2011 Storm Effects Update: briefing for STAR Apr 19 2012

Michael Ford

NOAA

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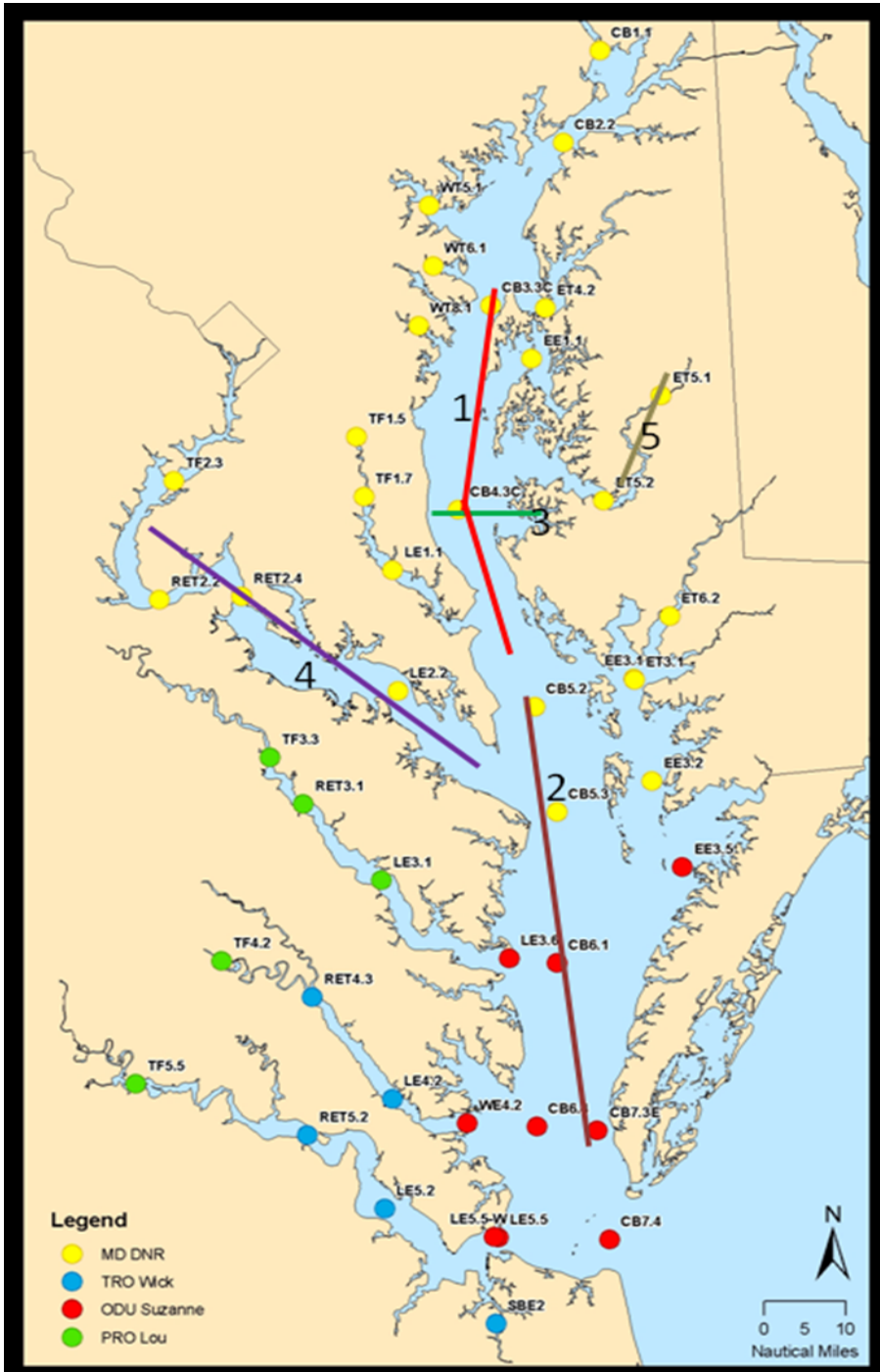


Parameters to be measured at each station include:

Instrument-based

- CTD (yields temperature, salinity, depth), pH, chlorophyll, dissolved oxygen, and turbidity) – [NOAA and others]
- Light spectra over the whole water column - hyperspectral -[NASA]

