How Much of This Change is Climate?

John King

Professor of Oceanography
Graduate School of Oceanography
University of Rhode Island
Greenhouse Gas Emission Scenarios

Annual anthropogenic CO₂ emissions

WGIII scenario categories:
- >1000
- 720–1000
- 580–720
- 530–580
- 480–530
- 430–480

Historical emissions

RCP scenarios:
- RCP8.5
- RCP6.0
- RCP4.5
- RCP2.6

Full range of the WGIII AR5 scenario database in 2100

Year
Model Predictions of Climate Parameters Forced by Greenhouse Gas Emission Scenarios

Relative Sea Level Changes: Newport

Air Temperature: Rhode Island

Pettaquamscutt River Bchle MAR time series and wavelet transform

Modified from Hubeny, et al, 2006
Timeline of Events at Greenwich Bay

- **Climate**: Great Flood 1759-1761, Major Nor’Easter 1807-1815, Hurricanes 1938, 1954, 1991
- **Population in Thousands**

- **Sediment Quality**
  - Cu, Pb, Cr

- **Eelgrass**
  - Abundant

- **Water Quality**
  - 1st sewer lines in East Greenwich 1896
  - Apponquod Cove closed to shellfishing 1938
  - Greenwich Bay closed to shellfishing 1993-1994

- **Timeline of Transportation**
  - Stonington Railroad (RR) built 1853-1857
  - Union RR Providence to Warwick 1865
  - Warwick RR extended to Buttonwoods 1881
  - Electric trolley Providence to Warwick 1910
  - Massive fish kill in GB 2003
Greenwich Cove: Temporal Trends in Eutrophication
Greenwich Cove: Plant and Animal Macrofossils
Funding Opportunities

1. NBEP small grants program (maximum grant of $35K)
   - A total of $140K is being competed now with awards to be made in Spring 2018.
   - The next competition will be in Fall 2018.

2. Southeast New England Program (SNEP) Watershed Grants Program
   - Program priorities being determined now.
   - The first RFP will be issued in early 2018.
   - The grants program will run for at least two years.
   - Total awards will be between $1-2M/year.
   - The program will be run through Restore America's Estuaries.
   - The Director of the New England Office is Tom Ardito.