

# Modeling Team Priorities for 2019

Gary Shenk CBPO

...along with the whole modeling team and modeling workgroup

2/19/2019

# Modeling Team Priorities for 2019

- Climate Change
- Documentation
- WIP support
- James CHLA
- Technology Transfer
- Other collaborative work
  
- Long-Range
  - Phase 7
  - Uncertainty quantification

## What will climate feel like in 60 years? ☰

📍 Map

📖 Learn more

💰 Support this project [Donate](#)

Select a city or click map

Utica, NY ▼


Select a map type

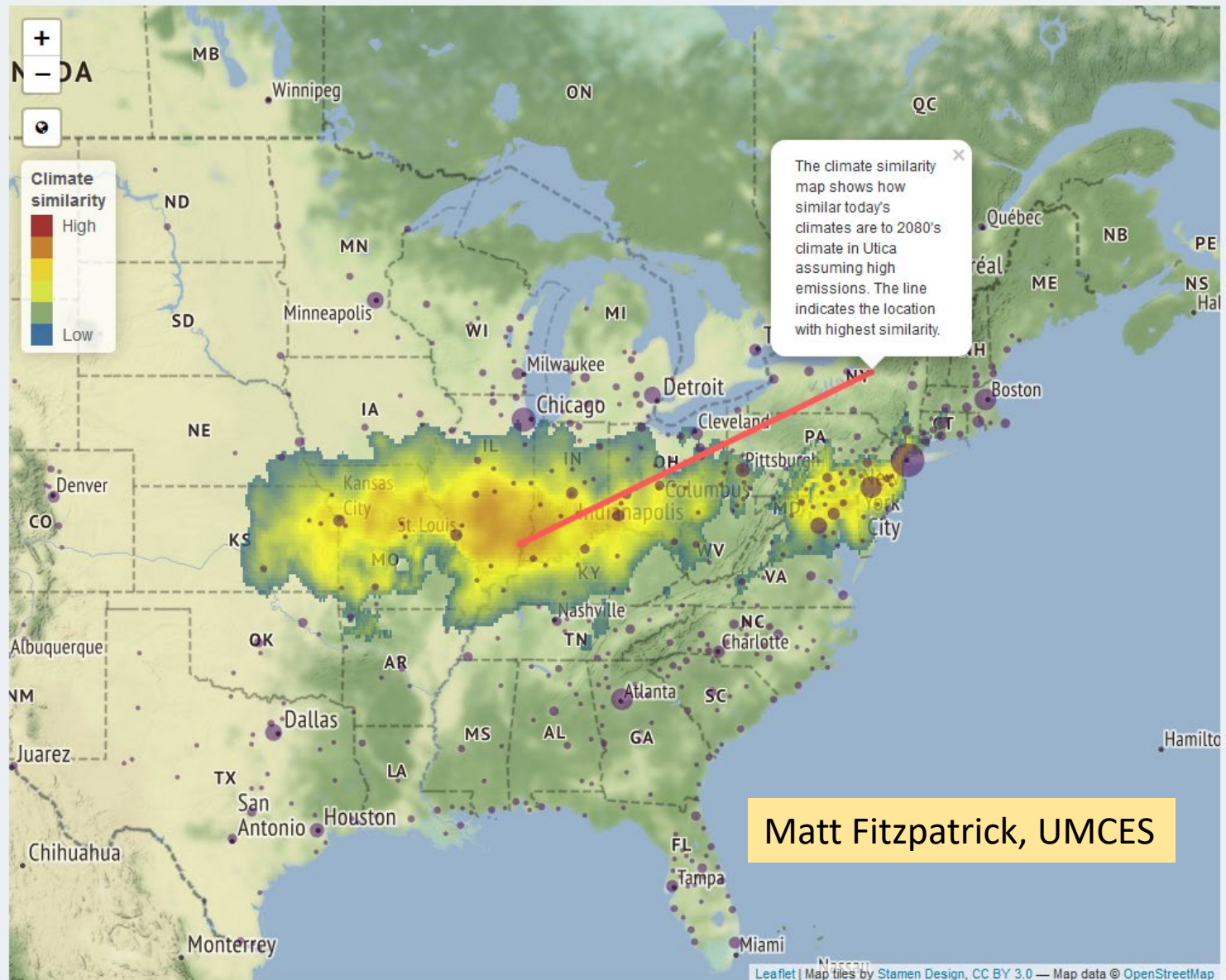
- Line to the most similar climate
- Line & climate similarity map

Select an emissions level

- Current high emissions
- What if we reduce emissions?

