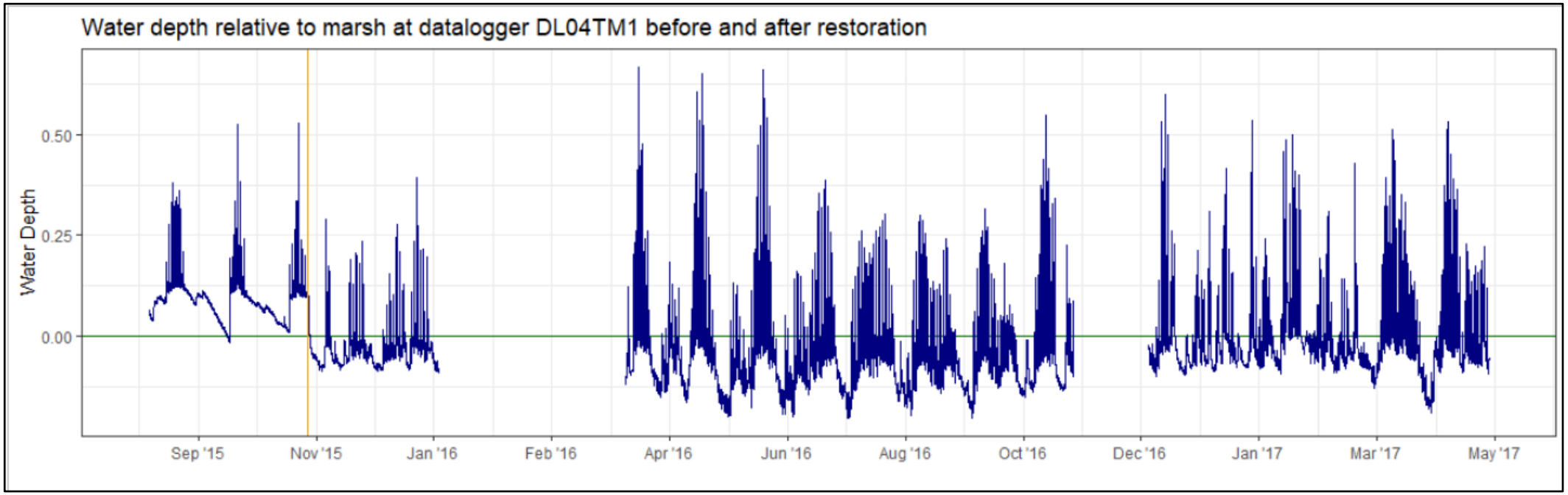
A Quick Overview of Marsh Restoration Water Levels

(This is a very not pretty presentation)

