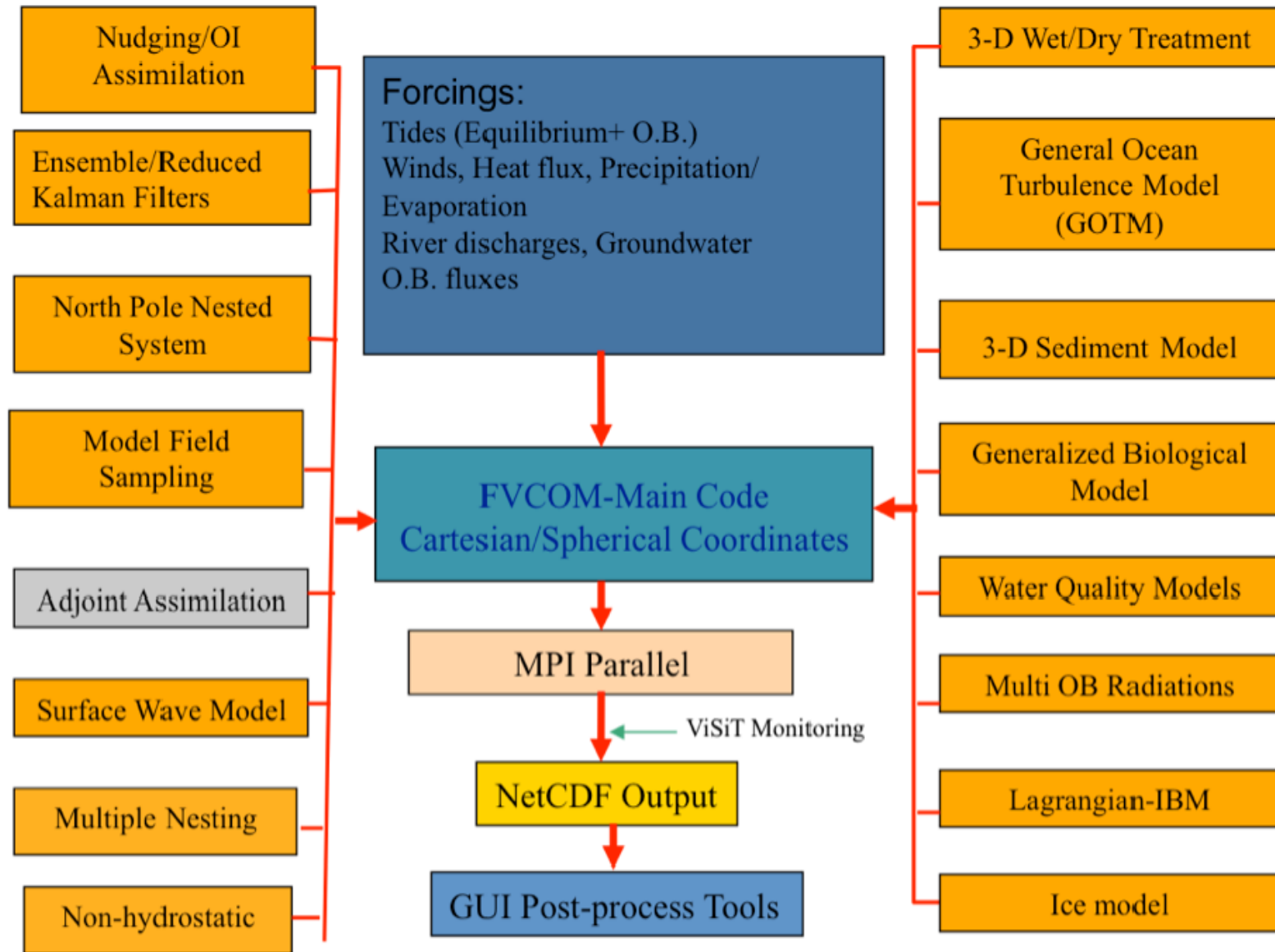


Progress report on FVCOM-ICM application in the Chester River: Evaluation

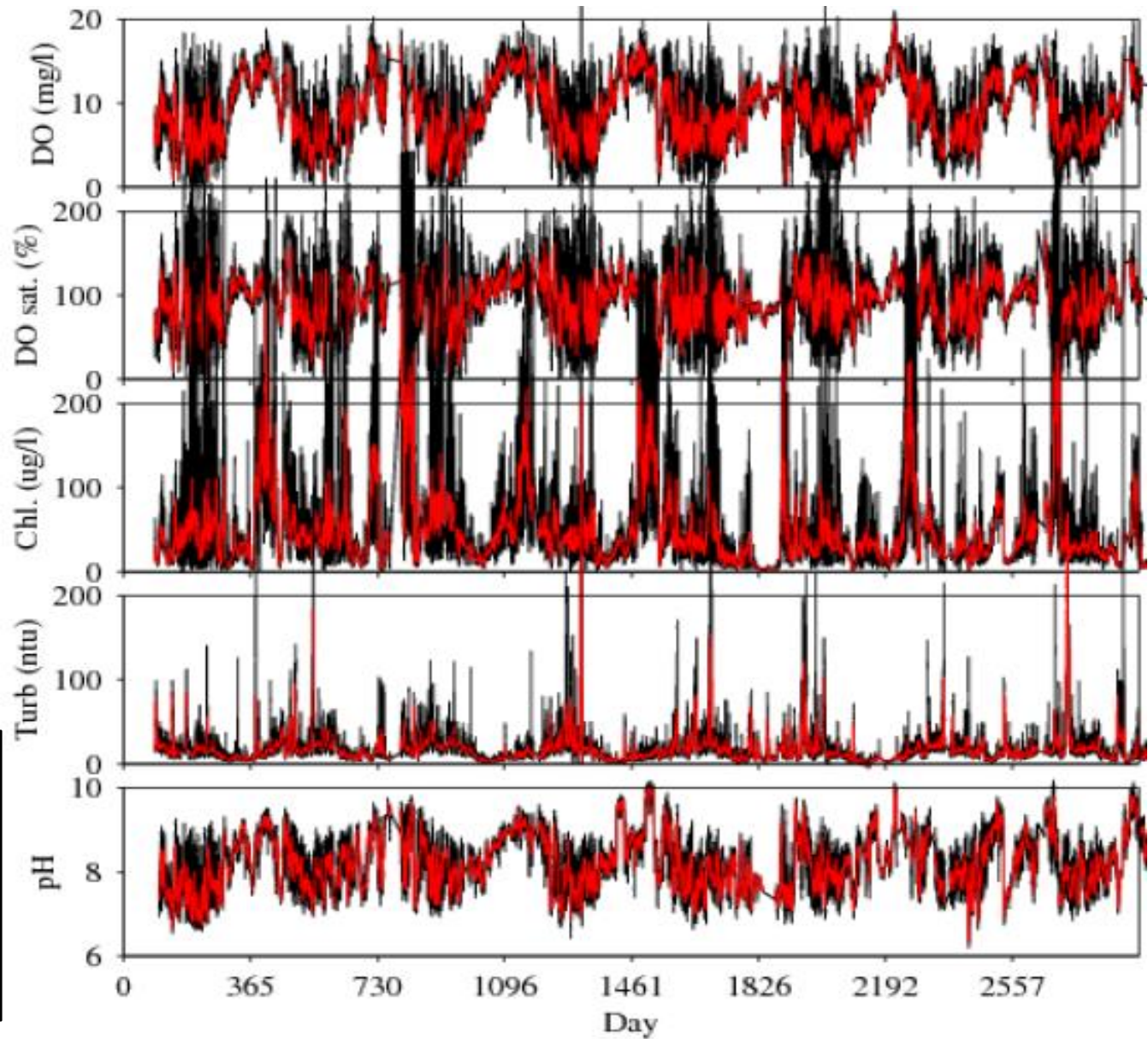
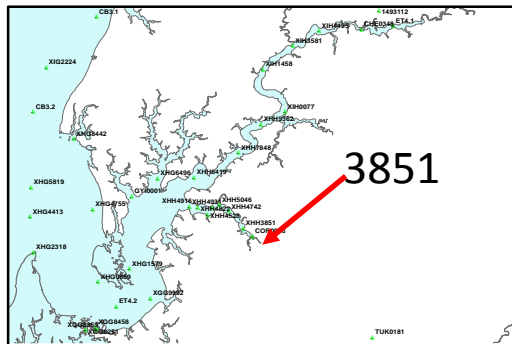
**Richard Tian & modeling team
UMCES/CBPO**

**STAC Meeting on Shallow Water Modeling
April 20 2016**

FVCOM



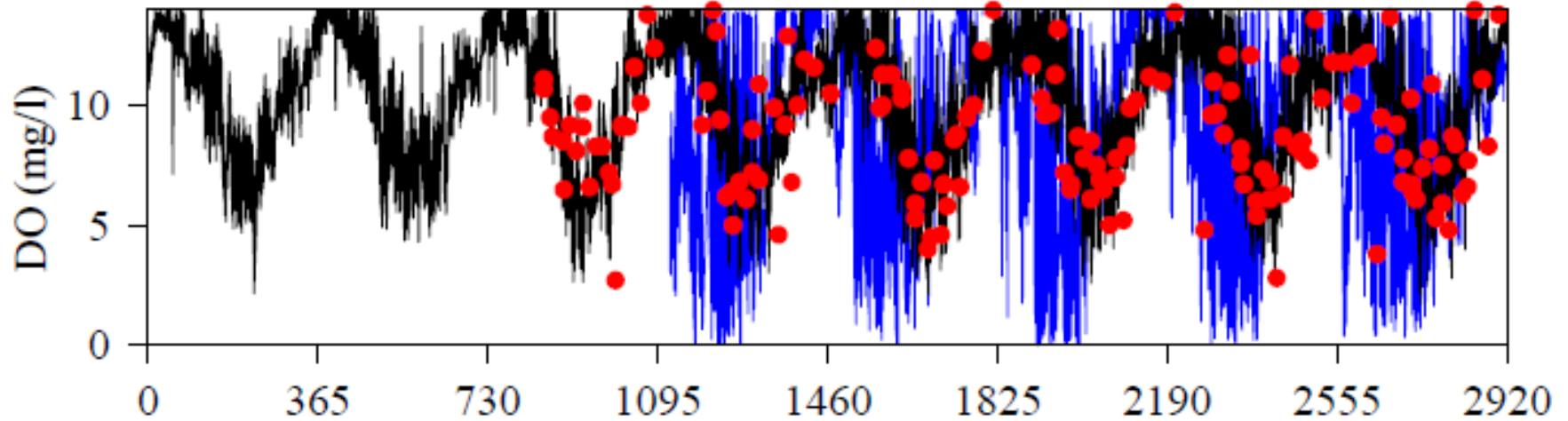
CMON data Station XHH3851 (Blue: Raw data; Red: daily average) (DNR)



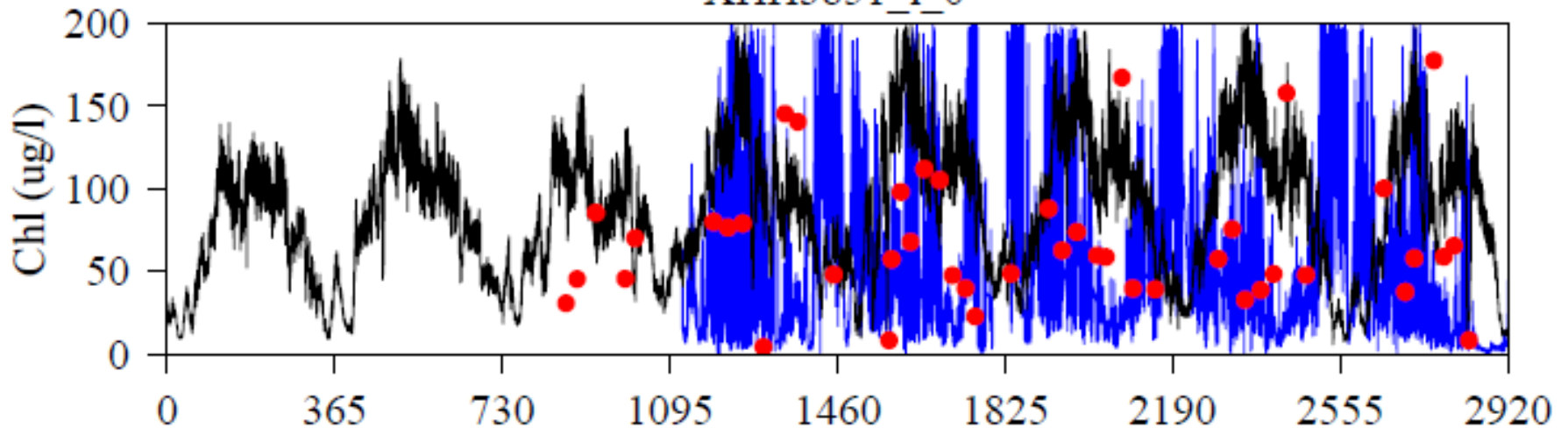
Station XHH3851 DO and Chl simulation

(Black: Model; Blue: CMON; Red: Samples)

