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2019 Update Mtg: New USDA Project, Wewantic Water Quality Project

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New Research on Cranberry Bogs In Southeastern Massachusetts Coastal Watersheds

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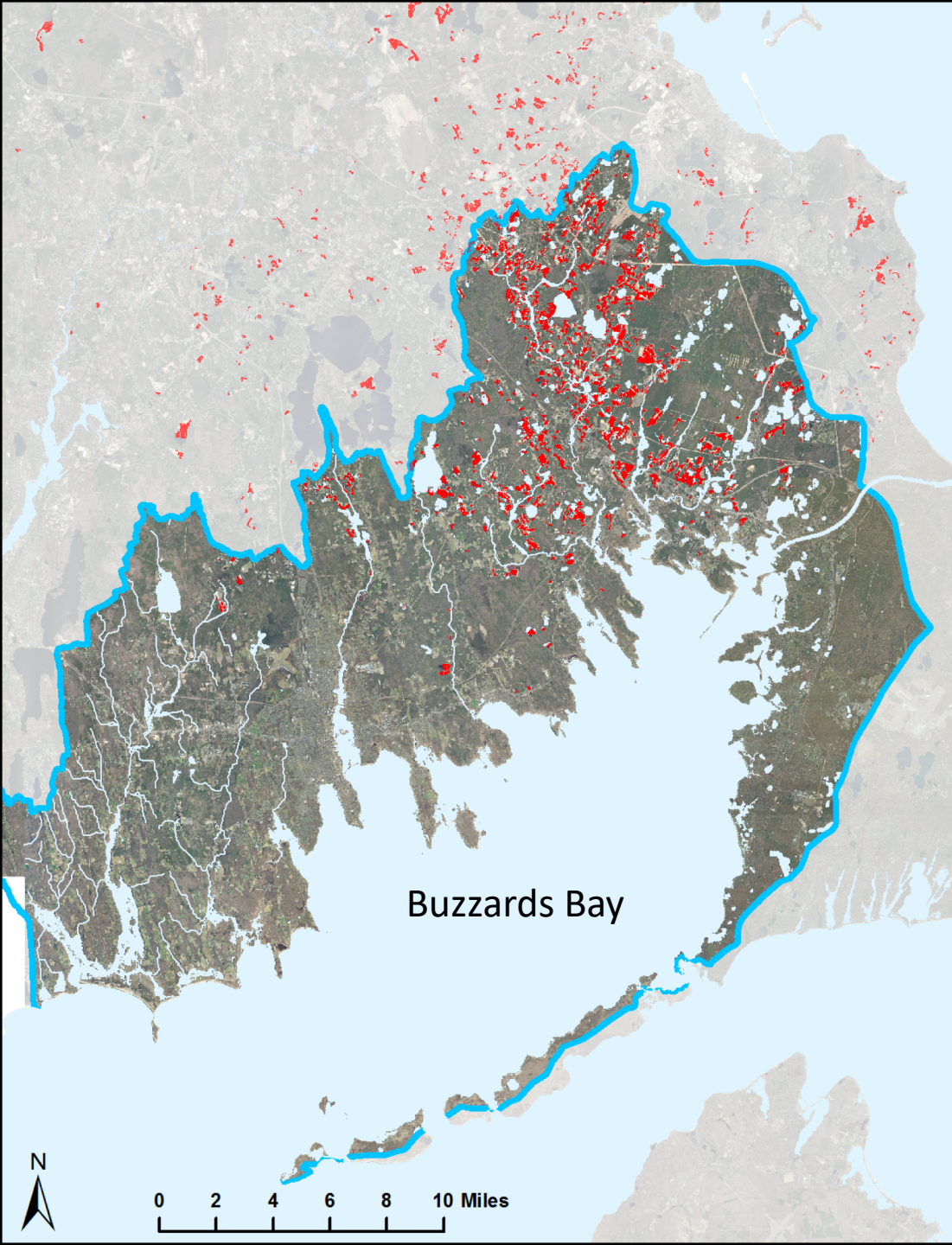
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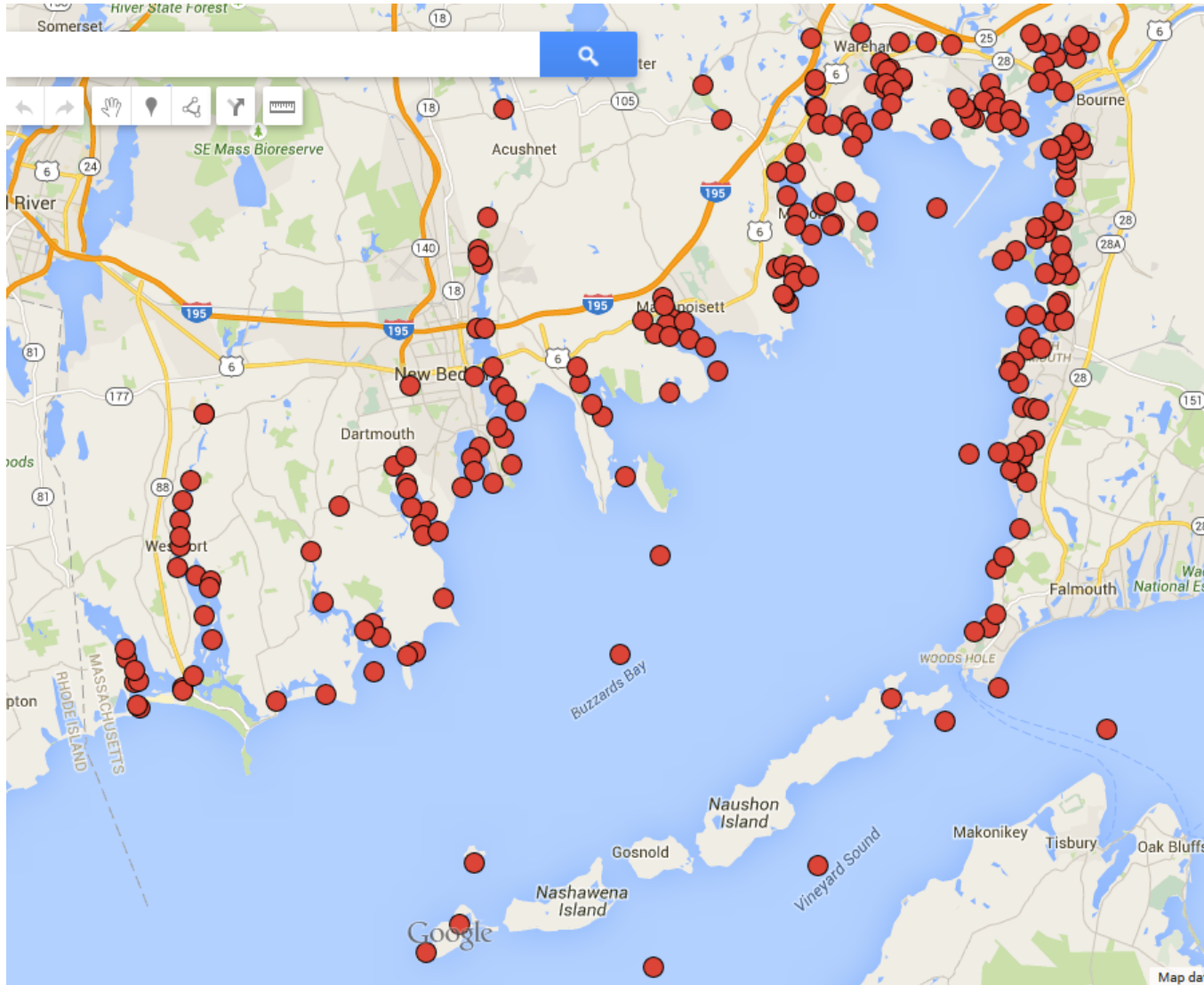
Nutrient Export From Cranberry Bogs is Important



