

Nonattainment Diagnostics

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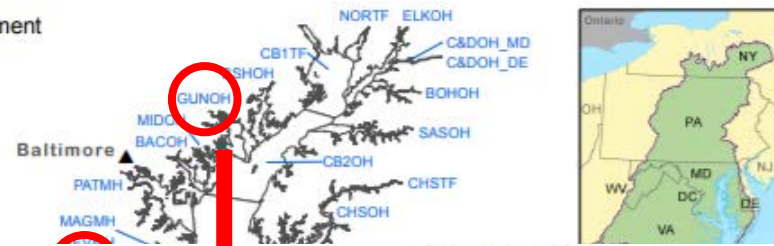
Richard Tian, *UMCES*

Gary Shenk, *USGS*

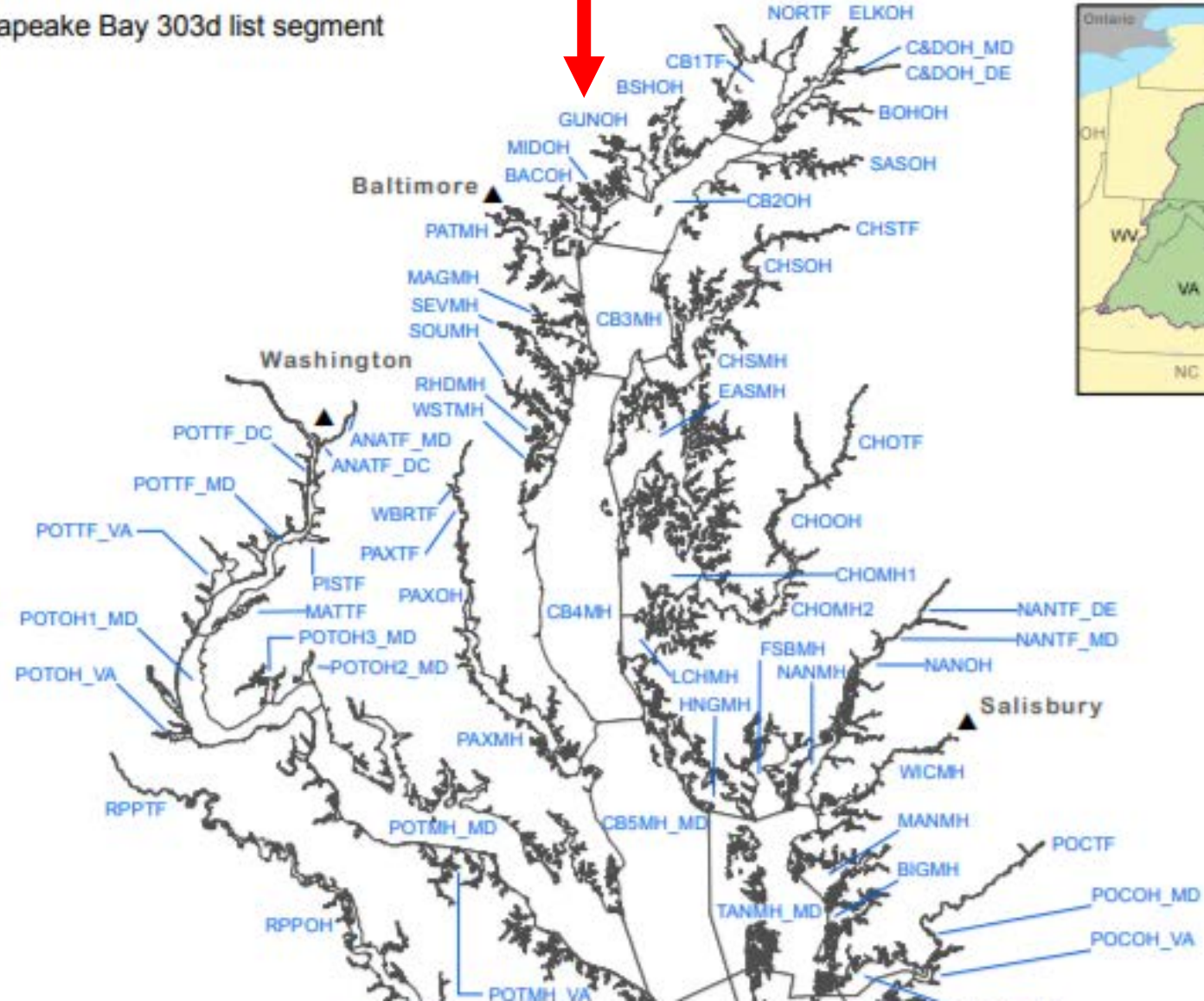
“Problem” Segments: Non-attaining at WIP2 1993-1995