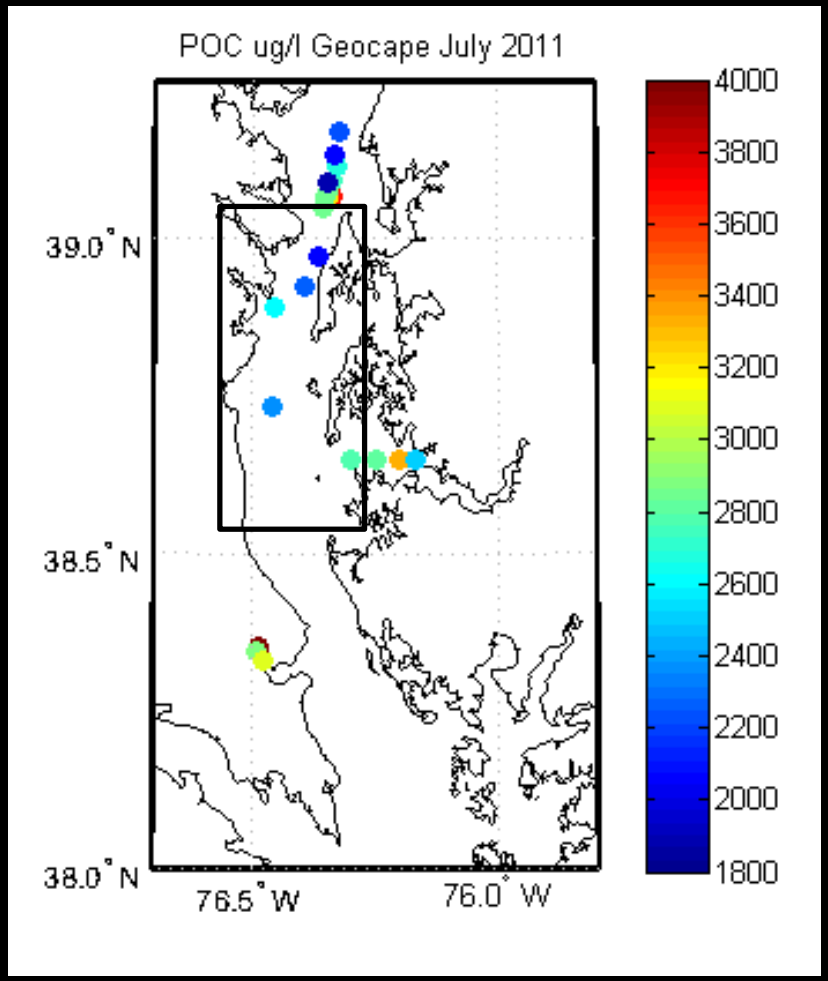
Water sample (bottle or pumped) -based

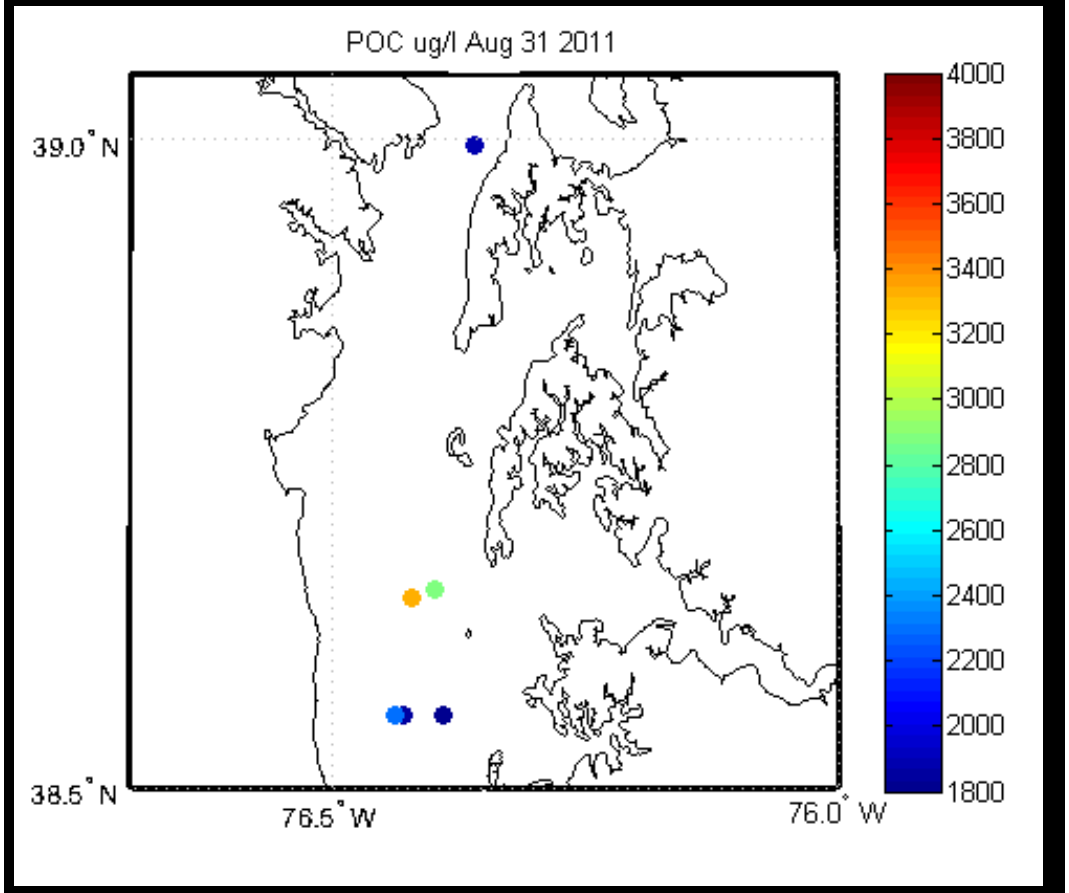
- Nutrients [UMD]
- Primary Production, Respiration [UMD]
- Phytoplankton (algal) pigments, dissolved organic, carbon, particulate organic carbon [UMD, NASA]
- Phytoplankton DNA, phytoplankton size spectra [UMD]
- Source tracking with fluorescence indicators and stable isotopes.
- Bacteria samples [UMD]

Net tow-based

- Plankton collection with nets [UMD – HPL]

