Increase pressure at RO units to remove TDS

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2018 Plant No. 2 Salinity Survey

P2 Trunklines		Average TDS Concentration (mg/L)
1	Coast (Huntington Beach - coastal)	4,260
2	Newport (coastal)	4,500
3	Miller-Holder (inland)	1,533
4	Bushard (inland)	1,240
5	Interplant (non-reclaimable)	2,300

Seawater TDS: ~33,000 mg/L

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2023 Preliminary Plant No. 2 Salinity Investigation

P2 TFSC effluent TDS

- Dec. 2022: **3,390** mg/L
- 2018 projected threshold: 2,400 mg/L

Adjusted blend of P2/P1 flow at ~25/145 MGD

- P2 limited to $\leq 15\%$ of total reclaimable flow
- Decrease from target of 29.4% of total reclaimable flow

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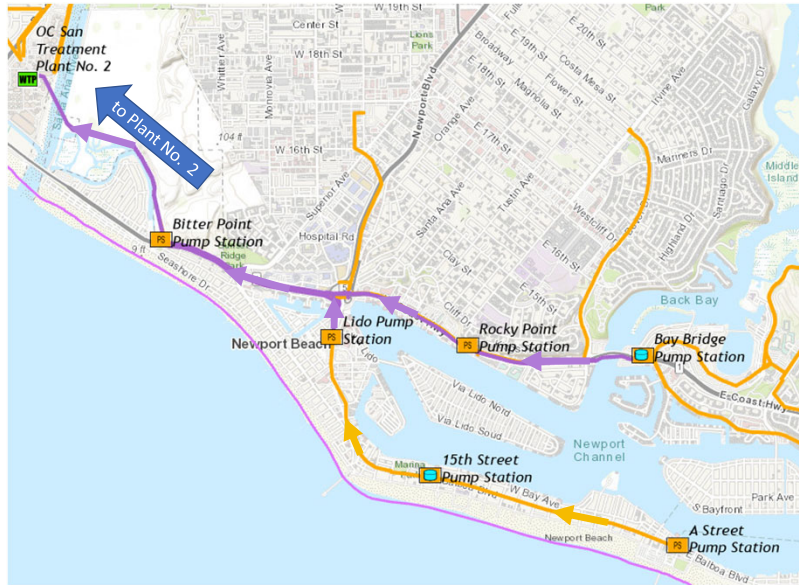
TDS Source Investigation

- Mass balance: TDS x flow
 - GWRS Design Objective: $\sim 2.2 \times 10^6$ lbs/d ($\sim 1.0 \times 10^6$ kg/d)
- Trunkline and tributary sampling
 - Snap shot sampling of coastal trunklines
 - Sequential sampling pre- and post- convergence
- Factors
 - Tidal influence on seawater intrusion
 - Wet weather inflow
 - City of Newport Beach tidal valves

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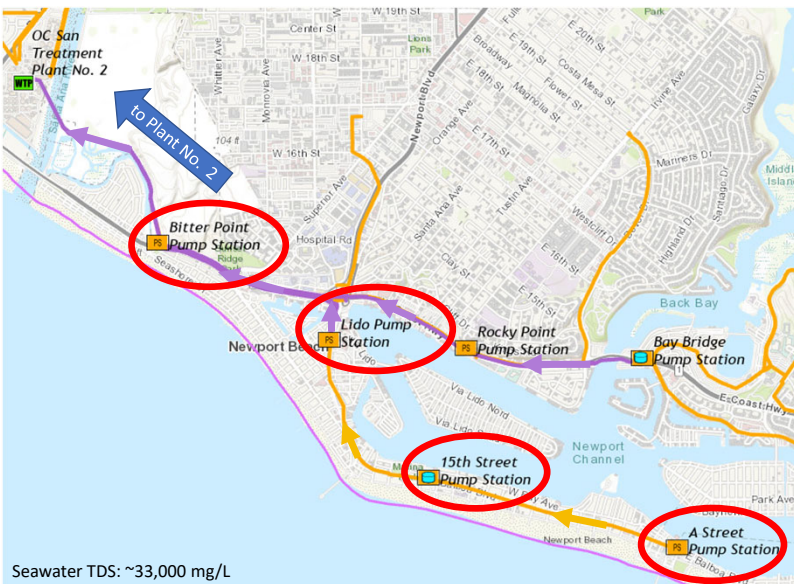
Newport Trunkline



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2019 City of Newport Beach Salinity Survey