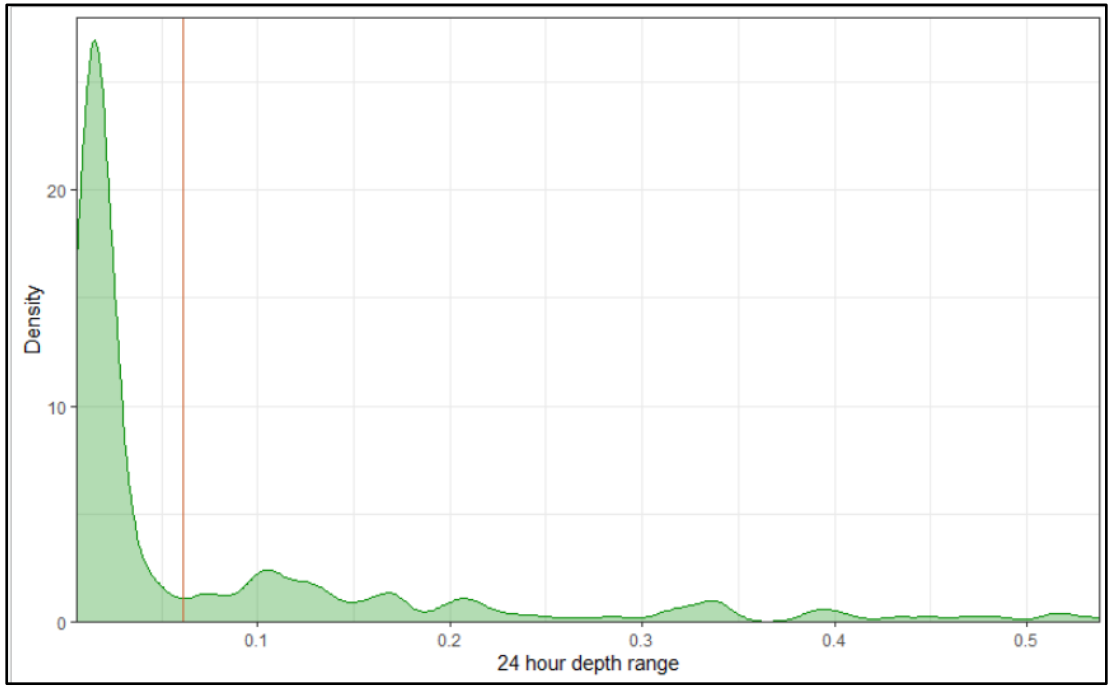
Early Data Processing

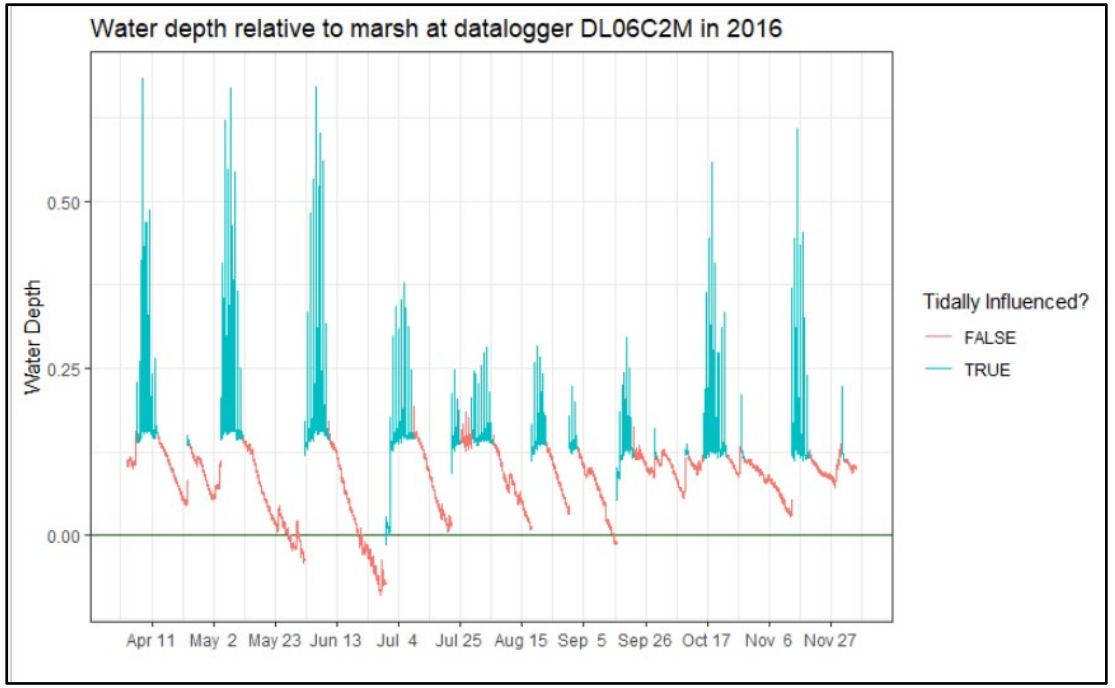
- Basic cleanup + metadata linkage
- Automatic detection of “out of water” time
- Merging of datasets and filling of gaps
- Manual review/verification function



Data Transformation

- Adding of lunar, tidal, and precipitation data
- Various rolling functions
- Detection of tidal influence
- Split into full lunar cycles and full tidal cycles

