CREATIVELY ENGAGING STUDENTS IN LOCAL CLIMATE SCIENCE: HUDSON DATA JAM

Ashley Alred
Education Program Leader
October 19, 2021
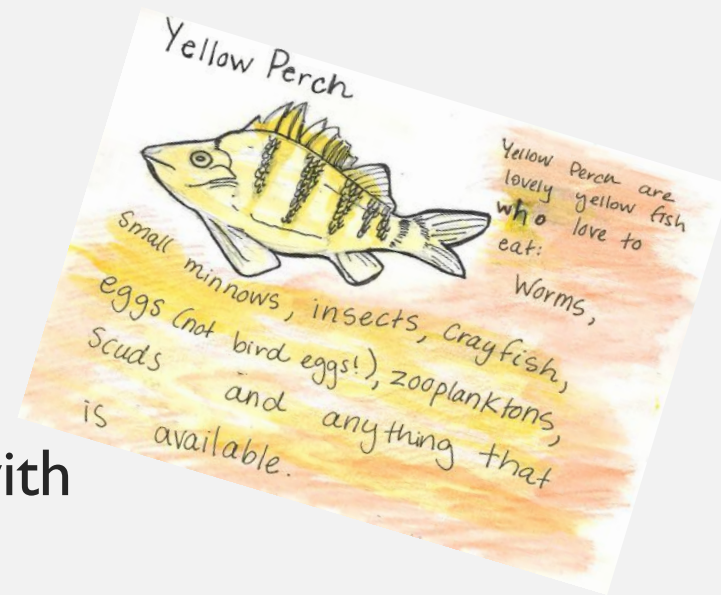
Hi there! Meet Ashley...

Now let's meet you!

Please type into the chat…

1. Your name
2. Location
3. Grade/age of the learners you work with
4. Your favorite type of graph

Yellow Perch

Yellow Perch are lovely yellow fish who love to eat:

Small minnows, insects, crayfish, eggs (not bird eggs!), zooplanktons, scuds and anything that is available. Worms,

CURRENT SCIENCE AT CARY INSTITUTE

Ecosystem Health

Air pollutants -
acid rain, ozone & mercury

Climate Change
Monitoring

Pharmaceuticals
in streams

**Urban
sustainability
& resiliency**

**Education
research**

CURRENT SCIENCE AT CARY INSTITUTE

Ecology of infectious disease
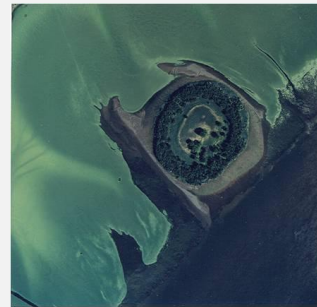
West Nile Virus

Urban ecosystems

Lyme disease

White-footed mouse

Forests

Invasive Species

Zebra mussels

Phragmites

Water chestnut

https://www.caryinstitute.org/

What will we do today?

By the end of this webinar, we will know/be able to…

- Brainstorm the types of data we need to explore an Essential Question about climate change.
- Identify datasets within Hudson Data Jam that we can apply to EQ.
- Understand how to use the Hudson Data Jam resources and get involved.
- View fun sample projects!

Now let's explore our long term datasets with an essential question...

