

Nature Based Solutions to Address Erosion in a Changing Climate

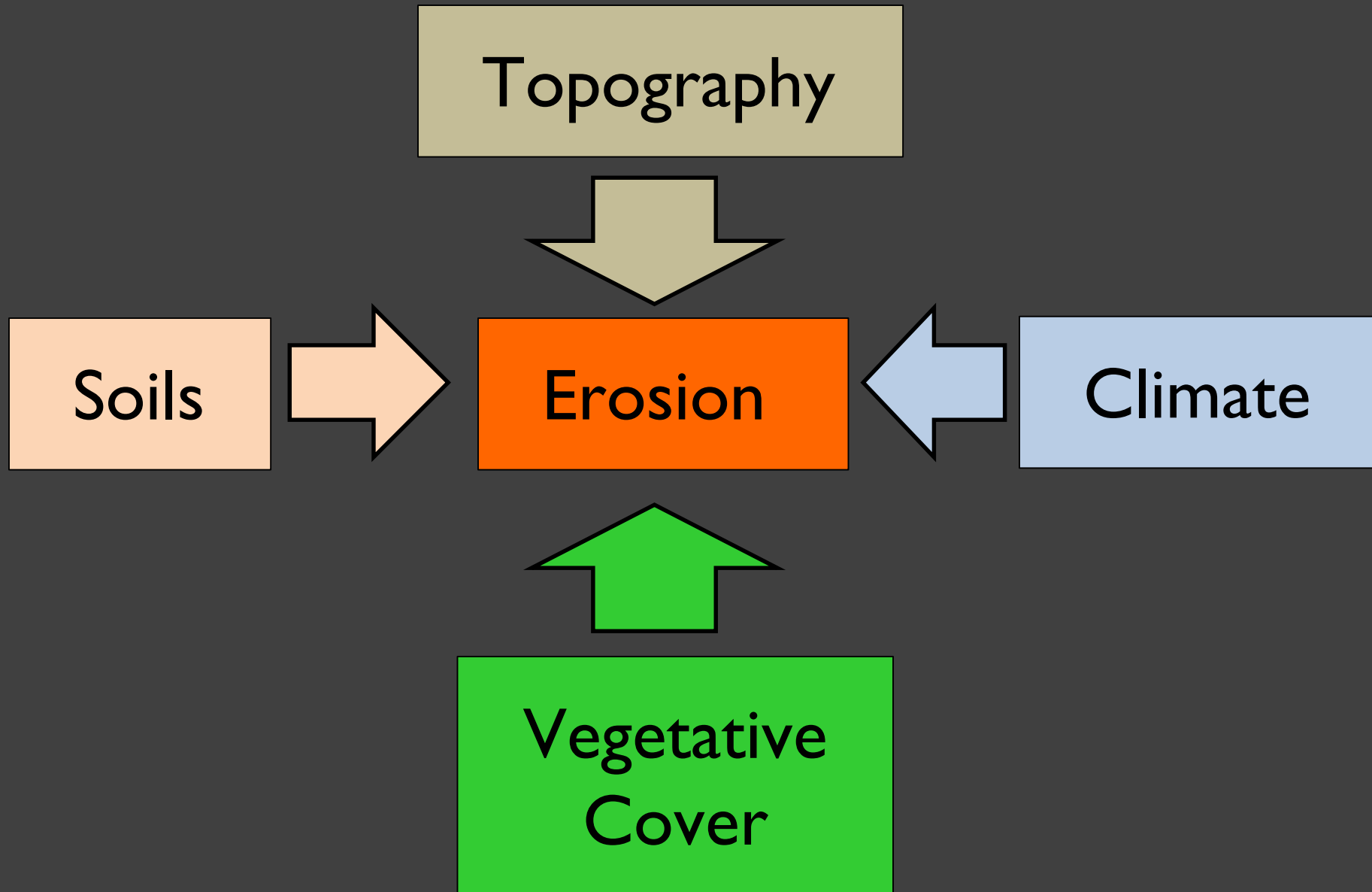
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April 16, 2020