| CBSegment | NoAction | 1985Progress | 1990Progress | 1993Progress | 2000Progress | 2010Progress | 2013Progress | WIP+30 %N20%P | WIP+24 %N16%P | WIP+18 %N12%P | WIP+12 %N8%P | WIP+6 %N4%P | WIP2 | E3 | All_Forest |
|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|-----------------|-----------------|-----------------|----------------|---------------|
| | 404TN 41.7TP | 347TN 30.4TP | 338TN 27.7TP | 337TN 23.7TP | 317TN 21.9TP | 266TN 16.9TP | 253TN 15.9TP | 243TN 15.6TP | 234TN 15.3TP | 224TN 14.8TP | 214TN 14.4TP | 205TN 14.0TP | 195TN 13.7TP | 133TN 8.6TP | 40TN 3.9TP |
| Open Water | GUNOH | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 0% | 0% |
| | PAXTF | 9% | 9% | 4% | 9% | 9% | 3% | 3% | 9% | 9% | 9% | 8% | 8% | 0% | 0% |
| | WBRTF | 5% | 5% | 0% | 5% | 5% | 0% | 5% | 5% | 0% | 0% | 5% | 5% | 0% | 18% |
| | CRRMH | 26% | 25% | 25% | 25% | 25% | 16% | 16% | 14% | 11% | 8% | 5% | 5% | 2% | 0% |
| | PMKTF | 16% | 9% | 9% | 11% | 11% | 11% | 9% | 11% | 11% | 11% | 9% | 9% | 5% | 0% |
| | WBEMH | 15% | 8% | 8% | 8% | 8% | 8% | 8% | 8% | 8% | 8% | 8% | 8% | 3% | 0% |
| | SBEMH | 49% | 48% | 47% | 44% | 41% | 36% | 34% | 36% | 34% | 32% | 31% | 28% | 12% | 3% |
| | EBEMH | 26% | 23% | 23% | 23% | 23% | 21% | 18% | 21% | 18% | 18% | 15% | 11% | 0% | 0% |
| | WICMH | 11% | 11% | 11% | 11% | 11% | 11% | 11% | 6% | 6% | 5% | 5% | 5% | 5% | 1% |
| Deep Water | SOUMH | 28% | 20% | 23% | 21% | 15% | 8% | 3% | 8% | 8% | 8% | 8% | 8% | 3% | 0% |
| | CB4MH | 53% | 48% | 47% | 46% | 43% | 30% | 27% | 22% | 19% | 16% | 12% | 9% | 6% | 0% |
| Deep Channel | EASMH | 27% | 21% | 19% | 19% | 17% | 14% | 13% | 12% | 12% | 11% | 9% | 8% | 6% | 0% |