Photo: Creative Commons

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THE ESSENTIAL QUESTION

Is climate change happening in the Hudson Valley?
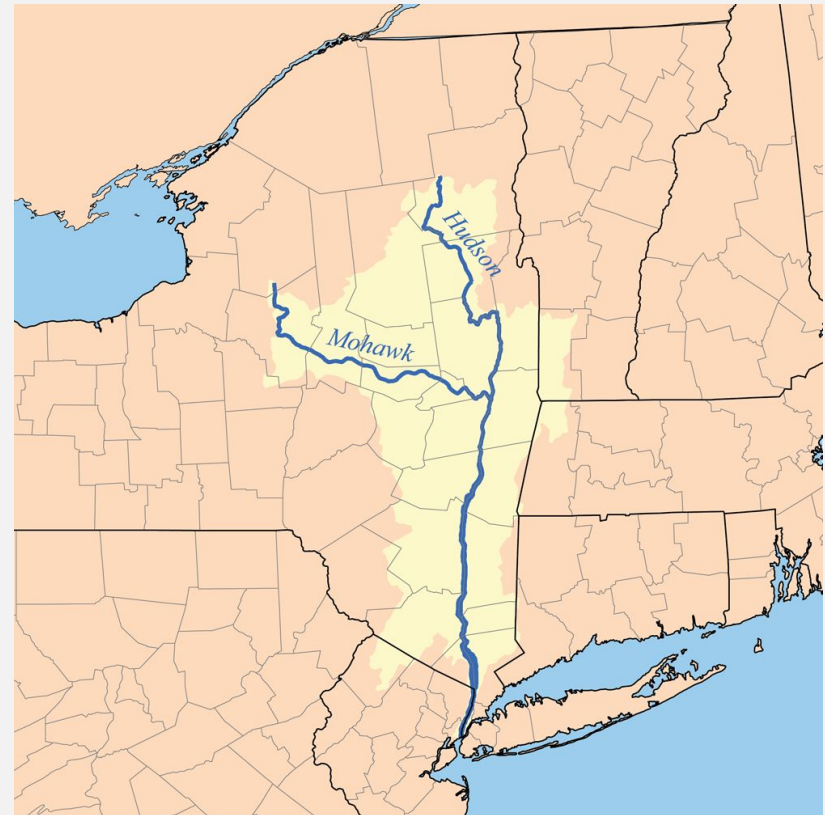
Photo: Creative Commons

A CHALLENGE FOR YOU…

What DATA would help us answer our EQ?

"Is climate change happening in the Hudson Valley?"

Click here to view the Jamboard. Also viewable on next slide.

What DATA would help us answer this question:

Precipitation and temperature levels by year -Lauren

Frequency of major storm events

Water levels in the rivers -Lauren

Reservoir water levels

CO_2 in the atmosphere over time - Audrey

Is climate change happening in the Hudson Valley?