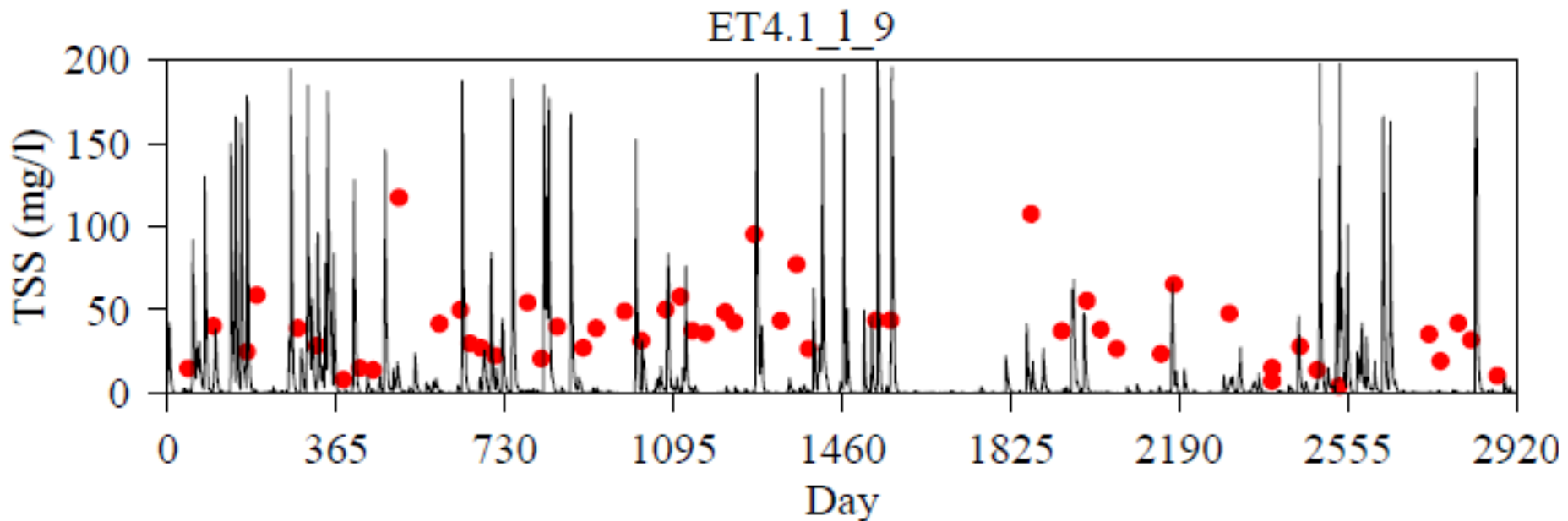
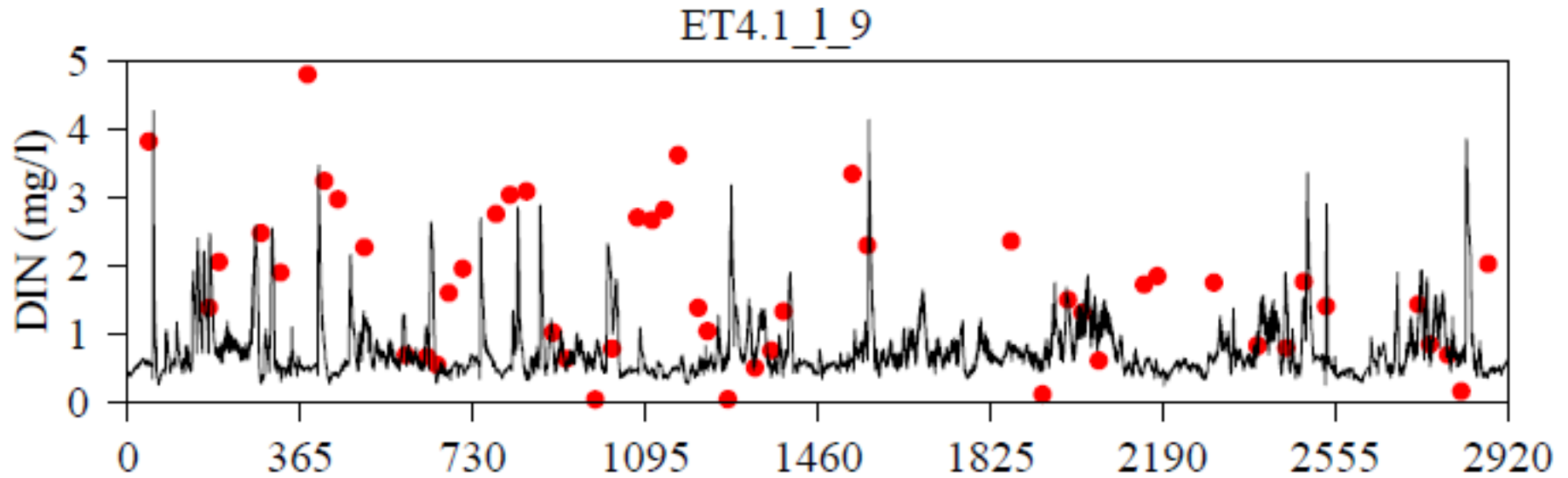
XHH3851_1_0



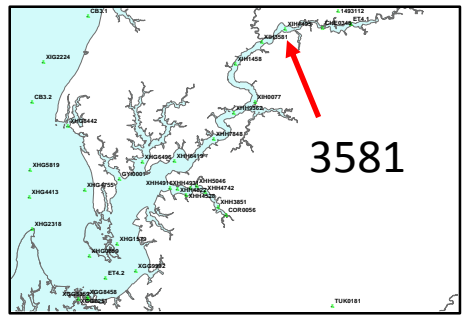
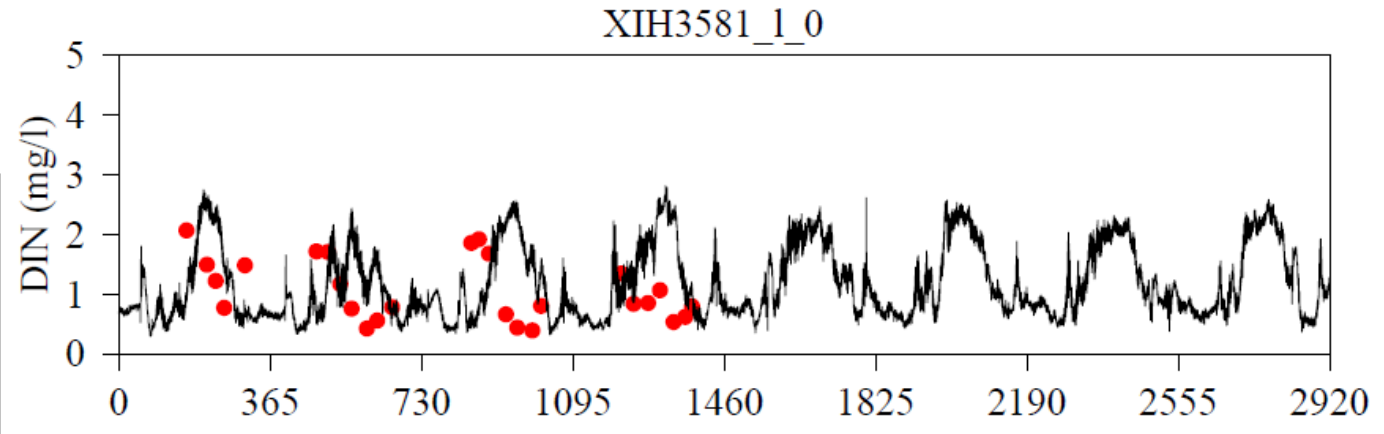
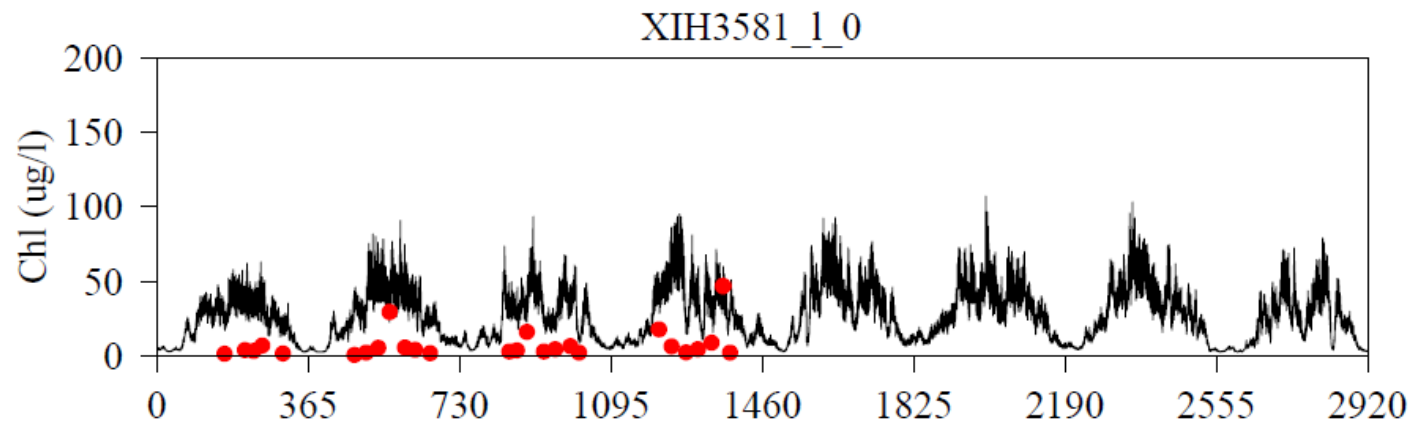
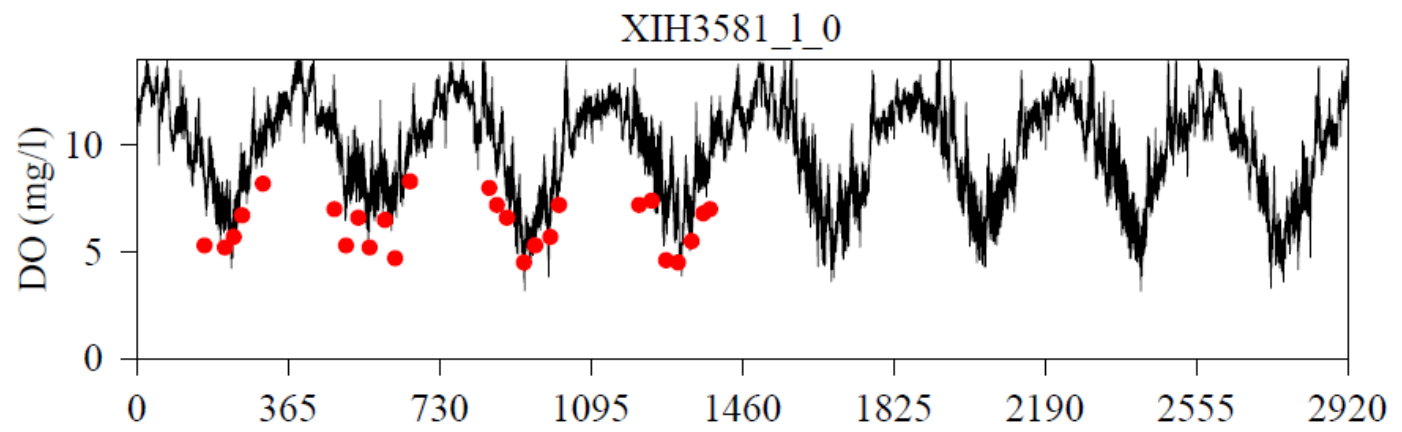
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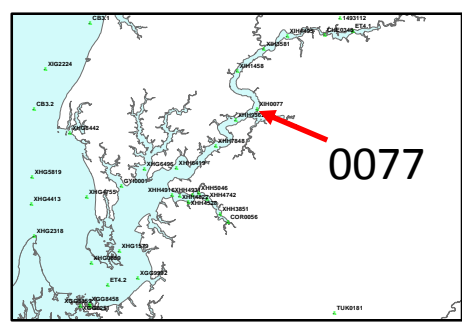
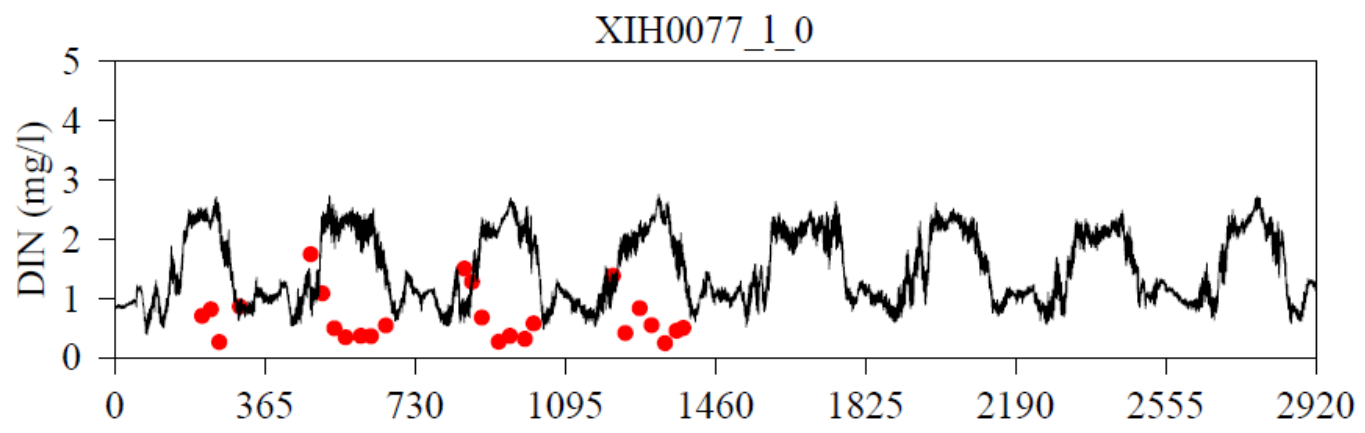
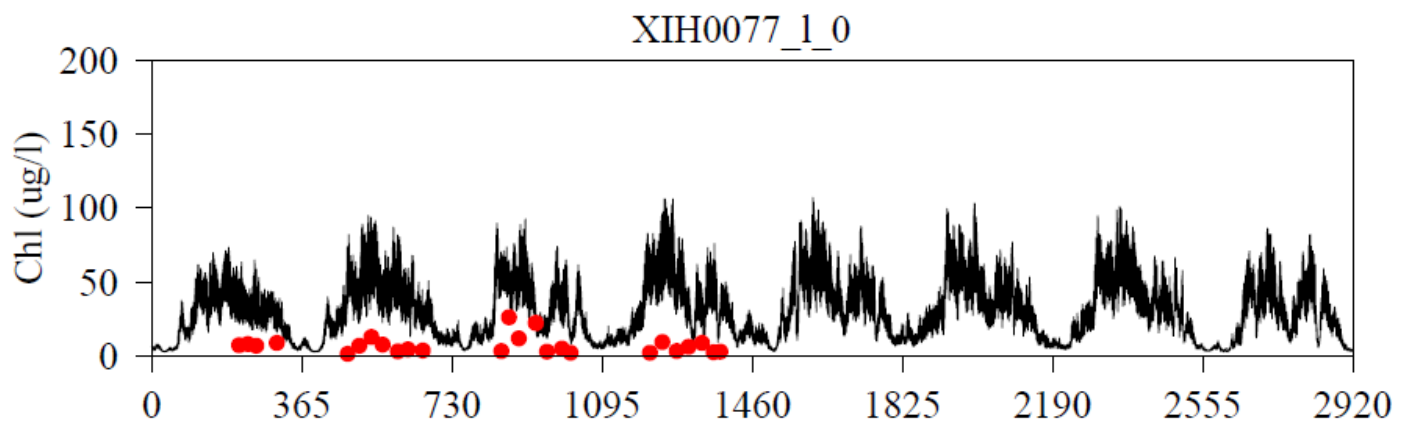
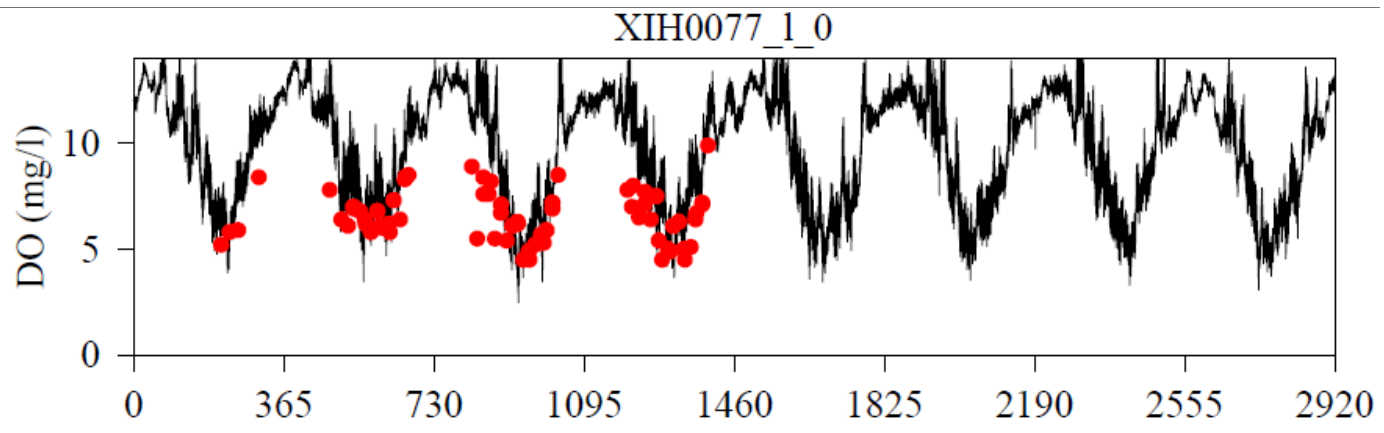
ET4.1 DIN and TSS (bottom)



