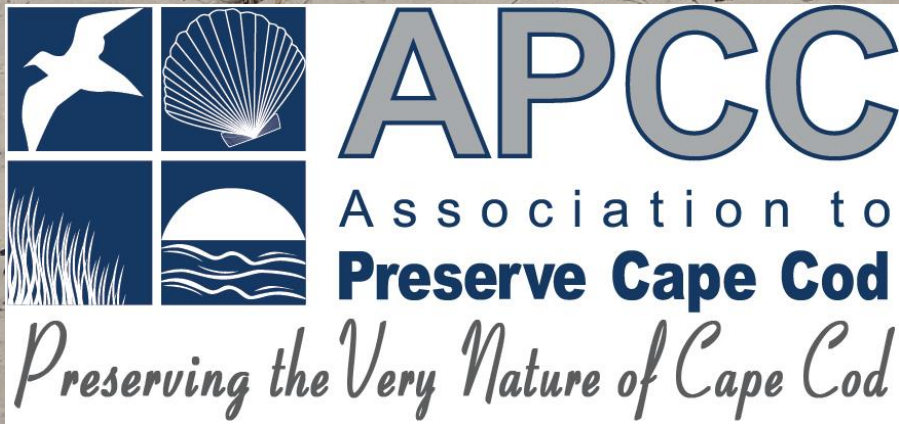


# State of the Cape

## Environmental Issues Facing Us



Kristin Andres, Director of Education & Outreach



# APCC's grassroots beginnings...

**1968** – Army Corps of Engineers plans to dredge Nauset Marsh to create a harbor



APCC Founder  
Dr. Herbert Whitlock

- Fact-based Advocacy
- Education & Outreach
- Scientific Study & Action
- Voice for the environment, the Cape's health and quality of life

[www.APCC.org](http://www.APCC.org)



A wide-angle photograph of a coastal scene. In the foreground, a sandy beach is partially submerged by shallow, rippling water. The ocean extends to the horizon under a heavy, overcast sky with dark, layered clouds. On the right side, a small peninsula or headland is visible, featuring several houses and a church with a prominent dome. The overall mood is somber and atmospheric.

# Climate Change Water Quality Habitat Loss



# Habitat Loss







# River Herring

- Numerous streams leading from ocean to freshwater ponds
- Integral to Native American life
- 1900- A million fish in Coonamesett River alone
- 2005 – Moratorium on harvesting



