

# SUPER STORM TO SUSTAINABLE SCHOOLS

FINAL PRESENTATION



SUPERSTORM TO SUSTAINABLE SCHOOLS

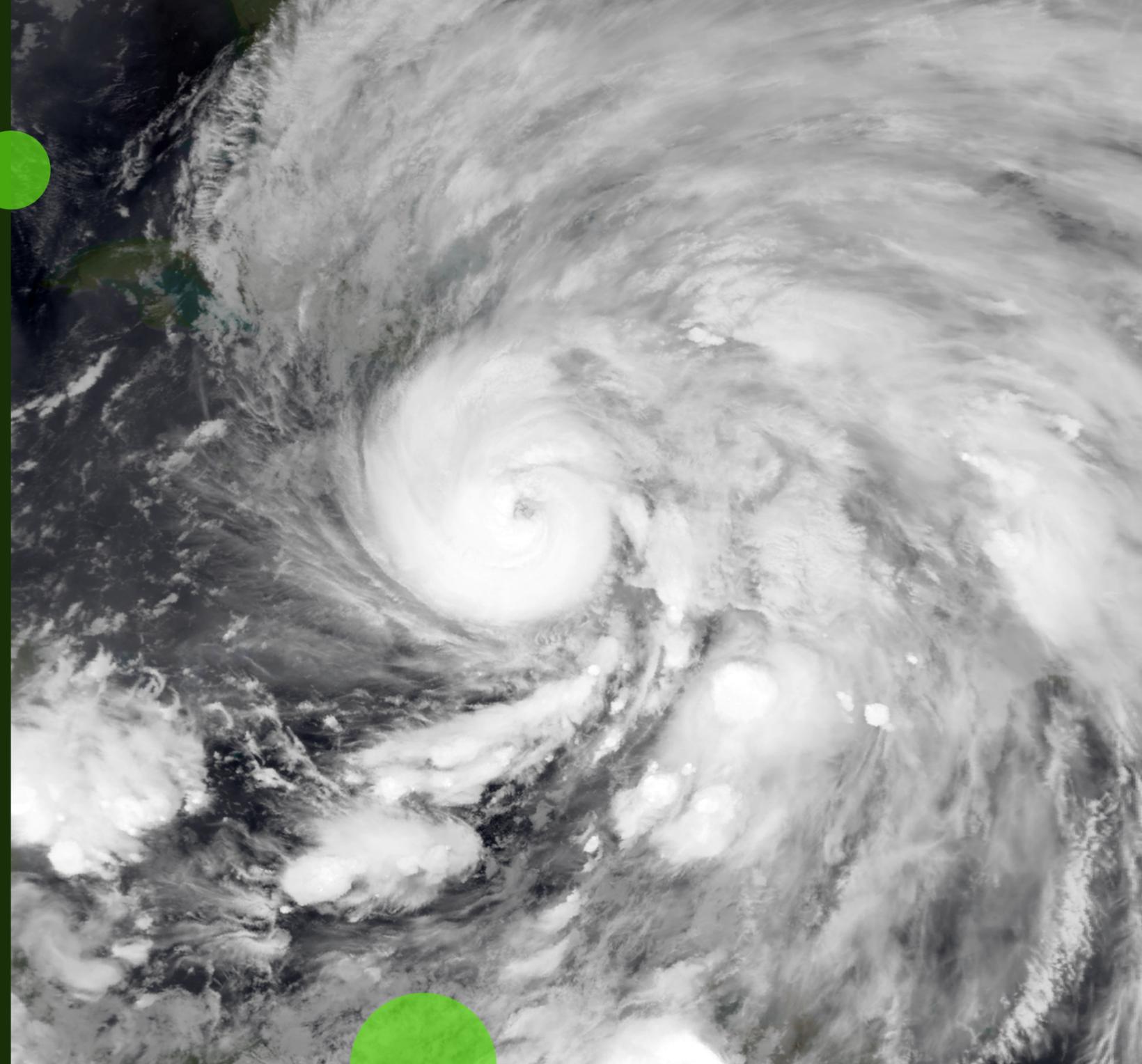
# ROAD MAP

- Research Question
- Hypotheses
- Literature Review
- Research Design & Methodology
- Data & Results
- Conclusion & Next Steps

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# RESEARCH QUESTIONS

Was Hurricane Sandy a motivator for public high schools in New Jersey to invest in sustainability?



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# HYPOTHESES

H1:

There is a positive correlation between high levels of damages from Super Storm Sandy and high rates of reactive sustainable investment in public high schools along the Jersey Shore.