Erosion is an important natural process



Factors that influence erosion





Connecticut River

Thames River

Long Island Sound

5 km

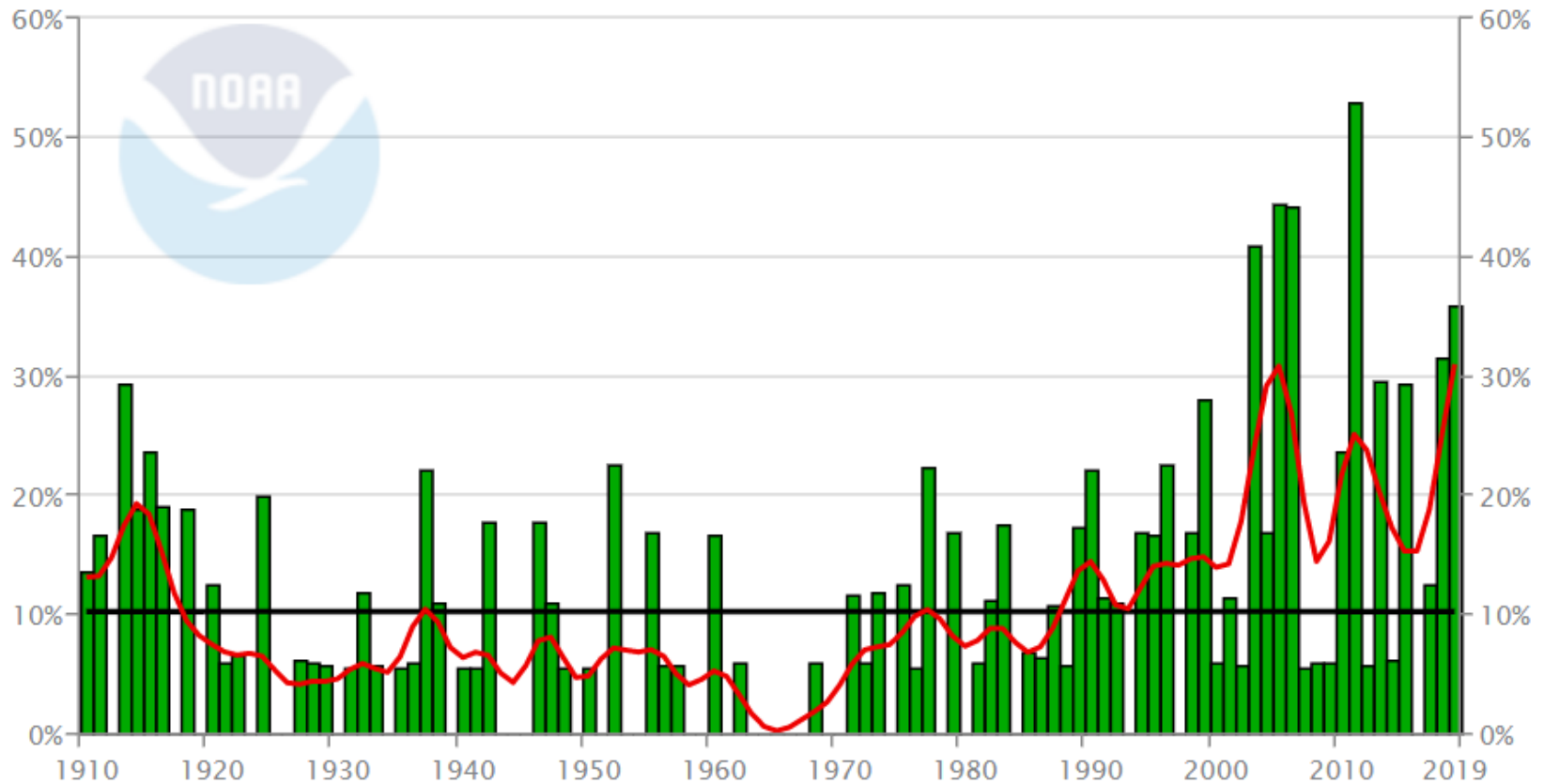
Following Hurricane Irene 2011

Image Credit: Robert Simmon

Extreme precipitation is more frequent.

Northeast Extremes in 1-Day Precipitation (Step 4*) Annual (January-December) 1910-2019

— 9-Point Binomial Filter — Mean ■ Actual Percent



<https://www.ncdc.noaa.gov/extremes/cei/graph>

On & off property conditions contribute to erosion



Culverts



River scouring



Steep slopes



Bartholomew's Cobble

Naumkeag





Bartholomew's
Cobble.

Why are we
having more
gully formation
and erosion?

What can 1.5+ inches of rain do?



How quickly does it fall?
Soil conditions, slope, vegetation



Larger rocks moved by
water during storms



Erosion increasing:

- channelized flow – increases velocity
- sedimentation into wetlands and uplands
- bank failures and soil loss

Naumkeag



Gully went
from shallow
swale
developing
over decades,
to deep ravine
following
several severe
storms





What are we doing to slow the flow?

- Source control
- Infiltration
- Partnerships
- Observe changes





Source control

Bioretention basin



Slowing Flow & Infiltration



Slowing Flow & Infiltration



Slow the Flow &
Infiltration



Partnerships



Best Management Practices



Observe for
Changes

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Thank you