# APCC Herring Monitoring Program

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Laurie Keeran



**Over 36% of Salt Marshes gone**





# APCC Restoration Coordination Center



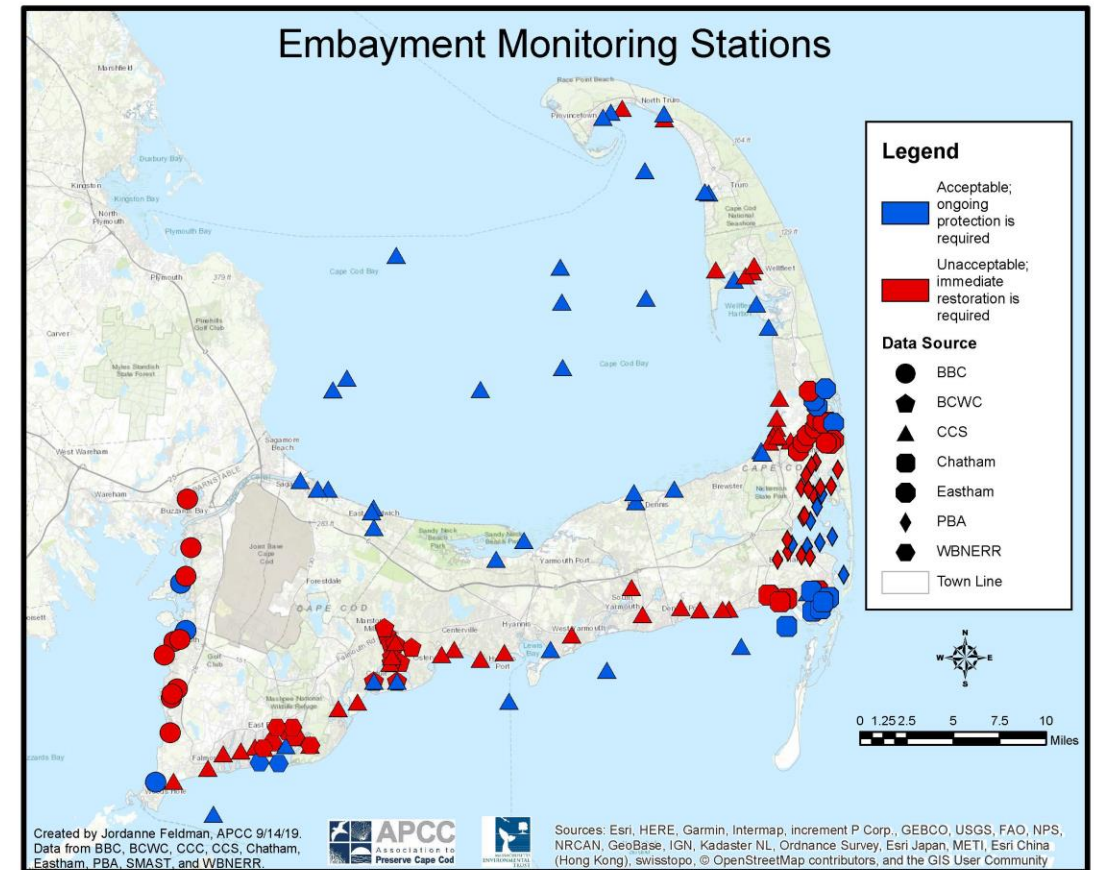
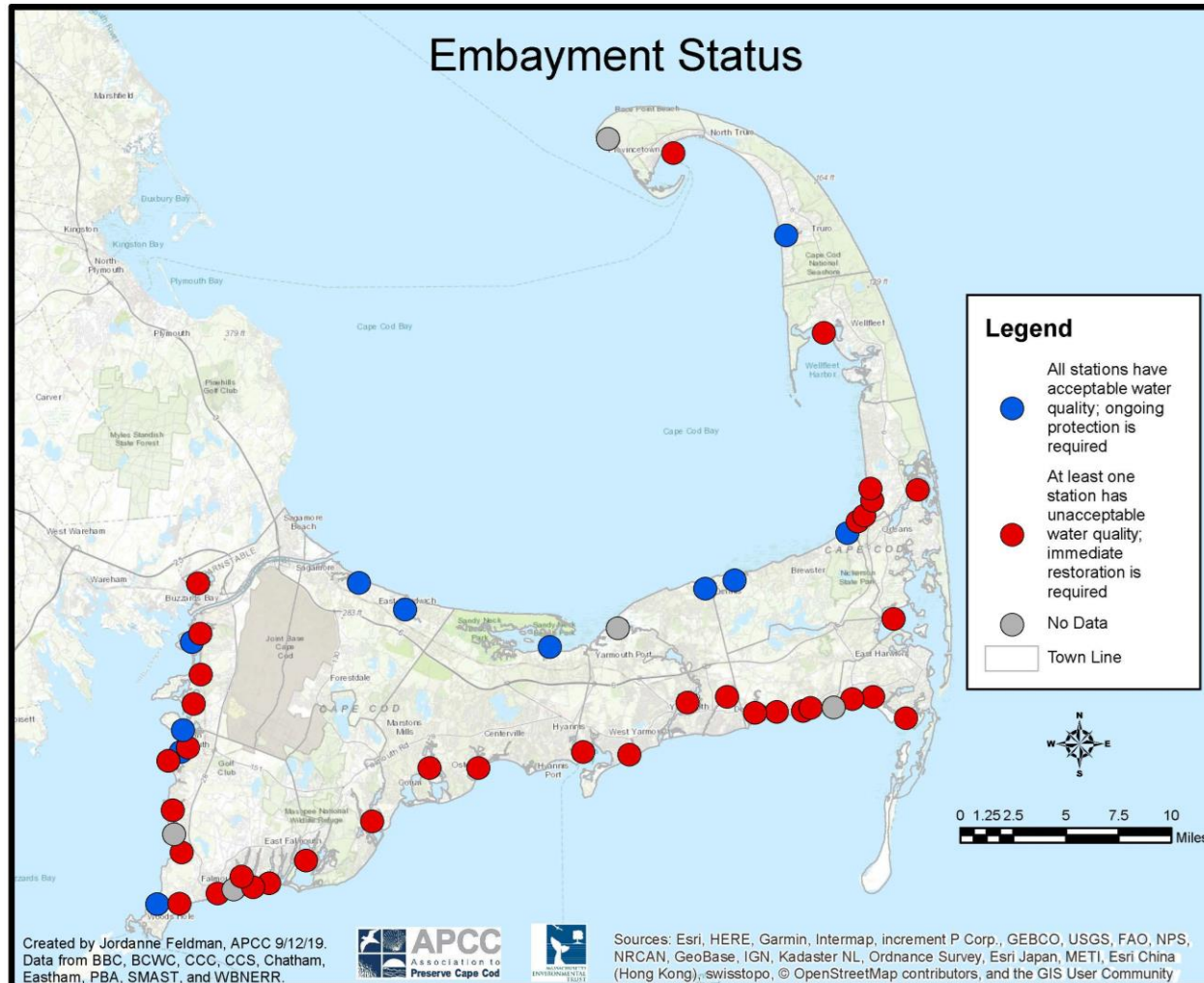