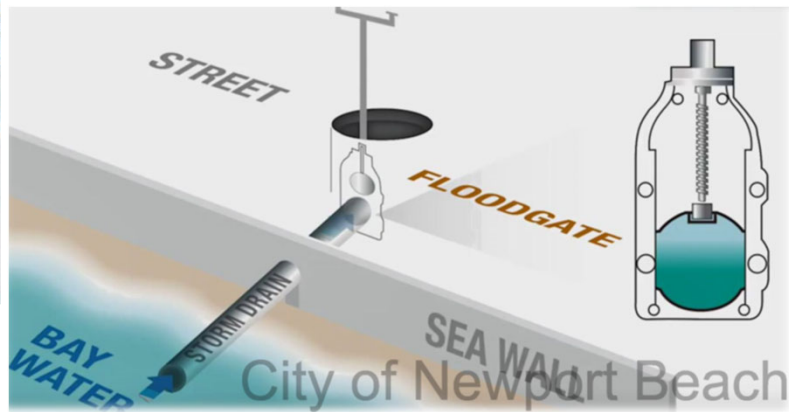
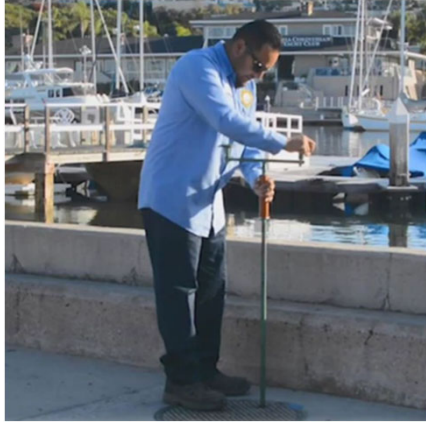
Seawater TDS: ~33,000 mg/L

Location	TDS Concentration (mg/L)
Bitter Point PS	7,800
Lido PS	19,200
15th Street PS	18,400
A Street PS	7,920
Rocky Point PS	1,260
Bay Bridge PS	2,560

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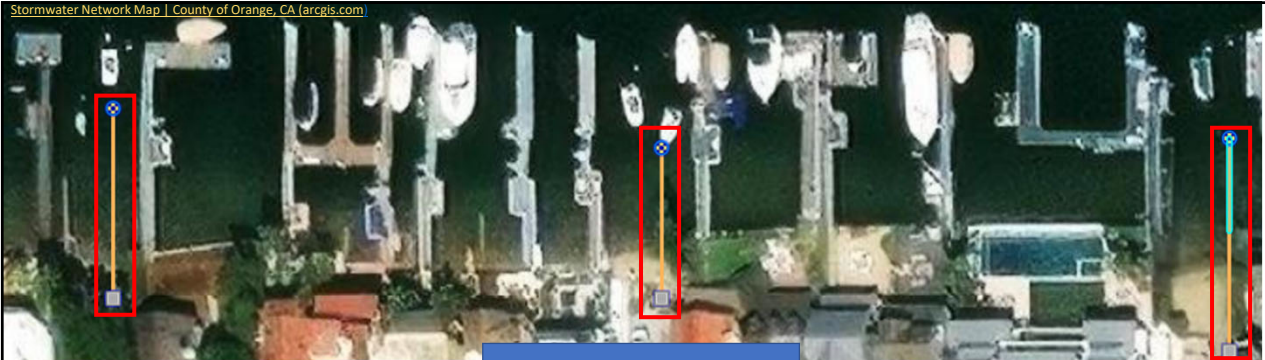
City of Newport Beach Tidal Valves



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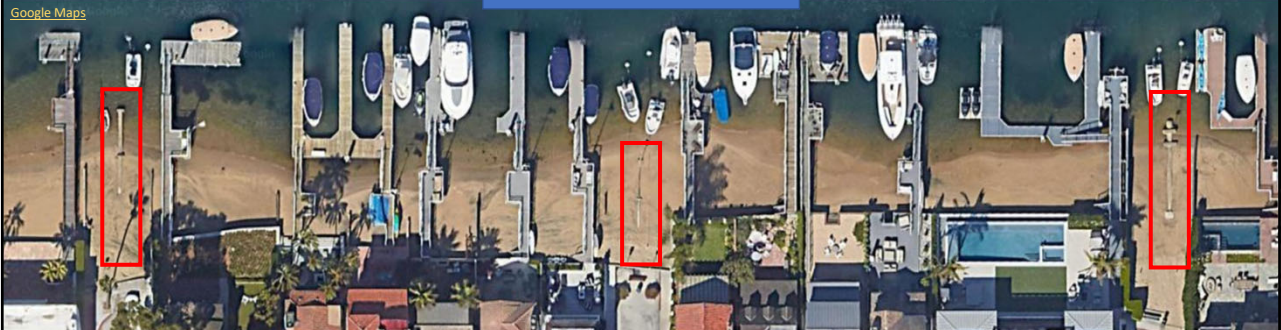
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Stormwater Network Map | County of Orange, CA (arcgis.com)



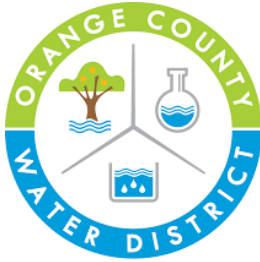
Tidal Valves and Storm Drains

Google Maps



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Collaborating Agencies



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Questions



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