Irene Response – NASA OBPG Novak M, Freeman S, Neeley A





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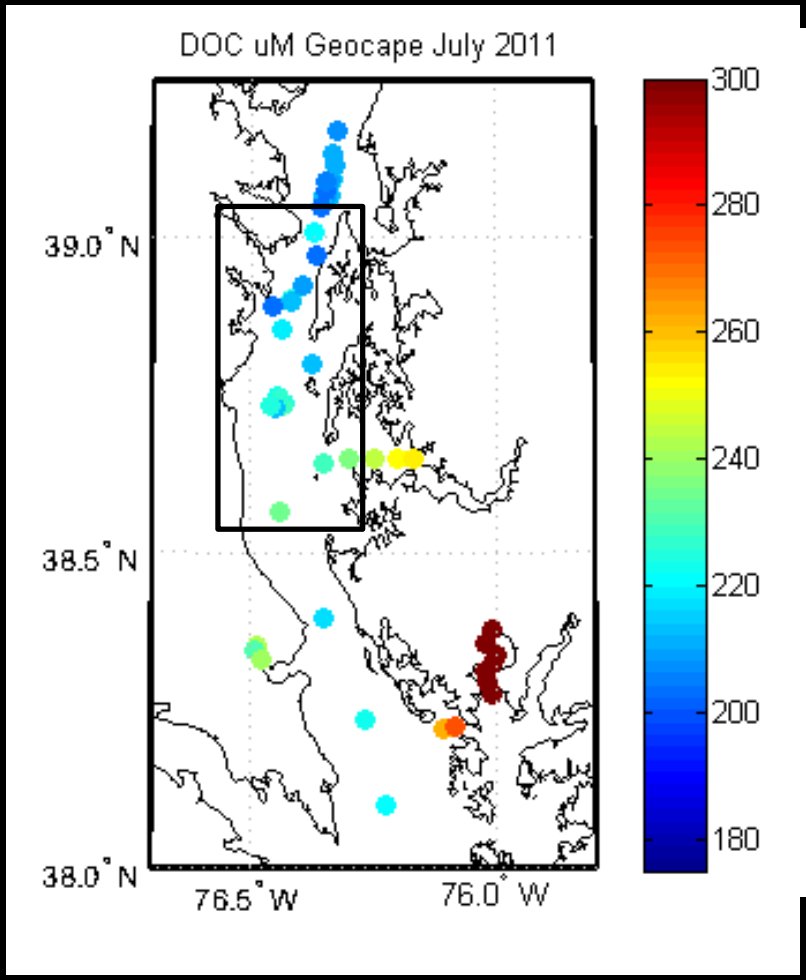
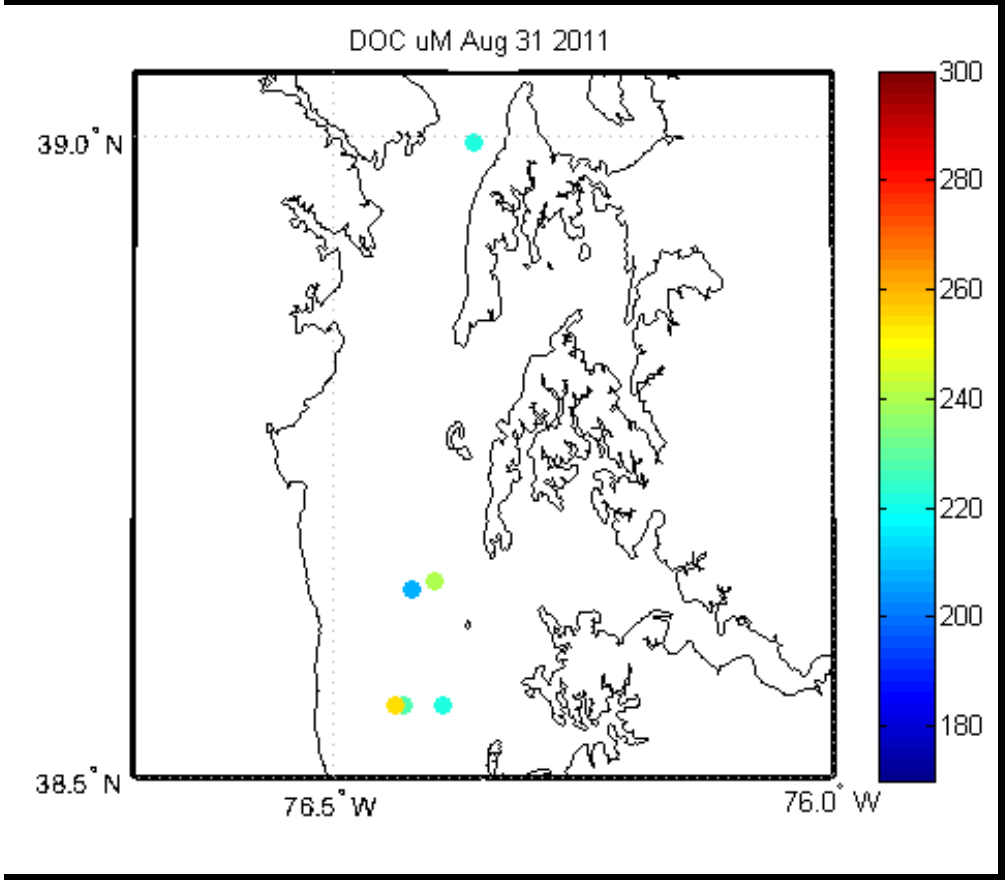
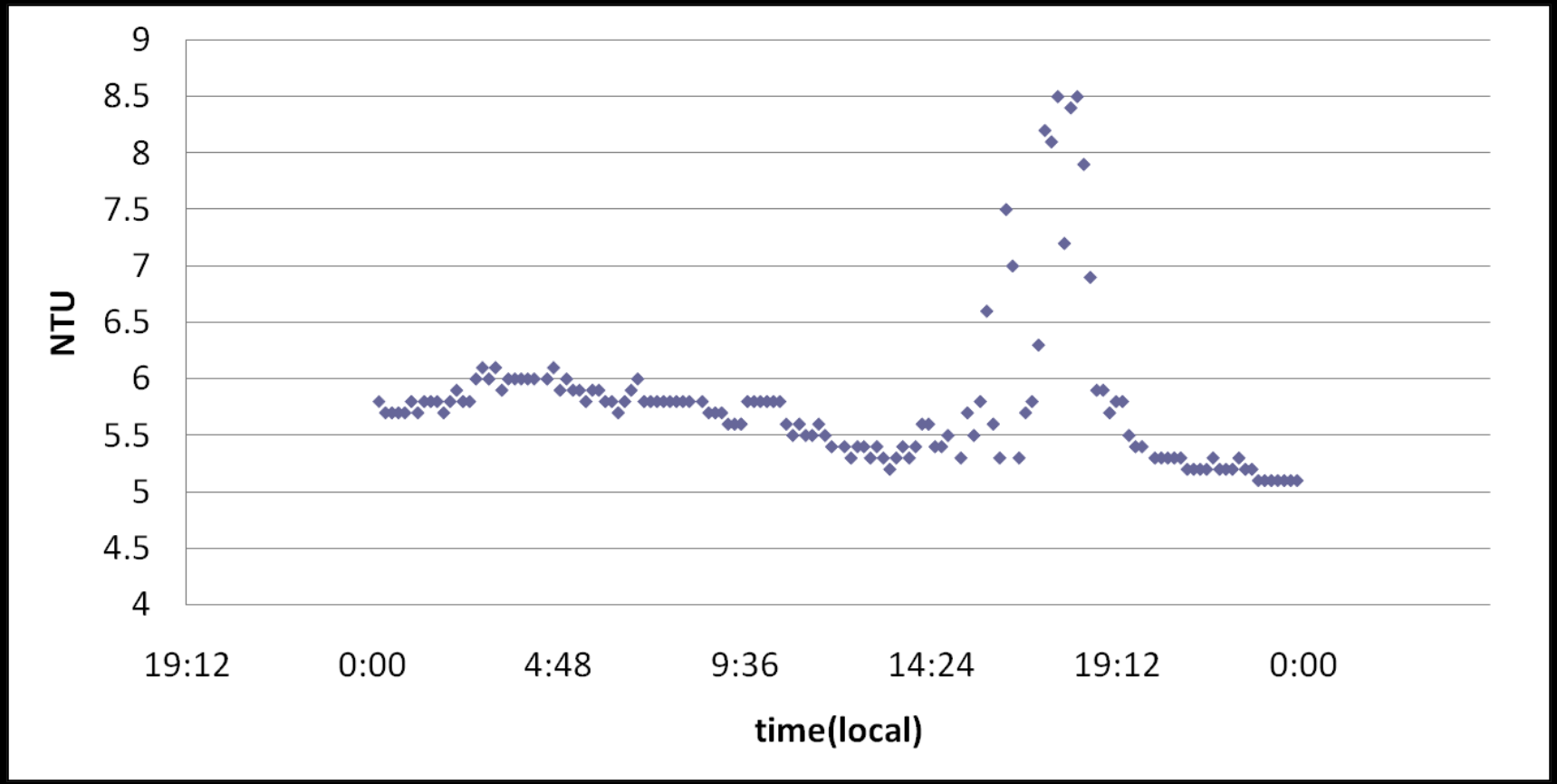
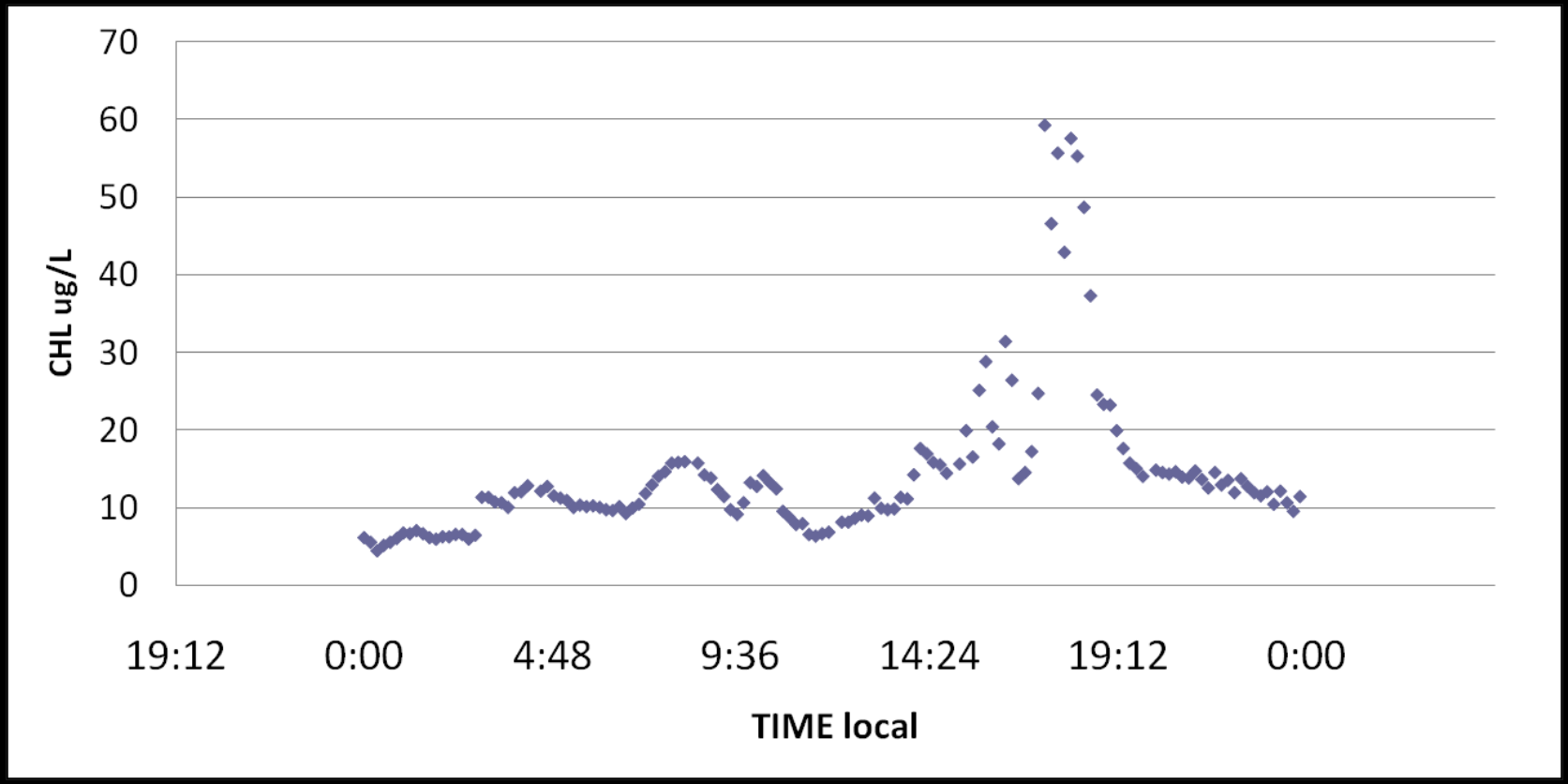