# Water Quality



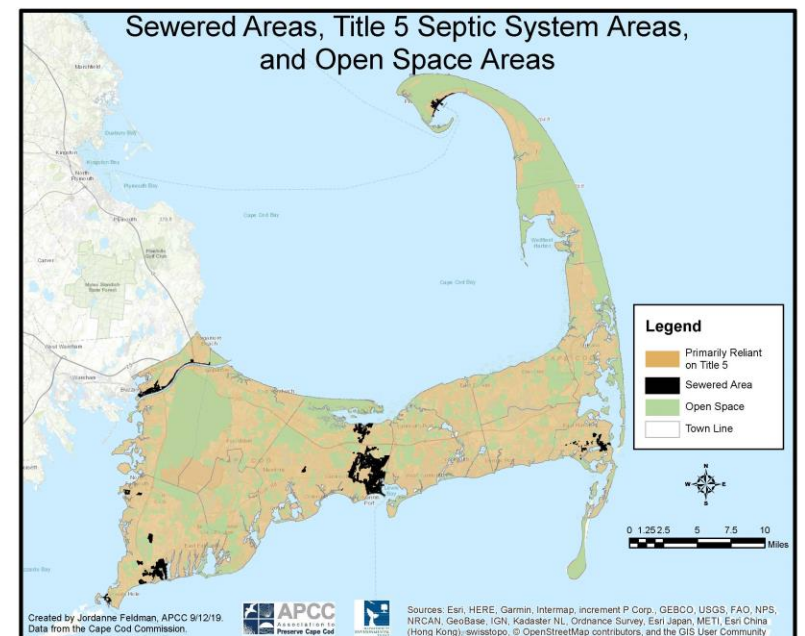
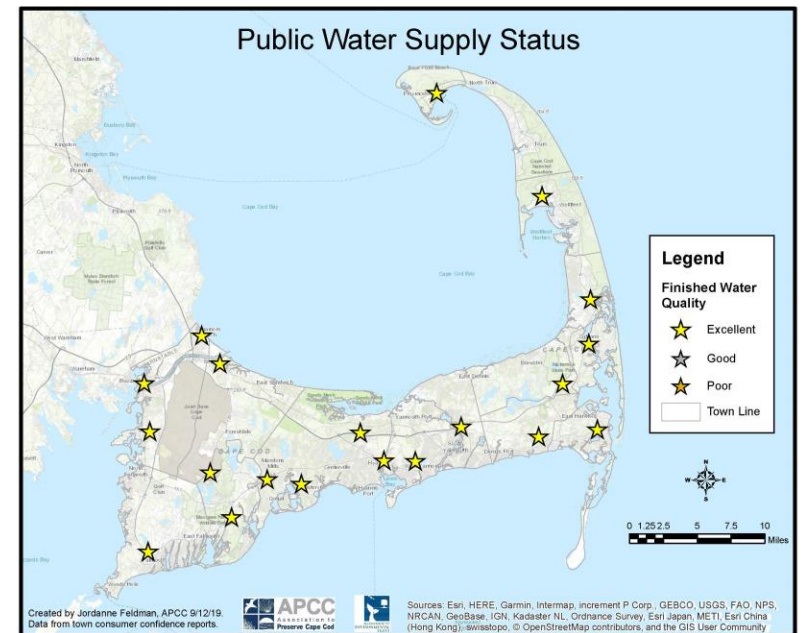
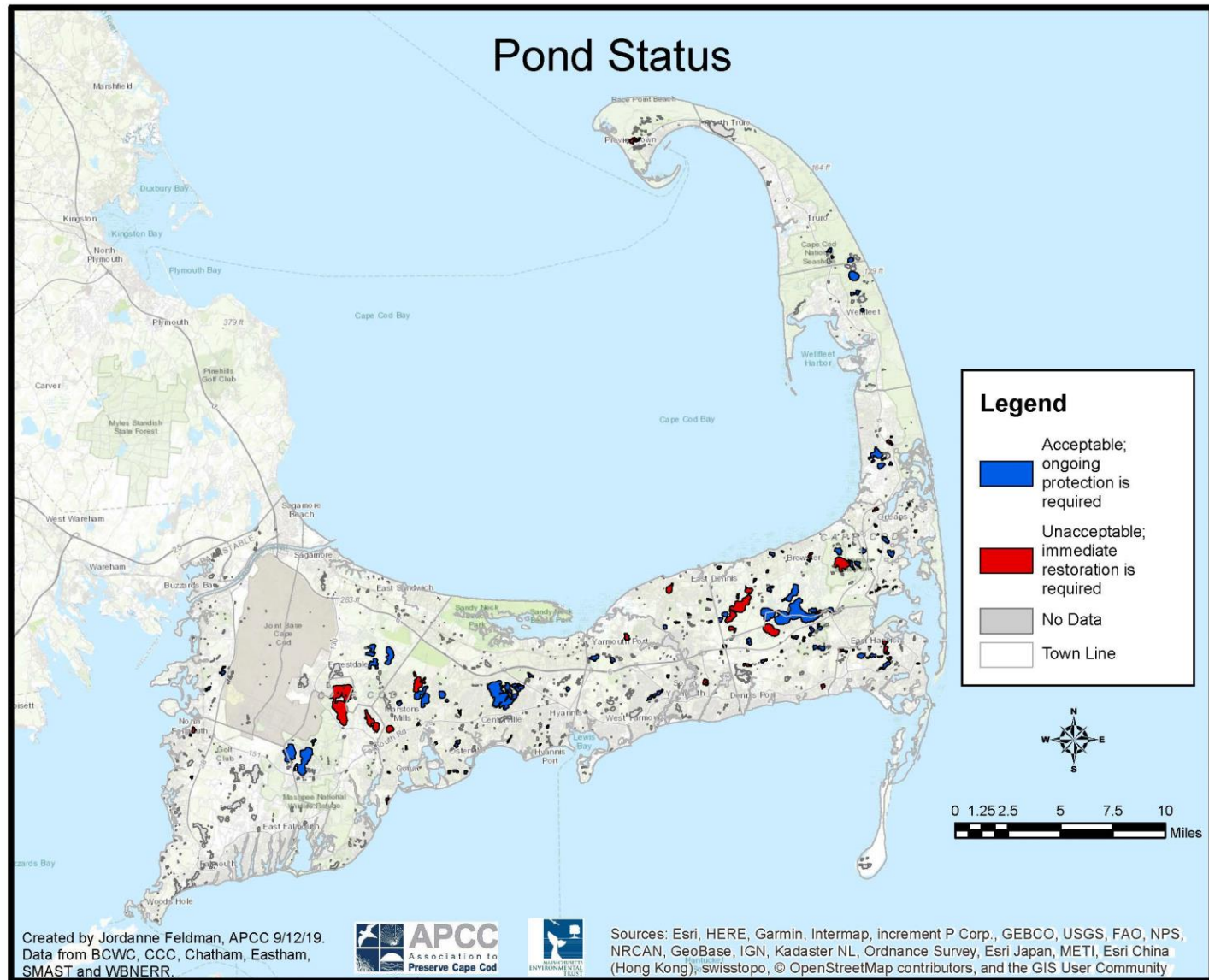