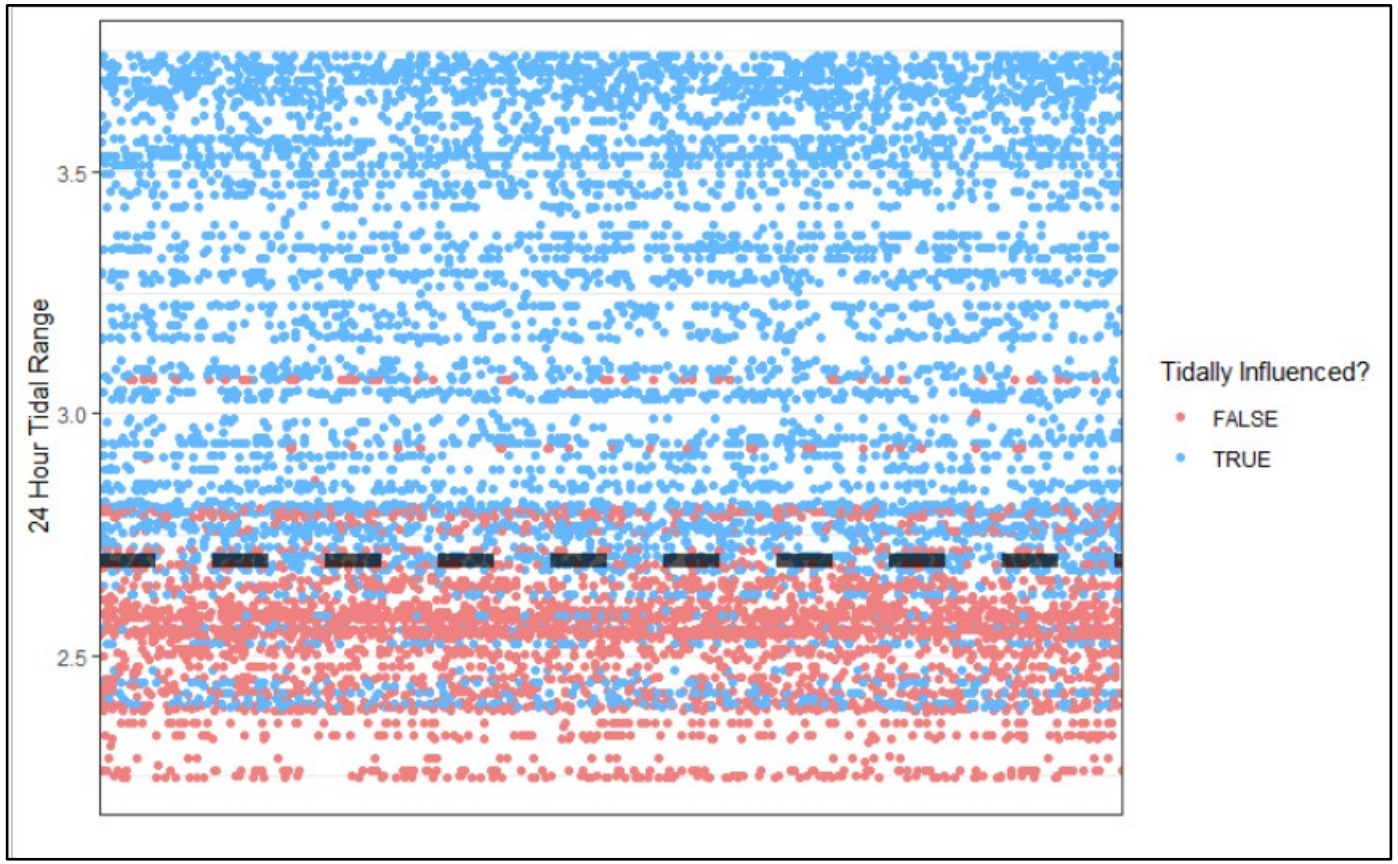




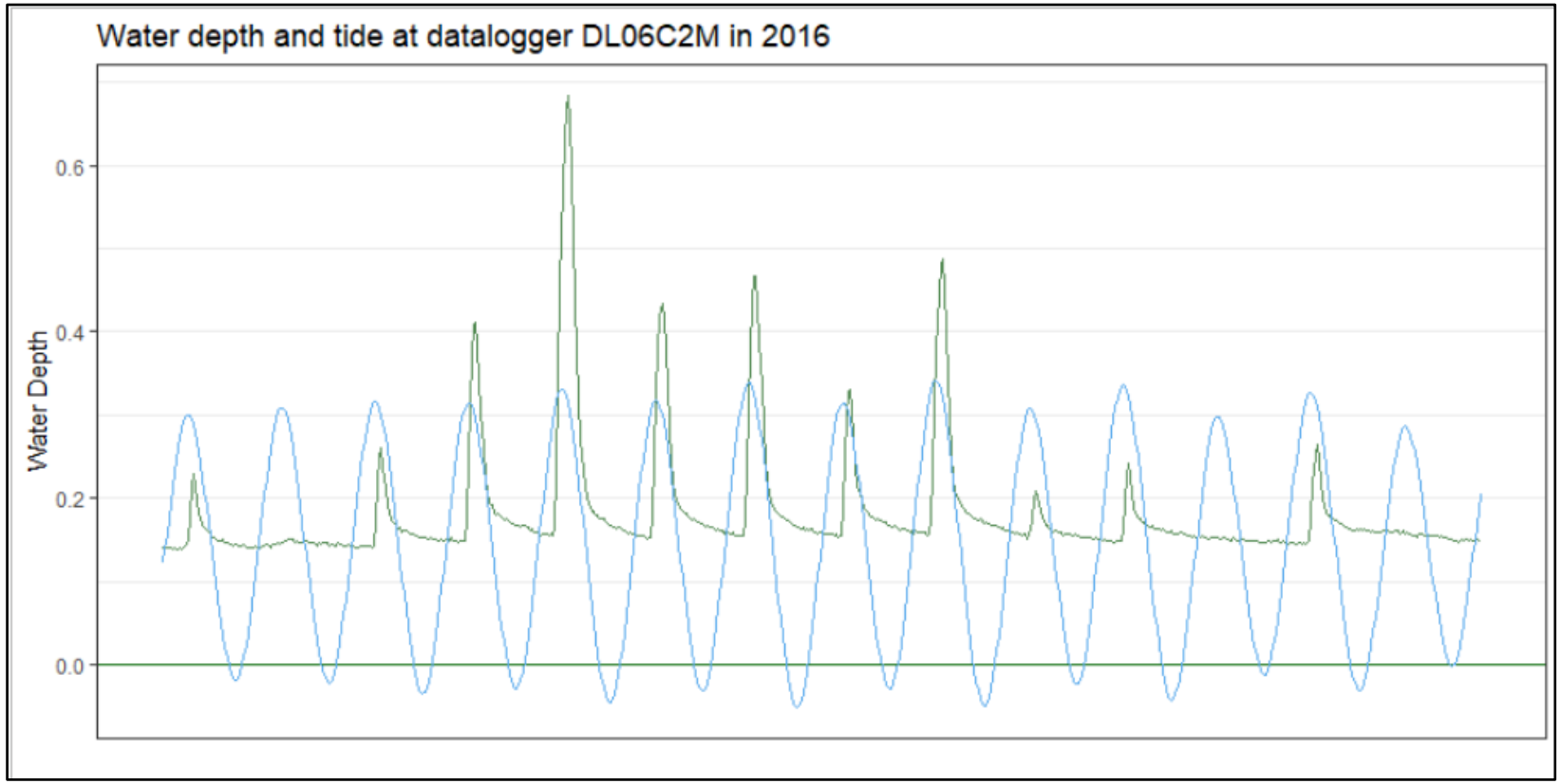
General Before/After Restoration Summary Stats

Site	Logger Position	*Before Treatment*			*After Treatment*		
		Mean Depth	% Inudated	Variance	Mean Depth	% Inudated	Variance
Treatment Sites							
DL03TD	Ditch	18.69	100.00	0.27	-4.12	12.86	1.00
DL04TM1	Marsh	8.33	95.45	0.24	-4.24	13.17	0.70
DL05TM2	Marsh	7.11	87.69	0.31	-0.36	41.02	0.56
DL06C2M	Marsh	9.67	93.42	0.30	-15.51	4.60	0.45
SPSPP1	Pool	-3.76	22.89	0.30	-6.44	22.99	0.68
SPSPPM1	Marsh	11.86	100.00	0.46	8.63	84.26	0.93
Control Sites							
DL01C1D	Ditch (Open)	-55.78	14.01	14.83			
DL02C1M	Marsh (Open)	-9.91	19.54	1.31			
DL08C2C	Creek (Open)	-40.39	22.53	20.34			
DLControlNE	Marsh (Open)	-4.71	41.38	0.72			
Mgate3TM1	Marsh (Open)	-4.48	20.26	1.48			

