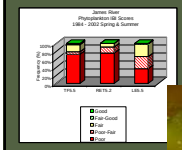
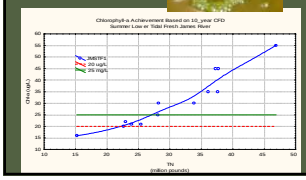
Chlorophyll Criteria and Assessment

Science Advisory Panel

April 11, 2014

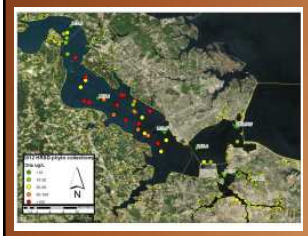
Basis for Chlorophyll *a* Numeric Criteria





- Balance population of aquatic life → P-IBI
  Phytoplankton Index of Biotic Integrity
- Undesirable or nuisance aquatic plant life… → algal blooms & HABs
- Attainability

Why the James River Chlorophyll Study?



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James River CHLa Study

Re-visit existing JR numeric CHLa criteria

Re-visit the **JR TMDL loads** with a site-specific modeling

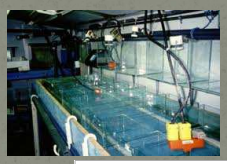
Designated Use	Chlorophyll a µ/l	James River Segment	Temporal Application
Open Water	10	JMSTF2	March 1 - May 31
	15	JMSTF1	
	15	JMSOH	
	12	JMSMH	
	12	JMSPH	
	15	JMSTF2	July 1 - September 30
	23	JMSTF1	
	22	JMSOH	
	10	JMSMH	
	10	JMSPH	

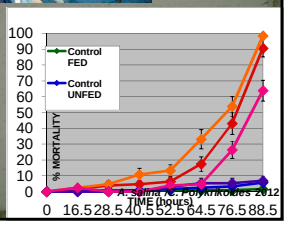
- Watershed
- Hydrodynamic & Water Quality
- HAB

TMDL Model Scenarios – assess chlorophyll-a attainment

Water Quality Standards Designed to Protect –

" survival, growth and propagation of balanced, indigenous populations of ecologically, recreationally and commercially important fish and shellfish species inhabiting open-water habitats"





Water Quality Criteria Based on Attempts to Prevent –

- Acute toxicity - death
- Chronic toxicity –
  - reduced reproductive success
  - reduced growth

Unacceptable adverse effects

Intended to apply on a population scale

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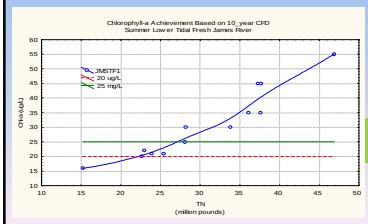
James River CHLa Study

JR numeric CHLa criteria

JR TMDL loadings

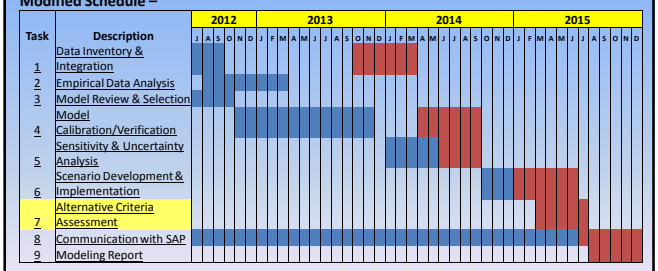
- Watershed
- Hydrodynamic & Water Quality
- HAB

TMDL Model Scenarios – assess chlorophyll-a attainment



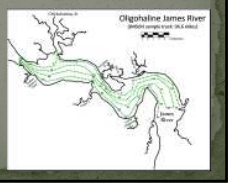
JR Modeling Timeline

Modified Schedule –



JR Chl-a Study Schedule

2011	Workplan Developed Model RFP released
2012	Workplan Implementation with award of Modeling Contract
2012-14	***Monitoring and Modeling***
2015	Complete Model Work with Chlorophyll Assessment Review
2016	Develop Regulatory Proposal (DEQ, if warranted)
2017	Complete WIP III And Regulatory Review

http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityStandards/NutrientCriteriaDevelopment.aspx#James_R_CHLa_Study

Arthur Butt PhD
Tish Robertson PhD
VA DEQ