Chesapeake Bay 303d list segment



Chesapeake Bay 303d list segment

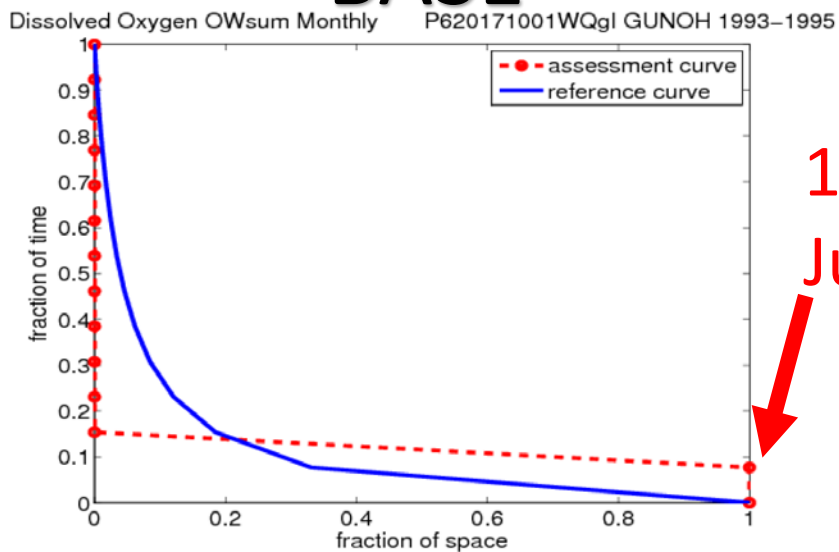


Gunpowder River (GUNOH)

[illegible]