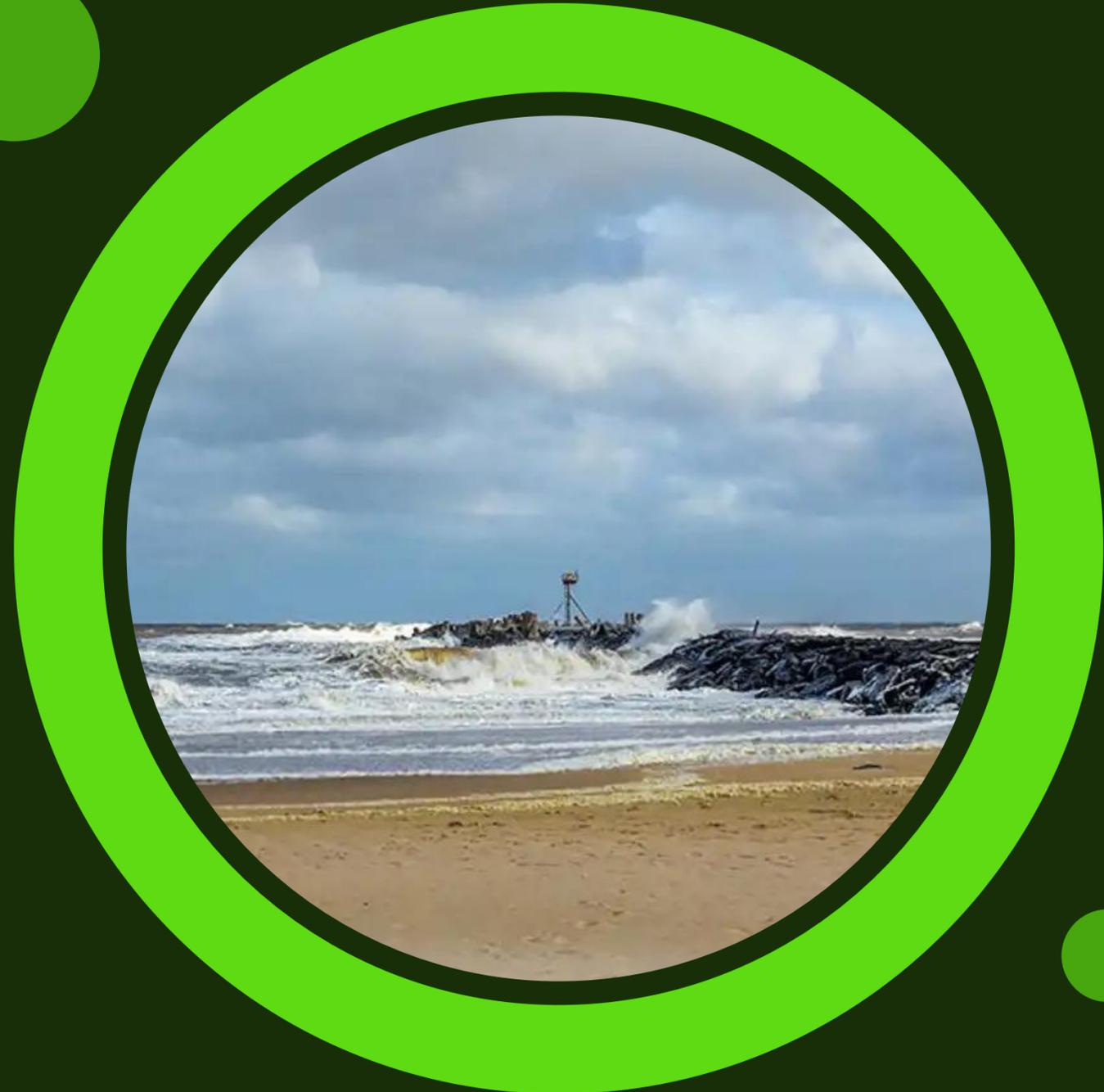
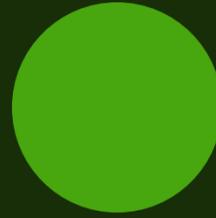
H2:

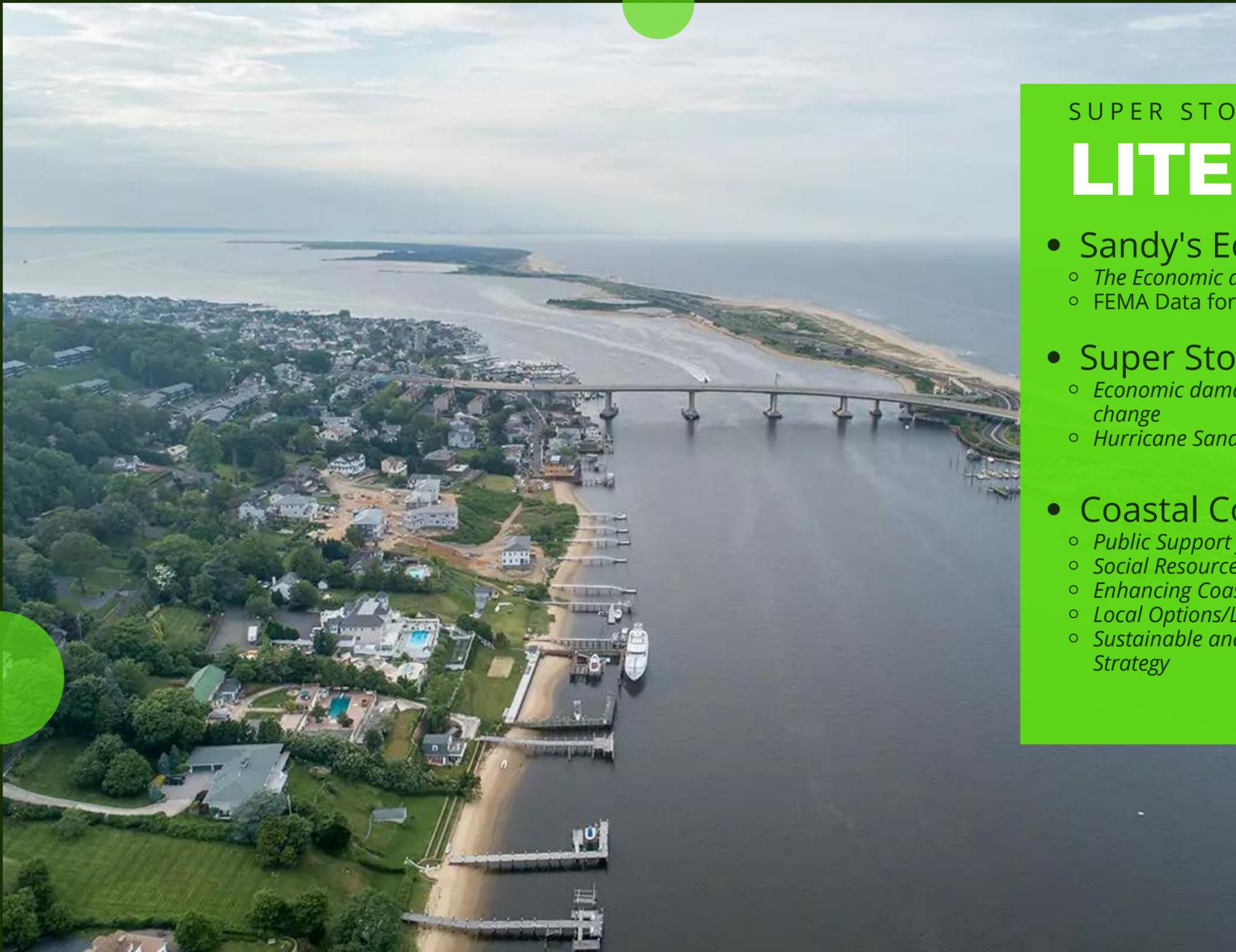
Public high schools accumulate more SJS points if there is high support for environmental policies at the legislative and congressional district levels. In contrast, public high schools will accumulate fewer SJS points if there is low support for environmental policies at the legislative and congressional district levels.

