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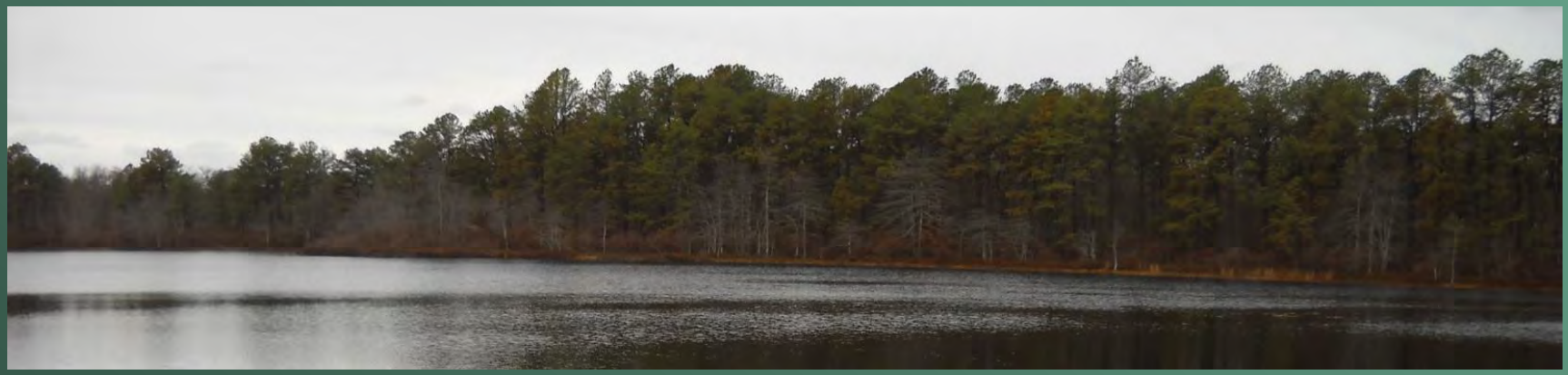
The Nature Conservancy
Protecting nature. Preserving life.®

Suffolk County Parks

Monitoring in Long Island Coastal Plain Ecosystems



Jason Siemion, Greg Lawrence

U.S. Department of the Interior
U.S. Geological Survey

Rationale for the Project

- Nature Conservancy concerned about impacts of atmospheric deposition and land use on coastal plain ecosystems
- Previous work by Nature Conservancy shows elevated nutrients in some coastal plain ponds
- Coastal plain pond ecosystem home to endemic species

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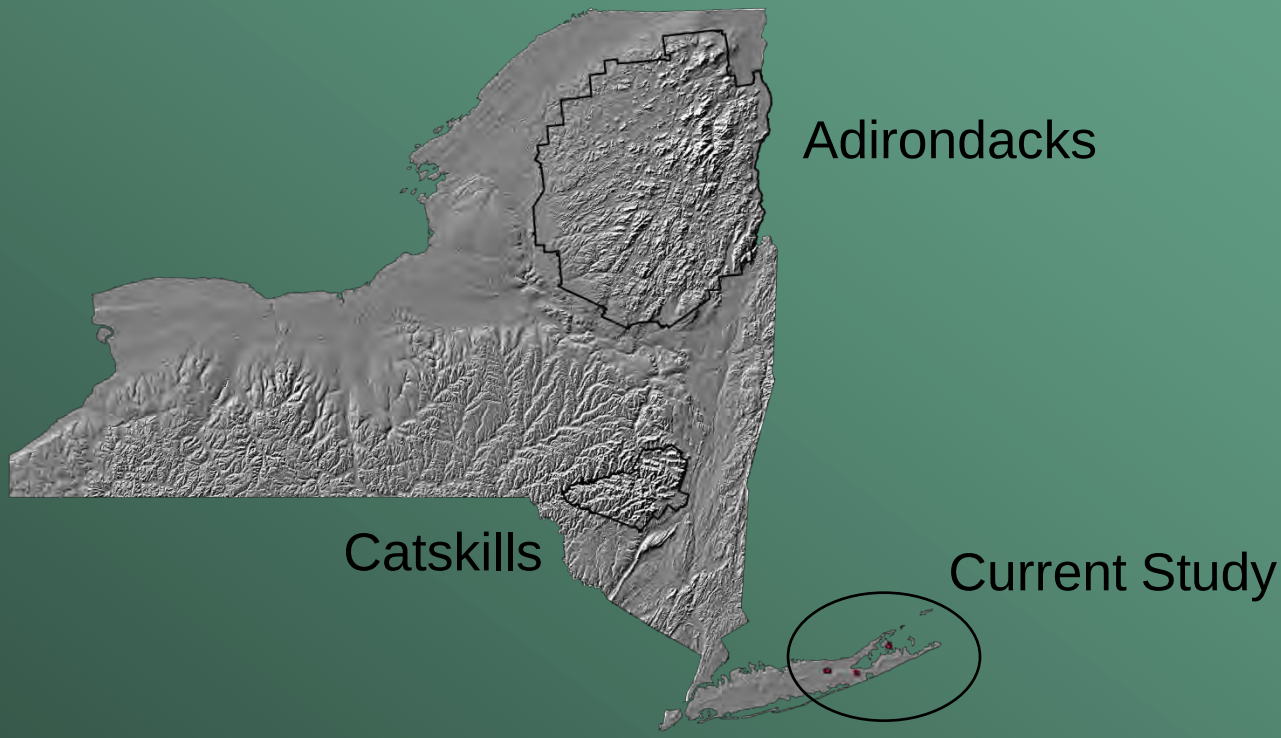
Study Area