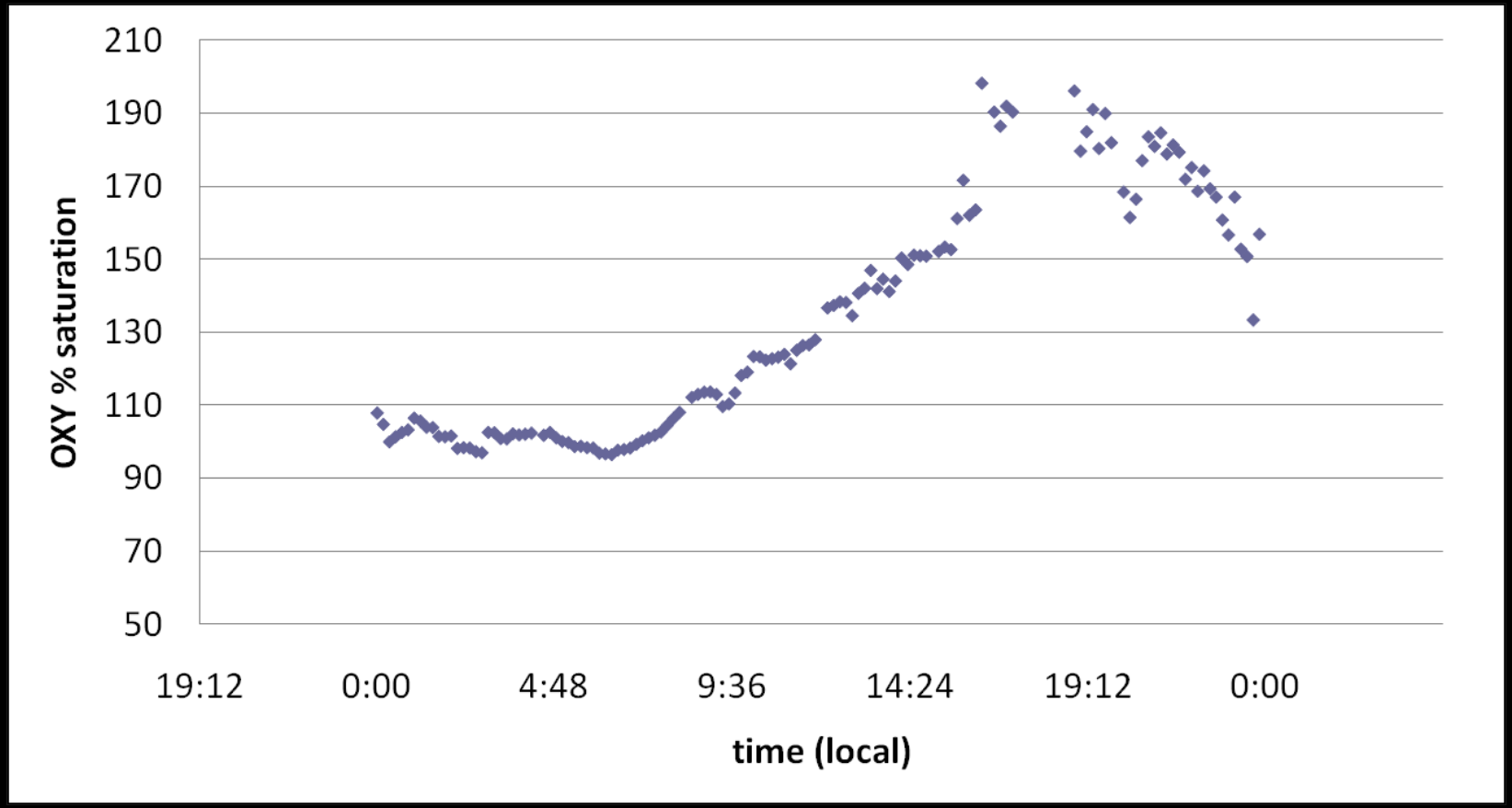
Irene Response -Turbidity, CBIBS Gooses Reef Aug 31



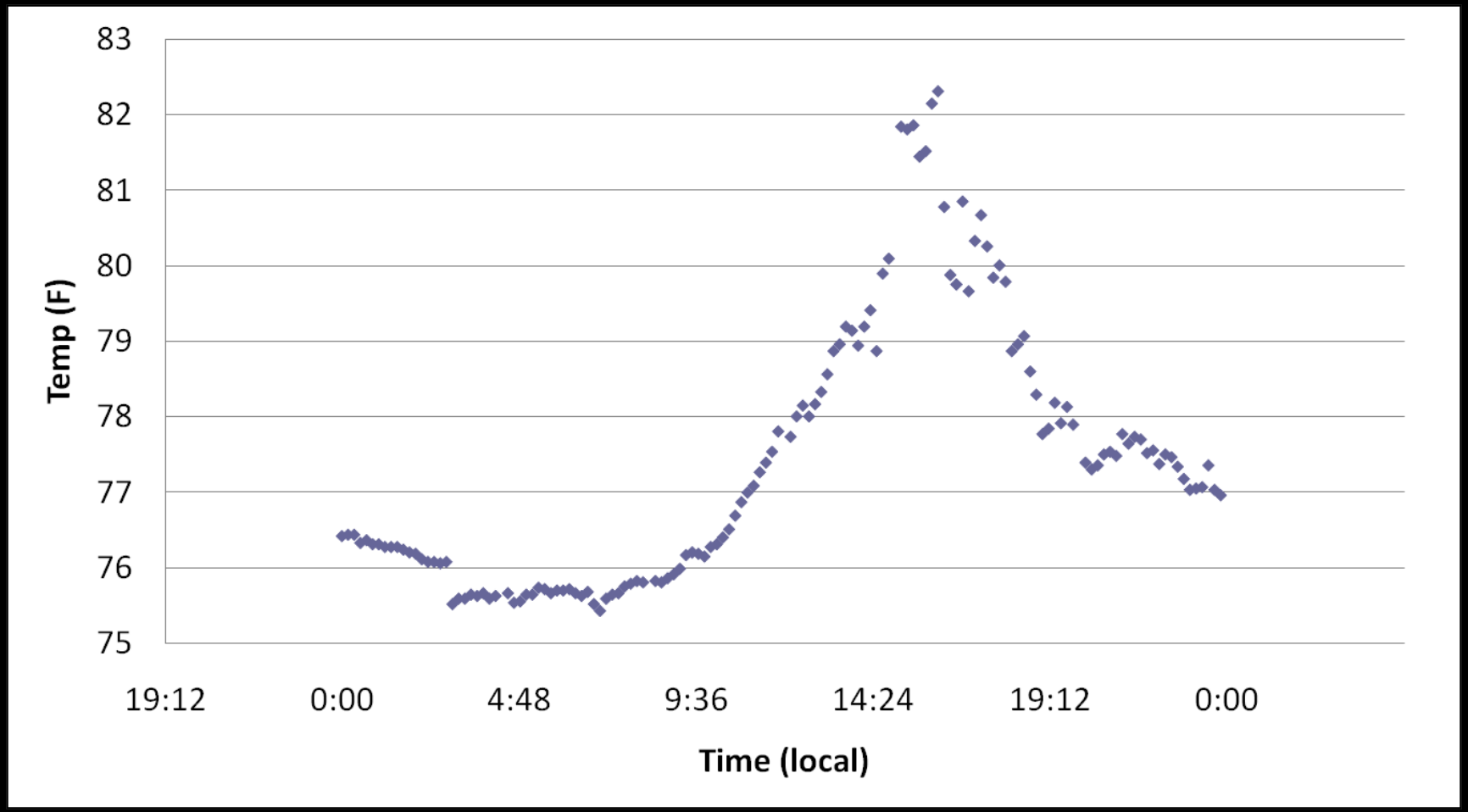
Irene Response – Chlorophyll, CBIBS Gooses Reef Aug 31