- Nutrients from cranberry bogs could affect estuaries in many places
- Cranberries are important in the region and are the main crop in the Buzzards Bay watershed
- Better understanding could lead to ways to reduce N and P in bog discharges
- Could help prioritize bog retirements
- Controversial and relatively little data

Nutrient Export From Cranberry Bogs is Important

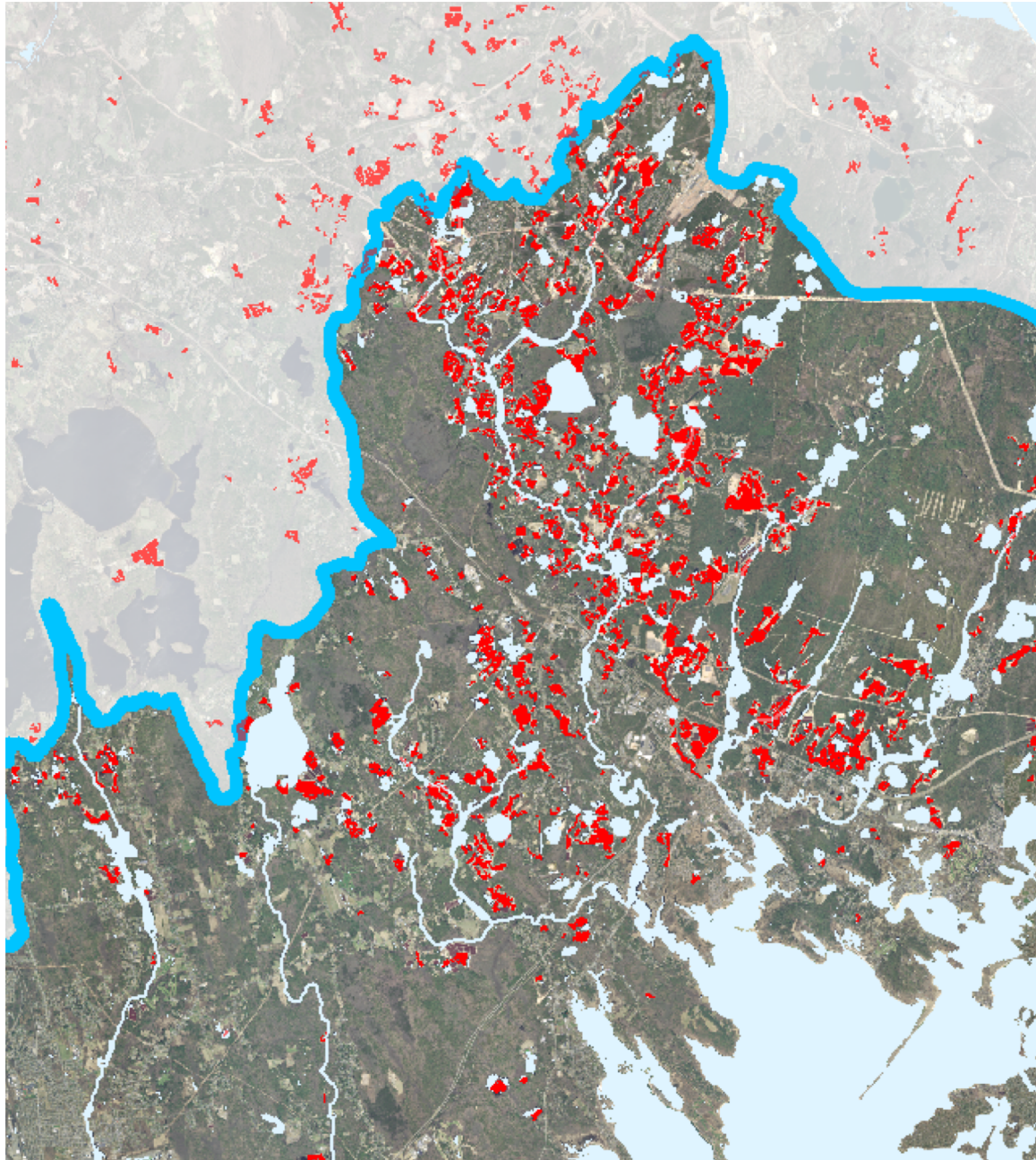
- We have good information on nutrient conditions around Buzzards Bay
- We have much poorer understanding of watershed sources in largest rivers (Weweantic, Wareham Rivers)





Previous study

- Three bogs—automated sampling during harvest floods, winter floods, base flows
- Most N output occurred in water outflows in warm part of year (not in flood releases)
- Found wide variation among bog N outputs
- Higher N export from bogs receiving a lot of flow-through groundwater



Bog Location Also Important

- Nitrogen is attenuated as it travels in stream networks from small streams to larger rivers
- Even if bog N output were the same from all bogs, contributions to estuary will be different
- Develop estimates of attenuation during stream travel

New Study

- Test effect of bog groundwater hydro-geographical setting on N output
- Sample larger number of bogs in: (1) consistent groundwater discharge sites, and (2) drier bogs where outlets flow less often in summer
- Don't sample continuously, but rather grab samples 3x in 2019 across more sites (~10 in each category)
- Sample in spring, early summer, late summer
- Focus on wetland bogs
- Would welcome suggestions for good sites and opportunities to sample

New Study

- Will combine maps of groundwater elevations, surface water stream networks, and information from field sampling to try to predict bog hydro-geographical type from GIS information
- Link to distance upstream in river network to create a new way to estimate bog N contributions to downstream and estuaries

New Study

- Not designed to identify or calculate export from particular bogs
- Will not identify specific properties in the results
- Will try to create a general set of rules that could be used to set priorities for nutrient reduction and restoration



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