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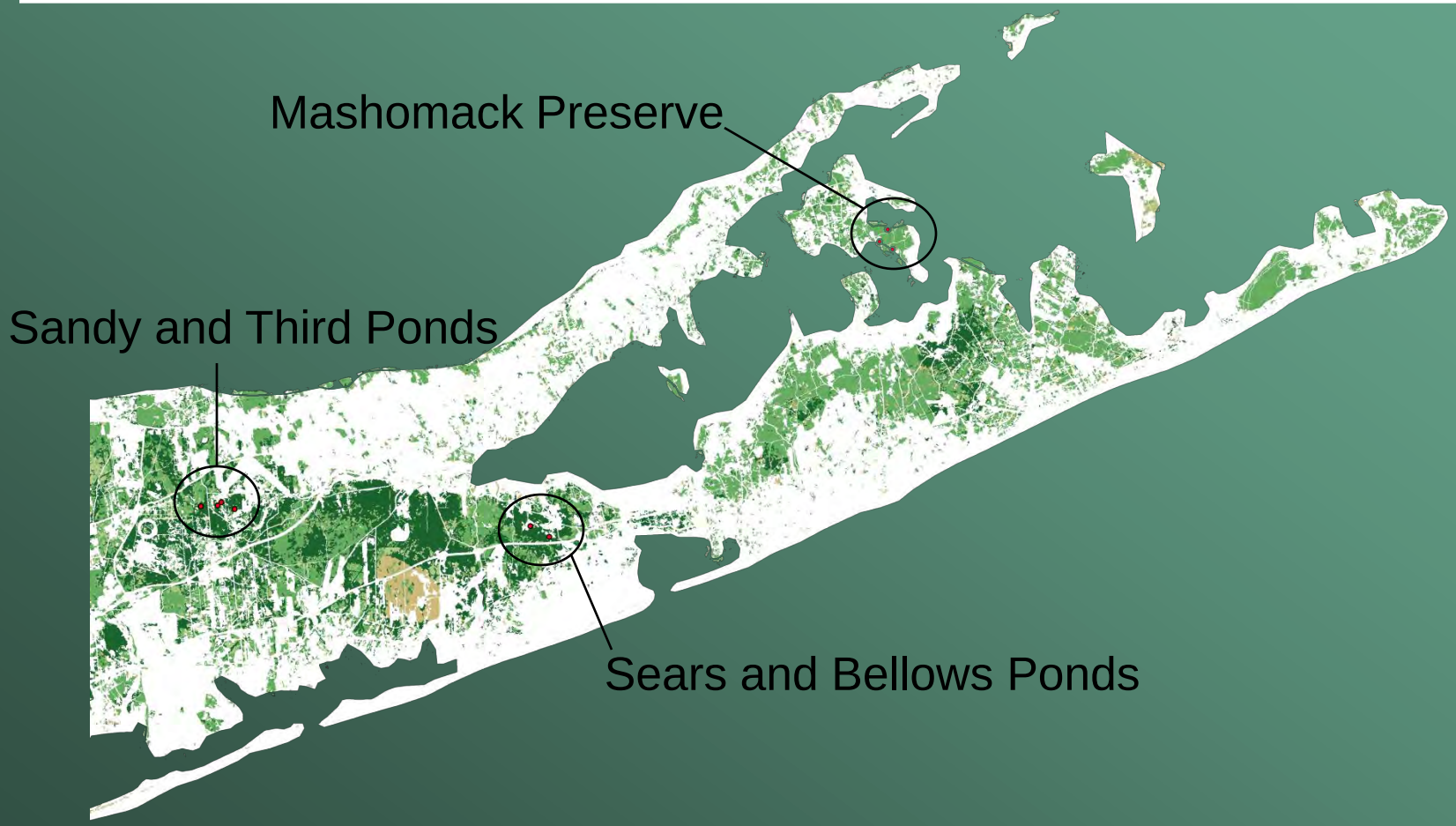
Study Area: Eastern Long Island