Null:

There is no correlation between SJS point accumulation and incurred damages from Super Storm Sandy.

X (Super Storm Sandy) -> Y (Sustainable Reaction)





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# LITERATURE REVIEW

- Sandy's Economic Impact
  - *The Economic and Fiscal Impacts of Hurricane Sandy in New Jersey, a Macroeconomic Analysis*
  - FEMA Data for Losses due to Sandy by NJ Zip Code
- Super Storm Sandy and Climate Change
  - *Economic damages from Hurricane Sandy attributed to rise caused by anthropogenic climate change*
  - *Hurricane Sandy caused an 'extra \$8bn' damage due to human-caused sea level rise*
- Coastal Communities Investing in Resiliency
  - *Public Support for Policies to Reduce Risk After Hurricane Sandy*
  - *Social Resources and Community Resilience in the Wake of Superstorm Sandy*
  - *Enhancing Coastal Resilience Decision-Support Tools to Reflect Latest Local Applied Science*
  - *Local Options/Local Actions Resilience Strategies Case Studies*
  - *Sustainable and Resilient Coastal Communities: A Comprehensive Coastal Hazard Mitigation Strategy*



## FILLING THE GAP

No research has been conducted thusfar on how public schools responded to Hurricane Sandy in New Jersey!

By filling this gap, I can identify Sandy as a climate change motivator for schools. If this is found to be true, I suggest that schools along the coast shift toward proactive climate resiliency and sustainability investment, rather than remain reactive to climate disasters.

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# RESEARCH DESIGN & METHODOLOGY

## **Sustainable Jersey for Schools (in-depth more)**

Utilizing Sustainable Jersey for School's Database to measure level of sustainable investment and practice by schools.

## **New Jersey League of Conservation Voters**

The New Jersey League of Conservation Voters issues scorecards for Legislative and Congressional leaders based on how supportive they are of environmental policies and agendas.

## **Informational Interviews**

Dr. Diane Bates of TCNJ's Sociology Department

Véronique Lambert: Program Manager, Schools Outreach, Training & Special Projects of SJS

JoAnna Contarino: Program Assistant of SJS

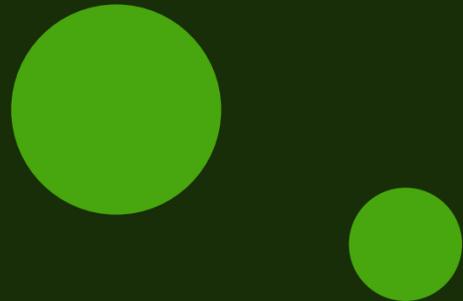
Rosalie Morillo: Program Manager, Schools Content and Special Projects

## **Accounting for Variables**

Each school and its respective zip code will have its incurred losses due to Sandy compared to its accumulation of SJS points to test for a correlation between the two variables.

Each school's respective Legislative and Congressional support will be compared to its SJS point accumulation to test for political influence on sustainable achievement.

Each school will have its respective per-pupil spending compared to its SJS point accumulation to identify if PPS plays a factor in sustainable achievement.



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# SUSTAINABLE JERSEY FOR SCHOOLS