Biodiversity lost

Long term data over many years- Jane

Tree bud burst and leaf drop dates- Jane

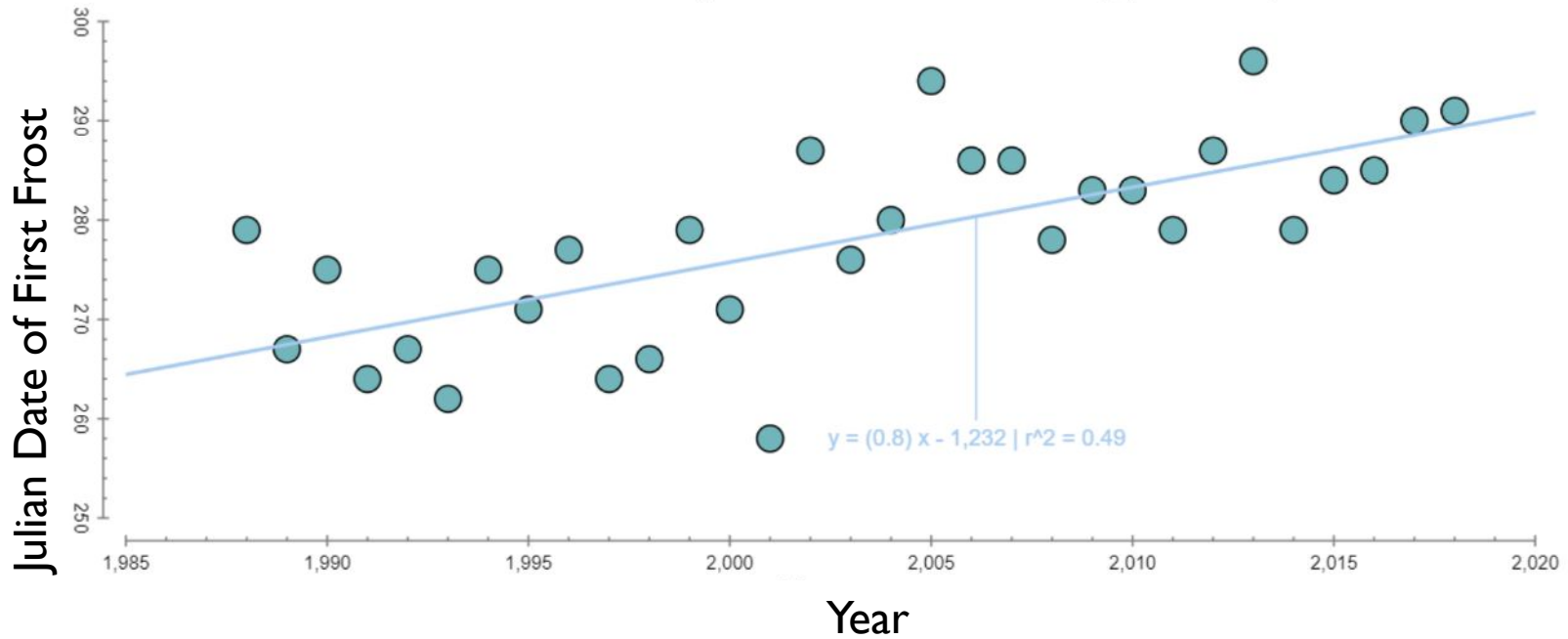Species found in the river -Lauren

SEA LEVEL RISE AT BATTERY PARK, NYC (1856-2014)

$y = (0.00283) x - 5.645 \mid r^2 = 0.9473$
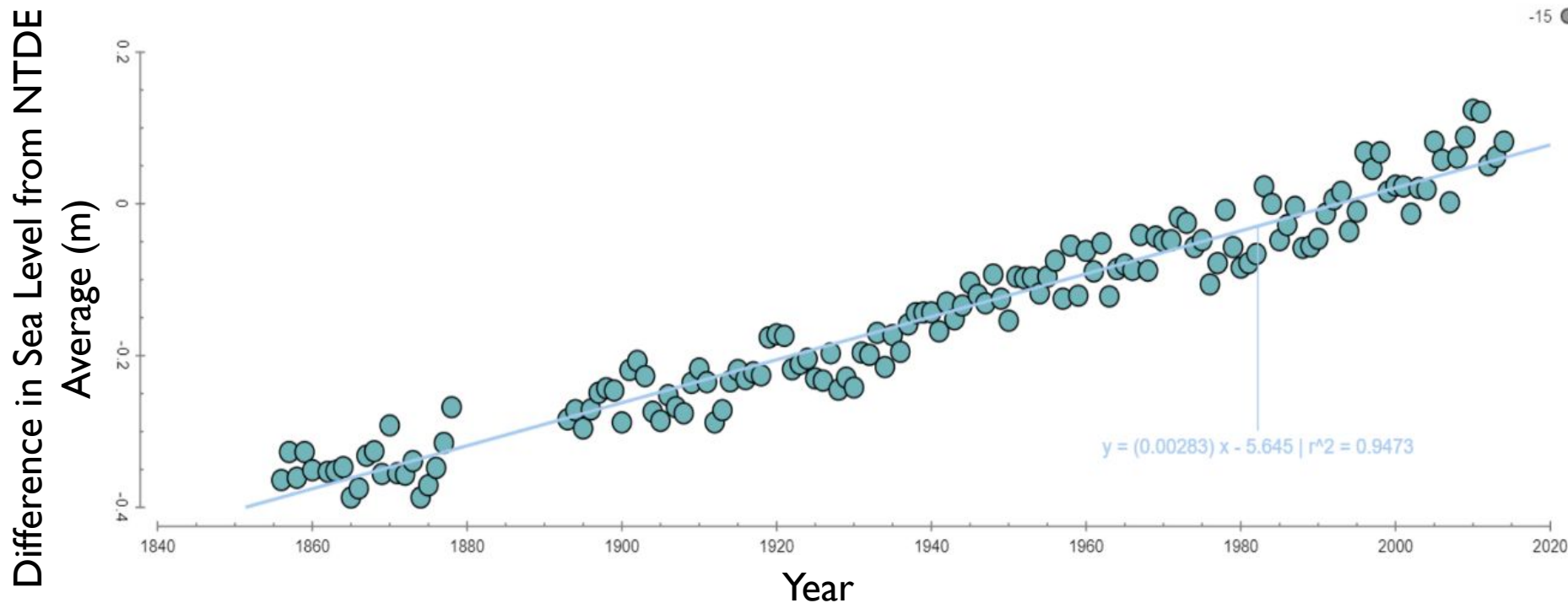
Data c/o NOAA; Image: Wikipedia.org

DATE SPRING MIGRANT AMERICAN WOODCOCKS WERE FIRST SEEN IN DUTCHESS COUNTY (1887-2008)