# State of the Waters: Cape Cod 2019



[www.CapeCodWaters.org](http://www.CapeCodWaters.org)





[www.CapeCodWaters.org](http://www.CapeCodWaters.org)



# Algal Blooms





# Cyanobacteria Monitoring Program

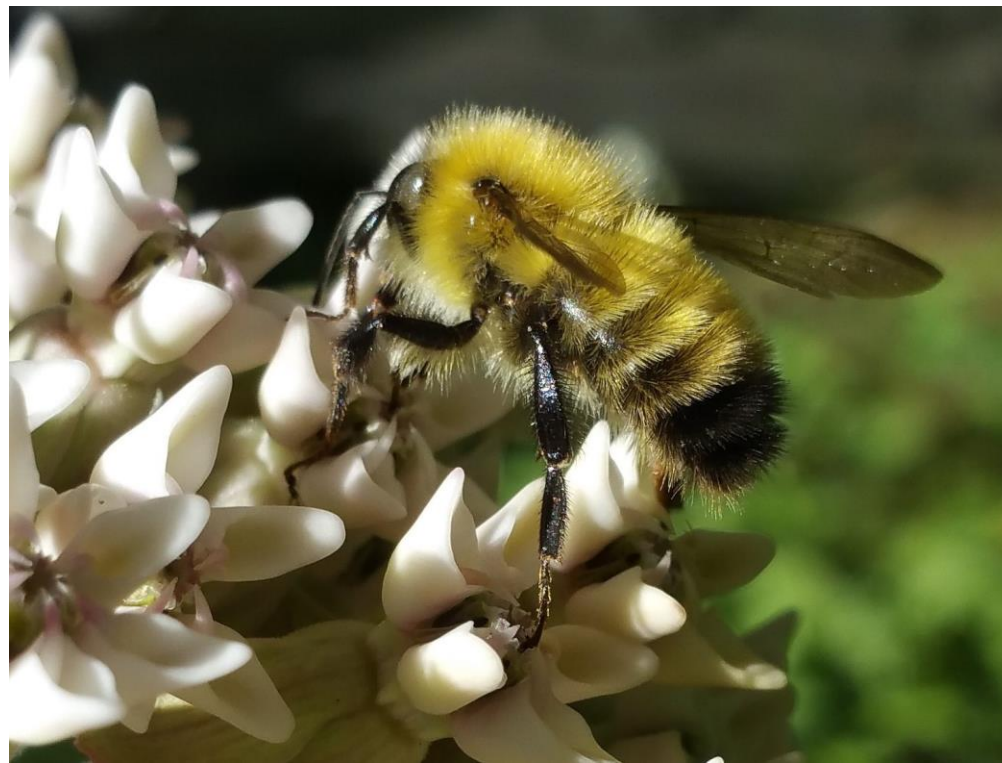
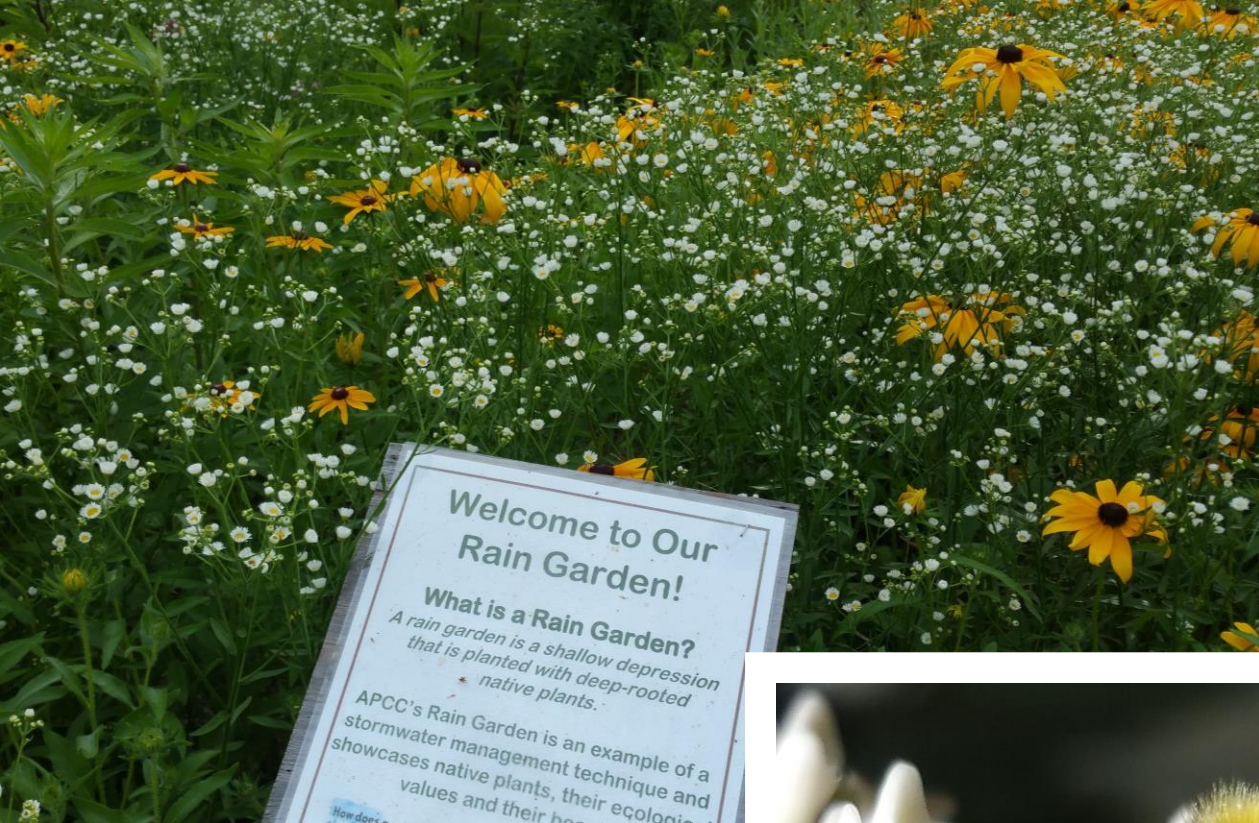




