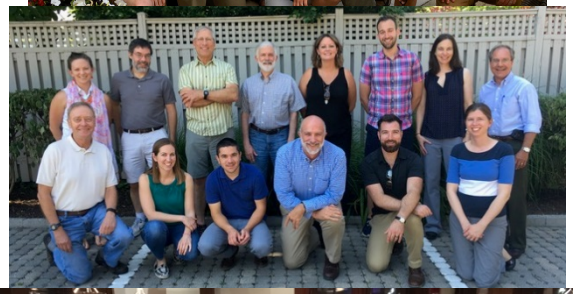
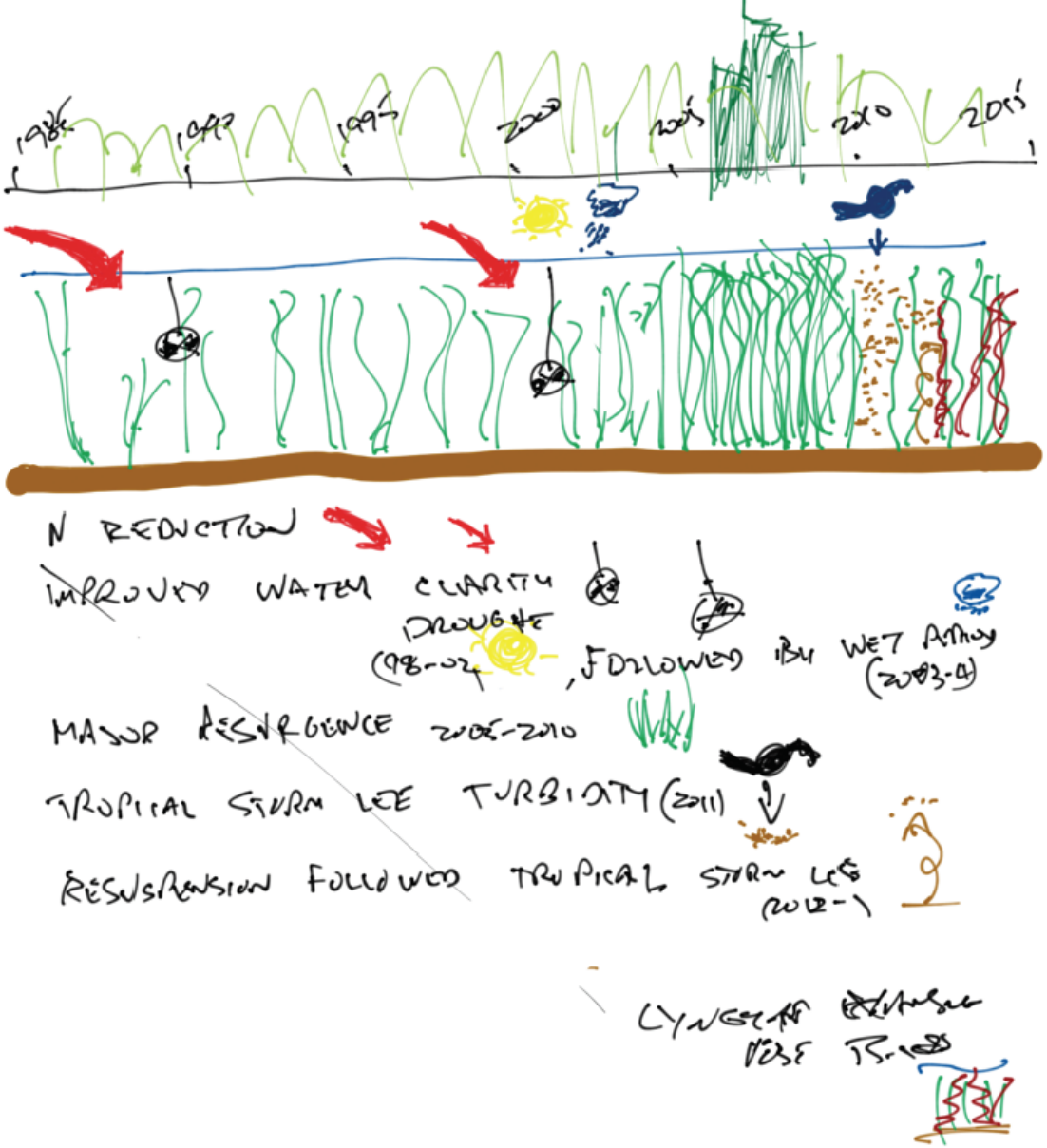
Explaining Trends in Tidal Waters

Synthesis Process and Lessons Learned

- Experienced leadership
  - One or 2 leaders who've been through process before
  - At least one "champion" – preferably two
  - Early-career participants
- Limited size (≤ 12)
- Topic is ripe for synthesis
  - Clear research AND management goals
  - Multiple products; co-authorship
- Multiple immersive workshops:
  - 4 multi-day workshops
  - Minimal powerpoints; focus on breakouts and schedule flexibility
  - Conducive location ('walkability', good IT, whiteboards, break outs, food, drinks, photo ops)