Refresh Map

 University of Maryland  
CENTER FOR ENVIRONMENTAL SCIENCE



## What will climate feel like in 60 years?

Map

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Select a city or click map

Chesapeake Beach, MD

Select a map type

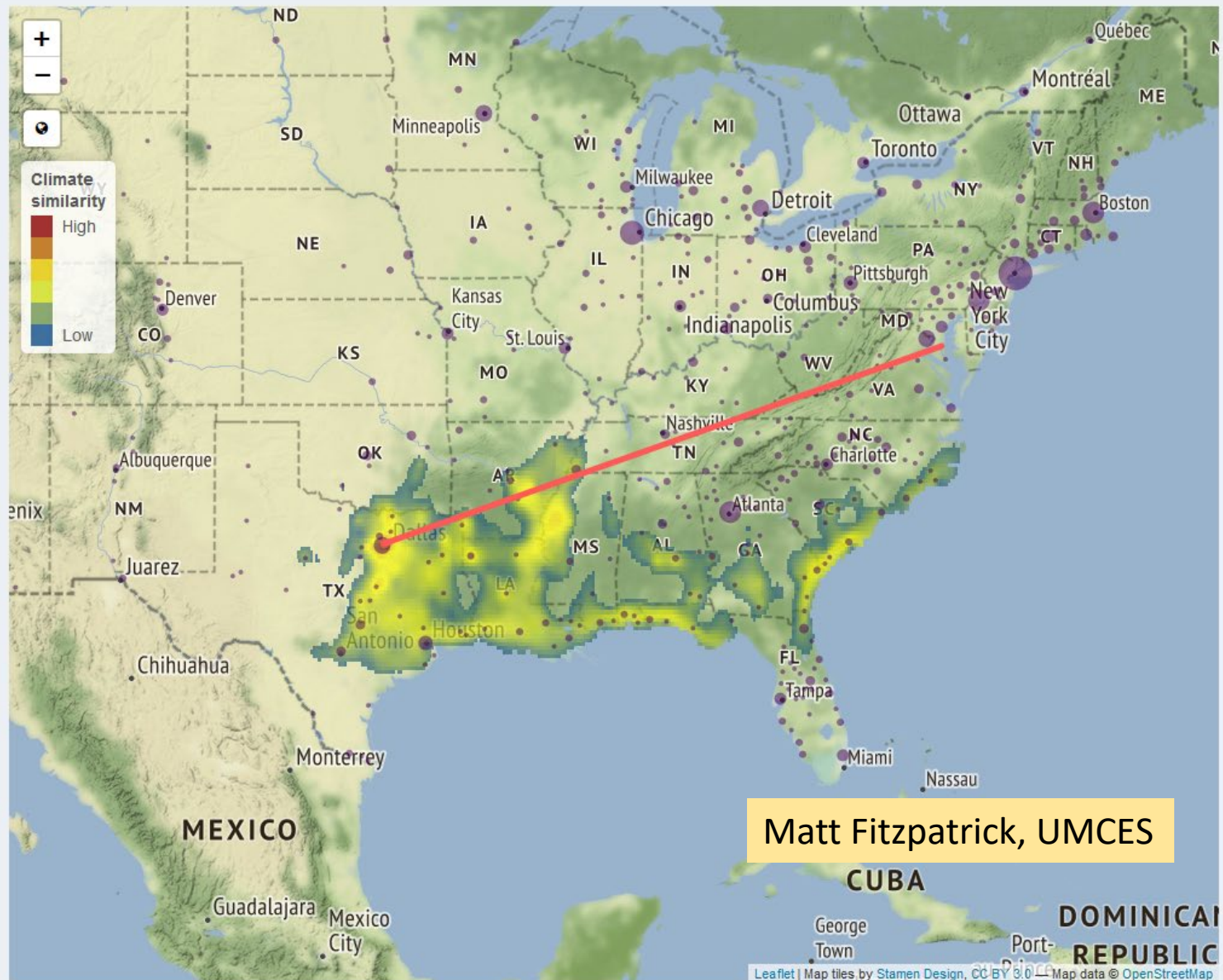
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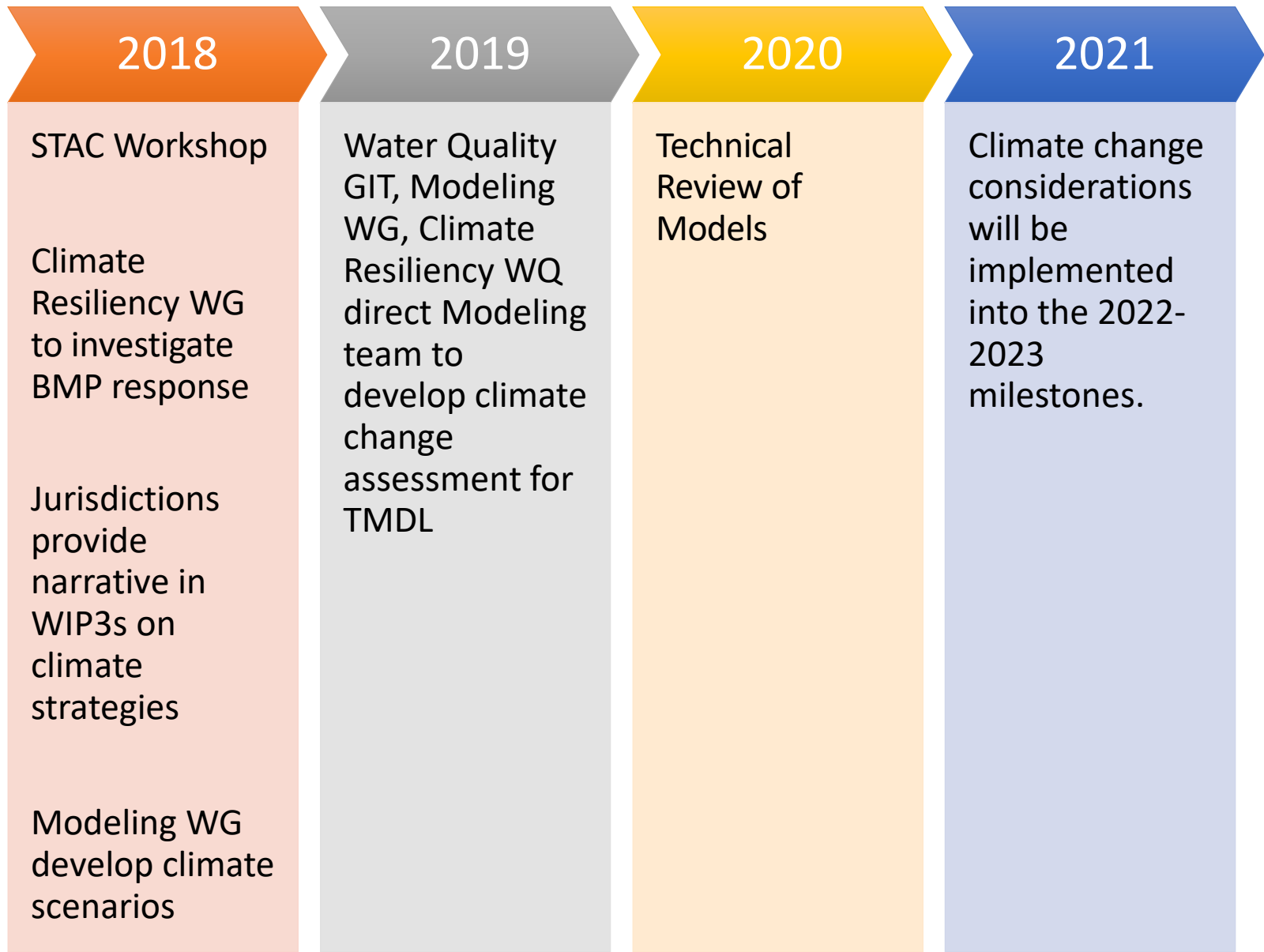
Refresh Map