A photograph of a garden filled with various native plants. In the foreground, there are clusters of small white flowers and several purple coneflowers with orange-brown centers. The background is filled with more green foliage and some purple flowers. A green rectangular box with white text is overlaid in the center.

# Native Plant Initiative







# Climate Change



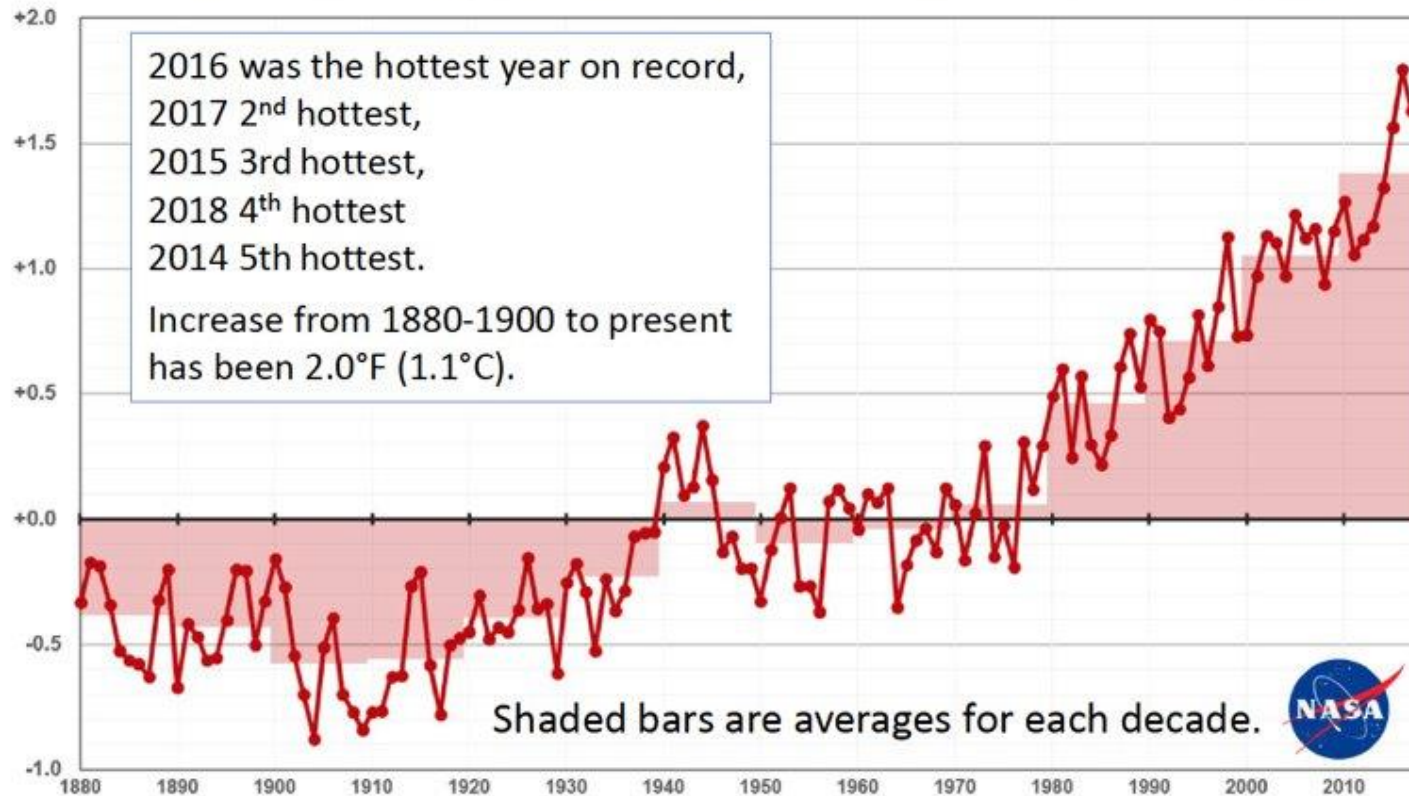


# Climate Change Science

## Fundamentals of human-caused climate change

### “Forcing” by human-added GHGs warmed the Earth

Annual Global Temperature: Difference From 1951-80 Average, in °F



Earth has been warming more or less steadily for the last 100+ years, as the increasing forcing from the human-caused GHGs became more important than natural variability.