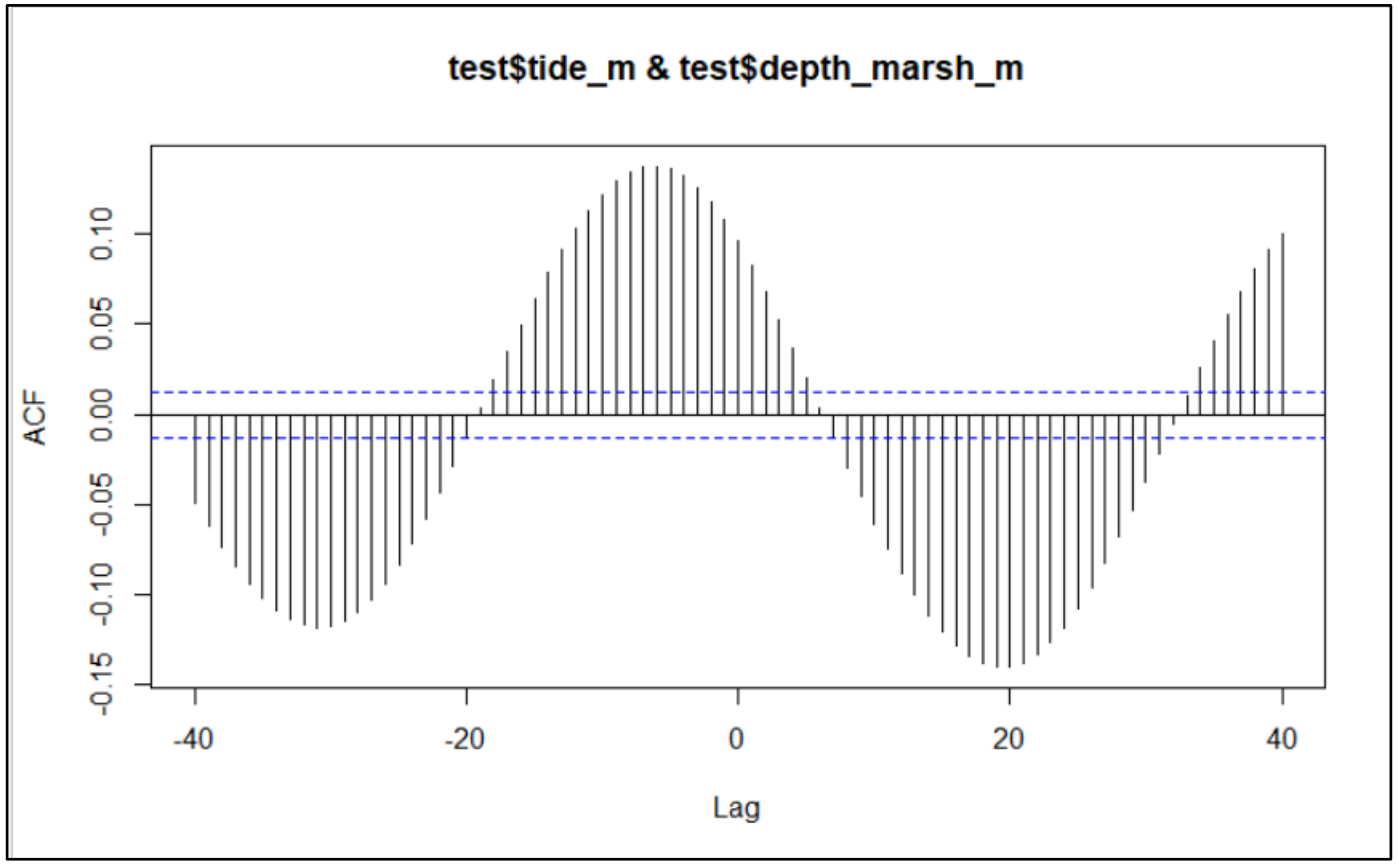
Building Models – Anticipating Tidal Influence