## Sustainable Jersey for Schools Certification Program

**64%**

of New Jersey public school districts are participating

**1091**

Participating Schools

**354**

Certified Schools

**7,861**

Actions Approved

**306**

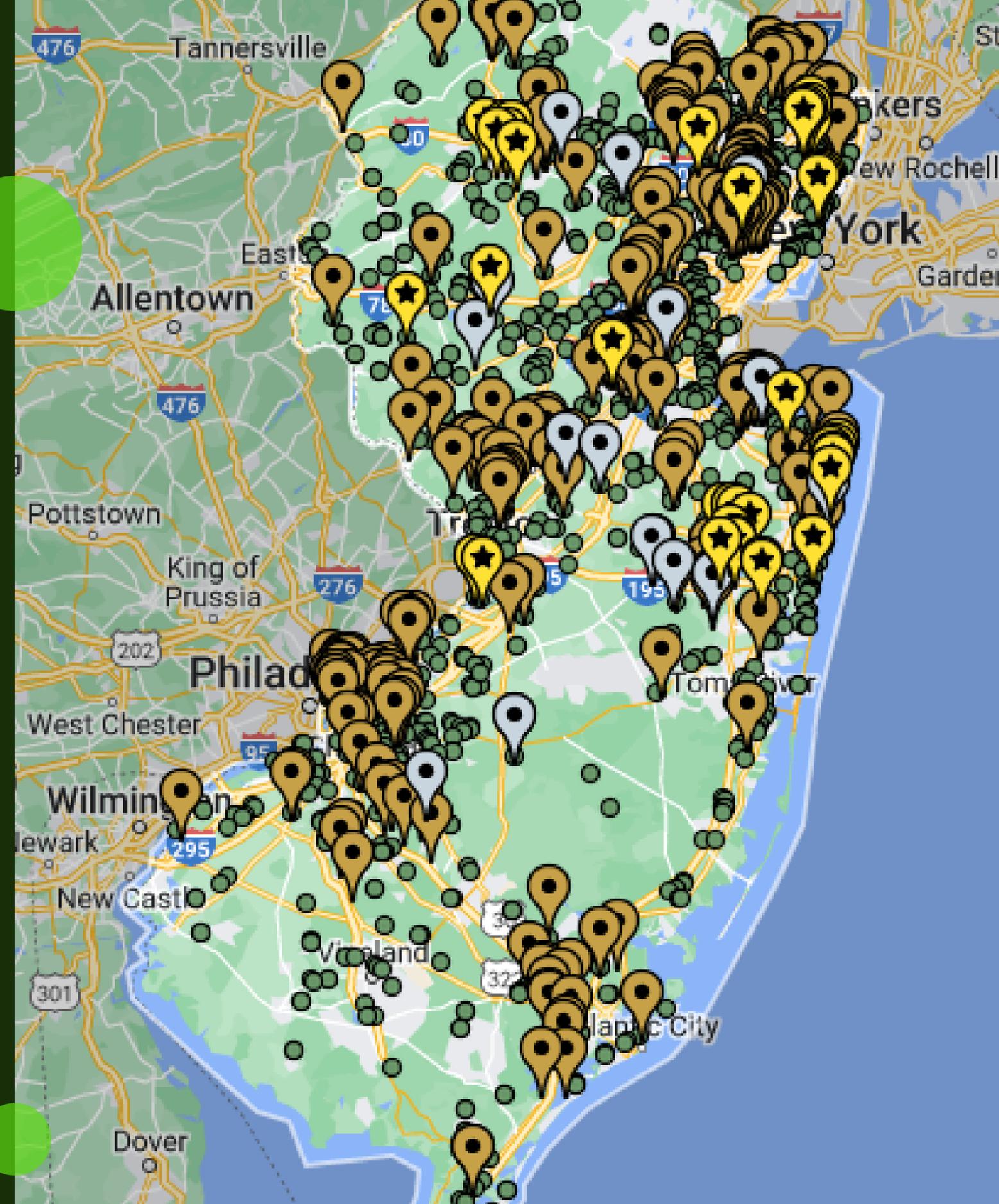
Bronze Certified

**48**

Silver Certified

**43**

Digital Schools Stars



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# NEW JERSEY LEAGUE OF CONSERVATION VOTERS

NAME	%	%	2019																				
			LIFETIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DISTRICT 1 BOB ANDRZEJCZAK D	85%	73%	✓		✓	✓	✓			✓	✓	✓	✓	NV	✓				✓		✗	✓	
DISTRICT 2 CHRIS BROWN R	85%	86%	✓	✓	NV	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
DISTRICT 3 STEPHEN SWEENEY D	95%	87%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
DISTRICT 4 FRED MADDEN JR D	80%	77%	✓	✓	NV	✓	✓	✓	✓	✓	✓	✓	✓	✓	NV	✓	✓	✓	NV	✓	NV	✓	✓
DISTRICT 5 NISLA CRUZ-PEREZ D	70%	69%	✓	✓	NV	NV	NV	NV	NV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
DISTRICT 6 JAMES BEACH D	95%	76%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
DISTRICT 7 TROY SINGLETON D	90%	84%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NV	✓	✓	✓	NV	✓	✓
DISTRICT 8 DAWN MARIE ADDIEGO R	50%	44%	✗	✓	NV	✓	✓	✓	✓	✗	✗	✓	✗	✓	NV	NV	✗	NV	✓	✓	✗	✓	✓
DISTRICT 9 CHRISTOPHER CONNERS R	50%	48%	✗	✓	NV	✓	NV	✓	✓	✗	✗	✓	✗	✗	✗	✓	✓	✓	✓	NV	✗	✓	✓
DISTRICT 10 JAMES HOLZAPFEL R	45%	48%	NV	✓	NV	✓	✓	✓	✓	NV	NV	NV	✗	✗	✗	✓	NV	✓	✓	✗	✗	✓	✓
DISTRICT 11 VIN GOPAL D	90%	90%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NV	✓	✗	✓	✓
DISTRICT 12 SAMUEL THOMPSON R	45%	38%	✗	✓	NV	✓	✗	✓	✗	✗	✗	✓	✓	✓	✗	✗	NV	NV	✓	✓	✗	✓	✓
DISTRICT 13 DECLAN O'SCANLON, JR R	45%	44%	✗	✓	NV	✓	✗	✓	✓	✗	✗	NV	✗	✓	✗	NV	✓	✓	✓	NV	✗	✓	✓
DISTRICT 14 LINDA GREENSTEIN D	95%	92%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓
DISTRICT 15 SHIRKEY TURNER D	95%	90%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NV	✓	✓

# FIELDING A SAMPLE

## Criteria for Schools

- Must be a public high school within New Jersey
- Must be certified by Sustainable Jersey for Schools
- Must be along the shore/coastline

## Criteria for Baseline

- Must be a public high school within New Jersey
- Must be certified by Sustainable Jersey for Schools
- Must be an inland school that suffered minimal losses from Sandy