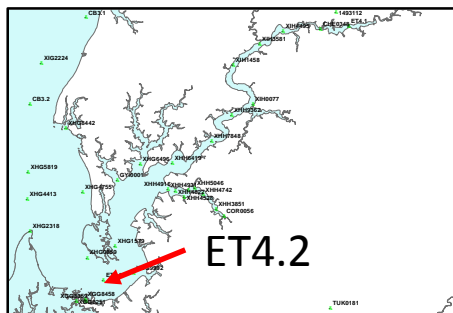
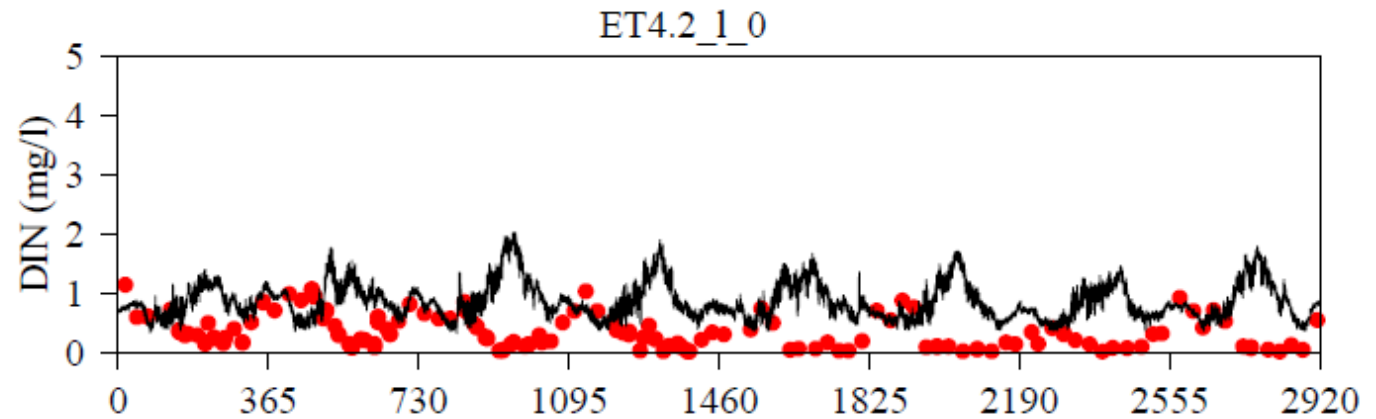
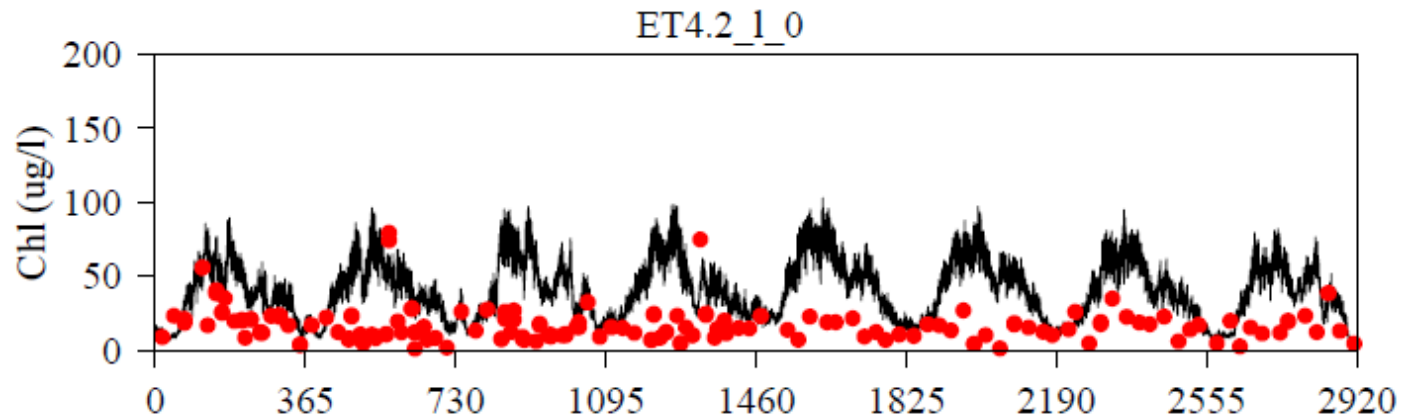
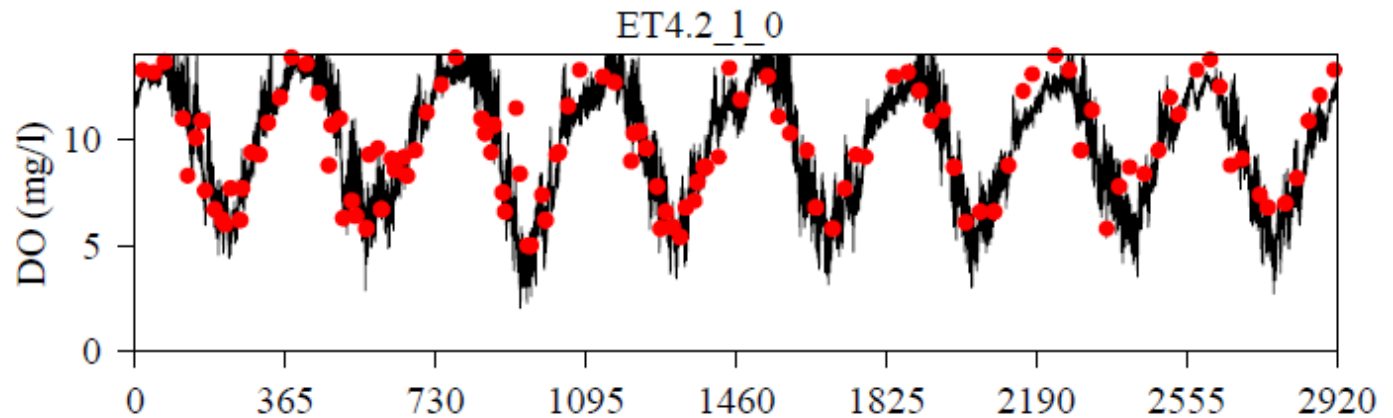
XIH3581 DO, Chl, and DIN