Data c/o William Schlessinger; Image: Audubon.org
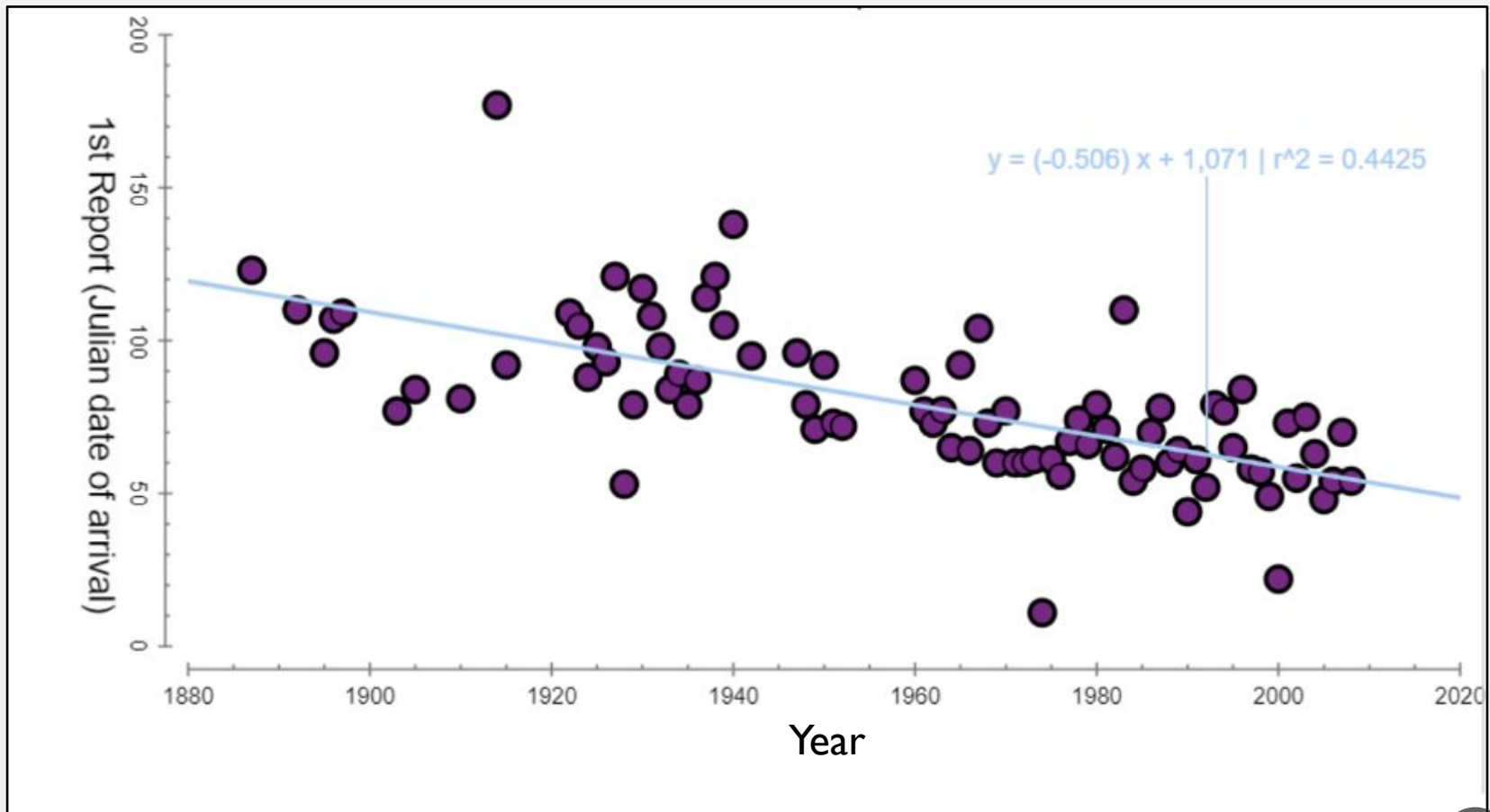
FIRST DAY OF FROST AT CARY ENVIRO MONITORING STATION (MILLBROOK, NY)

$y = (0.8) x - 1{,}232 \mid r^2 = 0.49$

Julian Date of First Frost

Year

Data c/o Vicky Kelly; Image: farmersalmanac.com

HOW CAN WE HELP STUDENTS UNDERSTAND & AFFIRM THE VALIDITY OF CLIMATE CHANGE?