Irene Response - DO, CBIBS Gooses Reef Aug 31



Irene Response –Temperature, CBIBS Gooses Reef Aug 31



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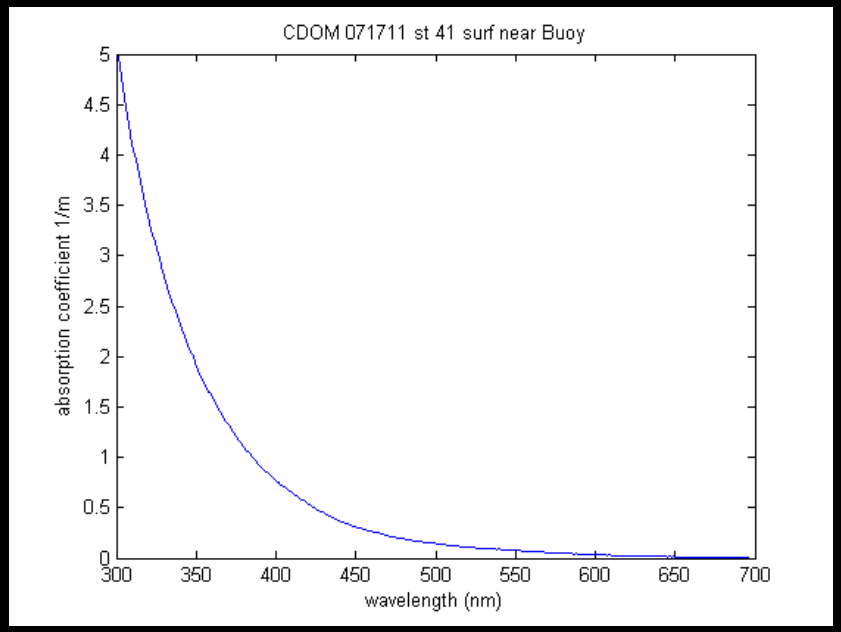

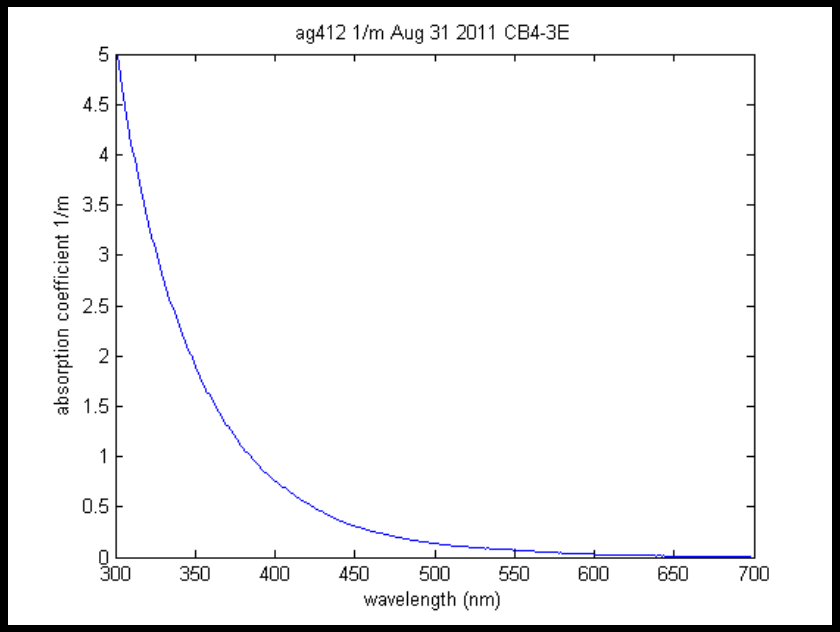

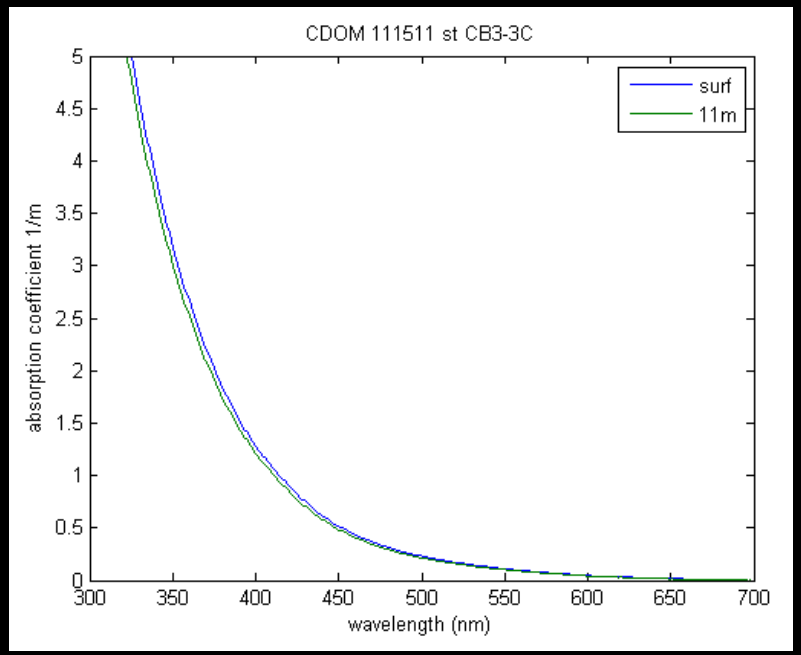

DOC July 17th - 233.6701uM
DOC Aug 31st - 220.8748uM
DOC Nov 15th - 233.2769uM (CB 3-3C)

Lee Response – Ondrusek et al.

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The development of a new optical total suspended matter algorithm for the Chesapeake Bay

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[b] NOAA/NOS, Coastal Services Center, Annapolis, MD, USA
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[e] Moss Landing Marine Laboratory, Moss Landing, CA, USA
[f] Riverside Technology, Inc., NOAA/NESDIS/STAR/SOCD, Camp Springs, MD, USA

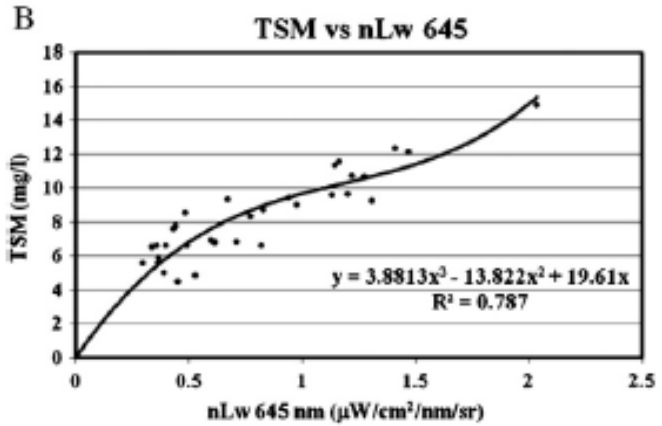
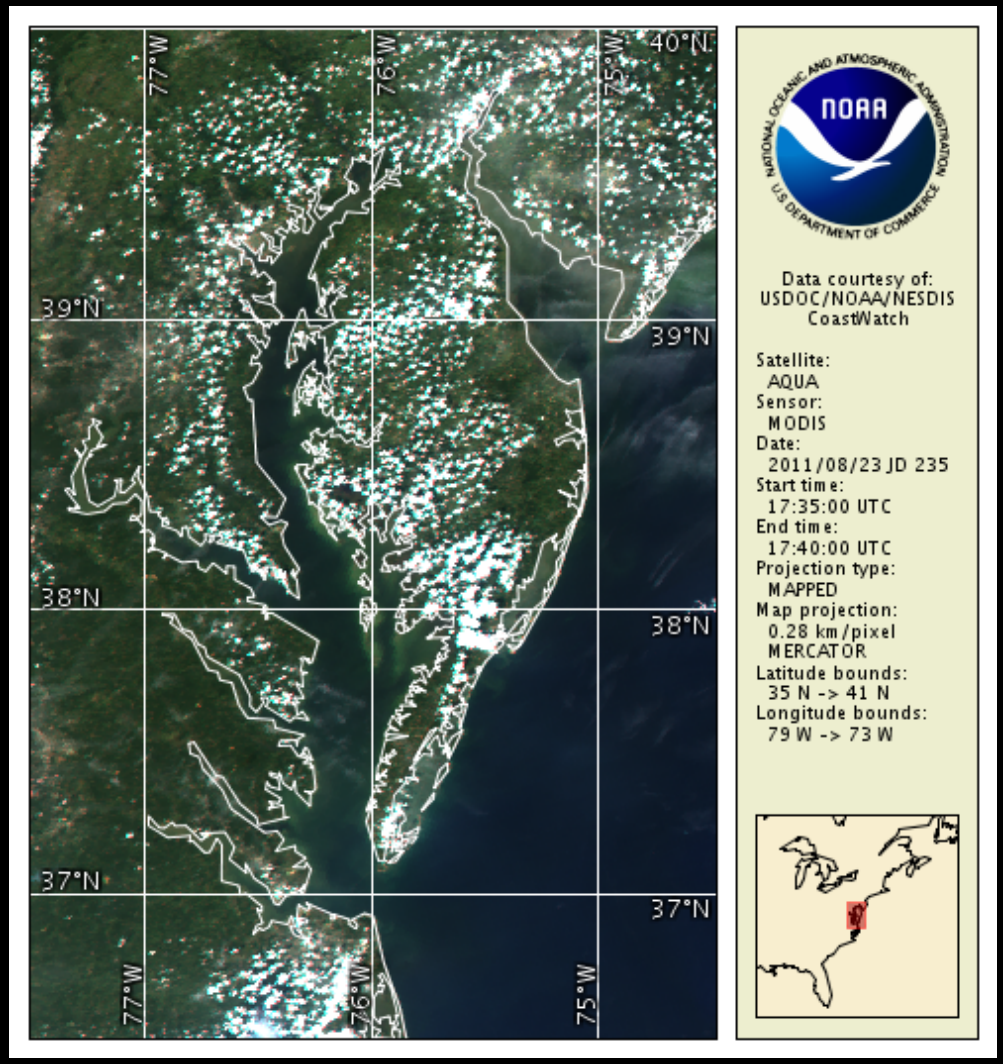