XIH0077 DO, Chl, and DIN

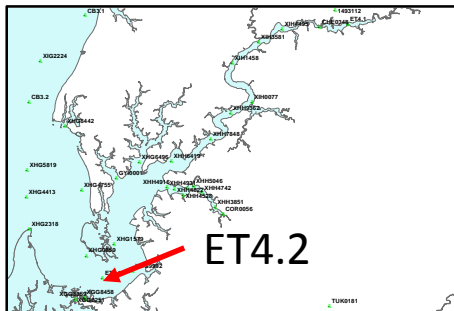
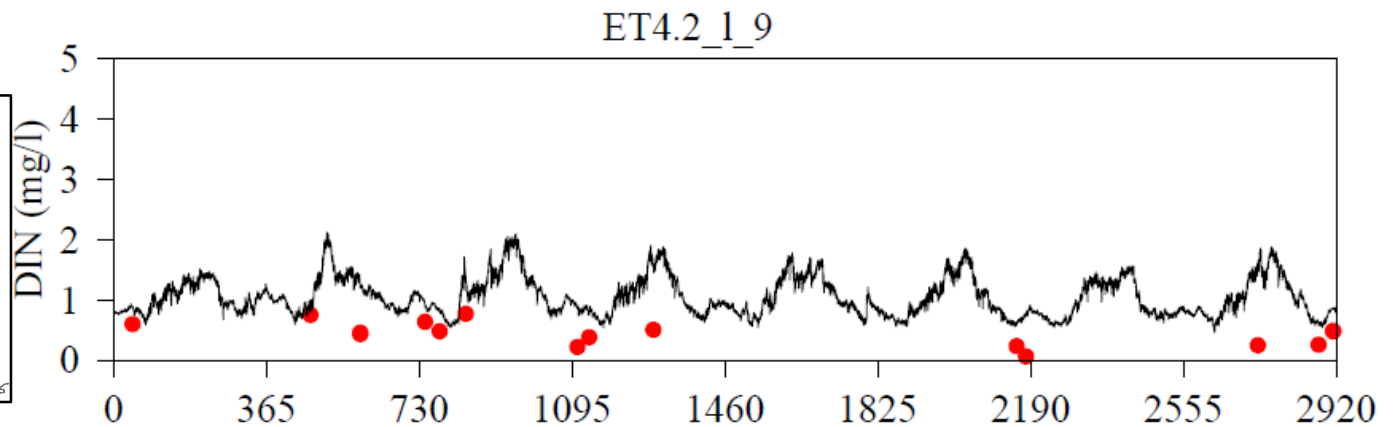
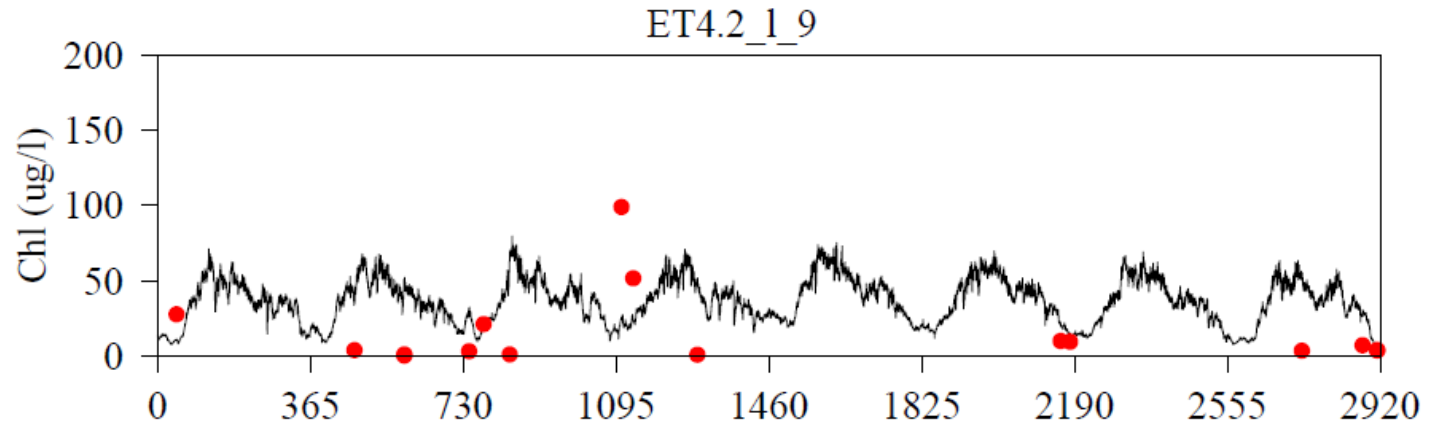
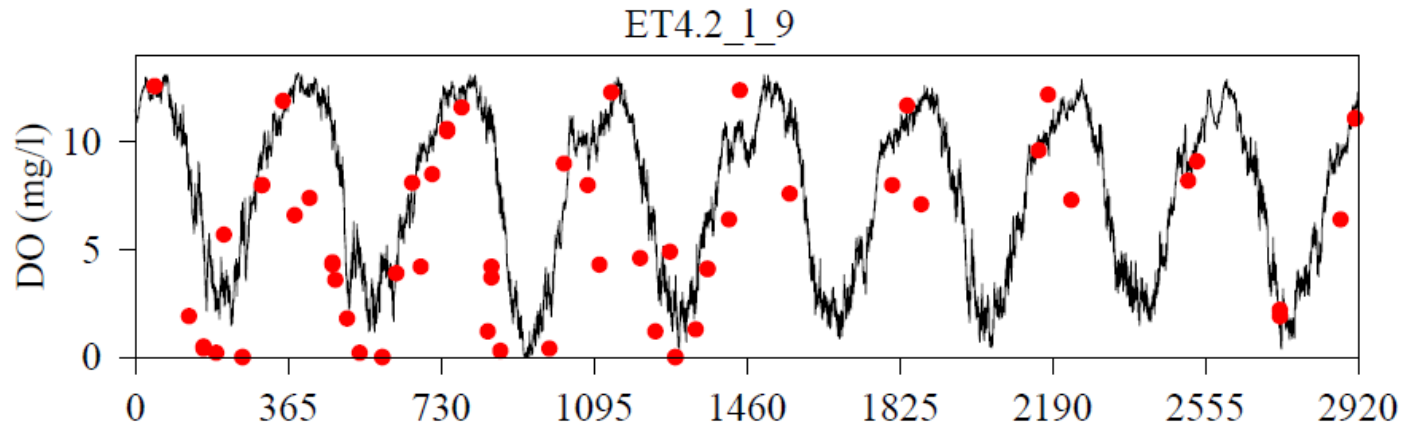


ET4.2 surface DO, Chl and DIN

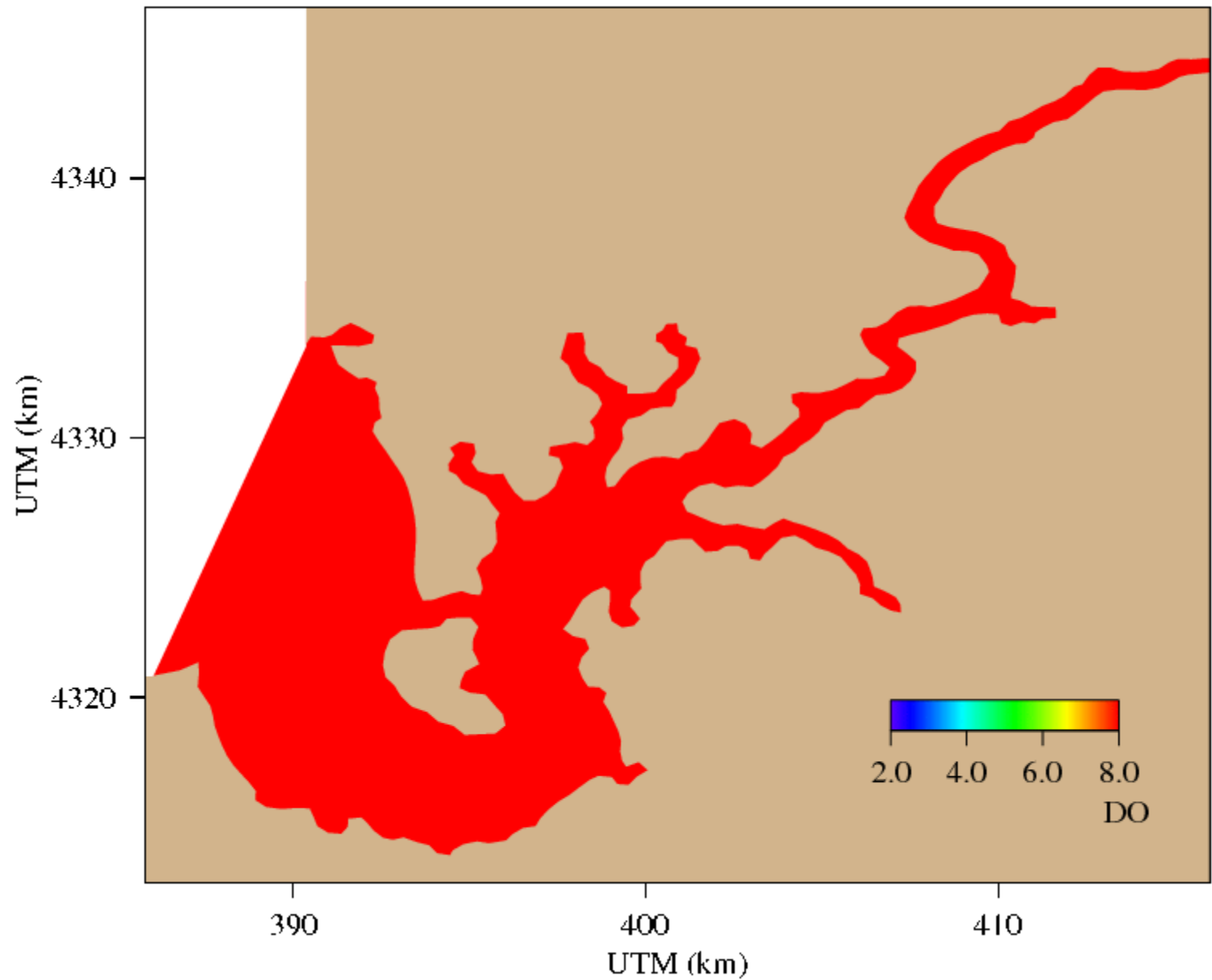


ET4.2

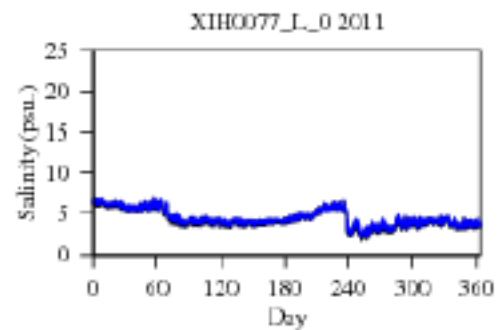
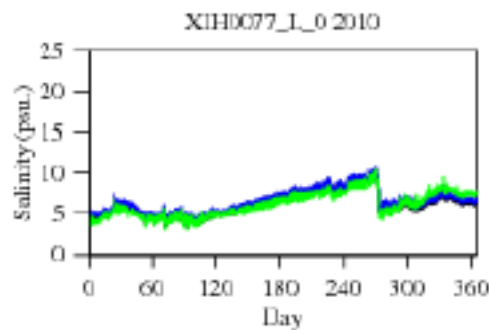
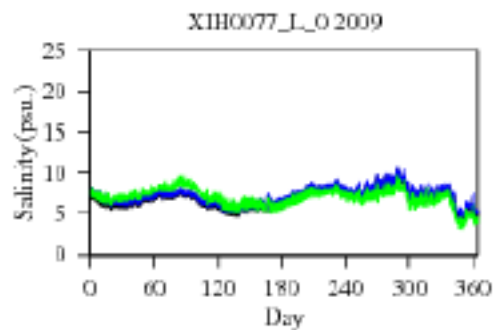
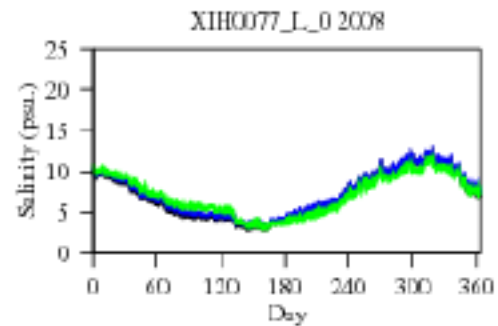
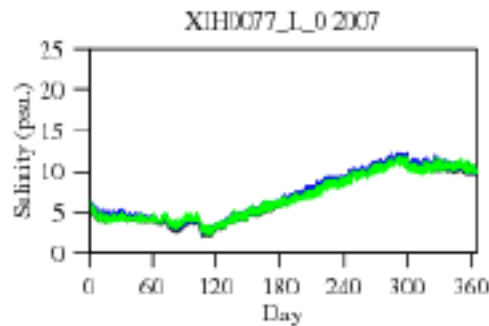
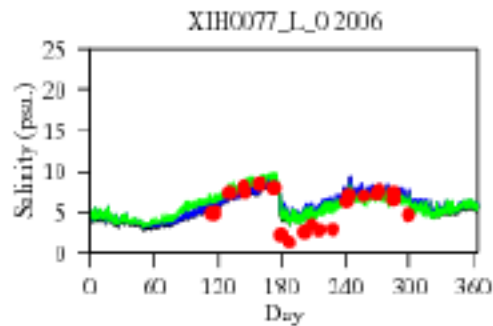
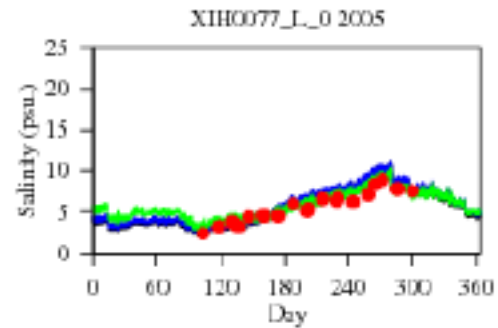
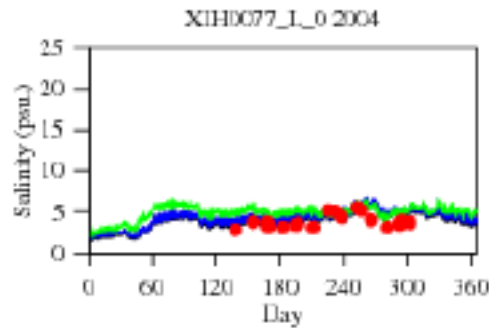
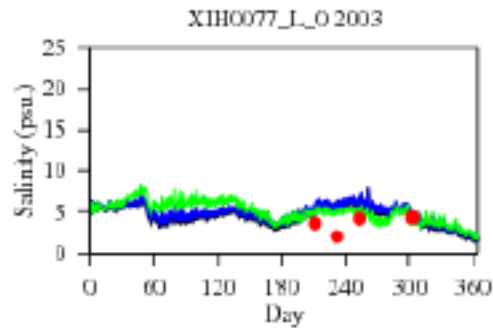
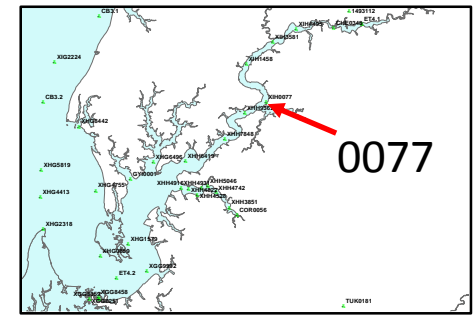
bottom DO, Chl and DIN