- 1. Immerse them in authentic LOCAL data that connects to their lives.

- 2. Help them find their VOICE for communicating their findings.
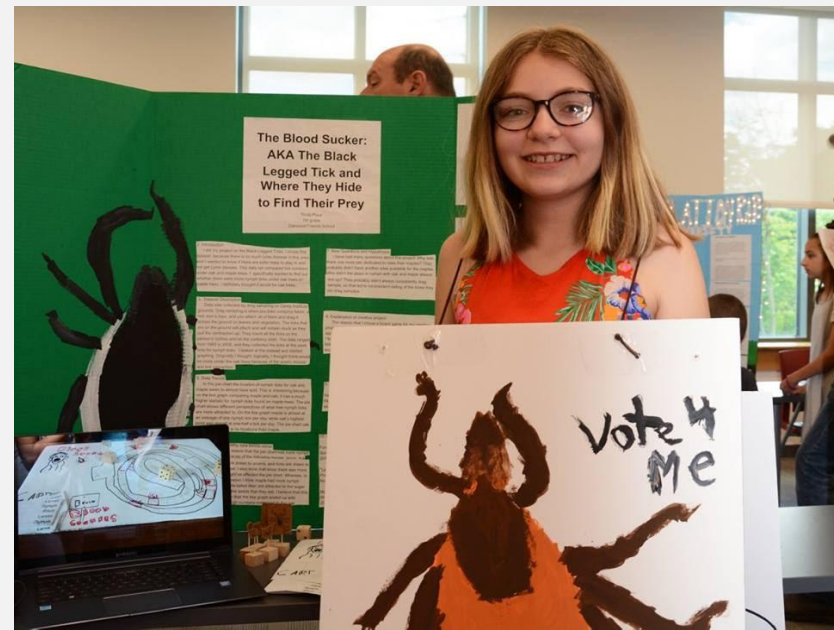
HOW DOES CARY INSTITUTE HELP STUDENTS THINK ABOUT LOCAL DATA IN A SCIENTIFIC (AND **FUN**) WAY?
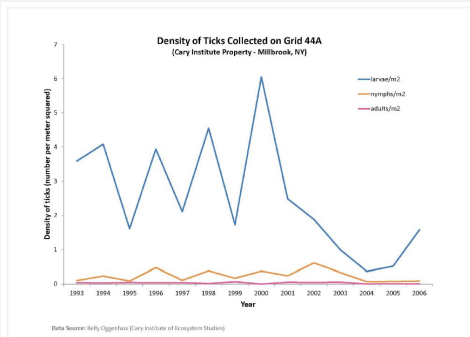
SHARING REAL SCIENCE STORIES THROUGH ART
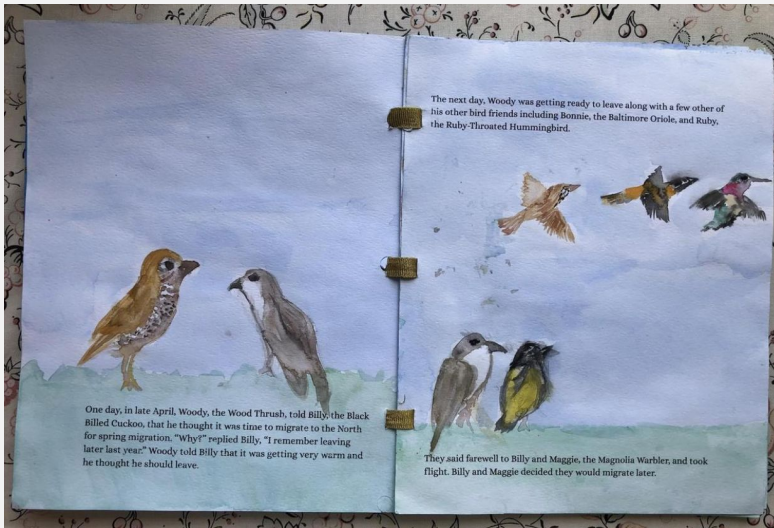
CONTEST ESSENTIALS