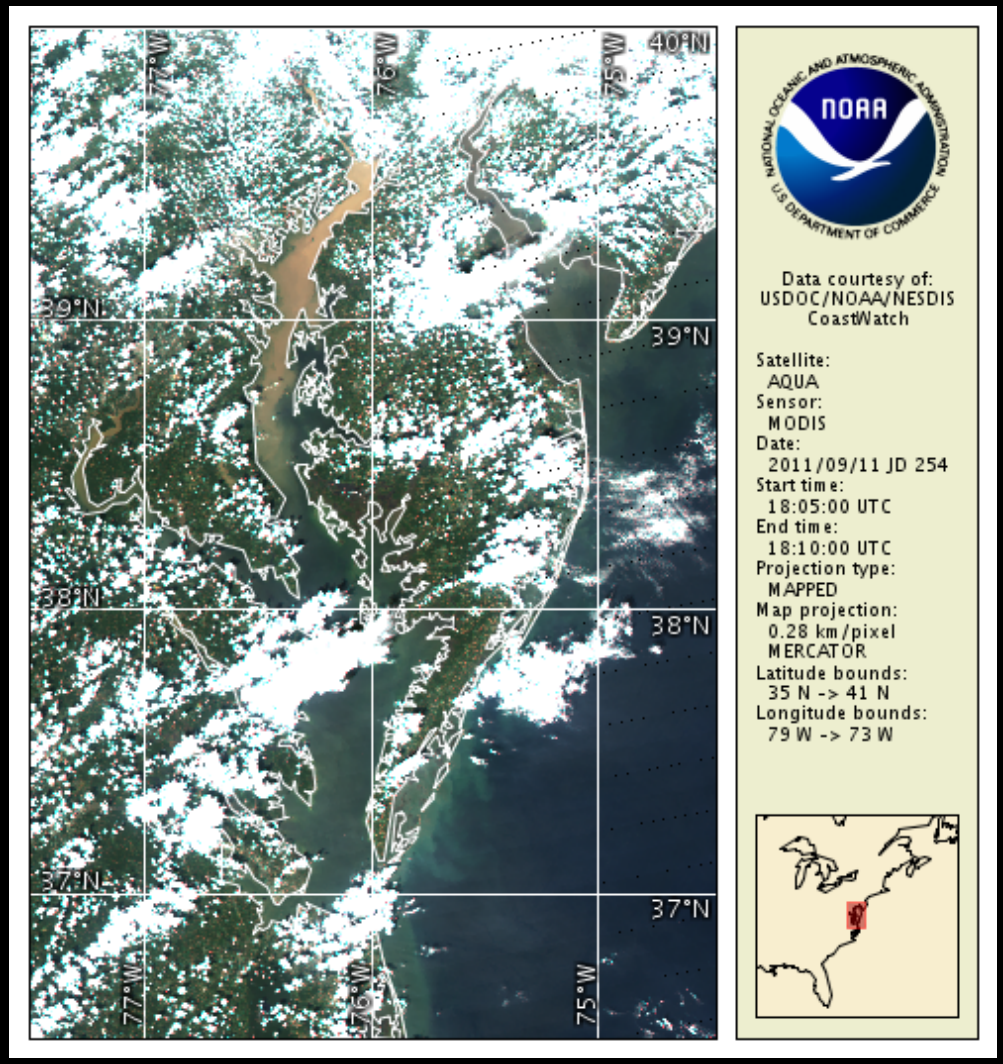
Fig. 4. Plots of 2008 TSM versus in situ measured nL_w (645) corresponding to the high resolution MODIS band 1. A) Predicts TSM using a linear regression fit through the data. B) Same data plotted in A) except with a 3rd order polynomial fit to the data with the y-intercept forced through zero.

Lee Response – Ondrusek et al.



Imagery available daily at NOAA Coastwatch East Coast Node

Lee Response – Ondrusek et al.



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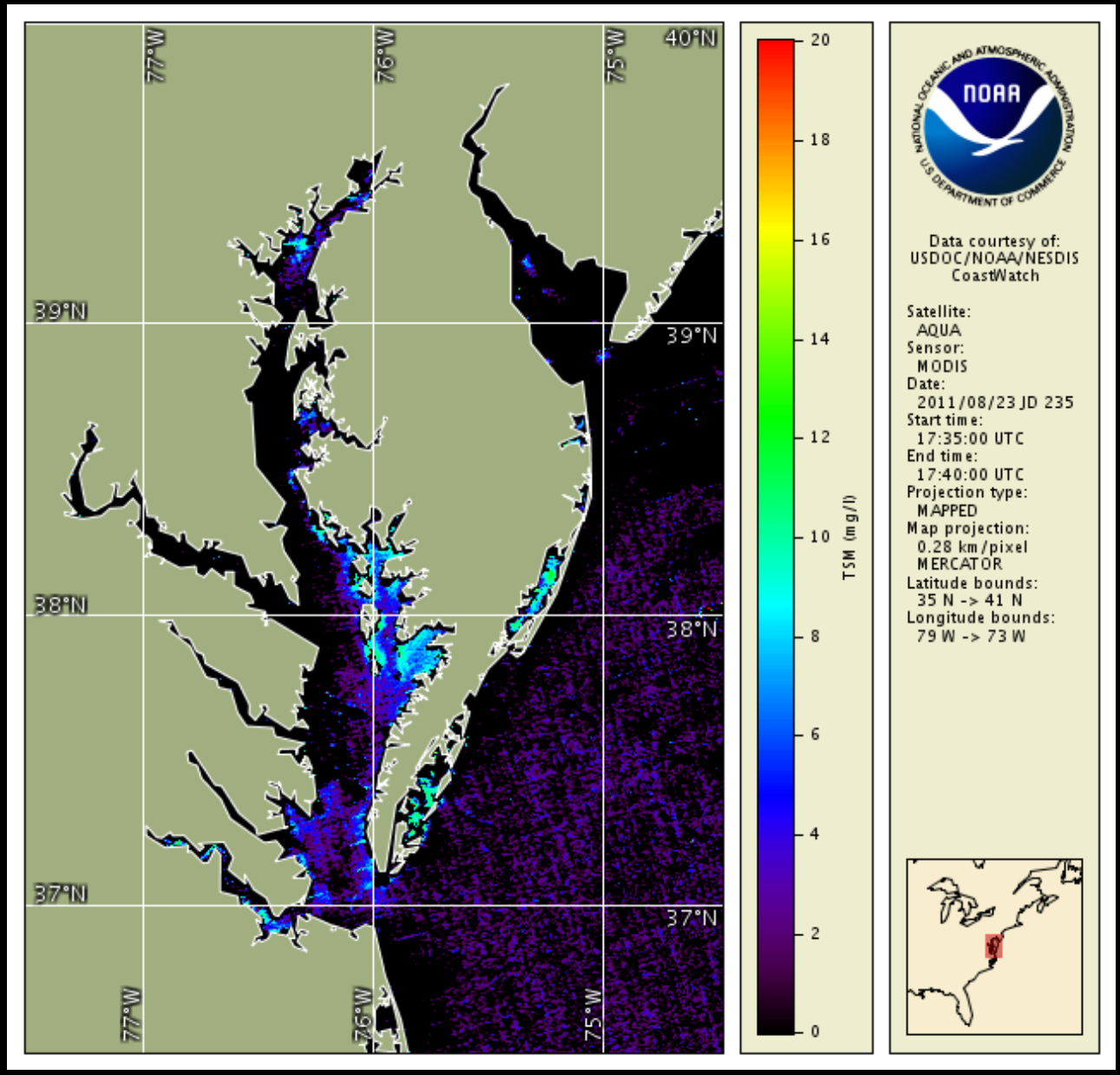