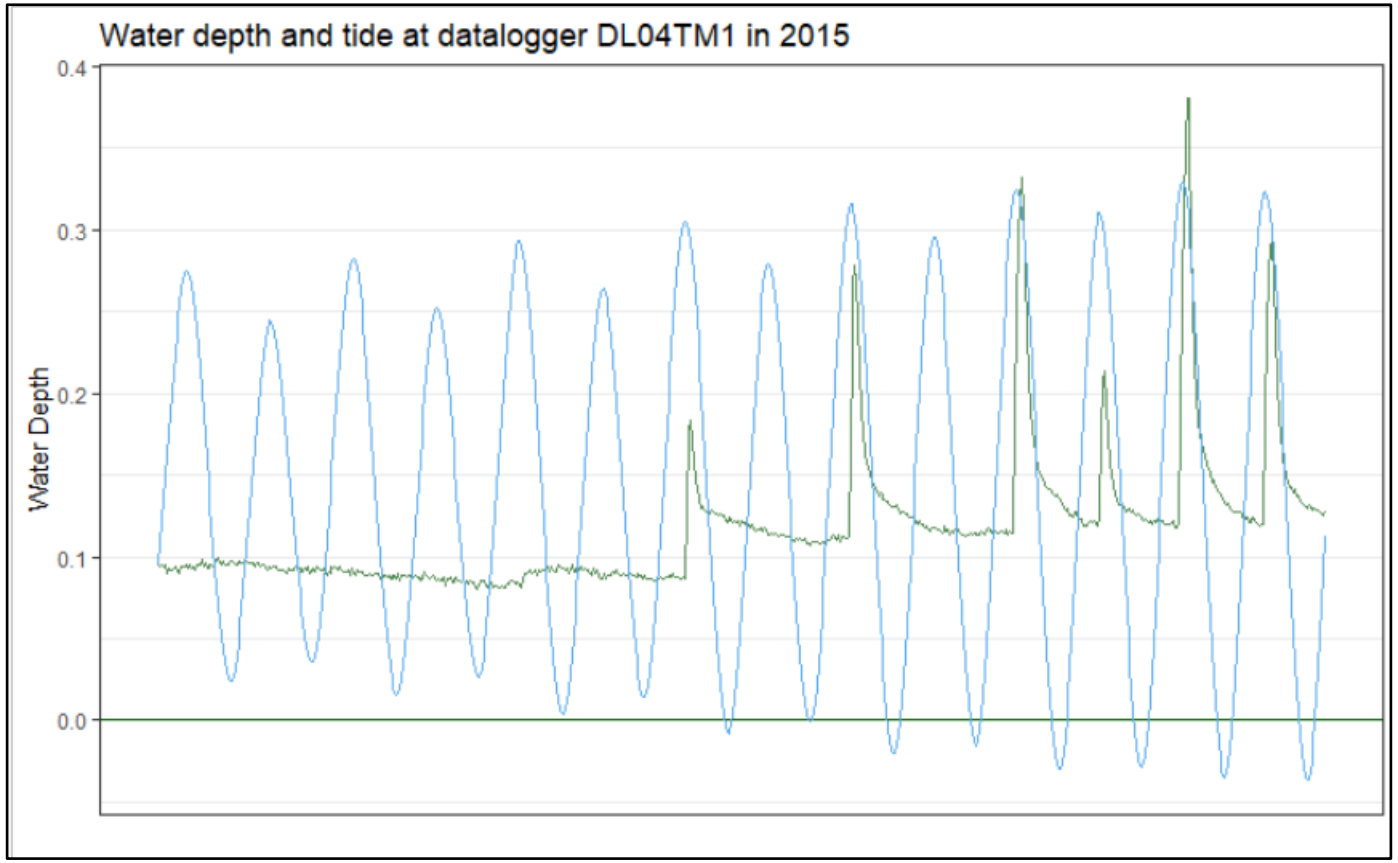
Building Models – Tidal Lag



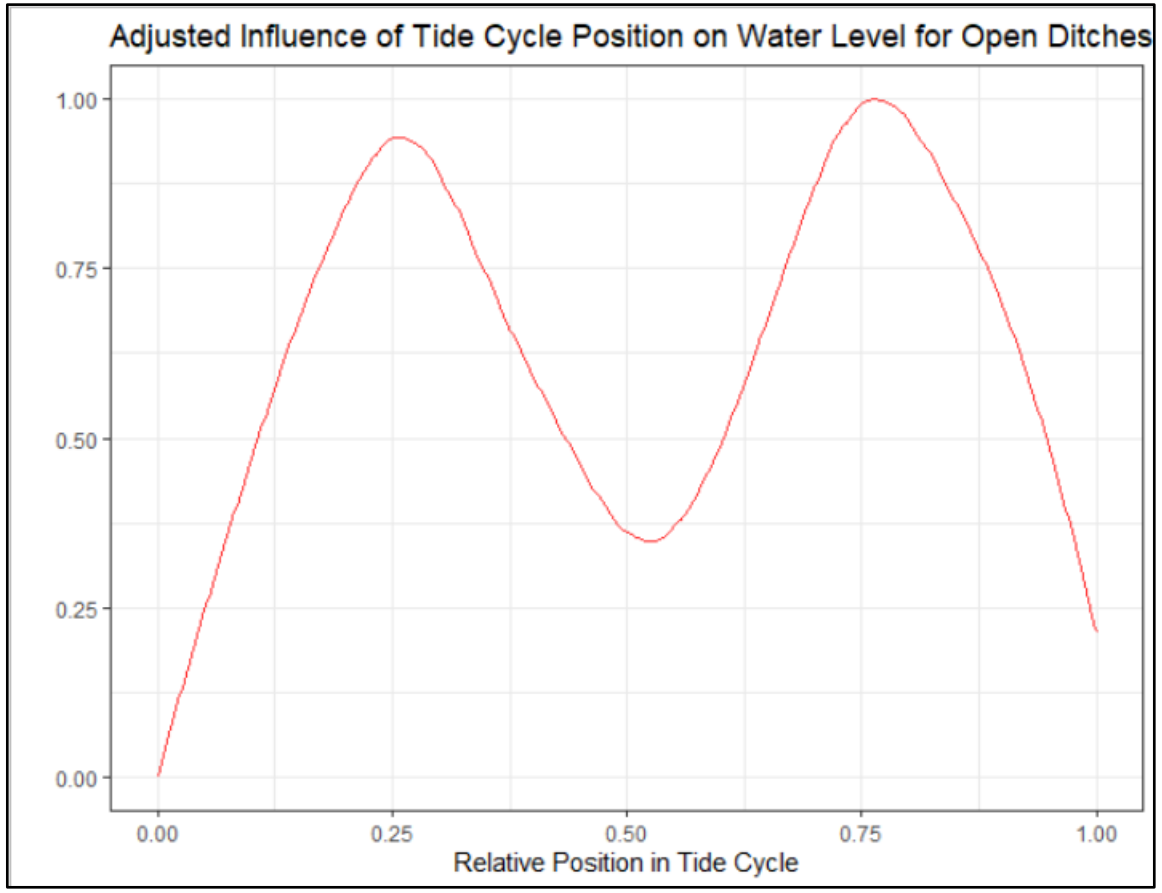
Building Models – Tidal Lag

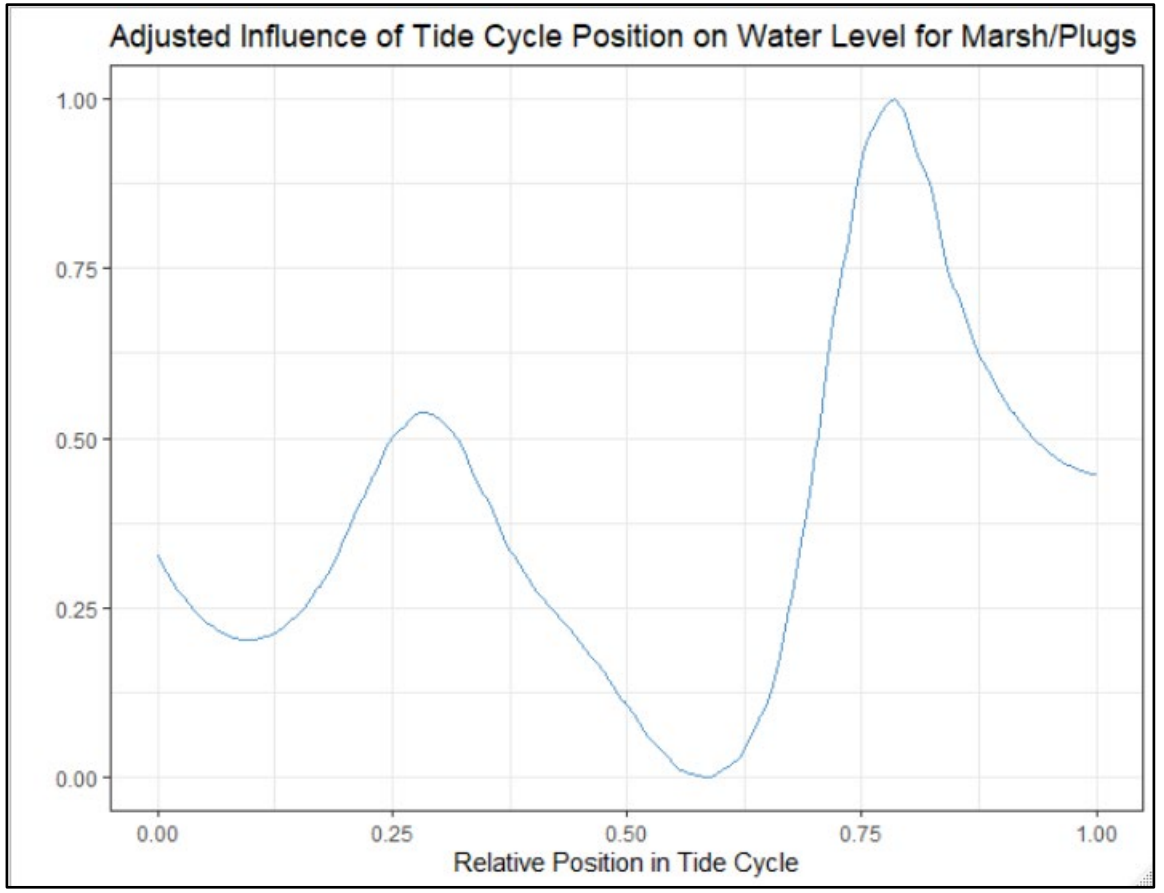


Building Models – Tide Cycle Position

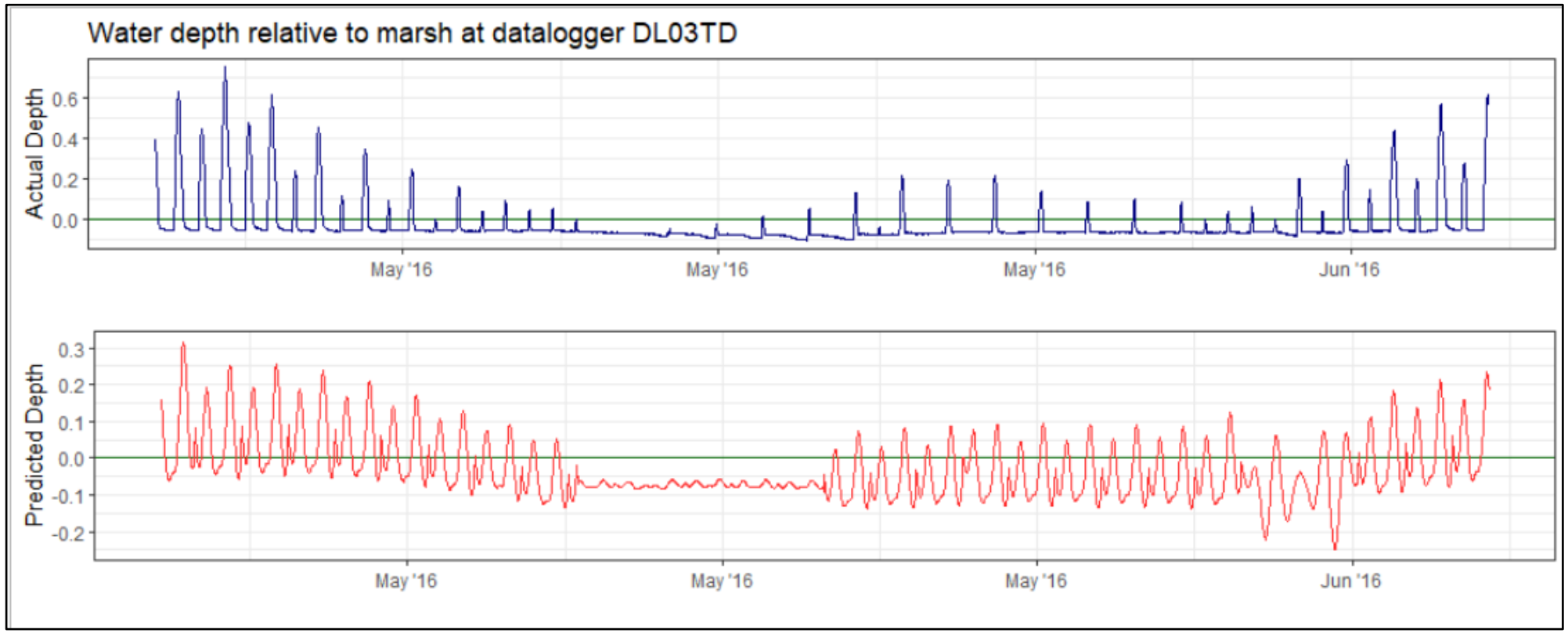


Building Models – Tide Cycle Position





- Mean Adjusted R^2 for Lunar Cycle Models: .622
- Mean Adjusted R^2 for Yearly Models: .495
- No consistent difference in model performance between pre/post restoration or ditch/marsh