1. Download Local Data:

DATA
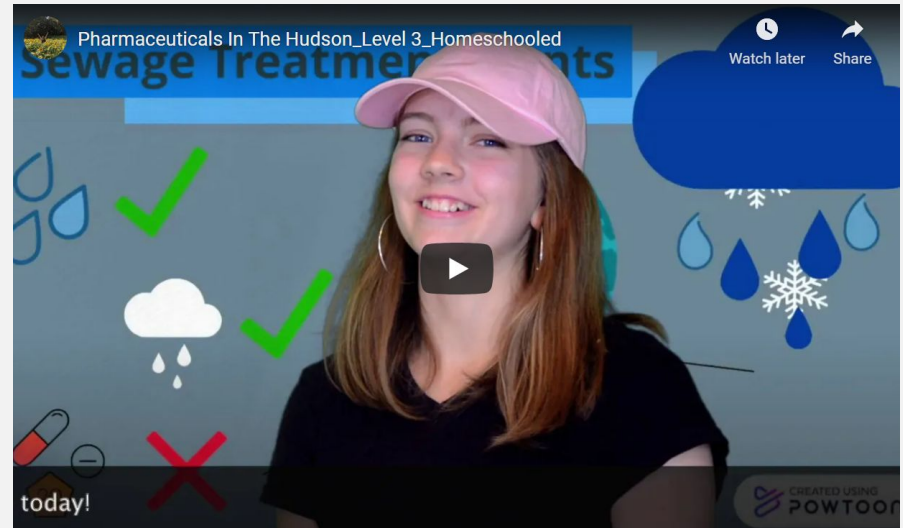
Lyme Disease Prevalence in the Northeast

2. Graph & Report:

Images: NYSDEC

www.caryinstitute.org/data-jam
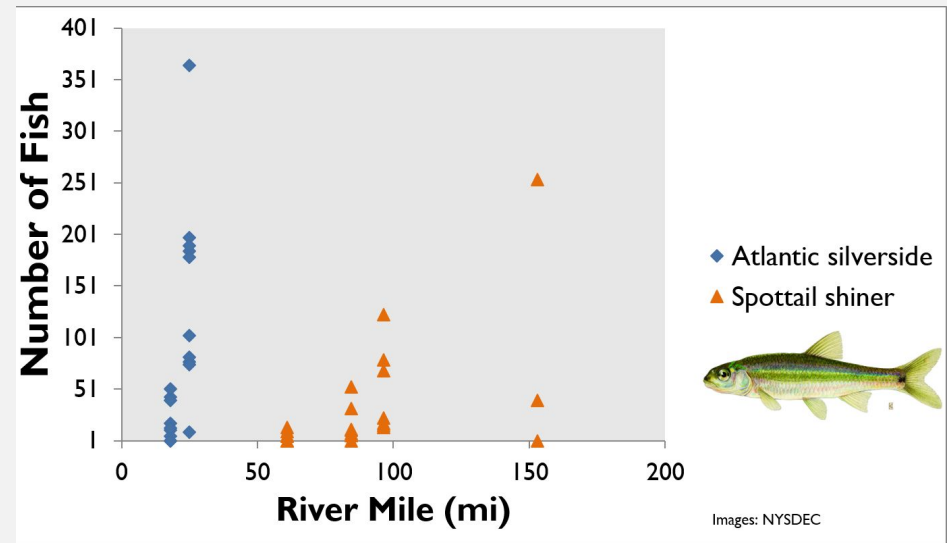
CONTEST ESSENTIALS