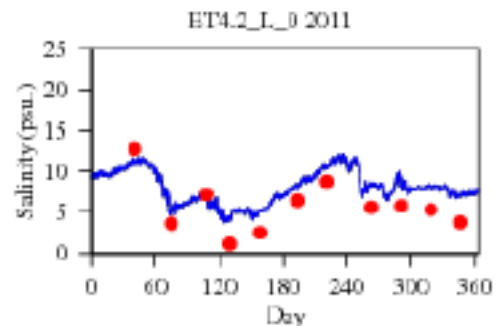
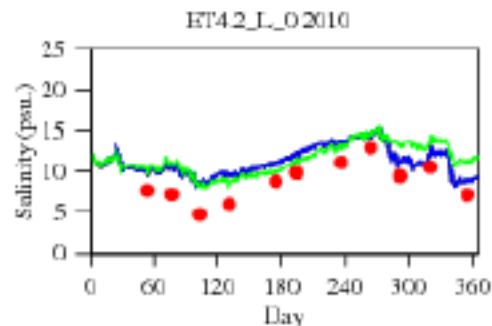
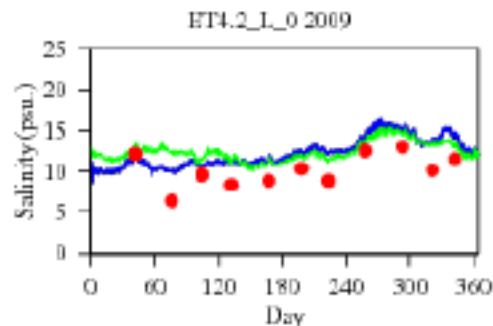
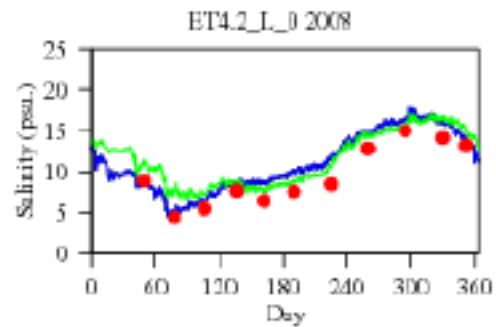
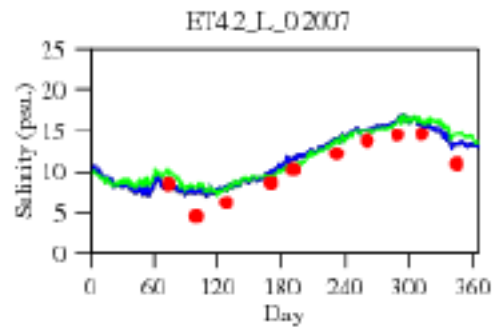
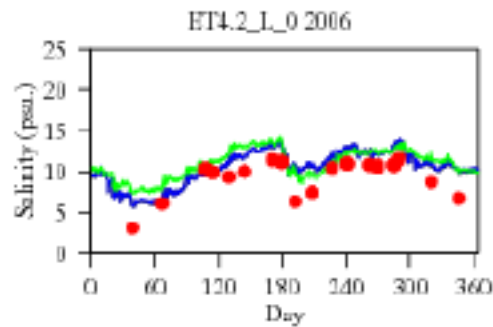
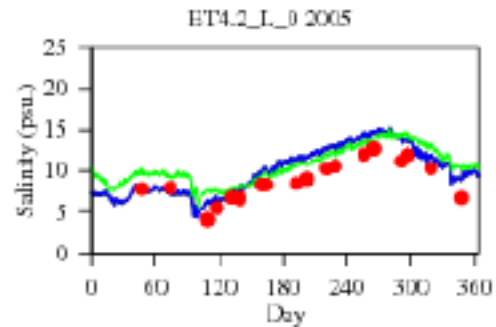
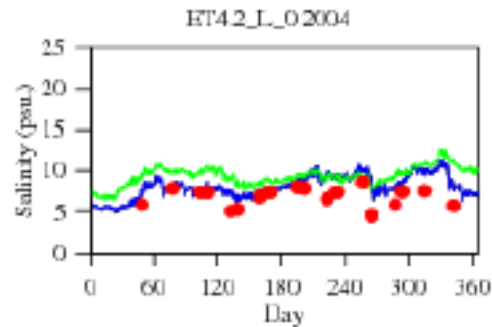
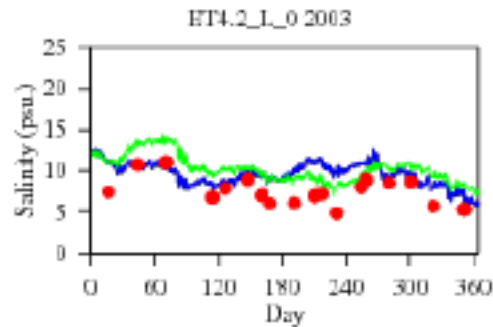
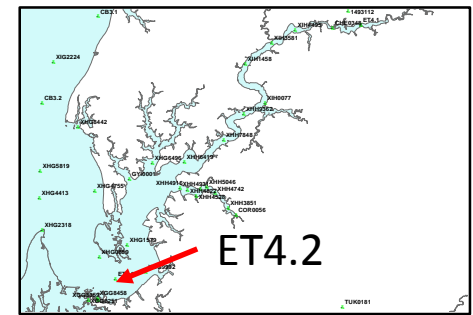
DO Run stac Layer bottom Day 90



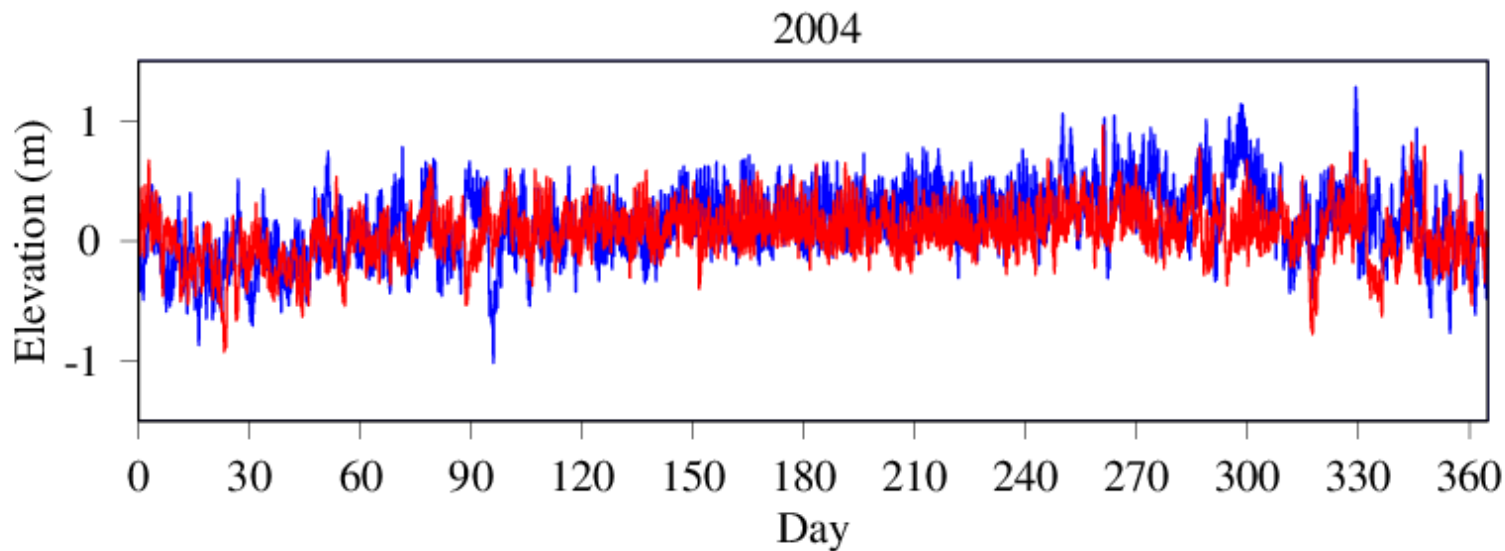
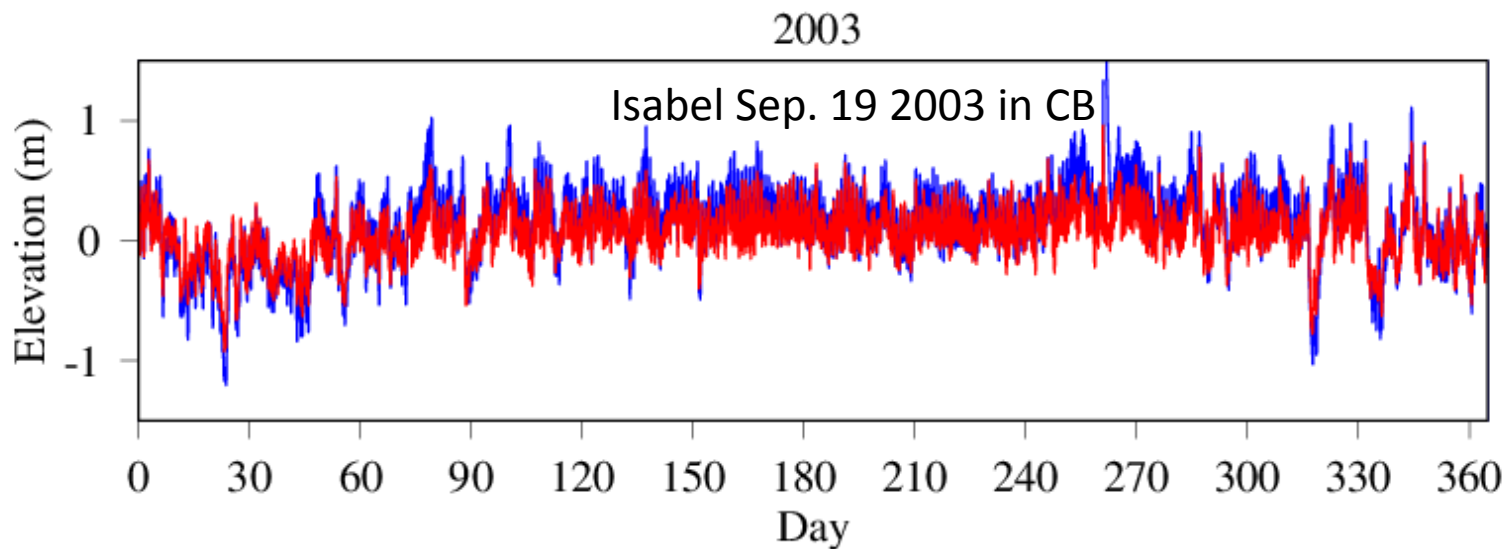
SCHICM (green) VS. CH3D (blue) boundary condition, salinity at Station 0077 (surface)