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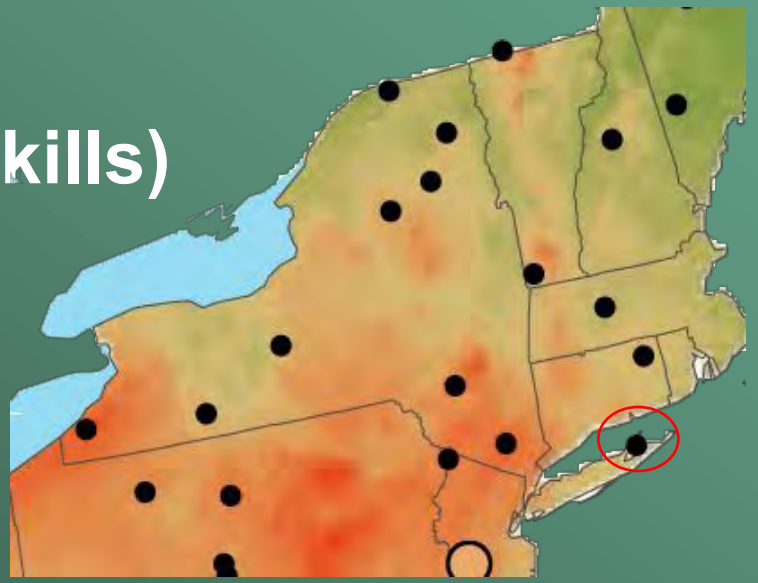
Deposition Put in Perspective

- Nitrate deposition (kg/ha) during 2011:
- 9.5 Southhold (Long Island)
- 14.6 Biscuit Brook (Catskills)
- 11.8 Moss Lake (Adks)



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Overview of Sample Collection

- Pond samples – 3 nutrient rich, 3 nutrient poor
- Long term groundwater (existing monitoring data)
- Soil water samples
- One time soil sampling
- Limitations: No replication at sites and only 9 sites

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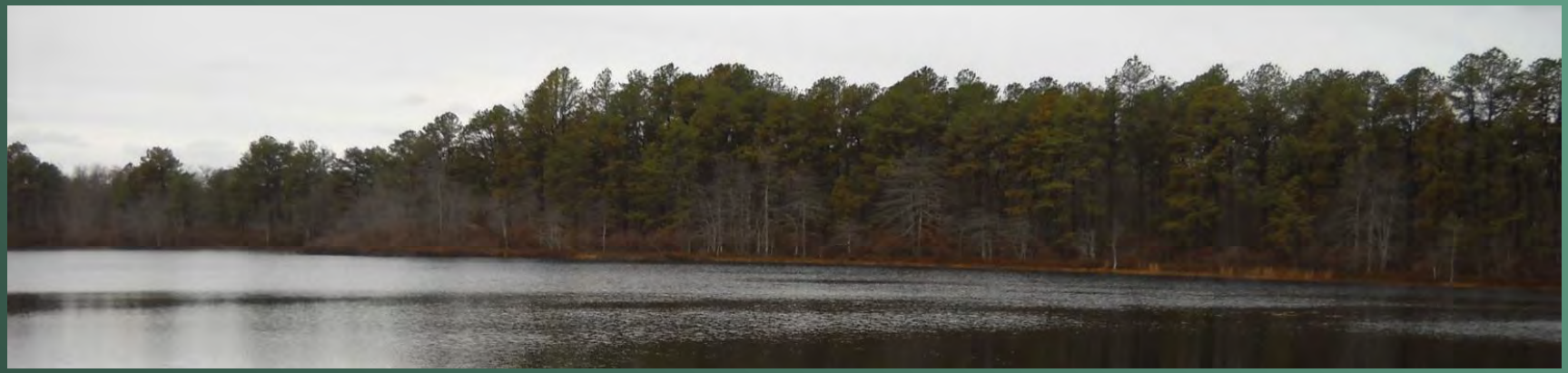
Pond Samples