Before/After Tidal Connectivity Stats

Site	Logger Position	*Before Treatment*			*After Treatment*		
		% Tidally Influence	Tidal Range Threshold	Tidal Lag	% Tidally Influence	Tidal Range Threshold	Tidal Lag
Treatment Sites							
DL03TD	Ditch	26.42	3.31	1 hour, 23 minutes	80.44	2.76	35 minutes
DL04TM1	Marsh	24.66	3.32	1 hour, 26 minutes	51.22	2.89	1 hour, 15 minutes
DL05TM2	Marsh	24.66	3.32	1 hour, 38 minutes	52.49	2.88	55 minutes
DL06C2M	Marsh	29.95	3.07	1 hour, 41 minutes	65.04	2.72	1 hour, 13 minutes
SPSPP1	Pool	18.41	3.17	2 hours, 54 minutes	23.77	3.14	3 hours, 10 minutes
SPSPPM1	Marsh	18.41	3.17	3 hours, 3 minutes	28.59	3.07	2 hours, 57 minutes
Control Sites							
DL01C1D	Ditch (Open)	100.00	–	19 minutes			
DL02C1M	Marsh (Open)	59.54	2.81	1 hour, 24 minutes			
DL08C2C	Creek (Open)	100.00	–	24 minutes			
DLControlNE	Marsh (Open)	35.68	3.02	1 hour, 16 minutes			
Mgate3TM1	Marsh (Open)	83.02	2.53	53 minutes			