## Time Frame

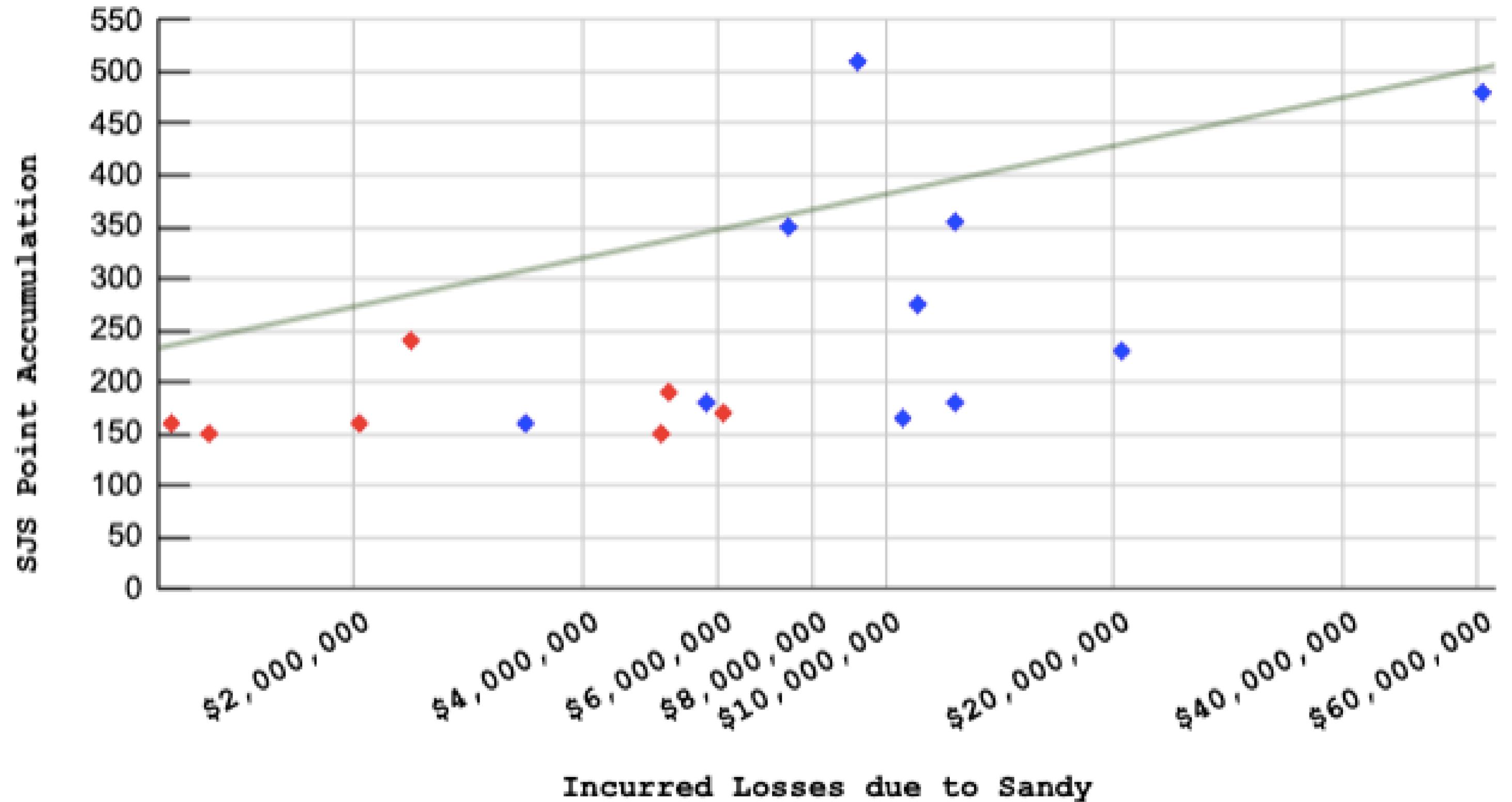
- 2013 to 2020



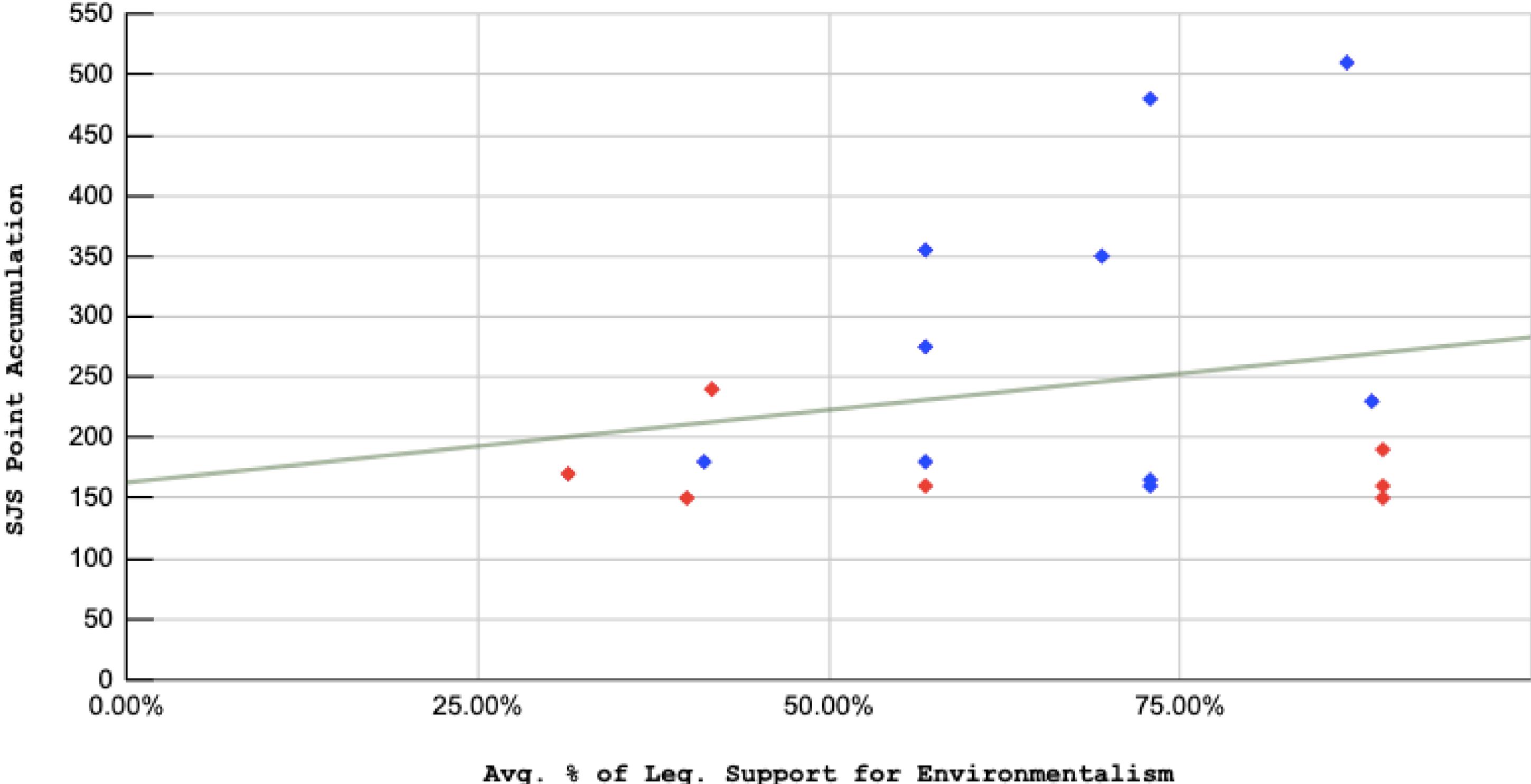
School Name	SJS Points	Zip Code Incurred Losses Due to Sandy	Congressional District	Cong. Support for Environmentalism (2013-2020)	Legislative District	Leg. Support for Environmentalism (2015-2019)	Per-Pupil Spending
Shore Regional High School	160	\$3,360,523	6	95.55%	11	72.88%	\$16,545.00
Absegami High School	180	\$5,810,517	2	49.00%	9	41.11%	\$9,824.00
Raritan High School	350	\$7,455,300	6	95.55%	16	69.44%	\$9,618.00
Weehawken High School	510	\$9,193,388	8	93.50%	33	86.89%	\$9,025.00
Monmouth Regional High School	165	\$10,540,515	4	45.22%	11	72.88%	\$19,654.00
Middletown High School North	275	\$11,026,208	4	45.22%	12	56.88%	\$9,145.00
Jackson Memorial High School	180	\$12,348,879	4	45.22%	12	56.88%	\$7,890.00
Jackson Liberty High School	355	\$12,348,879	4	45.22%	12	56.88%	\$8,996.00
Hackensack High School	230	\$20,459,271	5	47.50%	37	88.66%	\$14,756.00
Long Branch High School	480	\$61,067,772	6	95.55%	11	72.88%	\$11,214.00

School Name	SJS Points	Zip Code Incurred Losses Due to Sandy	Congressional District	Cong. Support for Environmentalism (2013-2020)	Legislative District	Leg. Support for Environmentalism (2015-2019)	Per-Pupil Spending
West Windsor-Plainsboro High School North	160	\$1,148,373	12	92.63%	15	56.88%	\$14,022.00
Northern Bergen County Regional High School	150	\$1,287,266	5	47.50%	39	39.89%	\$6,811.00
South Hunterdon Regional High School	160	\$2,030,759	7	42.75%	15	89.44%	\$13,989.00
Midland Park High School	240	\$2,373,510	5	47.50%	40	41.67%	\$19,201.00
Hopewell Valley Central High School	150	\$5,067,228	12	92.63%	15	89.44%	\$11,670.00
Lawrence High School	190	\$5,185,335	3	36.13%	15	89.44%	\$14,745.00
Mount Olive High School	170	\$6,117,256	7	42.75%	24	31.44%	\$10,202.00