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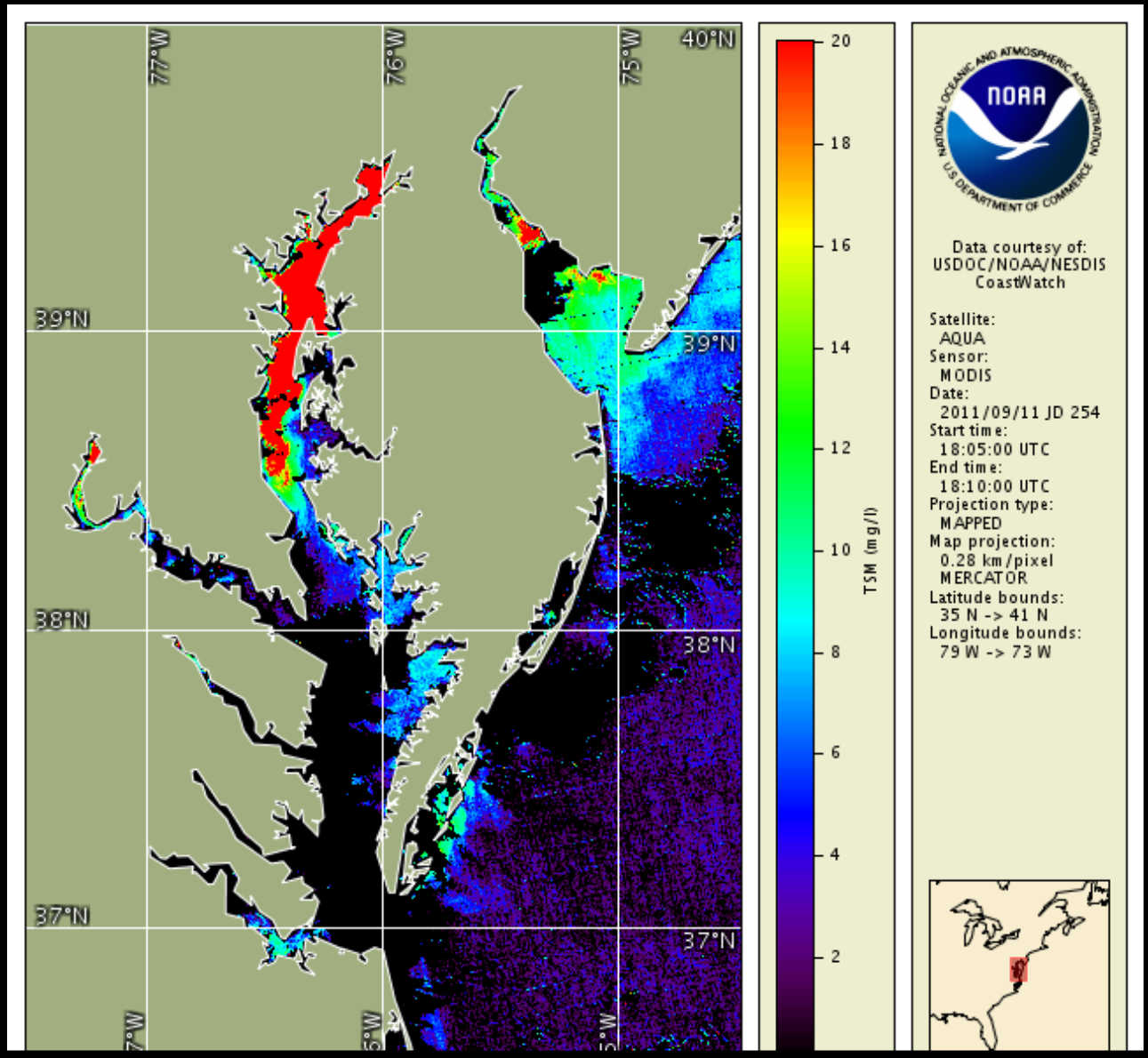
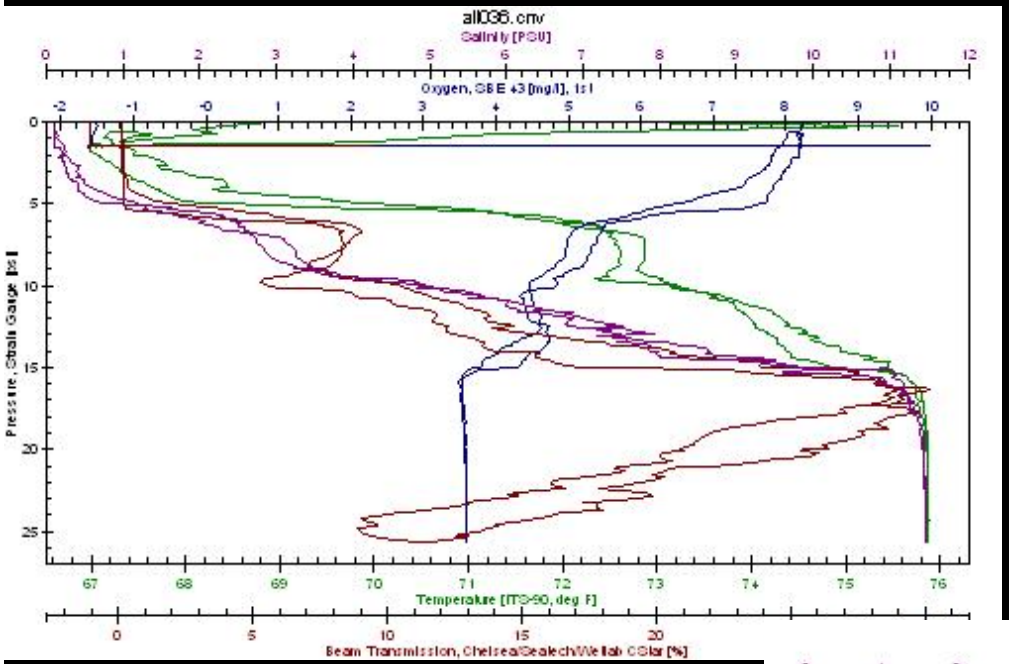
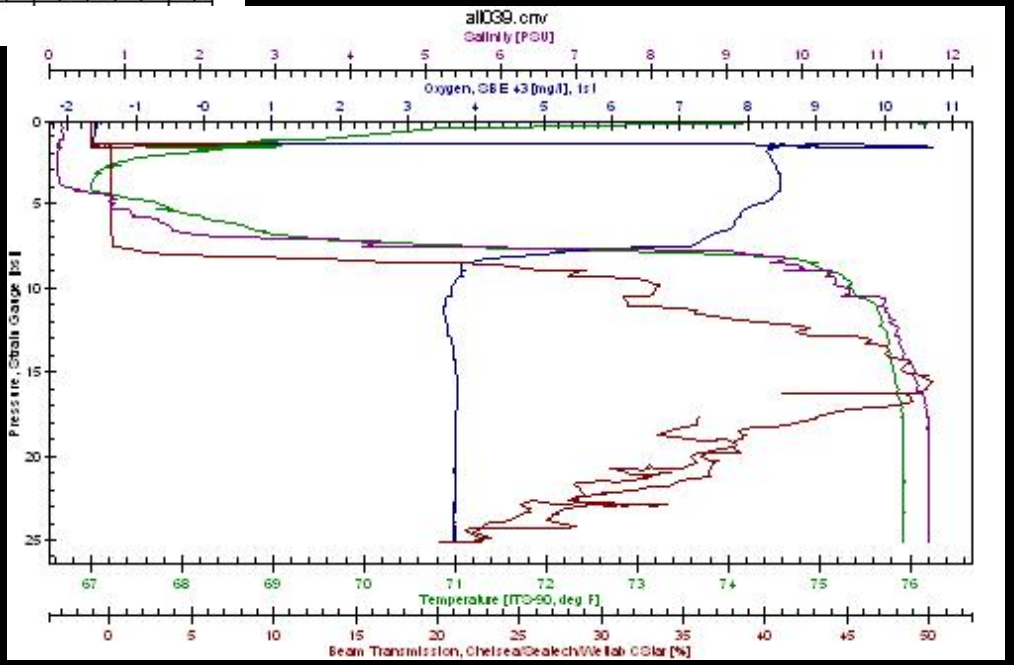
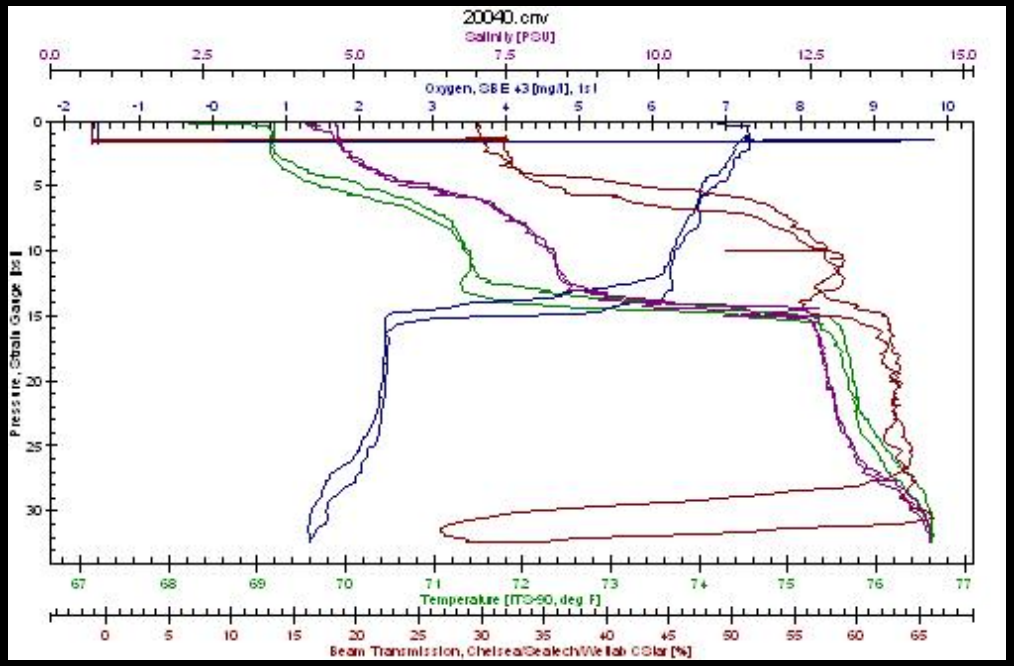