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# CBP Climate Work Plan



# Climate Effects on Oxygen

## Watershed Model

increased precipitation volume =



increased precipitation intensity =



increase in temp and evapotranspiration =



## WQ Sediment Transport Model

increased watershed loads =



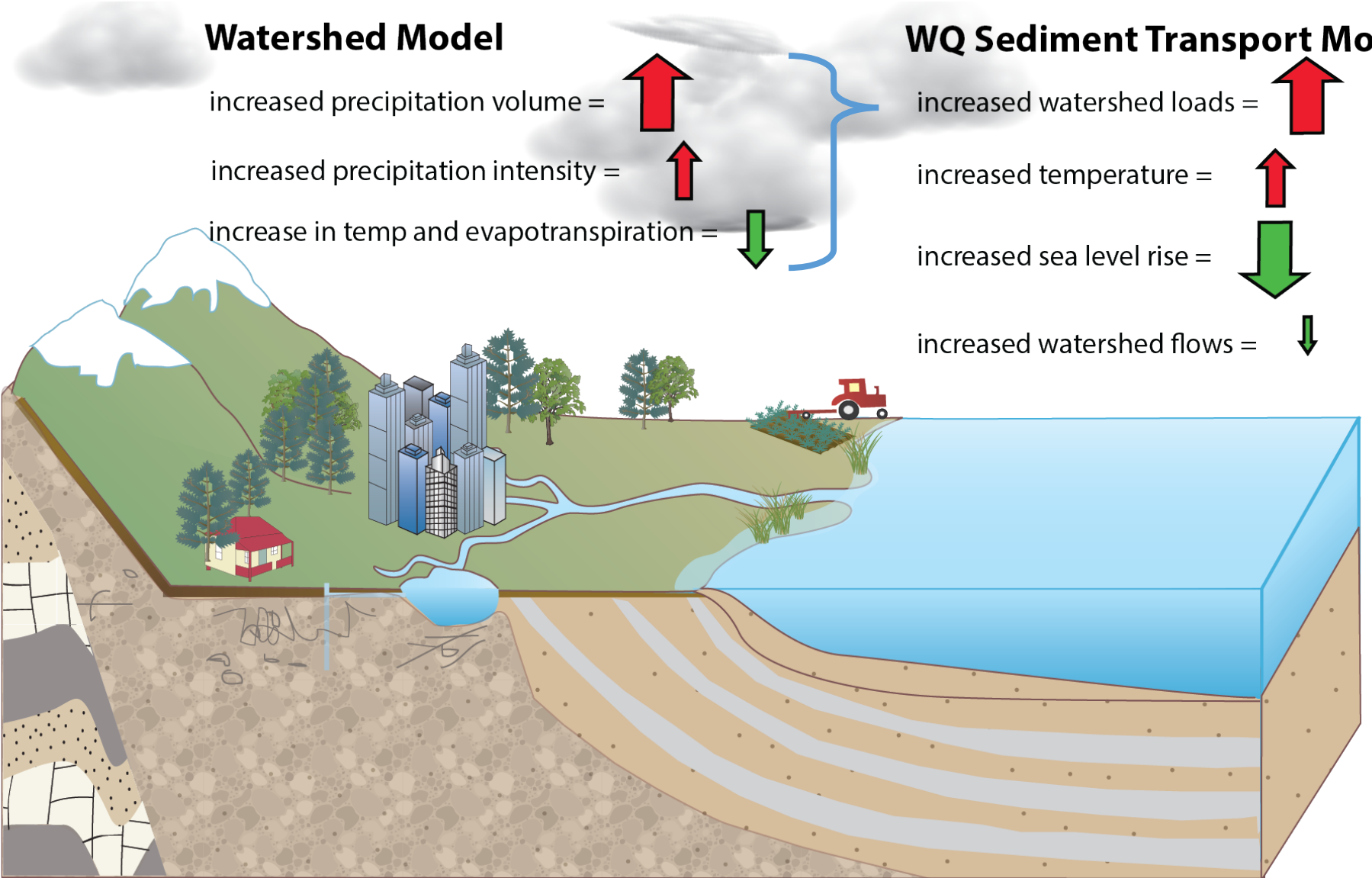
increased temperature =



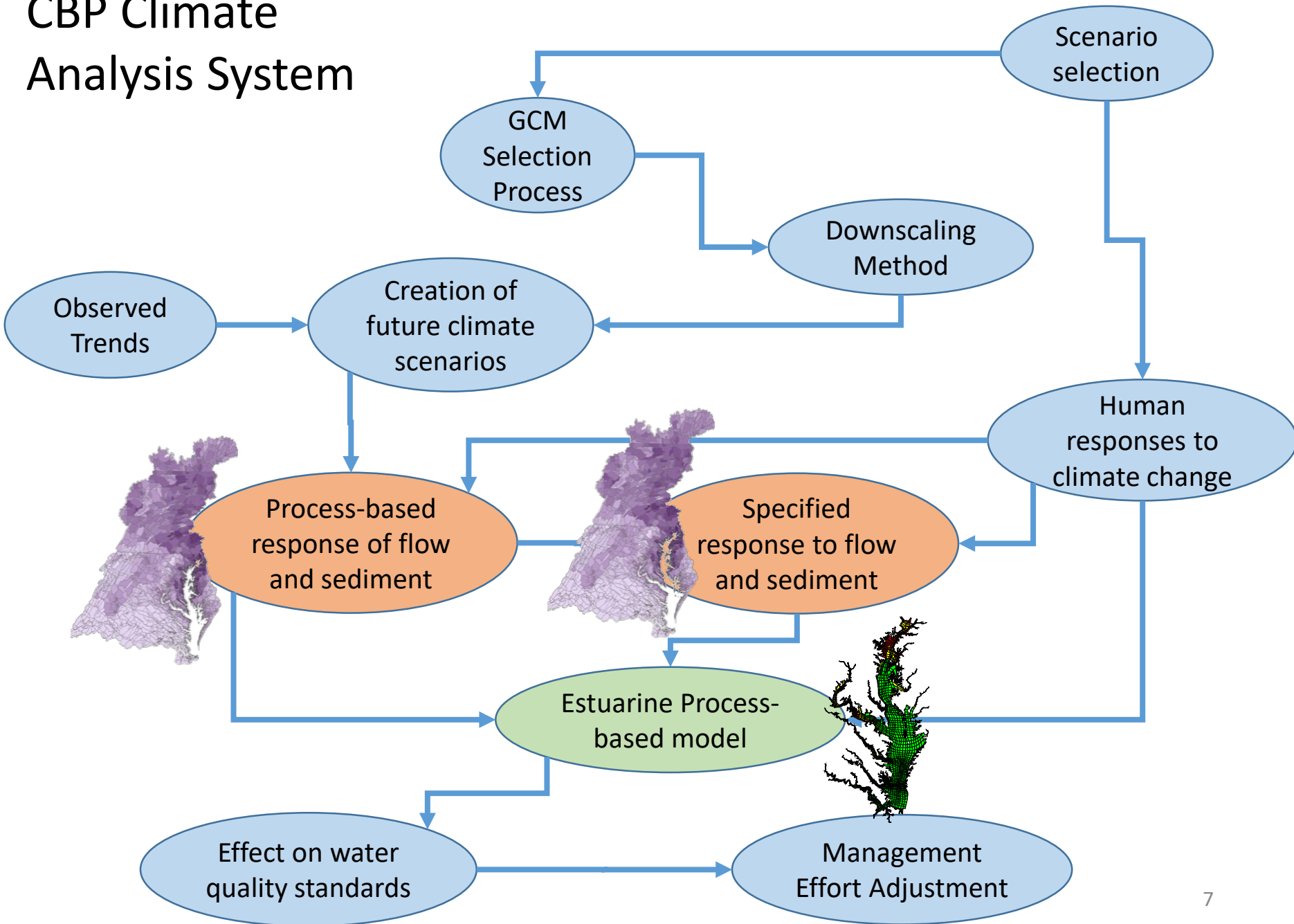
increased sea level rise =



increased watershed flows =



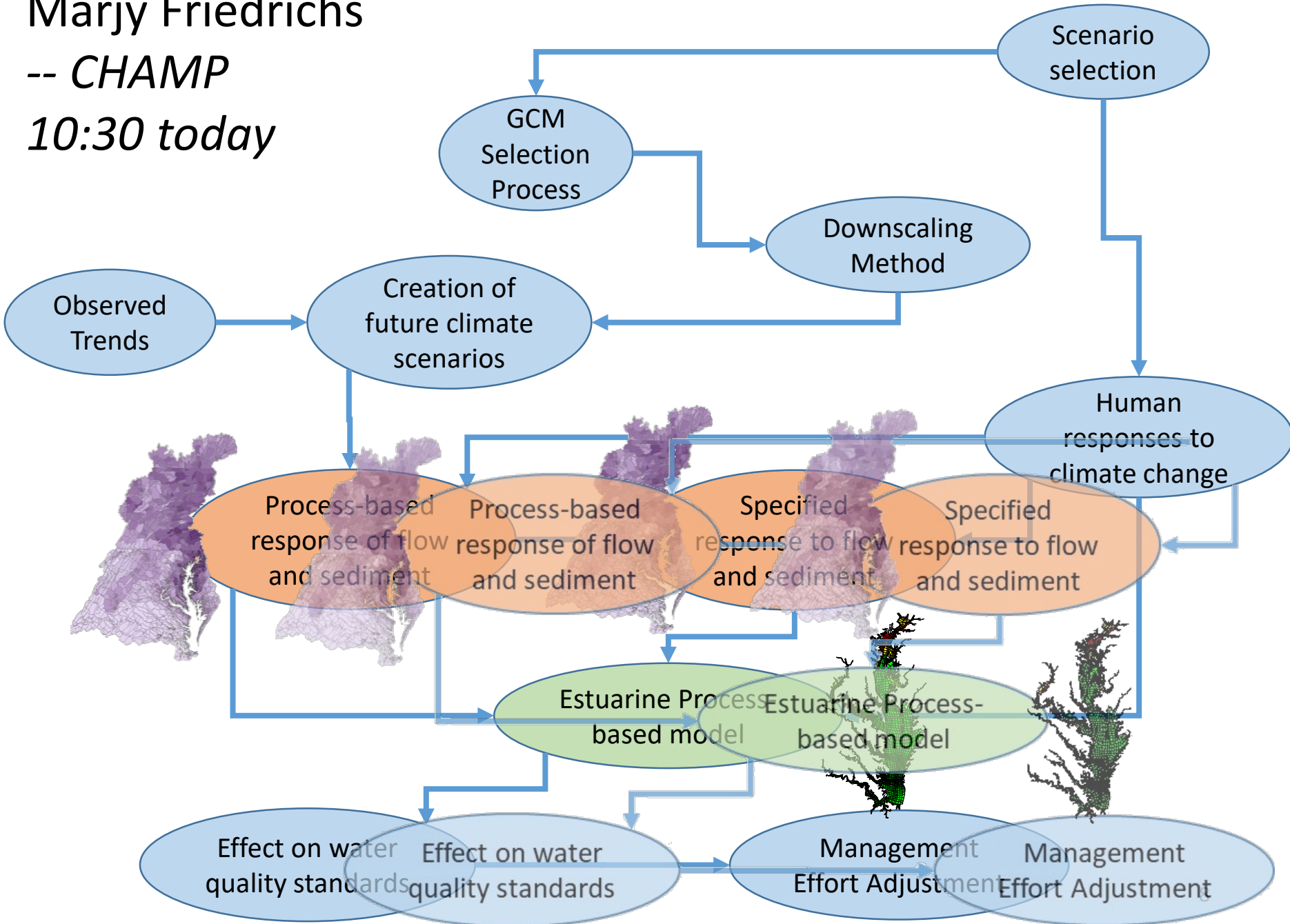