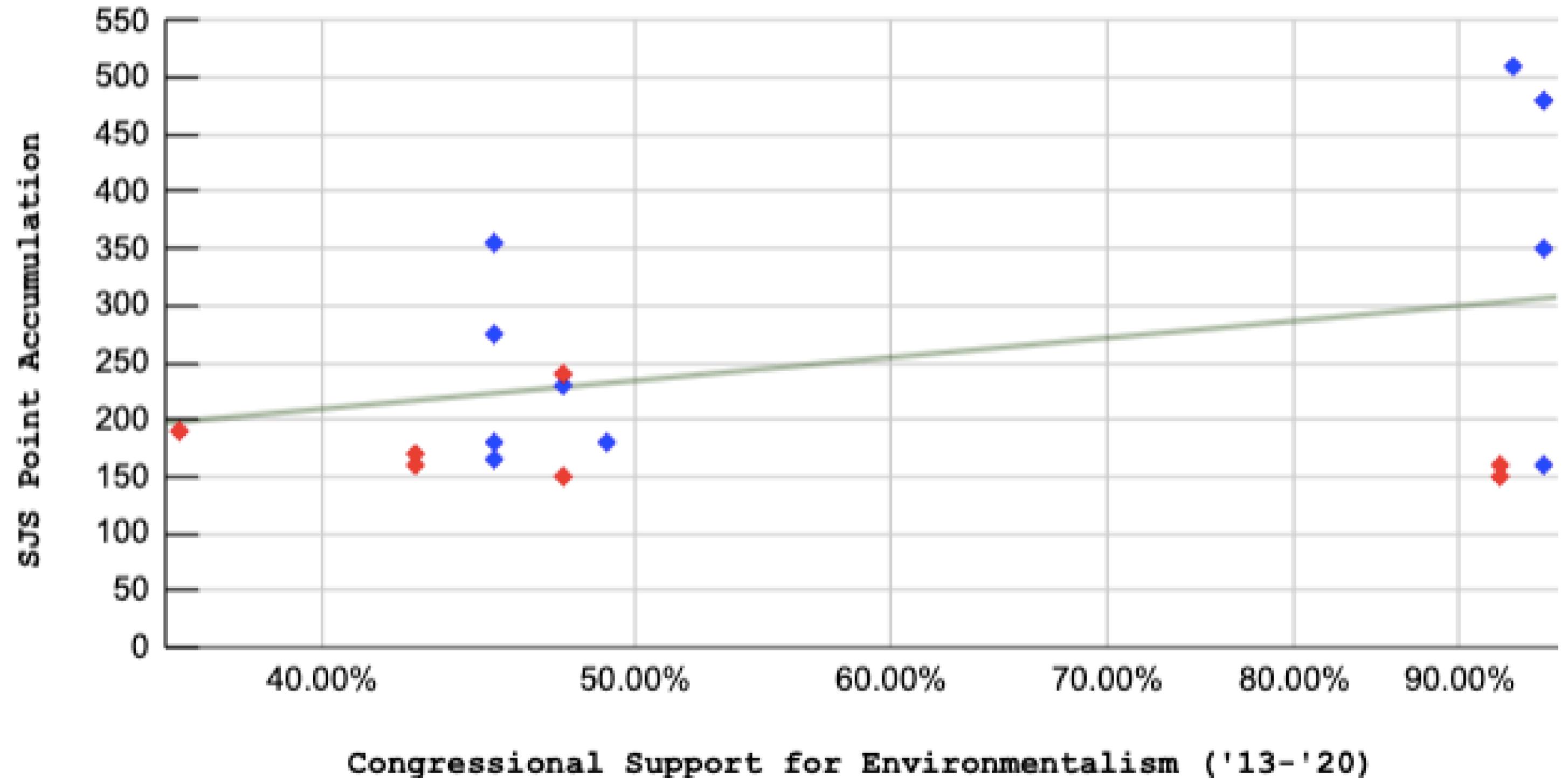
# SJS Points vs. Incurred Losses Due to Sandy



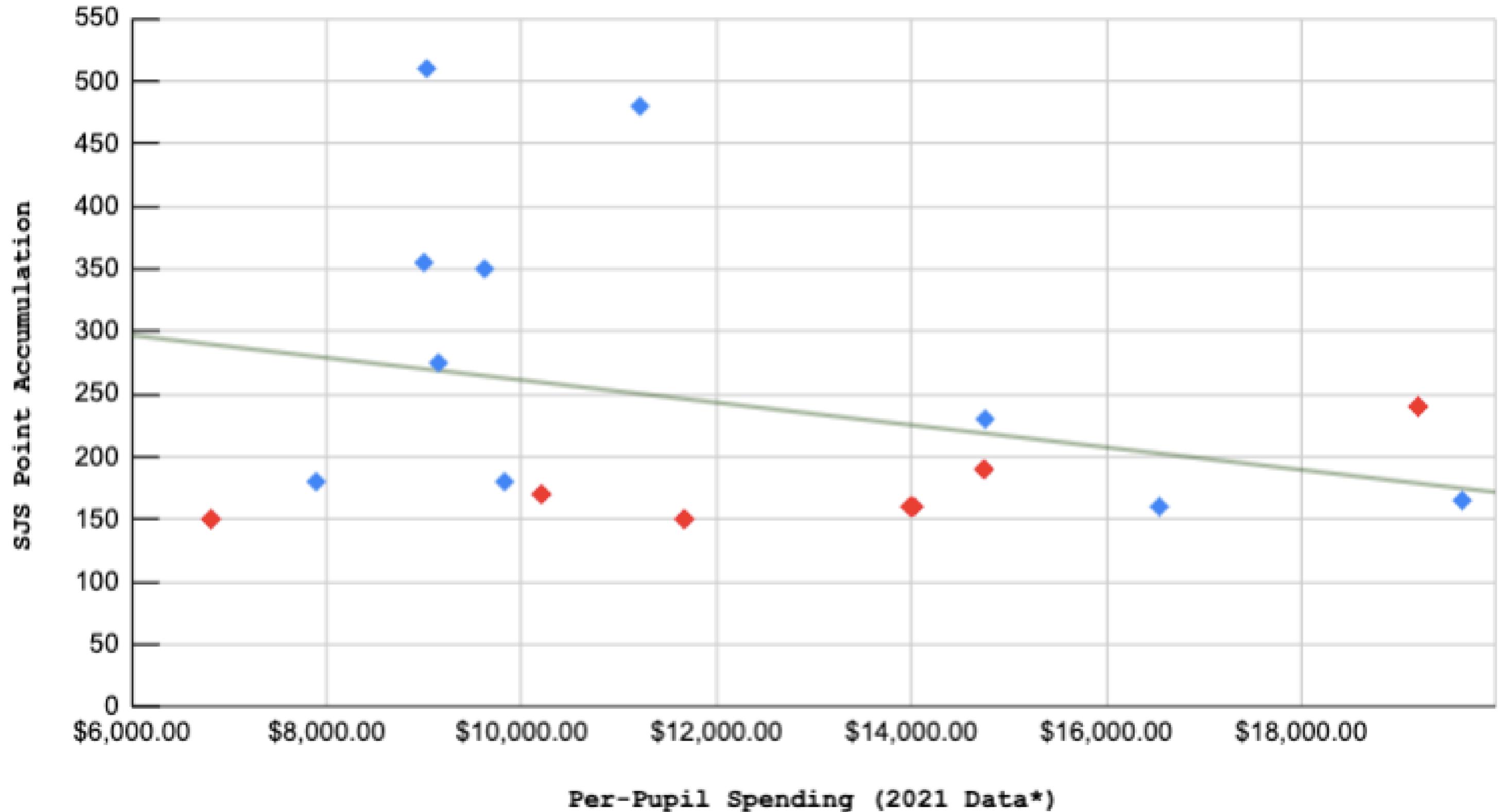
# SJS Points vs. Leg. Support for Environmentalism (2015-2019)