There is overwhelming scientific consensus that:

1) Temperatures have been increasing worldwide



# Climate Change Science

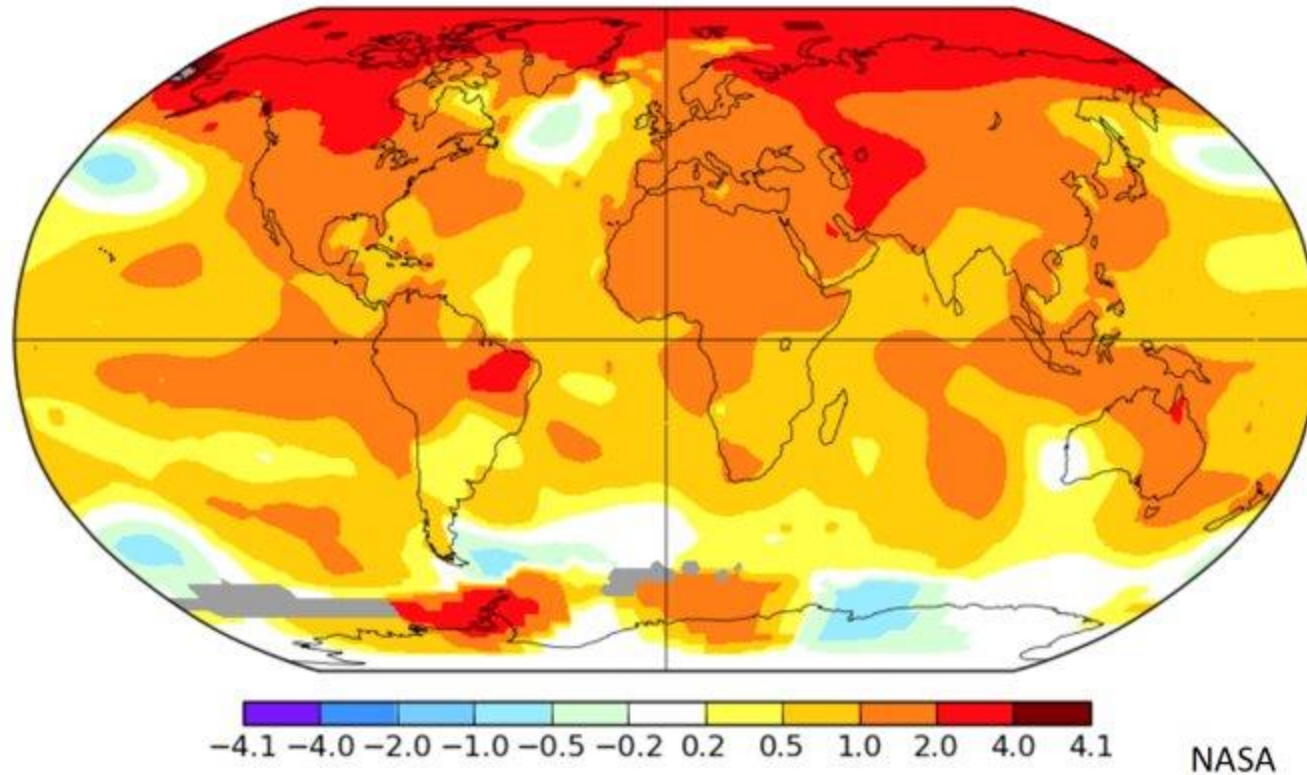
Fundamentals of human-caused climate change

**The T change has been non-uniform geographically**

Annual J-D 2016

L-OTI(°C) Anomaly vs 1951-1980

0.98



**Biggest warming is in Arctic and West Antarctic Ice Sheet.  
Uneven T change → changes in atmospheric & ocean circulation.**