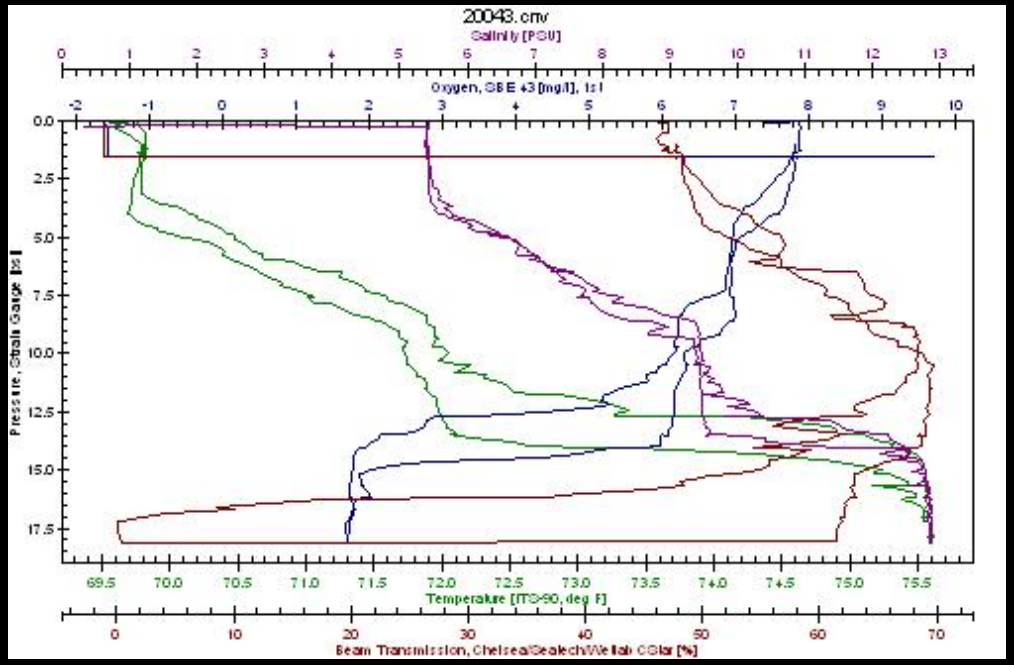

Beam transmission south of Bay Bridge
Sep 13







Beam transmission south of Bay Bridge
Sep 20



TSS data – Post Lee processed, UMD HPL

INVESTIGATOR: Ondrusek **Type and Size of Filter: 47 mm GF/F**

Sample Number	Dish Number	Volume (mL)	Station ID	TSS (mg/L)	Comments
1	**MO 1**	110	1	54.5	
2	**MO 2**	114	2	80.5	
3	**MO 3**	100	3	48.0	
4	**MO 4**	100	4	134	
5	**MO 5**	70	5	122	
6	**MO 6**	70	6	62.6	
7	**MO 7**	80	7	129	
8	**MO 8**	82	8	80.6	
9	**MO 9**	101	9	76.4	
10	**MO 10**	100	10	69.9	
11	**MO 11**	100	11	85.0	
12	**MO 12**	80	12	110	
13	**MO 13**	83	13	71.8	

TN, TPdata – Post Lee processed, UMD HPL

Some samples filtered, see ID worksheet for details

Sample Date	Sample ID	Total Nitrogen (uM)	Total Nitrogen (mg L-1)	Total Phosphorus (uM)	Total Phosphorus (mg L-1)
September 2011	1	128	1.792	0.85	0.0264
September 2011	2	110	1.540	0.97	0.0301
September 2011	3	129	1.806	0.89	0.0276
September 2011	4	98.0	1.372	0.99	0.0307
September 2011	5	96.0	1.344	0.94	0.0291
September 2011	6	116	1.624	0.93	0.0288
September 2011	7	138	1.932	3.42	0.1060
September 2011	8	121	1.694	3.54	0.1097
September 2011	9	132	1.848	2.99	0.0927
September 2011	10	107	1.498	4.71	0.1460
September 2011	11	97.0	1.358	3.71	0.1150
September 2011	12	122	1.708	3.28	0.1017
September 2011	13	110	1.540	3.44	0.1066
September 2011	14	107	1.498	3.74	0.1159
September 2011	15	101	1.414	4.52	0.1401
September 2011	16	48.9	0.685	1.82	0.0564
September 2011	17	110	1.540	0.96	0.0298
September 2011	18	104	1.456	0.88	0.0273
September 2011	19	97.7	1.368	0.90	0.0279
September 2011	20	95.1	1.331	0.94	0.0291

Summary

- Set timing for response operations to meet several disciplines – we may have been too early for biogeochemical signal from Irene
- More data from BC cruise Aug 31 coming
- Total Suspended Matter algorithm proved useful; now daily from NOAA; in situ sampling providing extremes for satellite product testing
- Profiles Sep 13, Sep 20 exhibit subsurface clarity and then settling of sediment plume just south of Bay Bridge
- Recommend full science team participation in Fall workshop – NASA team, Ondrusek et al.
- Recommend data manager activity to assemble special event dataset, compile literature