# CBP Climate Analysis System



Marjy Friedrichs

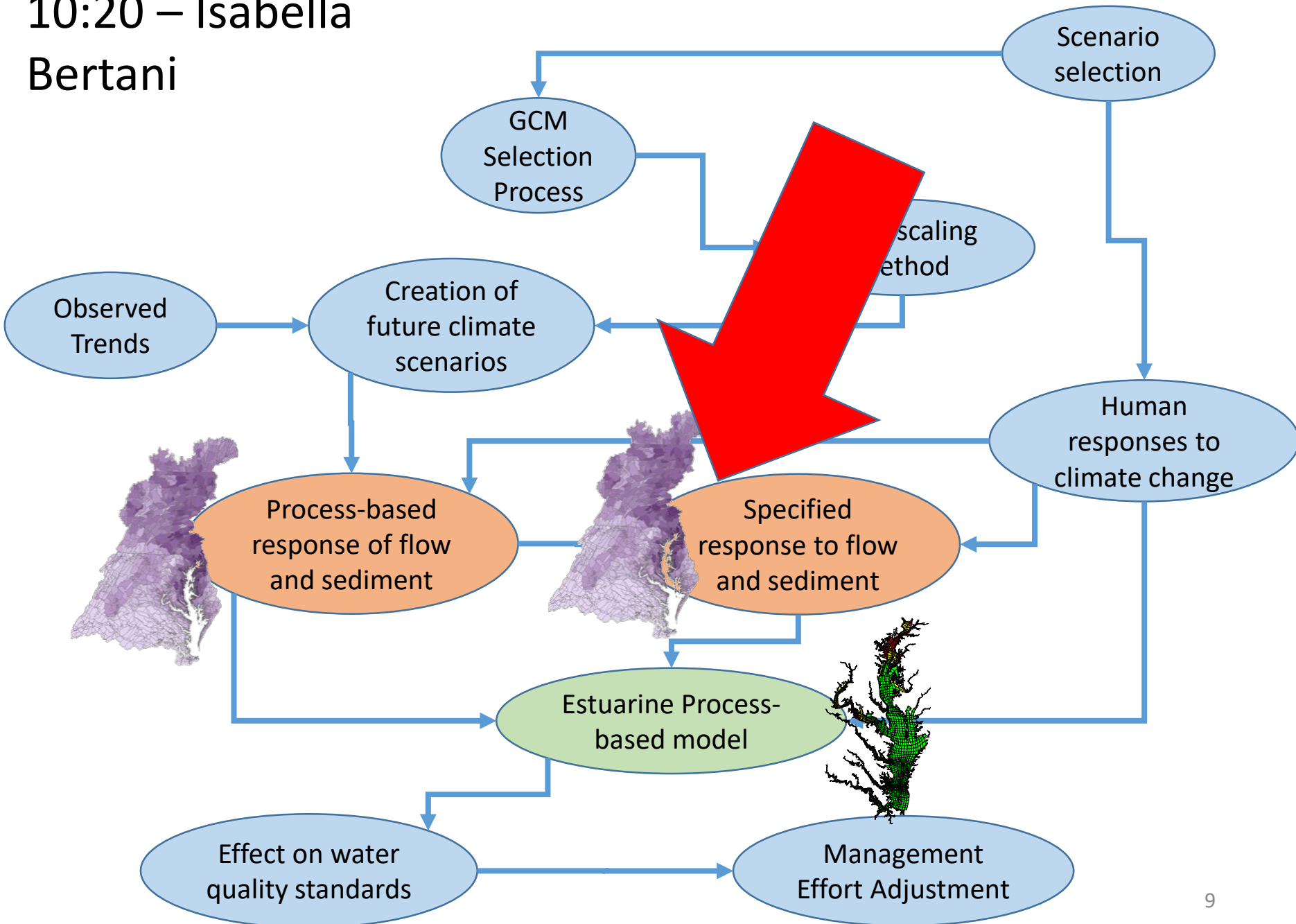
-- CHAMP

10:30 today

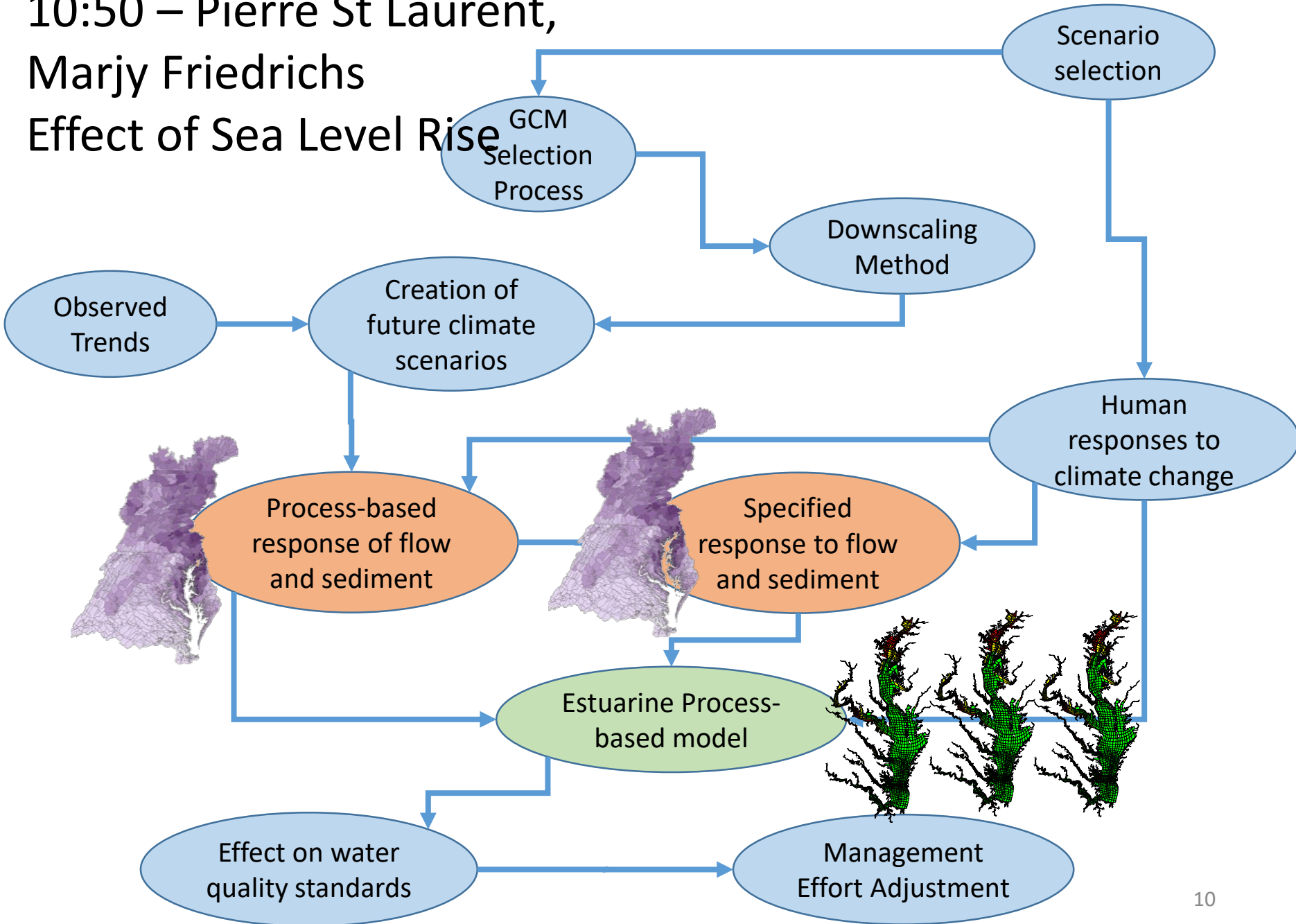




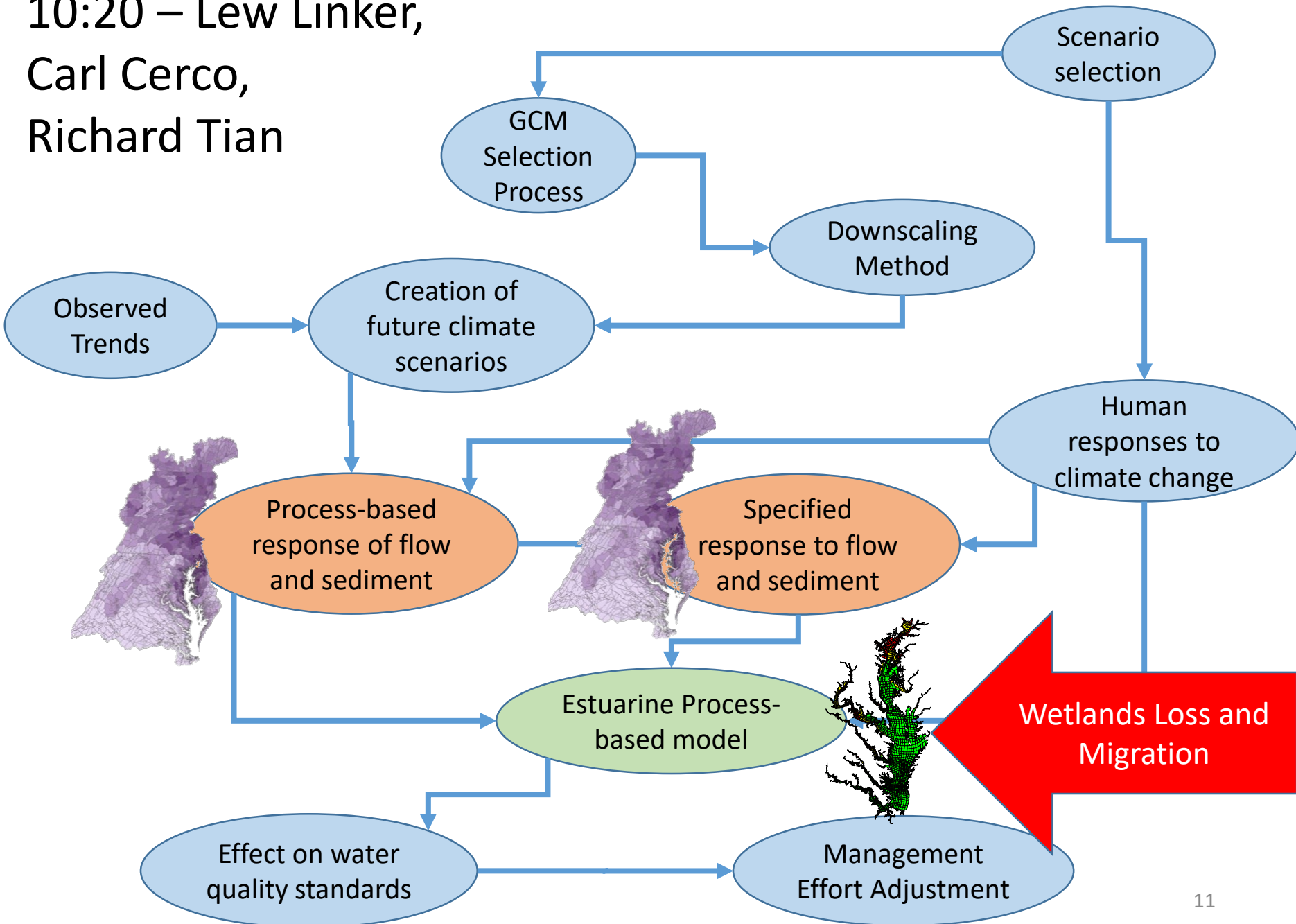
# 10:20 – Isabella Bertani



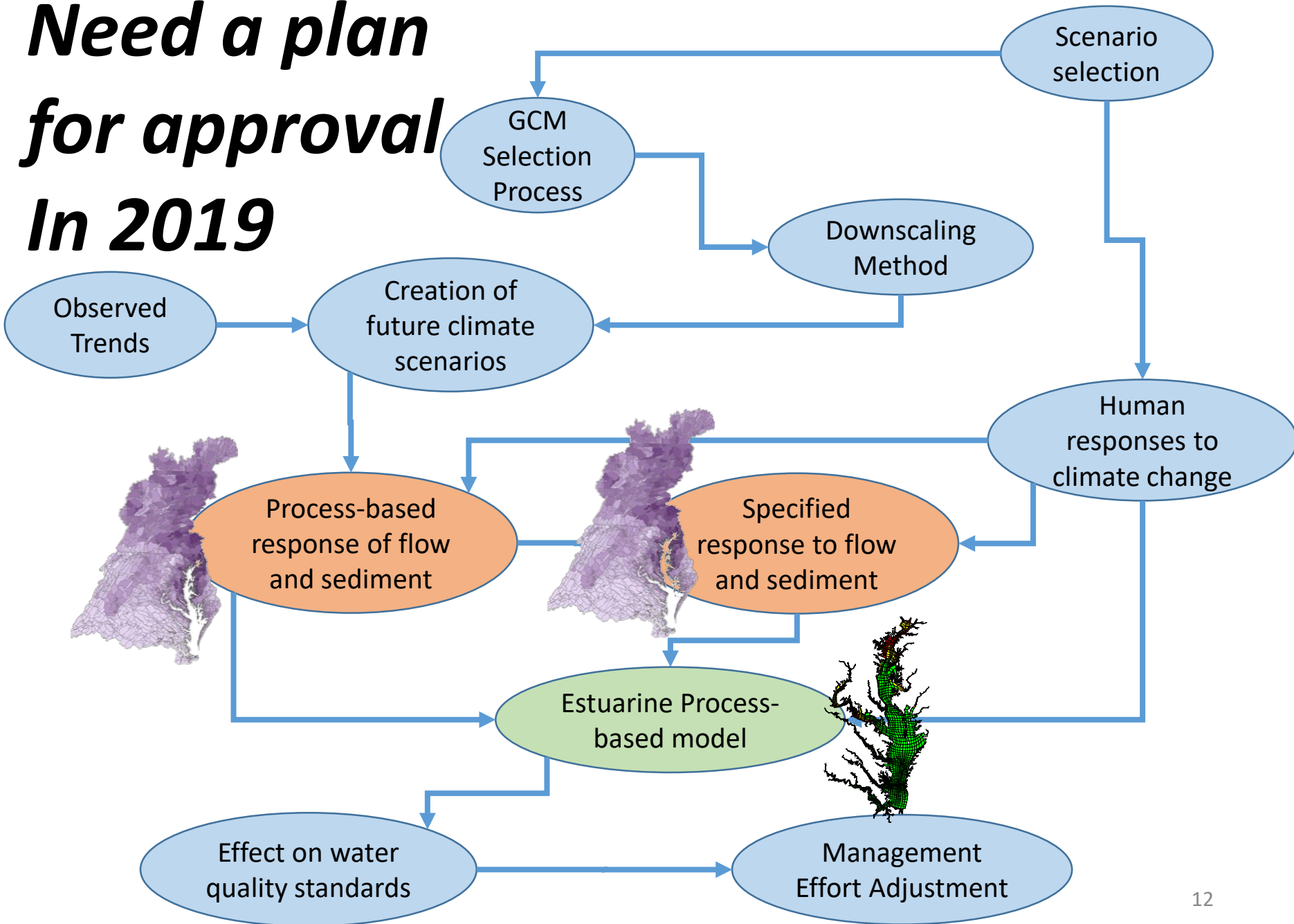
# 10:50 – Pierre St Laurent, Marjy Friedrichs Effect of Sea Level Rise



10:20 – Lew Linker,  
Carl Cerco,  
Richard Tian



# ***Need a plan for approval In 2019***



# Documentation 2019

- **Watershed model documentation**
- ✓ **Watershed model review response**
- **Estuarine model documentation**
- Estuarine model review response
- 2017 Planning Targets and Assumed Variances
- **STAC Modeling Workshop**
- **STAC Climate Change Workshop**
- Peer-reviewed publications