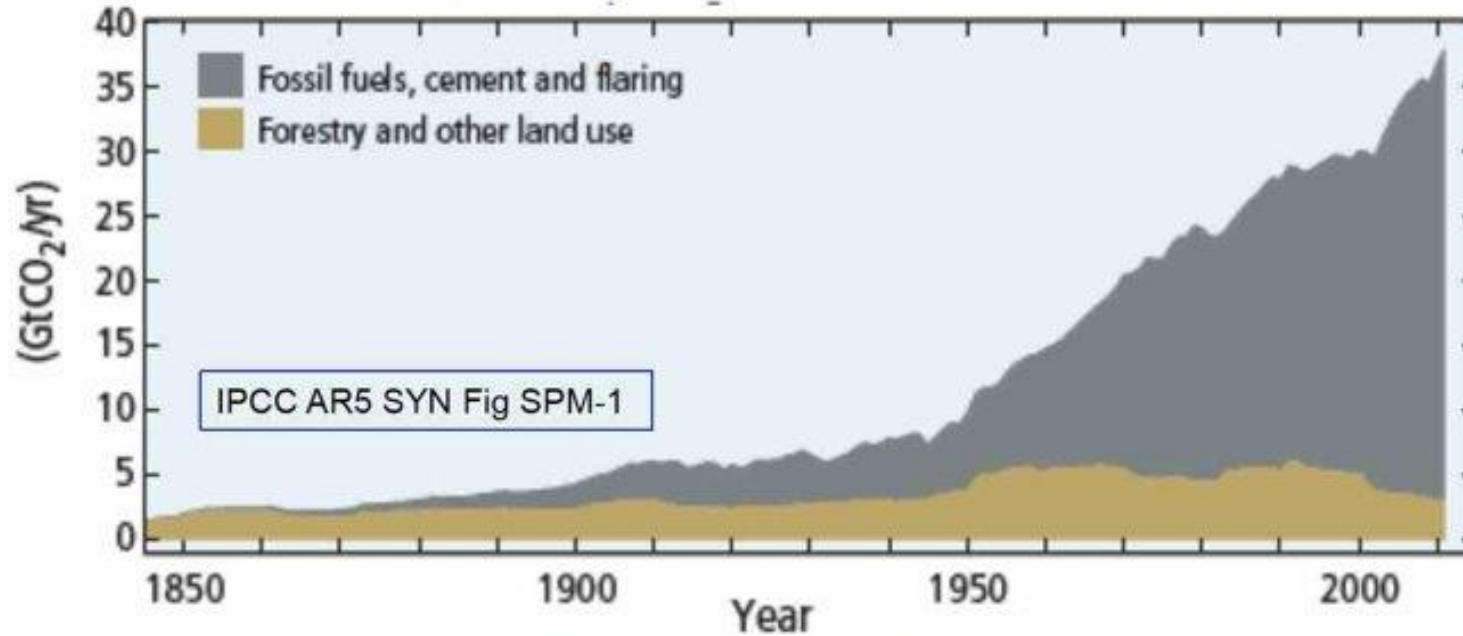
Source: Dr. John Holdren, July 2019. <https://www.apcc.org/climatechange/index.html>



## Fundamentals of human-caused climate change

### Civilization's CO<sub>2</sub> emissions grew along with fossil-fuel use

#### Global CO<sub>2</sub> emissions from human activities



Land-use change emits CO<sub>2</sub> when previously living vegetation is burned and when cultivation speeds up decomposition of soil organic matter.

And there is overwhelming scientific consensus that:

2) Rising temperatures are due to a worldwide increase in heat-trapping greenhouse gases (carbon dioxide, methane, others) in the atmosphere,

and

3) The increase in greenhouse gases is due to human activities (burning fossil fuels, clearing forests, agriculture and land uses)





- **Sea Level Rise**
- **Storm Surge**
- **Deluge – Increased intensity and frequency of storms**
- **Flooding**
- **Erosion**
- **Elevated Groundwater**
- **Drought & Heat Wave**
- **Loss of Species**
- **Loss of Natural Resources**





# APCC is working to address climate change.



## Two studies:

- USGS Sea Level Rise Study
- Salt Marsh Migration Report

We're going solar!





The background of the slide is a blurred photograph of a beach. In the foreground, there is a wide expanse of light-colored sand. To the right, the ocean waves are breaking, creating white foam. In the distance, a dark, forested hill or mountain is visible under a pale, overcast sky.

## **Current Bills on APCC's radar:**

**S.497/H.818, An Act to Protect Pollinator Habitat (Joint Committee on Environment, Natural Resources and Agriculture)**

**H.3983, An Act to Create a 2050 Roadmap to a Clean and Thriving Commonwealth (House Ways and Means Committee)**

**S.10, An Act Providing for Climate Change Adaptation Infrastructure Investment in the Commonwealth (Joint Committee on Revenue)**

**H.3987 (changed to H. 3997), An Act Relative to Greenworks (Senate Bonding Committee)**





Thank you