- Ponds are fed by shallow groundwater
- Monthly samples from 6 ponds
- Results will be related to soil, soil water and groundwater to evaluate controlling factors



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Soil Water Collection

- Elevated nitrate ~ Deposition Effect?
- Zero tension lysimeters collected monthly
- Below primary rooting zone
- Collectors installed uphill side of pit in undisturbed soil

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Soil Collection

- Single pit at each site
- Full description and sampling by horizon
- Calcium availability, aluminum mobility

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General Soils Descriptions

- Mapped as Entisols and Inceptisols
- Resistant to weathering
- Moderately to extremely acidic
- Well to excessively drained sands
- Formed on outwash plains and moraines

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Mashomack Preserve

- Nature Conservancy
- Shelter Island
- Oak Forest
- Blueberry, Huckleberry

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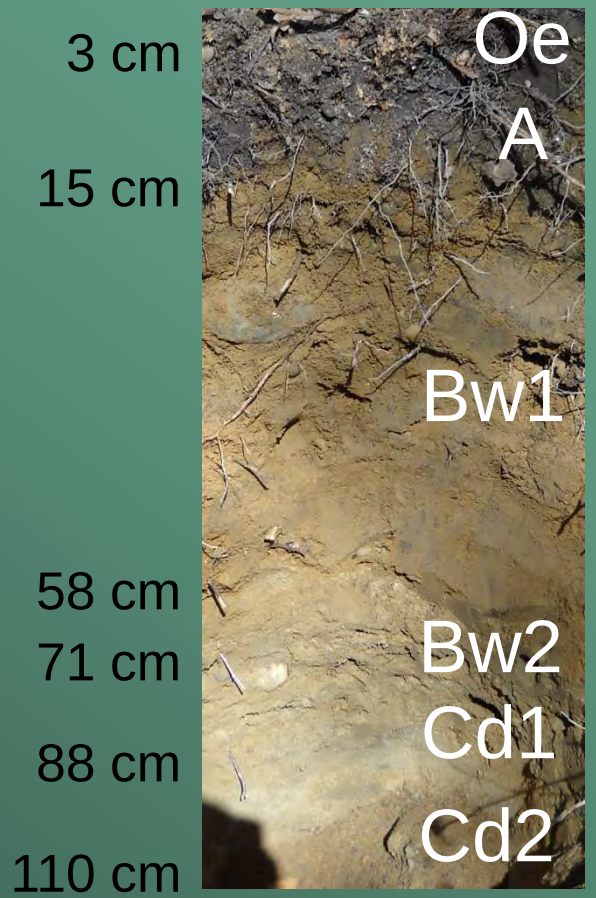
Mashomack Preserve

- **Montauk loamy sand**



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Note: Sample and profile from different sites

Sears-Bellows Ponds

- Suffolk County Park
- Pitch Pine, some small Oak
- Blueberry, Huckleberry

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Sears - Bellows

- **Carver-Plymouth sand**

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Third Pond

- State Land
- Pitch Pine, Oak
- Blueberry, Huckleberry

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Third Pond

- **Riverhead sandy loam**

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Sandy Pond East and West

- State Land, Nature Conservancy
- West - Pitch Pine, East - Oak
- Blueberry, Huckleberry