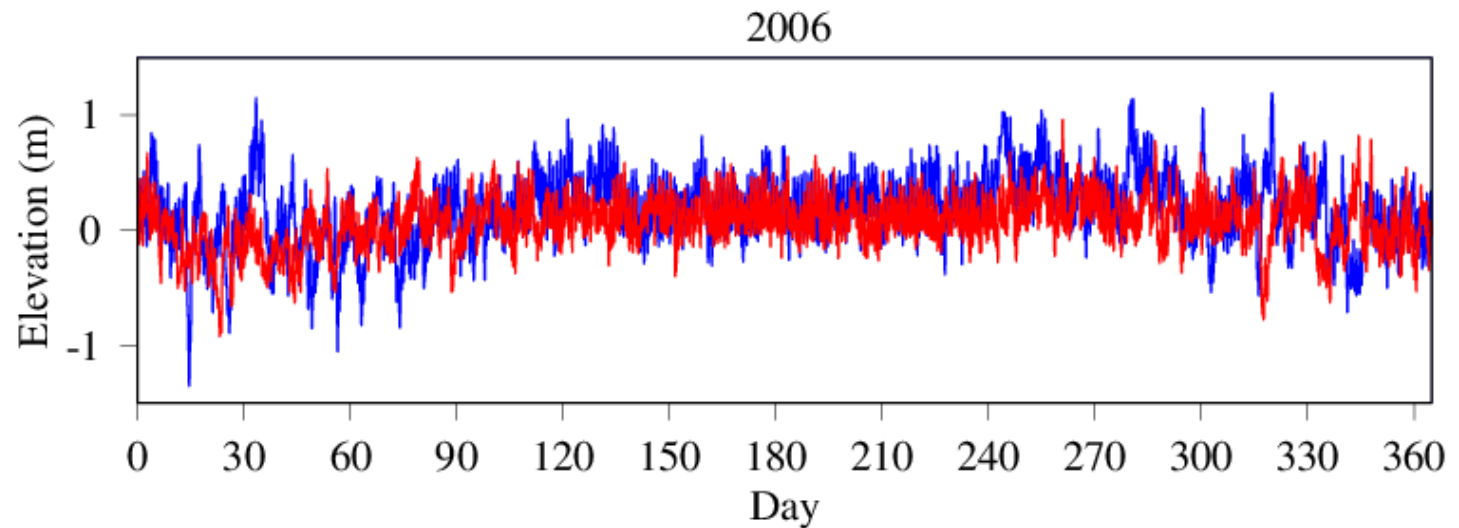
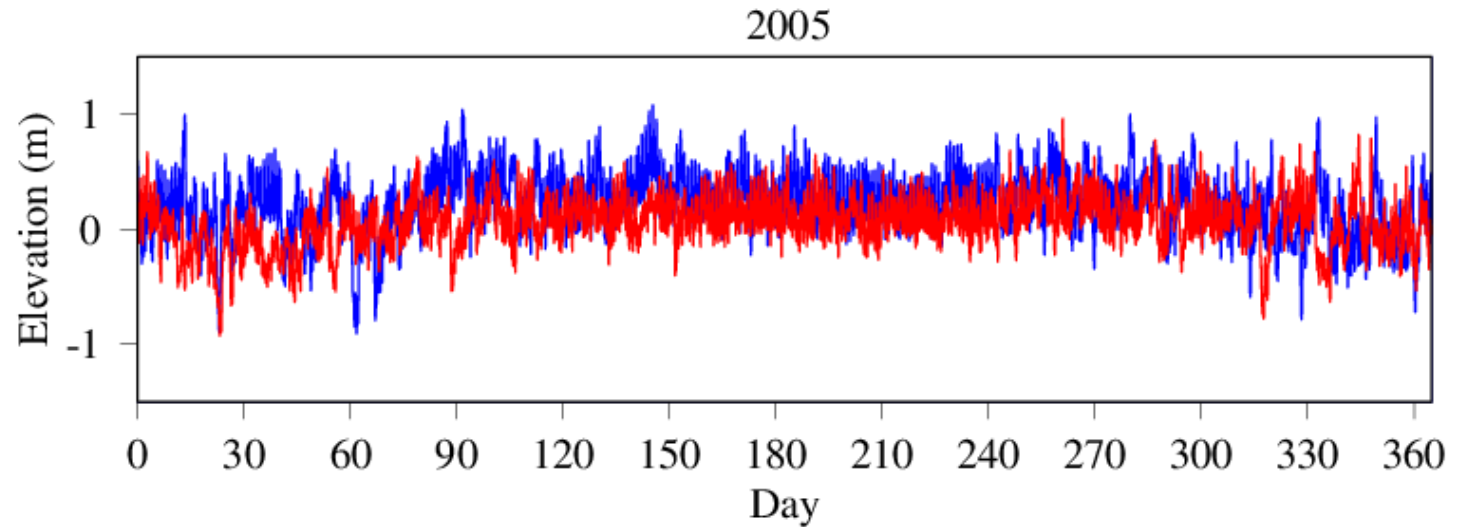
SCHICM (green) VS. CH3D (blue) boundary condition, salinity at Station ET4.2 (surface)



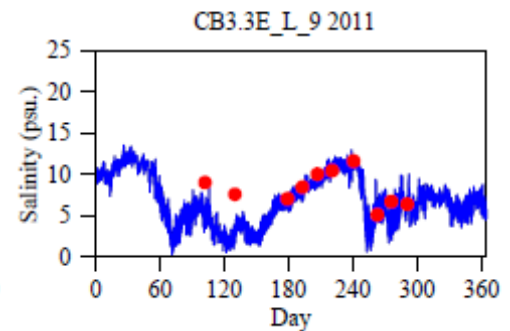
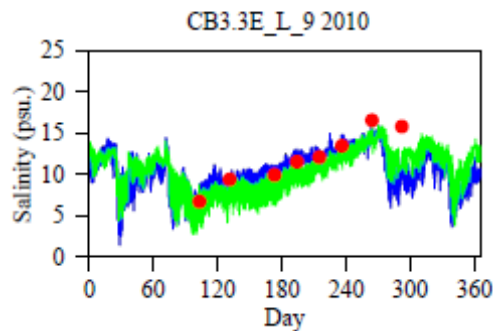
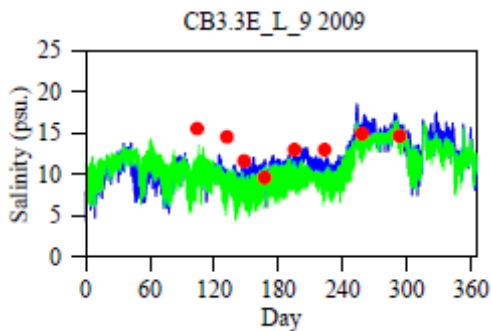
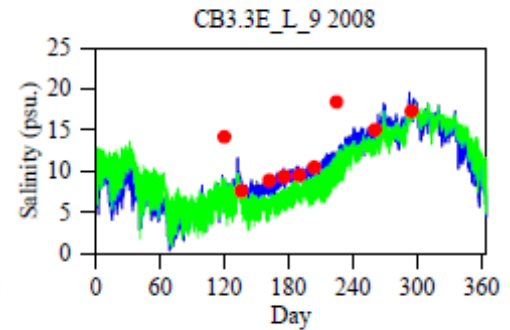
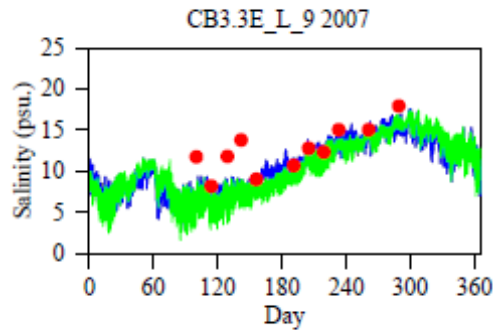
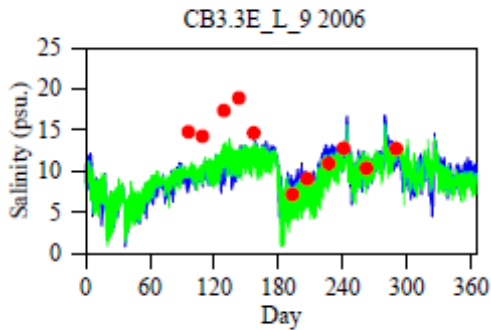
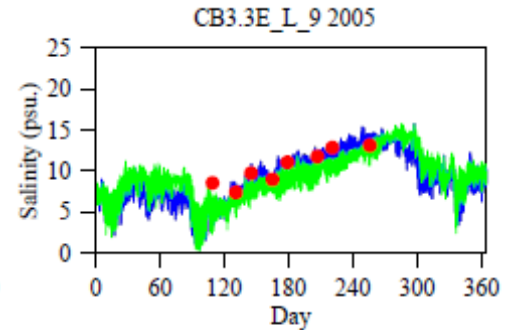
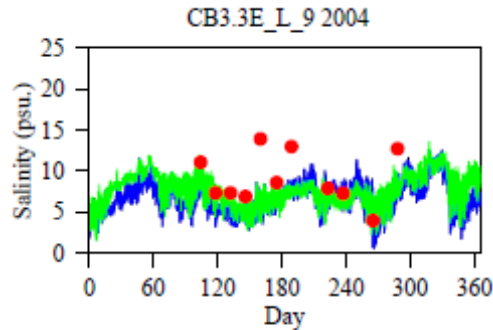
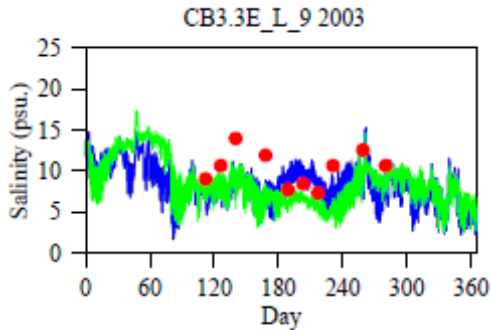
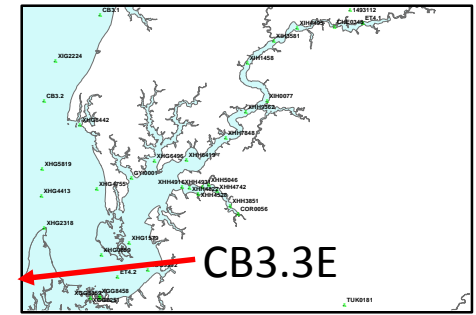
SCHICM (red) VS. CH3D (blue) boundary surface elevation 2003, 2004