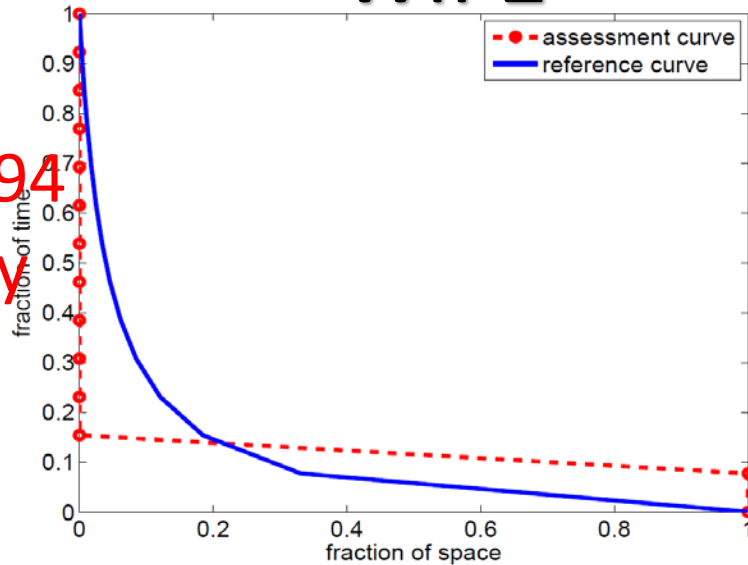
Violation Curves

BASE



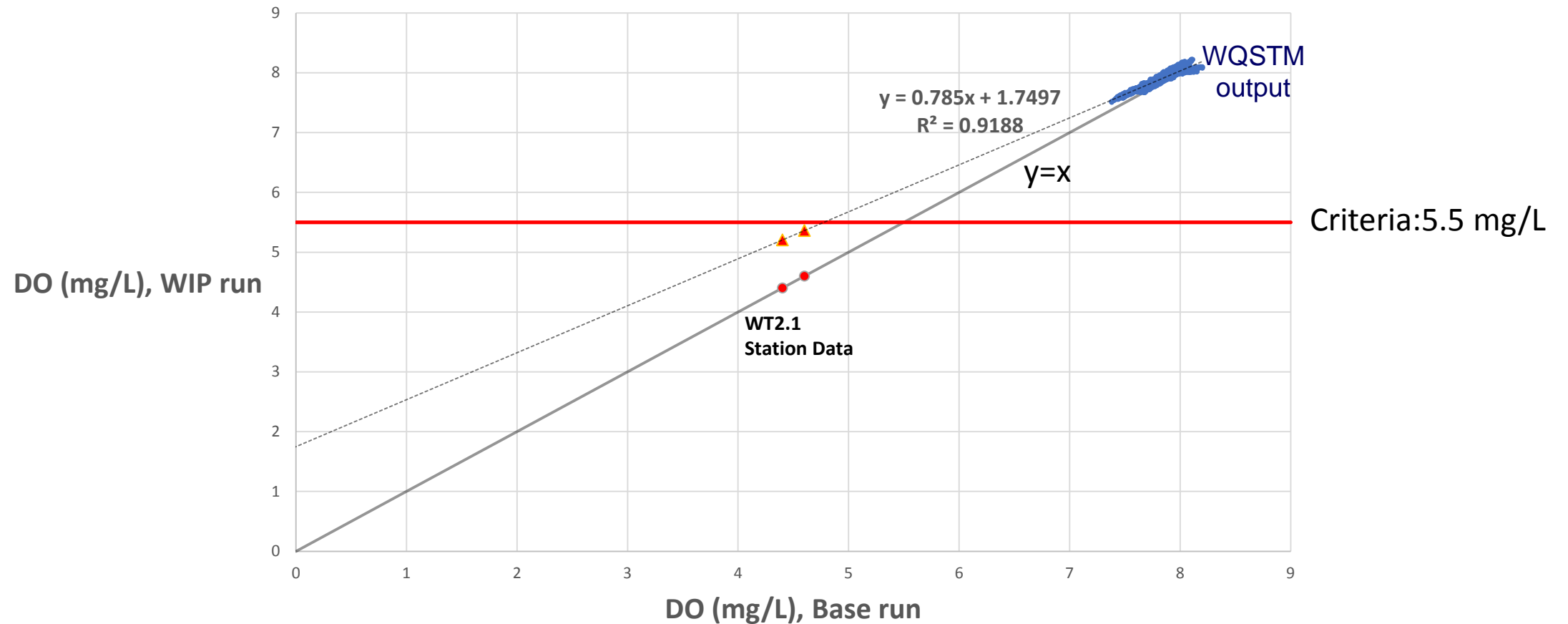
1994
July

WIP2



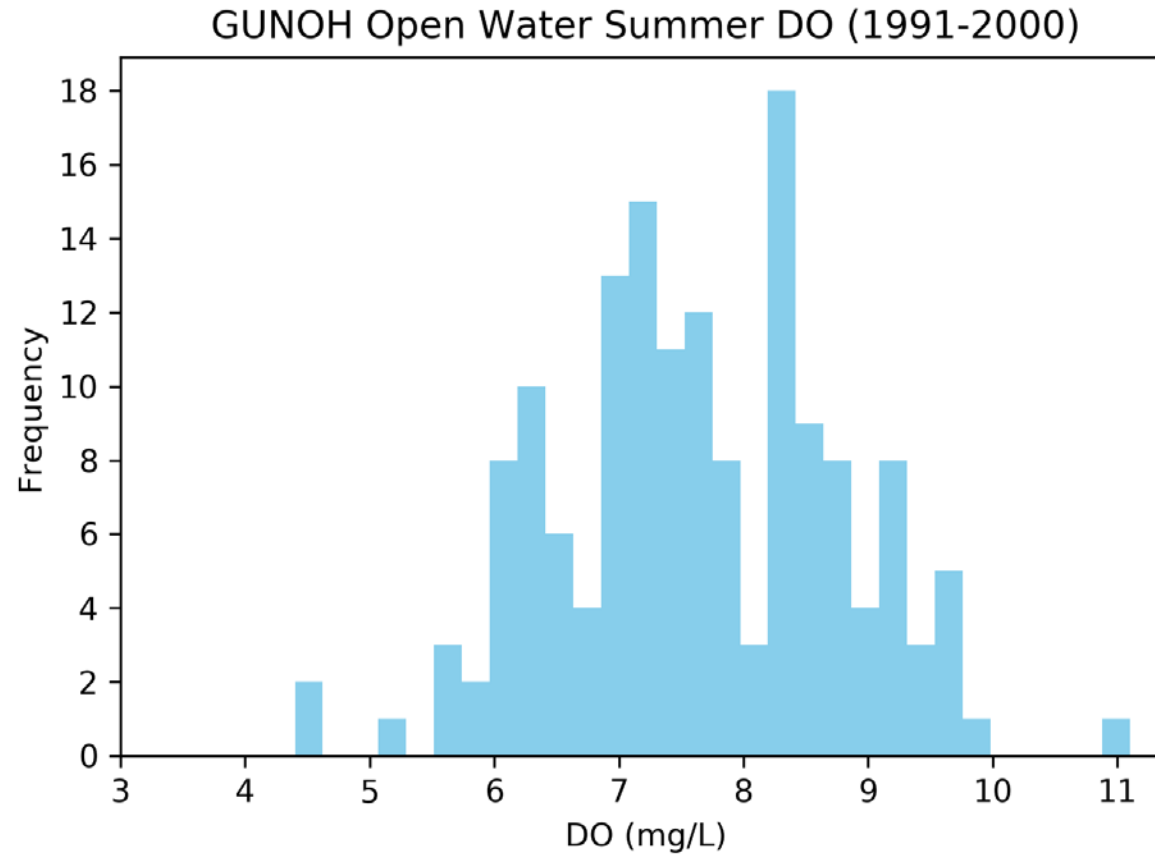
| Year | Month | BASE Violation rate | WIP Violation rate |
|------|-------|---------------------|--------------------|
| 1993 | 6 | 0% | 0% |
| 1993 | 7 | 0% | 0% |
| 1993 | 8 | 0% | 0% |
| 1993 | 9 | 0% | 0% |
| 1994 | 6 | 0% | 0% |
| 1994 | 7 | 100% | 100% |
| 1994 | 8 | 0% | 0% |
| 1994 | 9 | 0% | 0% |
| 1995 | 6 | 0% | 0% |
| 1995 | 7 | 0% | 0% |
| 1995 | 8 | 0% | 0% |
| 1995 | 9 | 0% | 0% |