- Regular communication in between workshops (leader emails, conference calls, offline collaboration)


1985
1990
1995
2000
2005
2010
2015
N REDUCTION
IMPROVED WATER CLARITY
DROUGHT
(98-02)
FOLLOWED BY WET AFTER
(2003-4)
MAJOR RESURGENCE 2006-2010
TROPICAL STORM LEE TURBIDITY (2011)
RESUSPENSION FOLLOWED TROPICAL STORM LEE
(2012-)

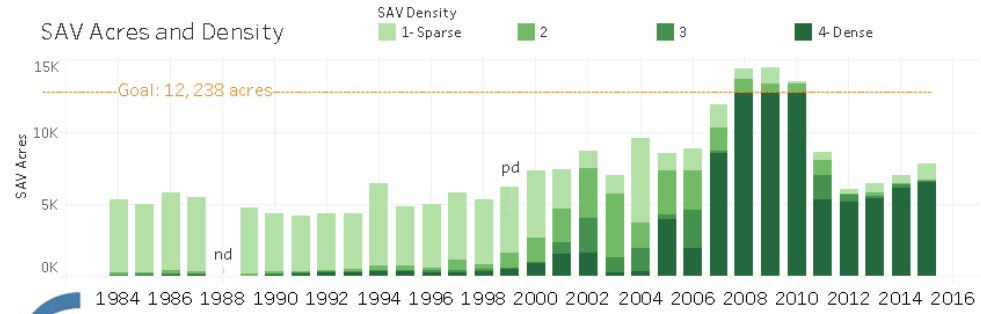
SAV Segment Susquehanna Flats (CBTF2 and NORTF)

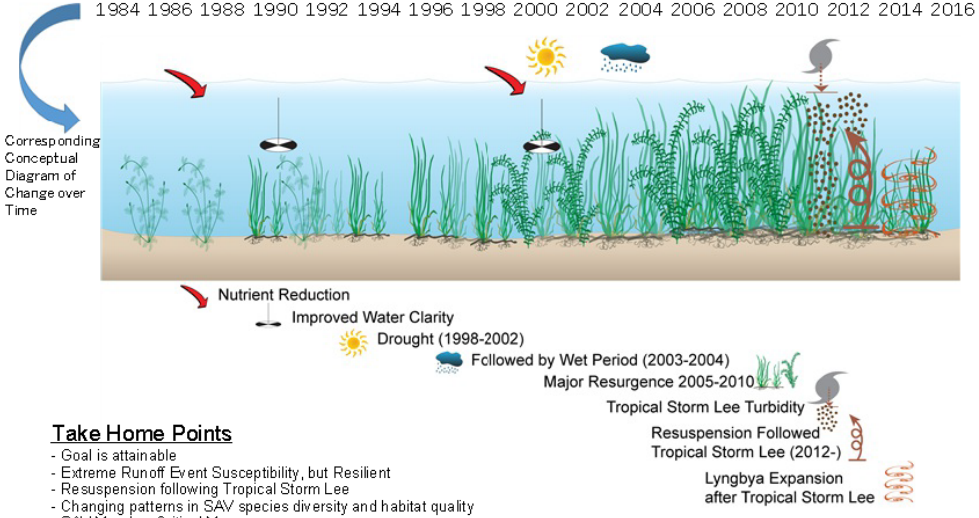
(http://vims.edu/bio/sav/SegmentAreaChart.htm)

Current Expansive Freshwater SAV Beds in the Upper Chesapeake Bay near Havre de Grace

Executive Summary

While historic records indicate that SAV once covered over 12,000 acres of the Susquehanna Flats and supported large populations of migrating waterfowl, those beds were in serious decline by the mid-1900s. Stress to native SAV populations allowed for non-native Eurasian watermilfoil to dominate the SAV that persisted and when Tropical Storm Agnes tore over the Flats in 1972, most of the remaining SAV was lost with the rapid onslaught of sediment and nutrient pollution to the estuary. After two decades of minimal recovery, SAV beds on the Susquehanna Flats began to experience a resurgence as a result of reductions in total nitrogen and the consequent improvements in water clarity. By 2008, SAV reached and surpassed its restoration goal in these associated segments until 2011 when Tropical Storm Lee hit the region. Scour and turbidity reduced SAV in the Flats by approximately 1/3 following the storm, but steady recovery since then has been facilitated by the dense, resilient SAV bed that persisted.





Take Home Points

- Goal is attainable
- Extreme Runoff Event Susceptibility, but Resilient
- Resuspension following Tropical Storm Lee
- Changing patterns in SAV species diversity and habitat quality
- SAV Meadow Critical Mass
- *Lyngbya* Expansion
- Management Implications