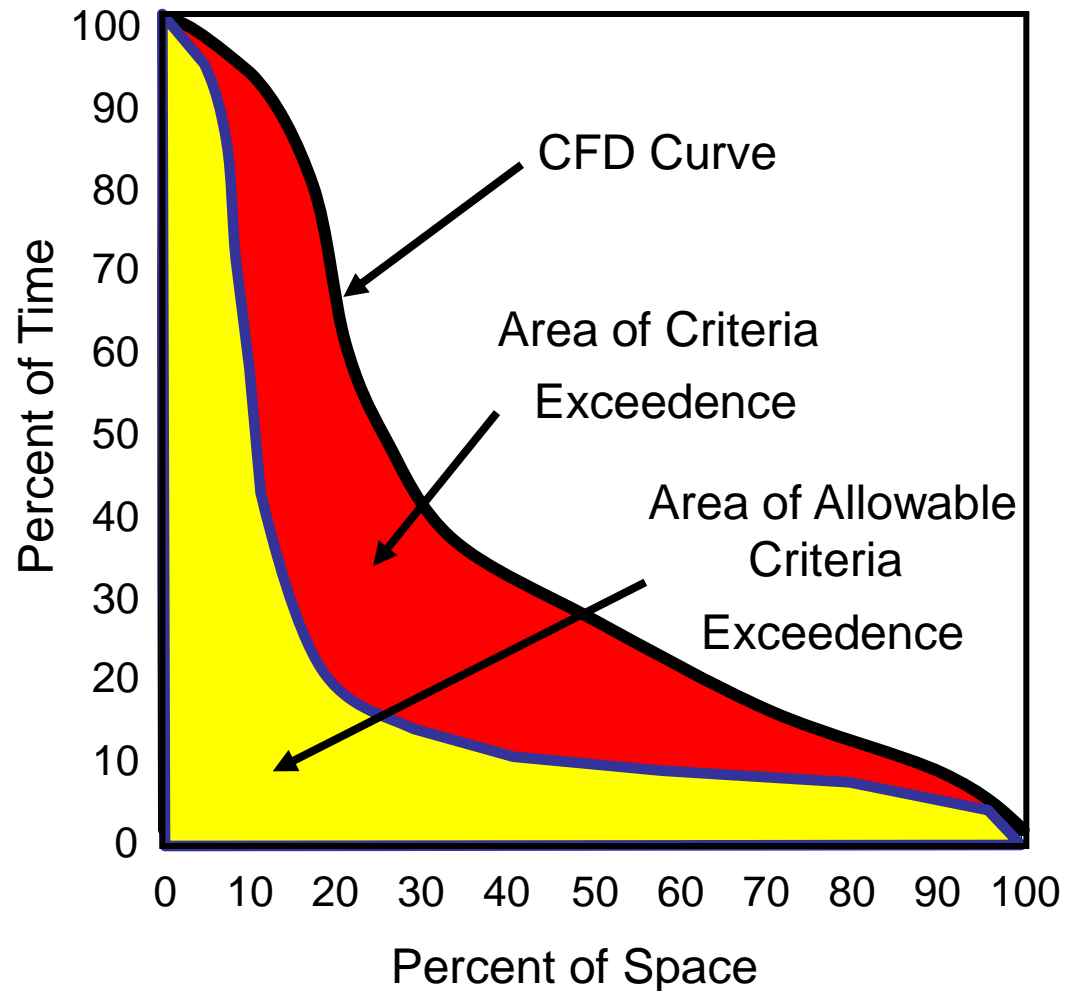


# **Water Quality Criteria Assessment - Code Alignment**

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# Criteria Exceedence CFD



# Procedures

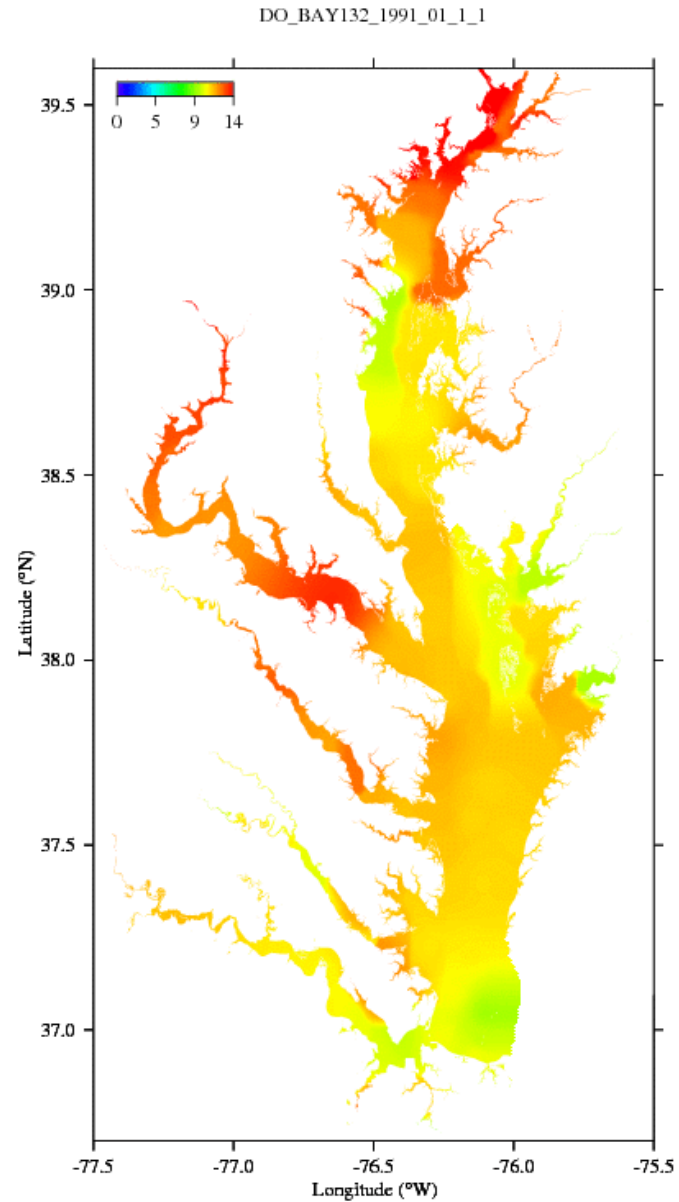
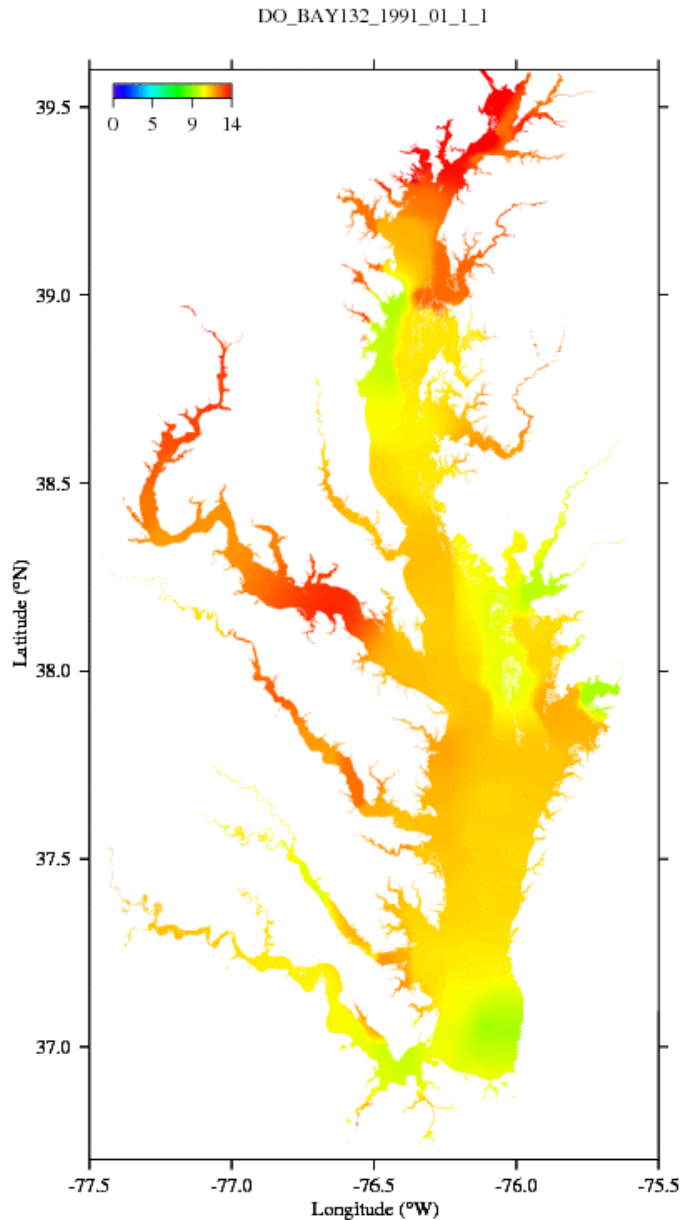
- 1 Read WQM
- 2 Regression with calibration case
- 3 Apply regression function to data
- 4 Create 3D data
- 5 Interpolation
- 6 Monthly and seasonal average
- 7 Violation determination
- 8 Compare with reference curve
- 9 Compare with hyperbolic curve
- 10 Excel table