GUNOH July 1994



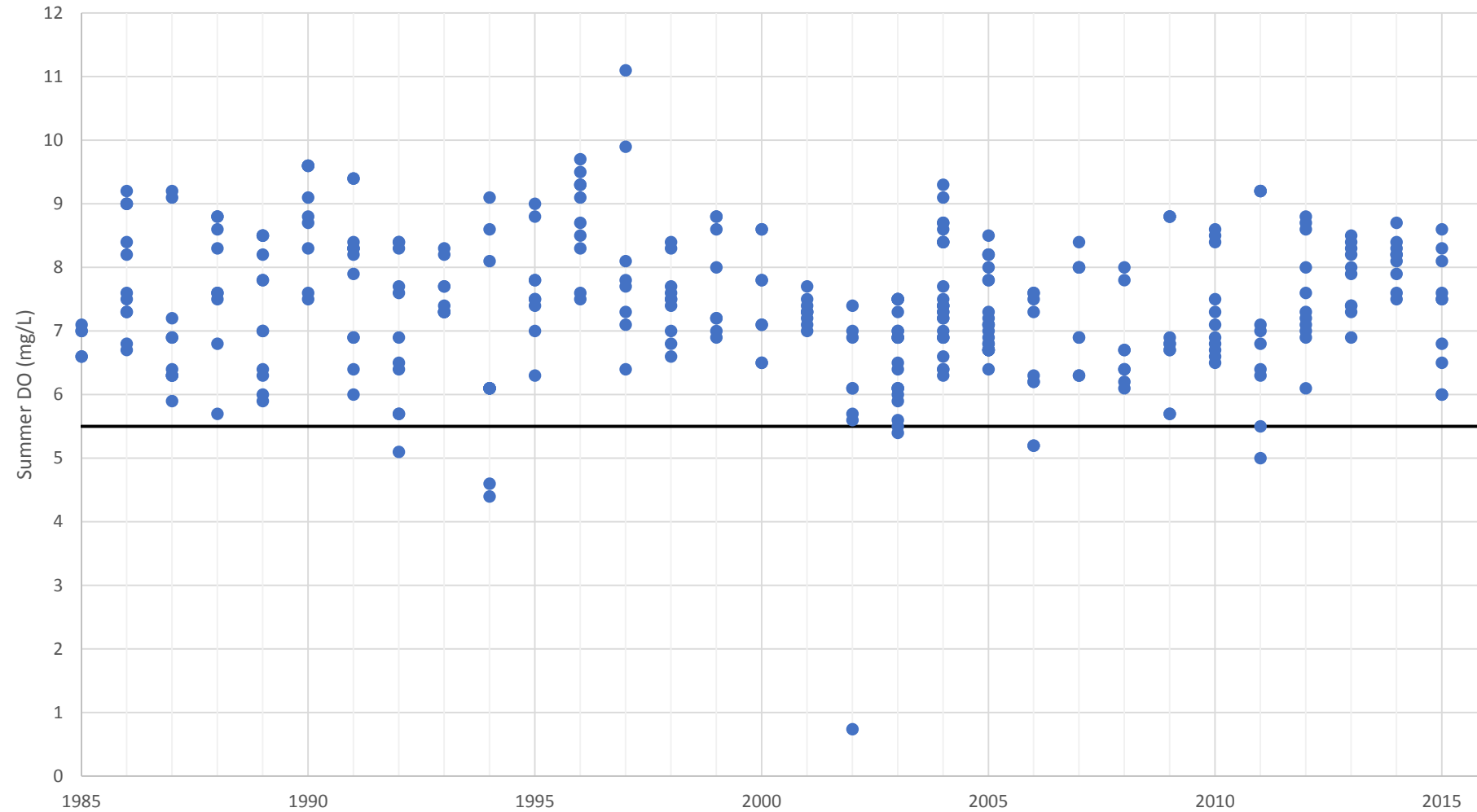
Unusually and/or very low observed DO concentrations, which are very difficult to “scenario” into “Open Water” attainment under any conditions