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Sandy Pond

- **Carver-Plymouth sand**

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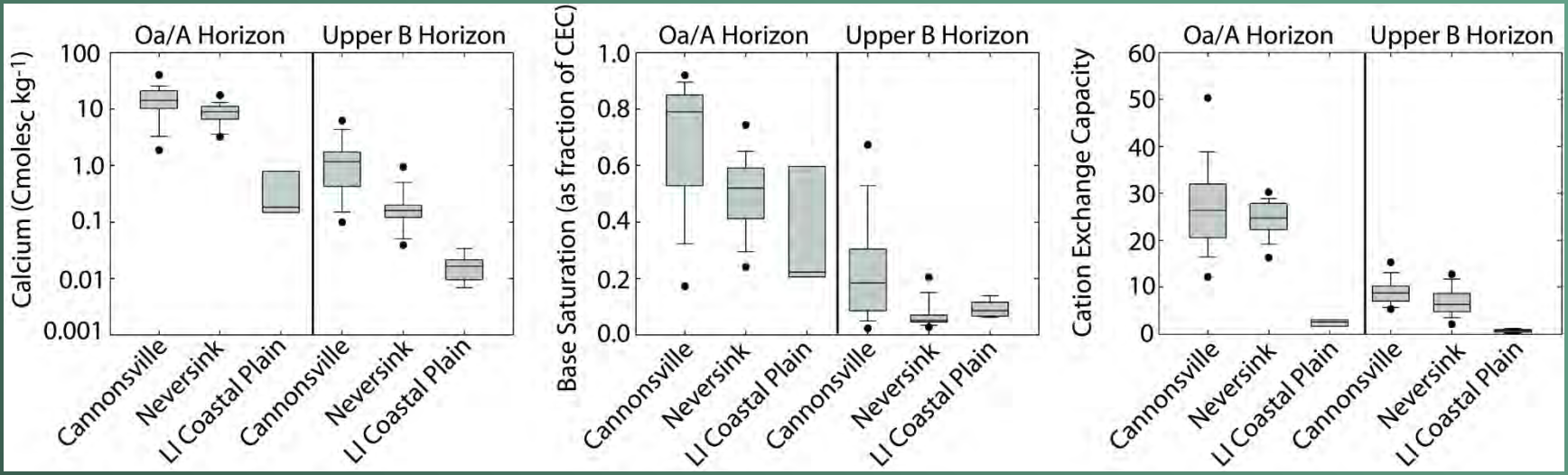
Note: Sample and profile from different sites

Comparison to Catskill Soil



- Calcium lower in LI Coastal Plains, CEC is lower
- Base saturation similar to Neversink

Note log scale on calcium plots

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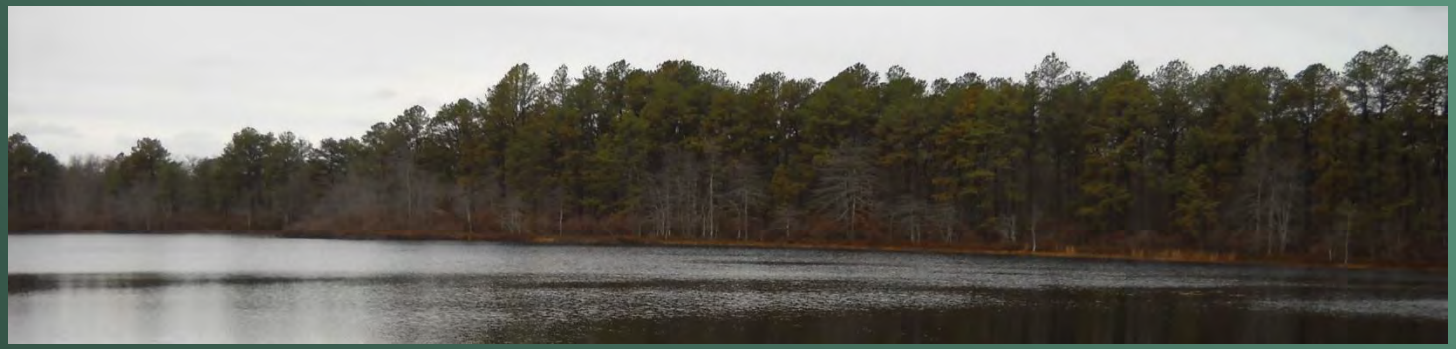
Future Considerations

- USGS reference watershed soil project coastal plain soils at:
  - Sopchoppy River, FL
  - McDonalds Branch, NJ
- All on protected land, candidates for long term soil monitoring?



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Questions or Comments?

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