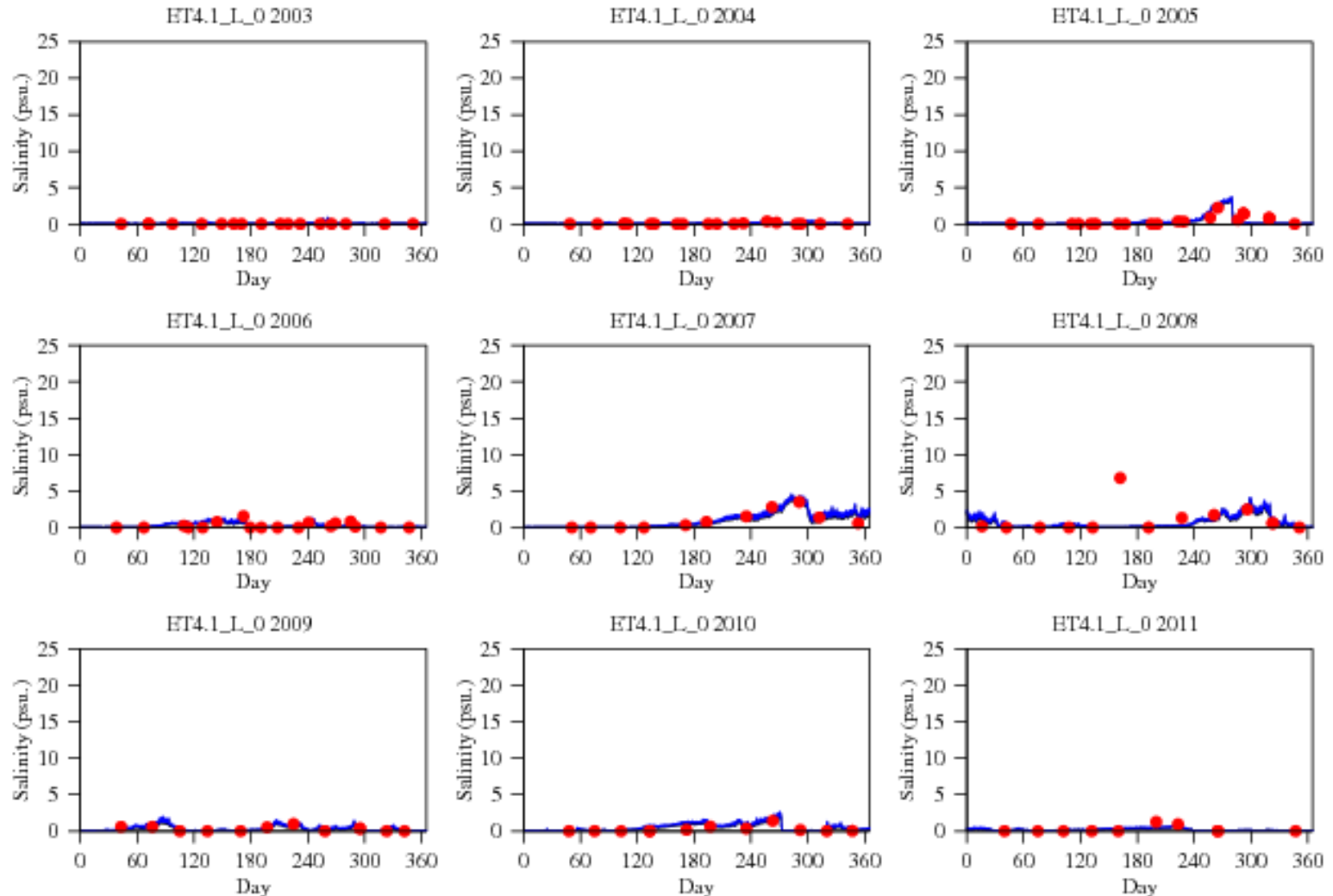
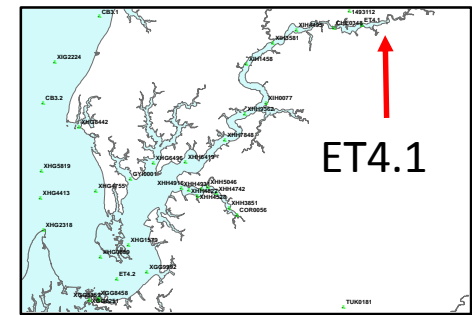
SCHICM (red) VS. CH3D (blue) boundary surface elevation 2005, 2006



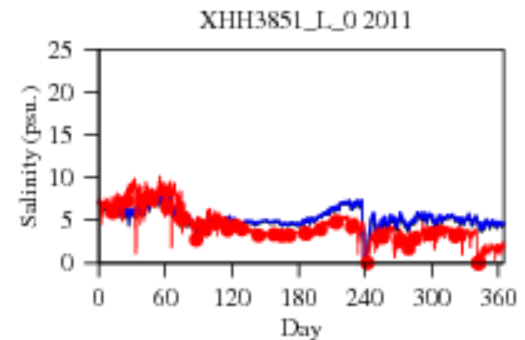
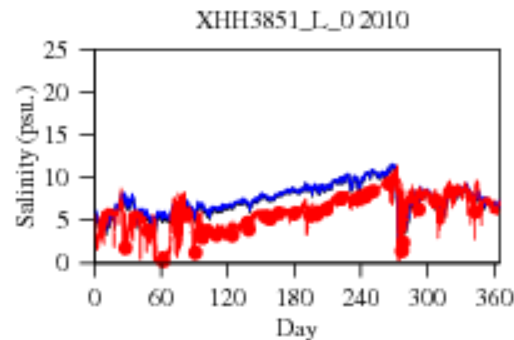
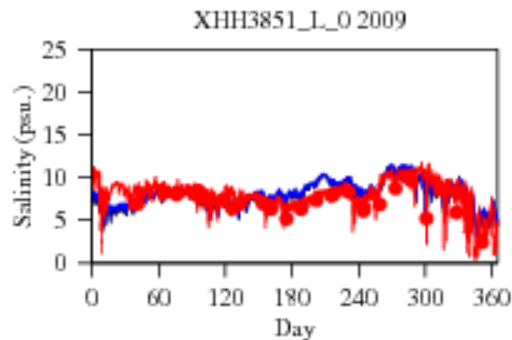
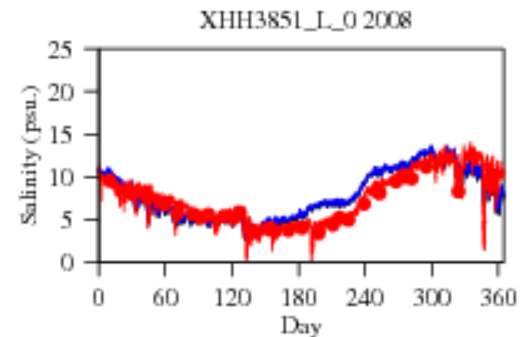
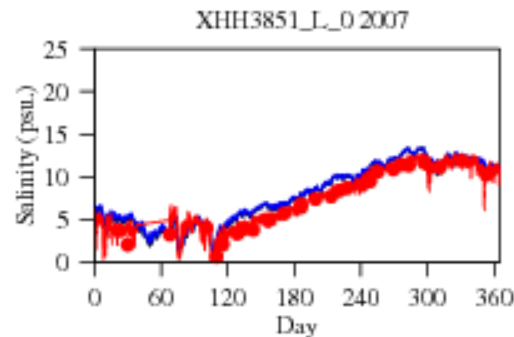
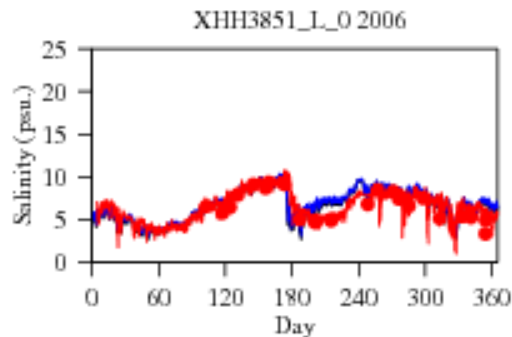
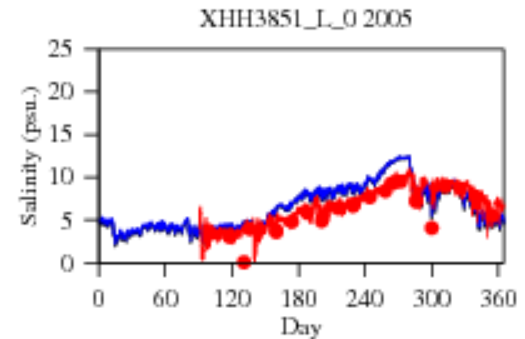
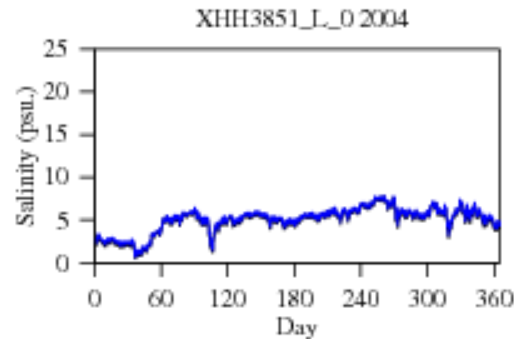
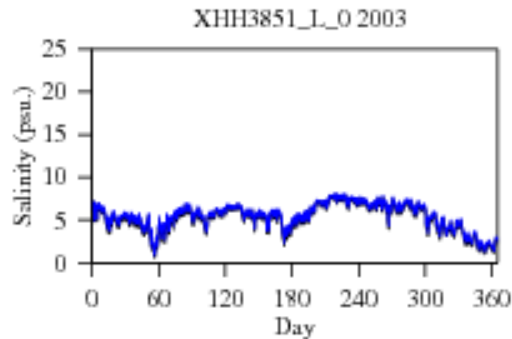
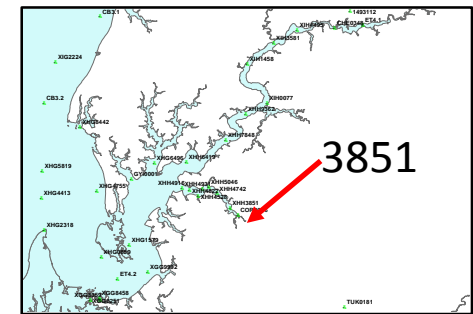
SCHICM (green) VS. CH3D (blue) boundary condition, salinity at Station CB3.3E (bottom)



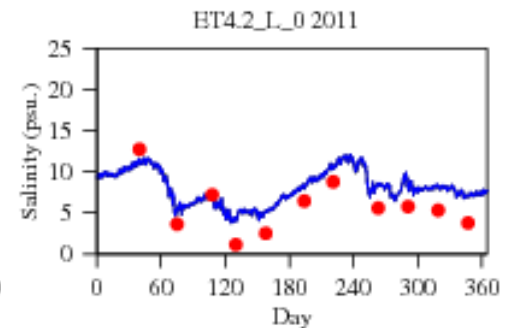
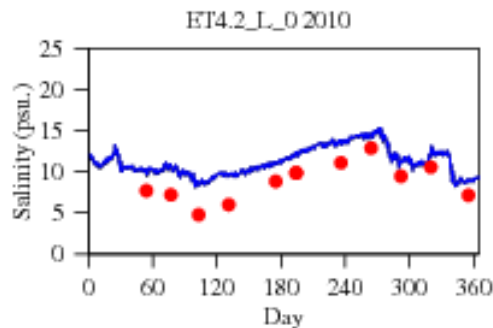
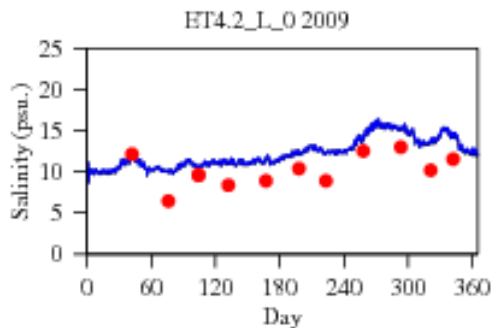
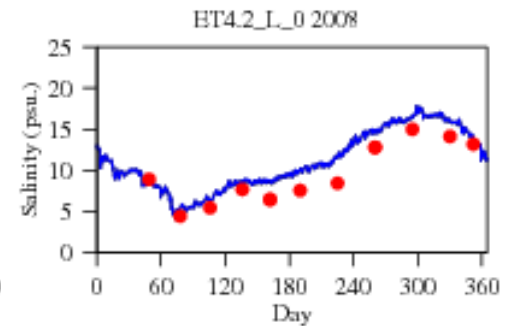
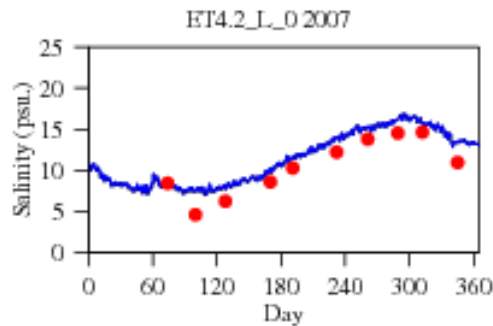
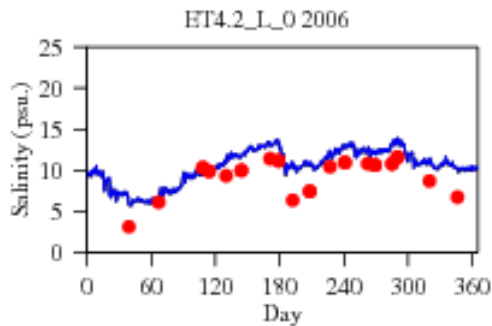
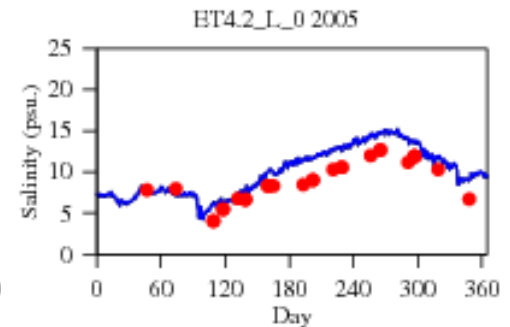
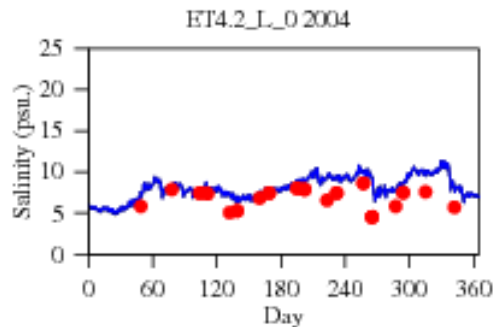
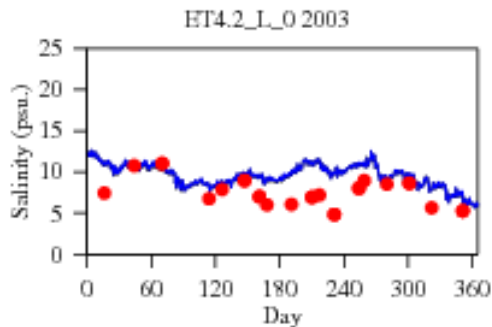
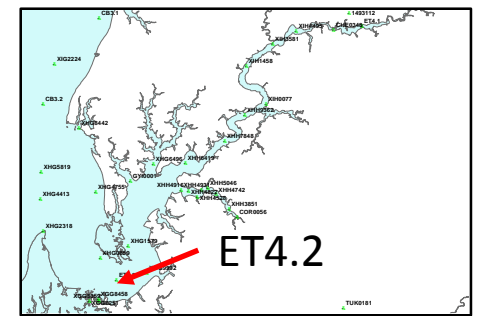
10% decrease (blue) VS. base (black) flow, salinity at Station ET4.1 (surface)