# SJS Points vs. Cong. Support for Environmentalism ('13-'20)



# SJS Points vs. Per-Pupil Spending



# ACCOUNTING FOR GAPS IN DATA

Info from interviews with Dr. Diane Bates, JoAnna Contarino, and Veronique Lambert

## How do schools join SJS? Why don't all schools join?

"It is mostly up to the schools/district to register. We sometimes reach out first to schools if they qualify for a program we are promoting."

"The issues were less that people were interested in the SJS program than that the district did not want the schools doing anything that did not pertain to the entire district, which made it really hard for the teachers, students, and parents in any one school to do anything."

## Are local politics a barrier to entry?

"Not really. Except some schools may be encouraged to participate by their municipalities that are participating in Sustainable Jersey [for municipalities]."

## Explaining the Point System Further

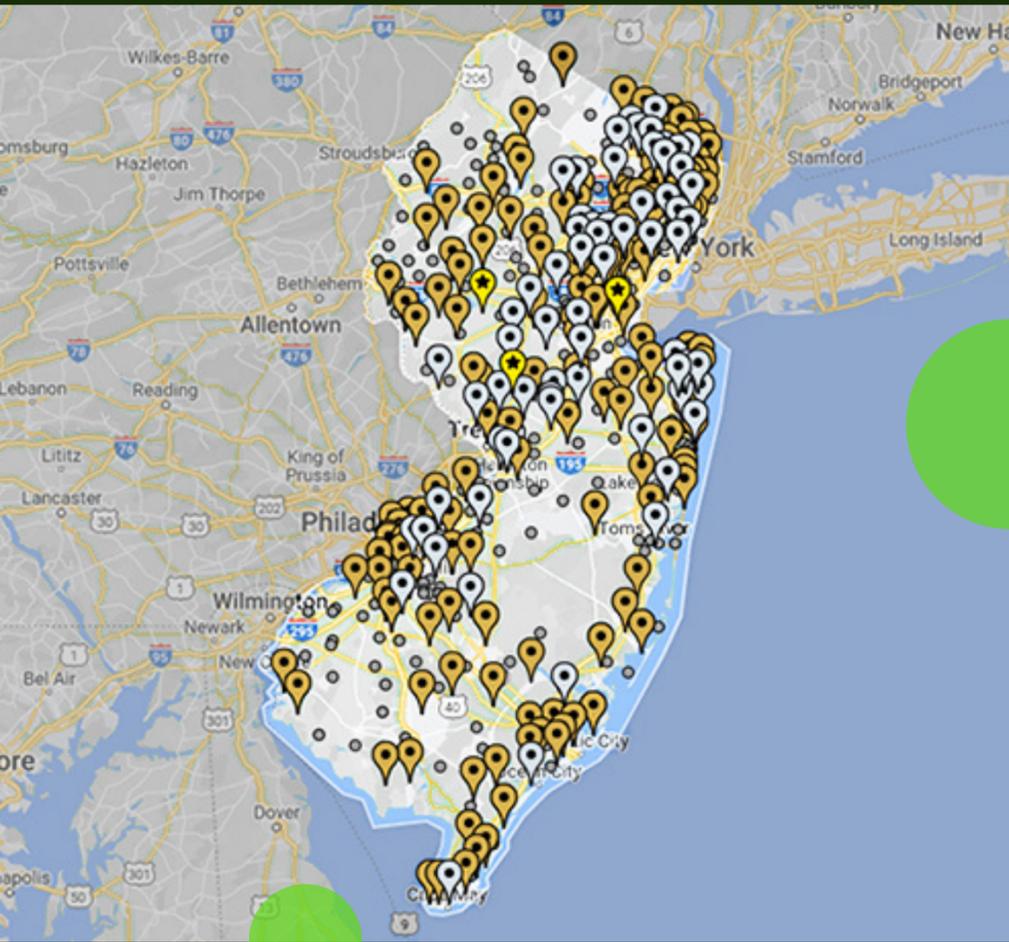
"Points are based on the level of difficulty to implement the action and the duration of impact. The baseline point value is 10. Easier actions are worth 5 points. Actions that are a heavier lift are worth more points (15 to 50 points), and if the impact is longer-lasting, the points remain valid for a longer period of time before they expire."



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# LIMITATIONS

- No responses from BOEs and School Administration
- Inability to measure if schools are sustainable without SJS
- Only 64% of public schools are apart of SJS



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# RESULTS IN THE CONTEXT OF THE RESEARCH QUESTION

- H1: Positive Correlation & Strong Support for Causality
- H2: Weak Correlation

## OTHER FINDING

- SJS Point Accumulation Went Down as PPS Rose

# CONCLUSION & NEXT STEPS



- Climate disasters cannot continue to be the main driver for sustainable investment
- Research how other long-term climate change effects have been affecting schools: day-time flooding for example
- Conduct interviews with local administration and tax-payers to garner a sense of localized support for climate change & sustainable invest in schools in New Jersey

**THANK YOU**