- Task – reorganize the code, making improvements in documentation, readability, and efficiency

# Things done

- 1 One code set for all parameters
- 2 One click for all steps
- 3 Parallel for efficiency (day to hour)
- 4 Automatic documentation
- 5 Freedom of working
- 6 Freedom of saving
- 7 New format

# Interpolator vs Fortran Interpolation



# Comparison of final result

DO\_M\_DW\_CB4MH\_1998\_2000.prn

Old code

|  |
|--|
| 1998, 6, 1, 0.5532700, 2098000000.0, 3792000000.0, 0.0, 3792000000.0 |
| 1998, 7, 1, 0.4496582, 1447000064.0, 3217999872.0, 0.0, 3217999872.0 |
| 1998, 8, 1, 0.2688833, 744000000.0, 2767000064.0, 0.0, 2767000064.0  |
| 1998, 9, 1, 0.2735798, 1021000000.0, 3732000000.0, 0.0, 3732000000.0 |
| 1999, 6, 1, 0.1303318, 275000000.0, 2110000000.0, 0.0, 2110000000.0  |
| 1999, 7, 1, 0.2016167, 424000000.0, 2103000064.0, 0.0, 2103000064.0  |
| 1999, 8, 1, 0.1242197, 199000000.0, 1602000000.0, 0.0, 1602000000.0  |
| 1999, 9, 1, 0.0000000, 0.0, 2824000000.0, 0.0, 2824000000.0          |
| 2000, 6, 1, 0.2551821, 911000000.0, 3569999872.0, 0.0, 3569999872.0  |
| 2000, 7, 1, 0.3100338, 825000000.0, 2660999936.0, 0.0, 2660999936.0  |
| 2000, 8, 1, 0.1222080, 383000000.0, 3134000128.0, 0.0, 3134000128.0  |
| 2000, 9, 1, 0.1439114, 312000000.0, 2168000000.0, 0.0, 2168000000.0  |

# Comparison of final result

DO\_M\_DW\_CB4MH\_1998\_2000.prn

New code

|       |    |    |            |               |               |      |              |
|-------|----|----|------------|---------------|---------------|------|--------------|
| 1998, | 6, | 1, | 0.5532700, | 2098000000.0, | 3792000000.0, | 0.0, | 3792000000.0 |
| 1998, | 7, | 1, | 0.4496582, | 1447000064.0, | 3217999872.0, | 0.0, | 3217999872.0 |
| 1998, | 8, | 1, | 0.2688833, | 744000000.0,  | 2767000064.0, | 0.0, | 2767000064.0 |
| 1998, | 9, | 1, | 0.2733119, | 1020000000.0, | 3732000000.0, | 0.0, | 3732000000.0 |
| 1999, | 6, | 1, | 0.1303318, | 275000000.0,  | 2110000000.0, | 0.0, | 2110000000.0 |
| 1999, | 7, | 1, | 0.2016167, | 424000000.0,  | 2103000064.0, | 0.0, | 2103000064.0 |
| 1999, | 8, | 1, | 0.1248439, | 200000000.0,  | 1602000000.0, | 0.0, | 1602000000.0 |
| 1999, | 9, | 1, | 0.0000000, | 0.0,          | 2824000000.0, | 0.0, | 2824000000.0 |
| 2000, | 6, | 1, | 0.2557423, | 913000000.0,  | 3569999872.0, | 0.0, | 3569999872.0 |
| 2000, | 7, | 1, | 0.3100338, | 825000000.0,  | 2660999936.0, | 0.0, | 2660999936.0 |
| 2000, | 8, | 1, | 0.1222080, | 383000000.0,  | 3134000128.0, | 0.0, | 3134000128.0 |
| 2000, | 9, | 1, | 0.1439114, | 312000000.0,  | 2168000000.0, | 0.0, | 2168000000.0 |

**THE END**