10% decrease (blue) VS. base (black) flow, salinity at Station 3851 (surface)



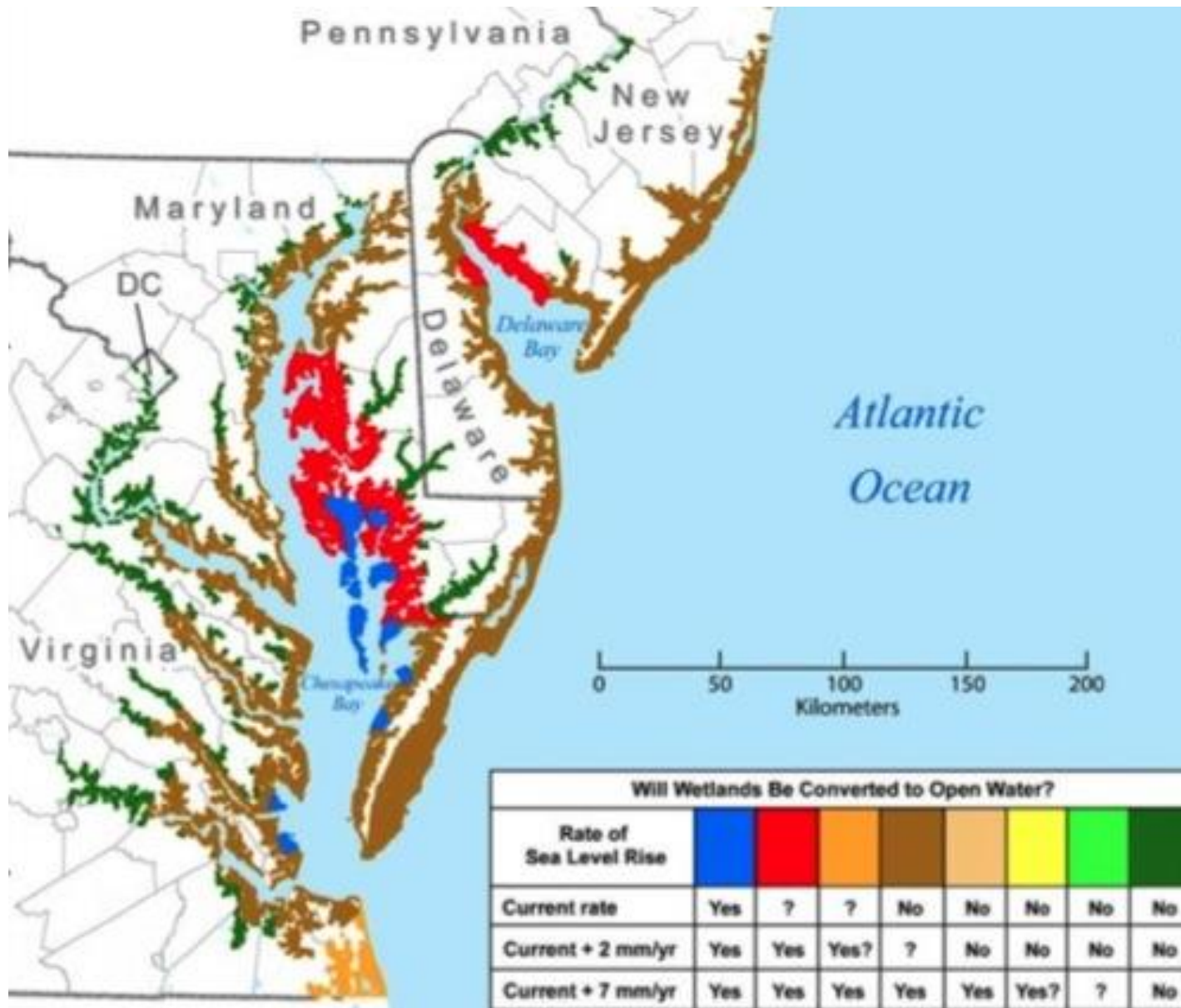
10% decrease (blue) VS. base (black) flow, salinity at Station ET4.2 (surface)

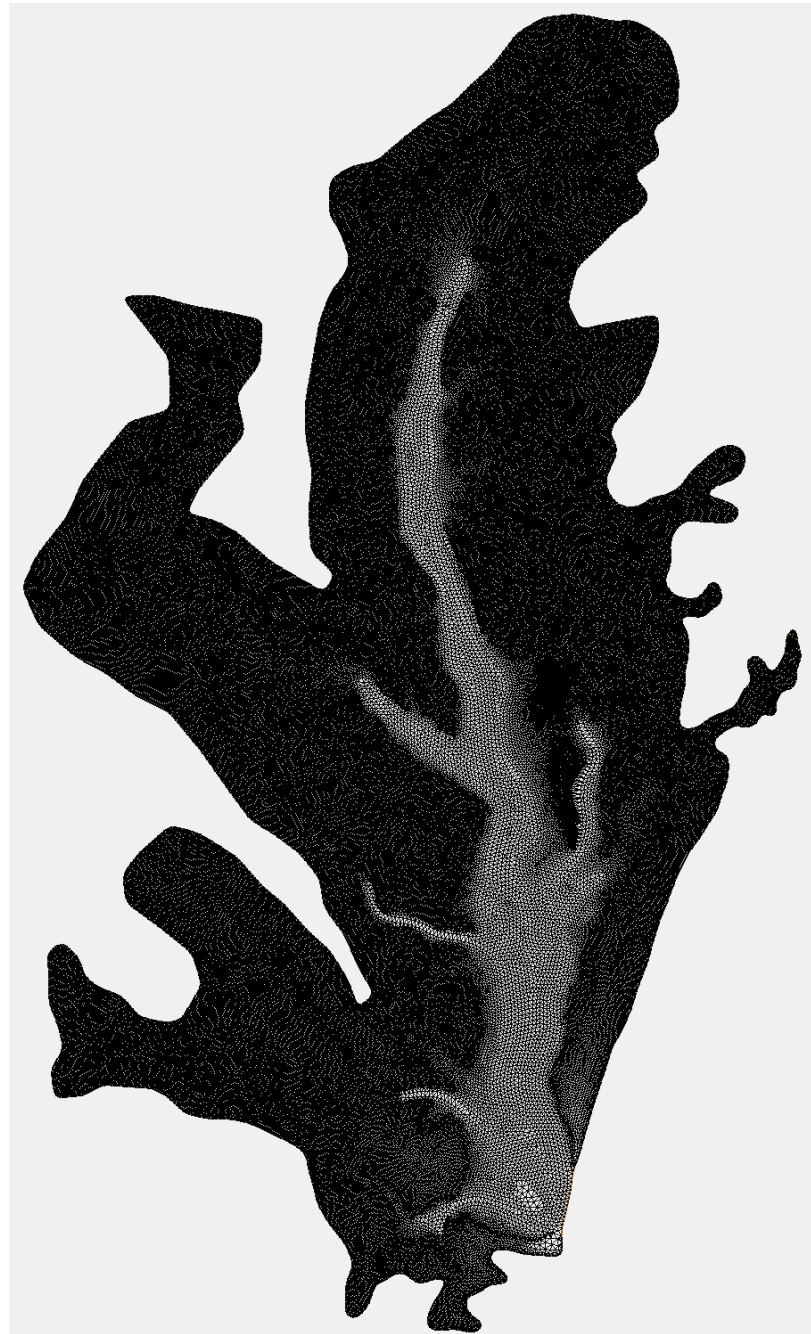
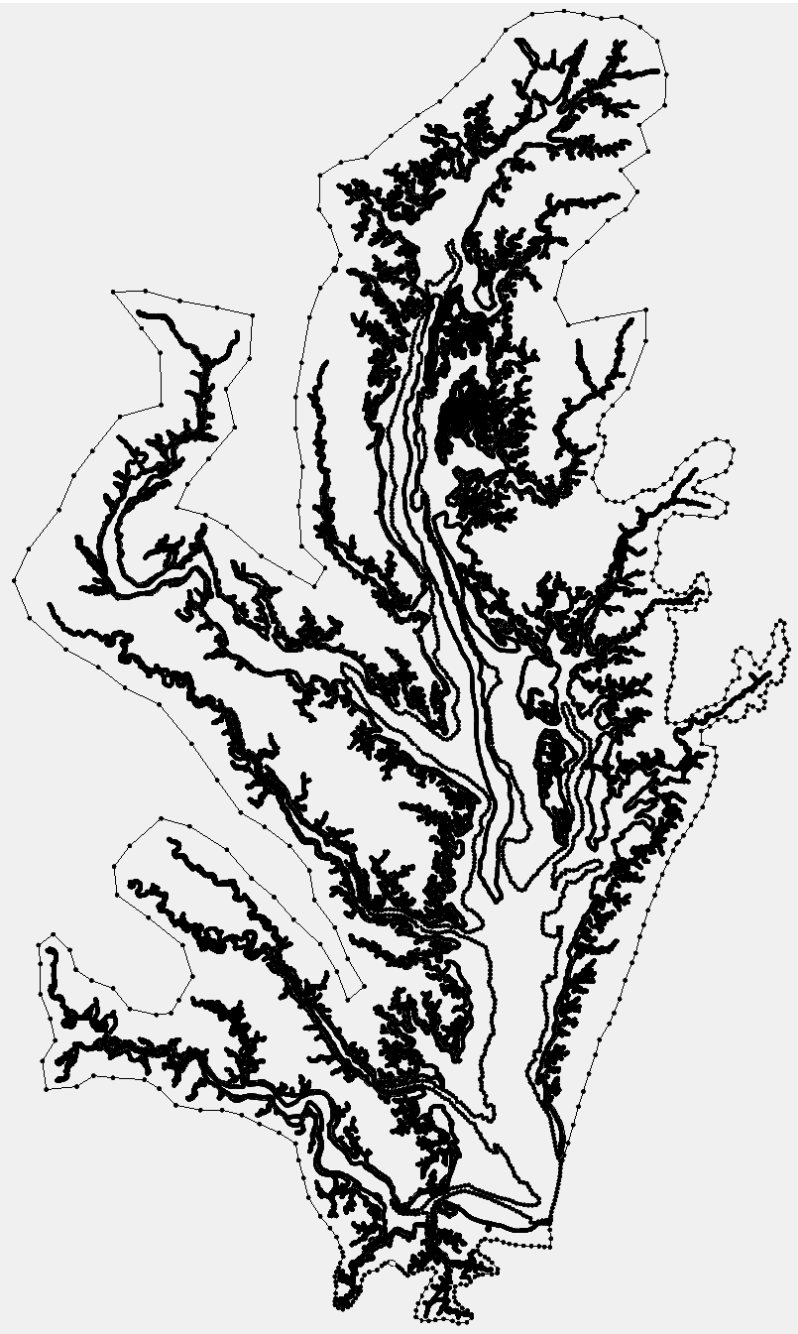


Future improvement

- **No significant difference in sensitivity runs.**
- **Underestimation of deep water DO.**
- **Overestimation of Chl.**
- **Seasonality.**
- **Lack of wave, TSS splits, bank erosion, wetland loss.**

Sea level rise projection





Bathymetry with moving coastline applicability