GUNOH DO Histogram indicates this watershed is generally healthy



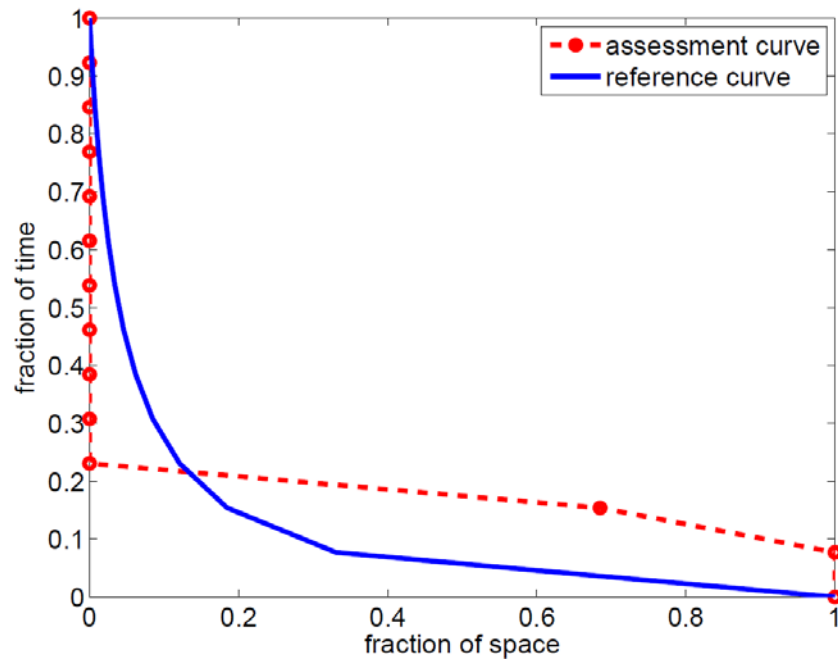
Long term trend: Unusually and/or very low observed DO concentrations

GUNOH Open Water Summer DO (1985-2016)



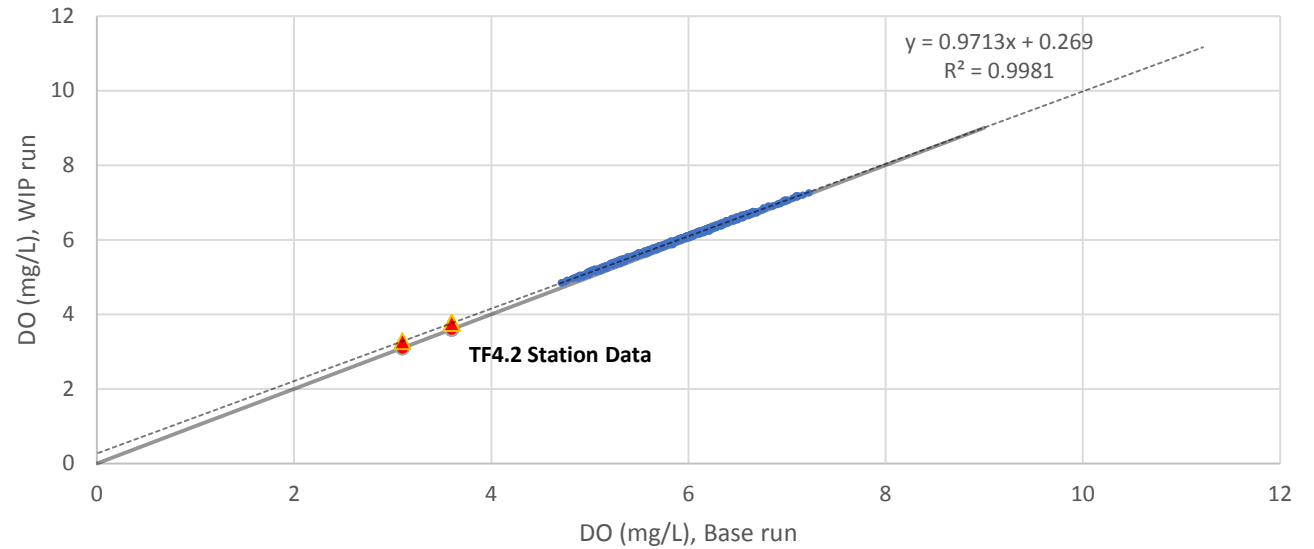
Other segments?