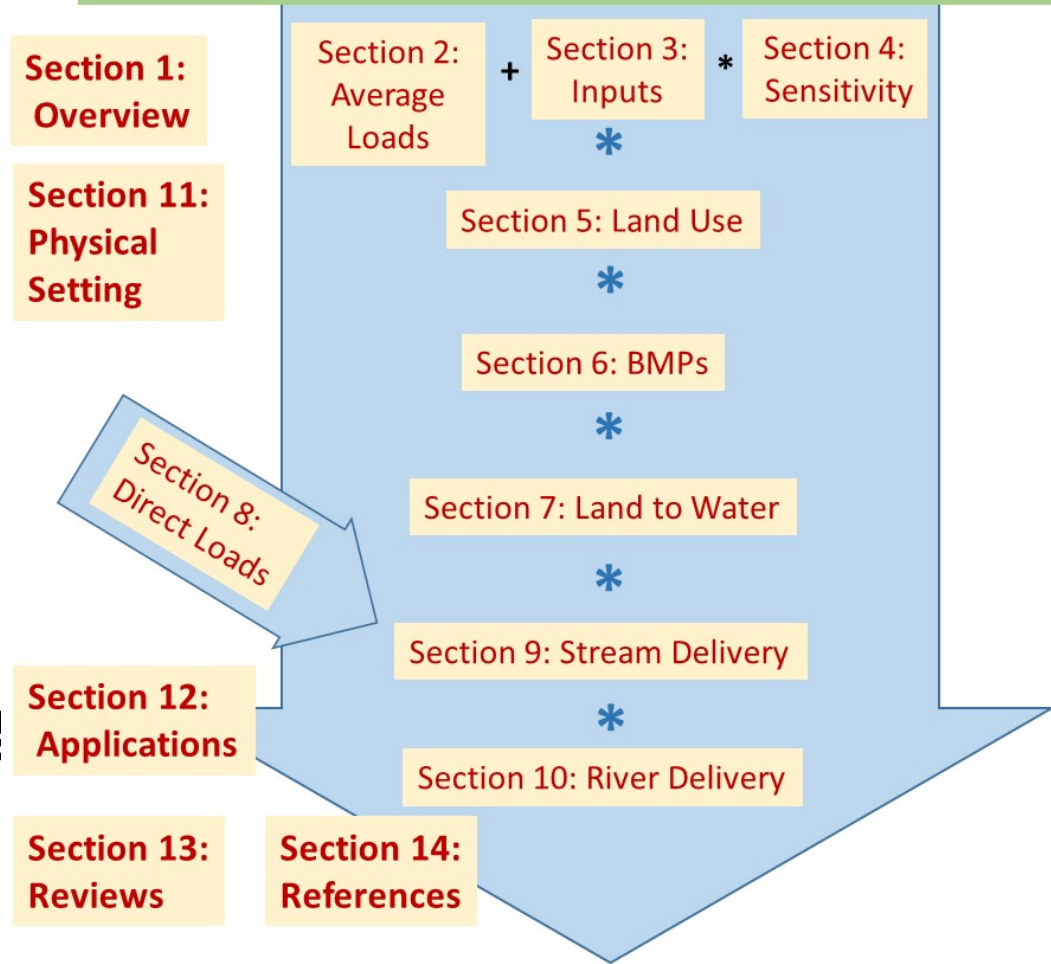


# Watershed Model Documentation

## Phase 6 Model Documentation

- Finalized
- 1 Overview
- 2 Average Loads
- 4 Sensitivity

- ✓ 6 BMPs
- ✓ 7 Land to Water
- ✓ 9 Stream to River
- ✓ 11 Physical Setting



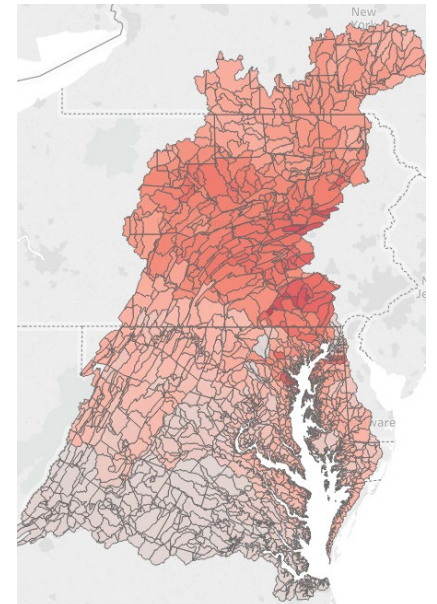
- Available at [cast.chesapeakebay.net](http://cast.chesapeakebay.net)

# WIP Support Now -> forever

- Optimization
  - Danny Kaufman – 1:30pm tomorrow)



- Open Water response to geographic nutrient loads
  - Gary Shenk, Richard Tian, John Wolf -- 1pm today



# Support VA in James Chlorophyll Re-Assessment of Standards

- Supply watershed model scenarios
- Supply estuarine boundary conditions
- Provide review in MWG

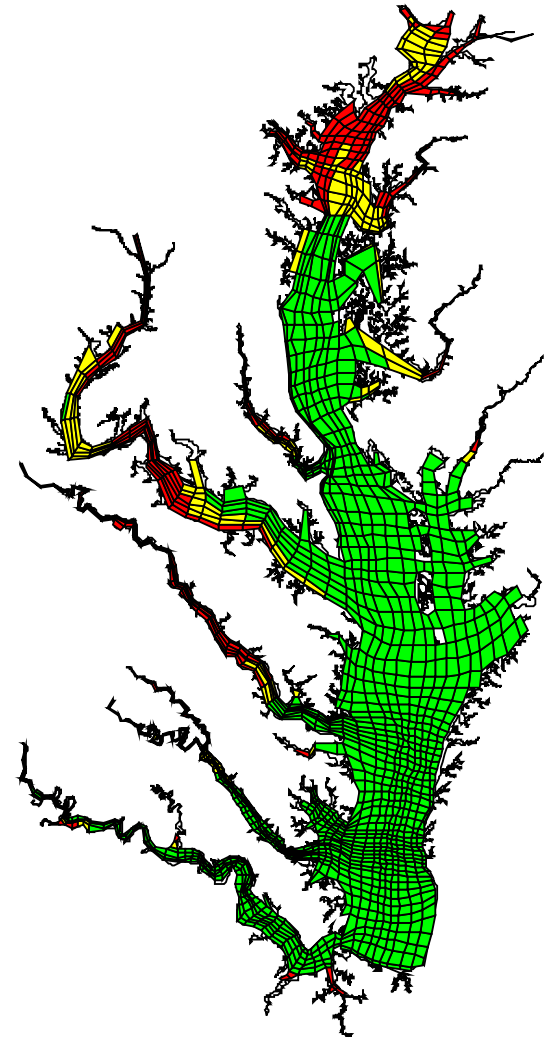
- 1:40pm today - Tish Robertson



# Technology Transfer

## March 12-14

- Carl Cerco 11:50 today



# Collaborative work – on agenda

- Mechanical Aeration
  - Deep Channel modeling - Dan Sheer – 11:00 tomorrow
  - Case Study - Lora Harris – 11:40 tomorrow
- High-frequency monitoring
  - Vertical profilers and anoxic volume
    - Aaron Bever, Marjy Friedrichs – 1:55 today
  - Continuous Nitrate and phosphate sensors –
    - Jeremy Testa and Lora Harris 1pm tomorrow
- Reactivity of eroded wetlands
  - Jeff Cornwell – 10:10 tomorrow



# Other collaborative work

- PRESTO – Prospects for Regional Sustainability Tomorrow
  - Integrating economic, transportation, emissions, human health, and CBP TMDL models
- Discussions with ICPRB and DEQ about use of Phase 6 for water supply under climate change
- Stakeholder group of Lawrence Berkeley National Lab study on climate change effects
  - New IDF curves
  - ‘Consumer Reports’ of GCMs

# 10:20 – Isabella Bertani