Upper Pamunkey River (PMKTF)

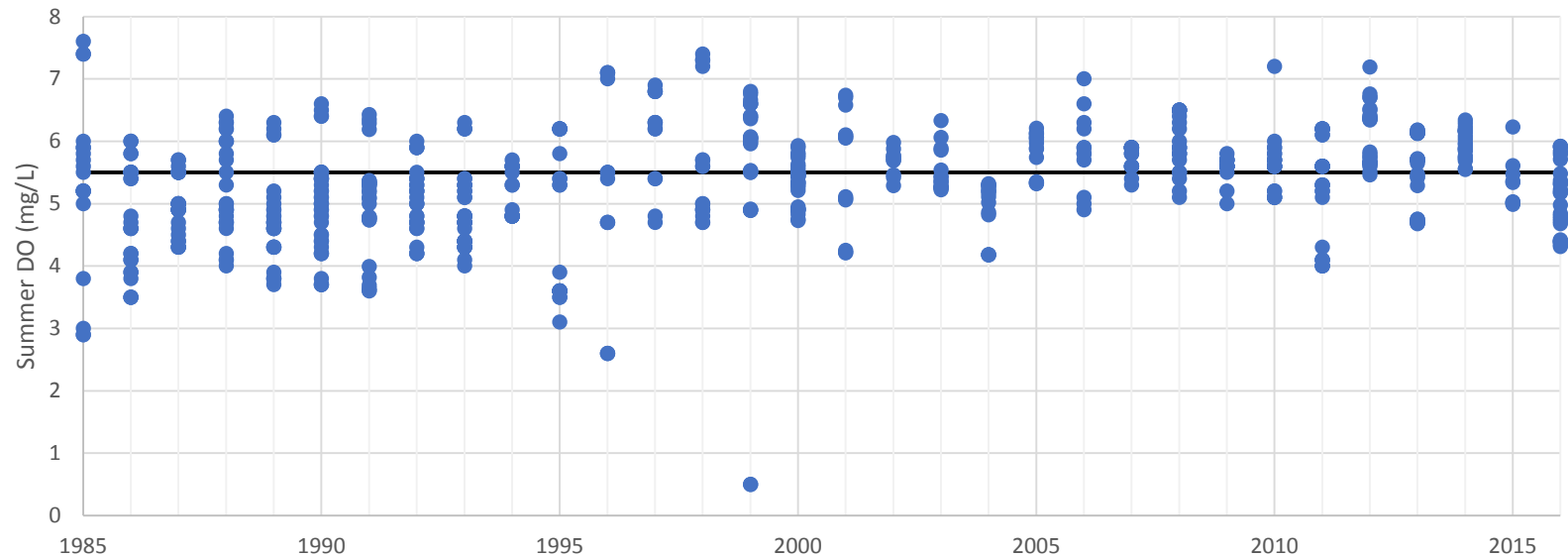


Less-than-expected change in DO concentrations

PMKTF August 1995



PMKTF Summer DO (1985-2016)





Questions?

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