3. Communicate

4. Compete & Share
(Visit our [Project Gallery](#)!)

It's all about getting kids EXCITED about **uncovering mysteries + increasing understanding** of the Hudson Valley ecosystem, **empowering** them to use data, & **sharing** what they discover with others!
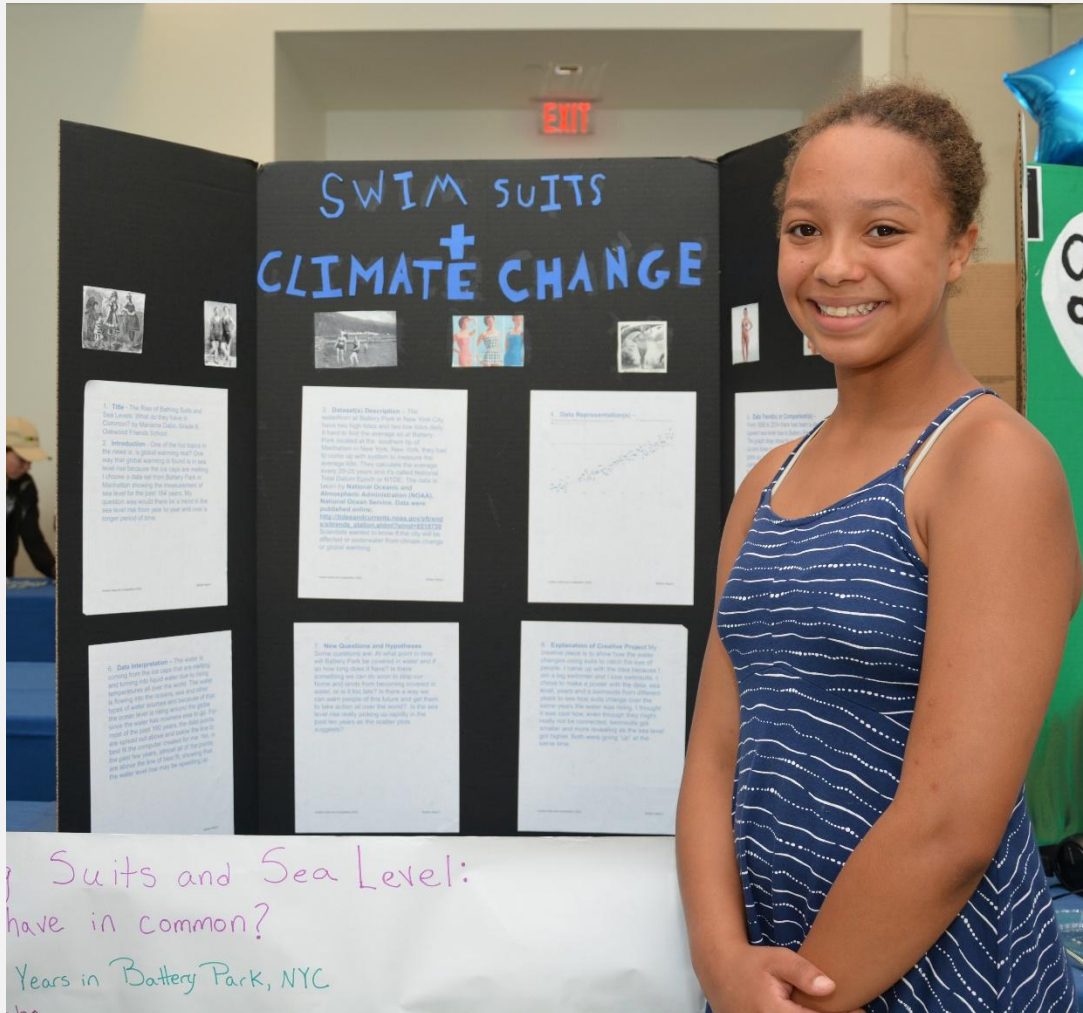
BIRD MIGRATION VIDEO FROM
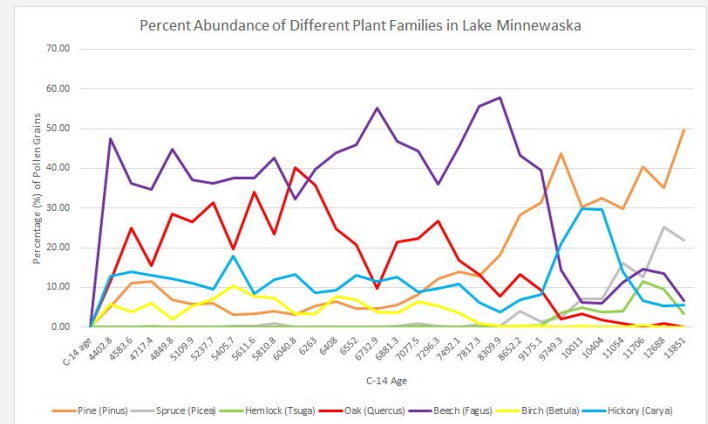# HS STUDENTS WITH THE ART EFFECT

BIRD MIGRATION CHILDREN'S STORY BOOKS
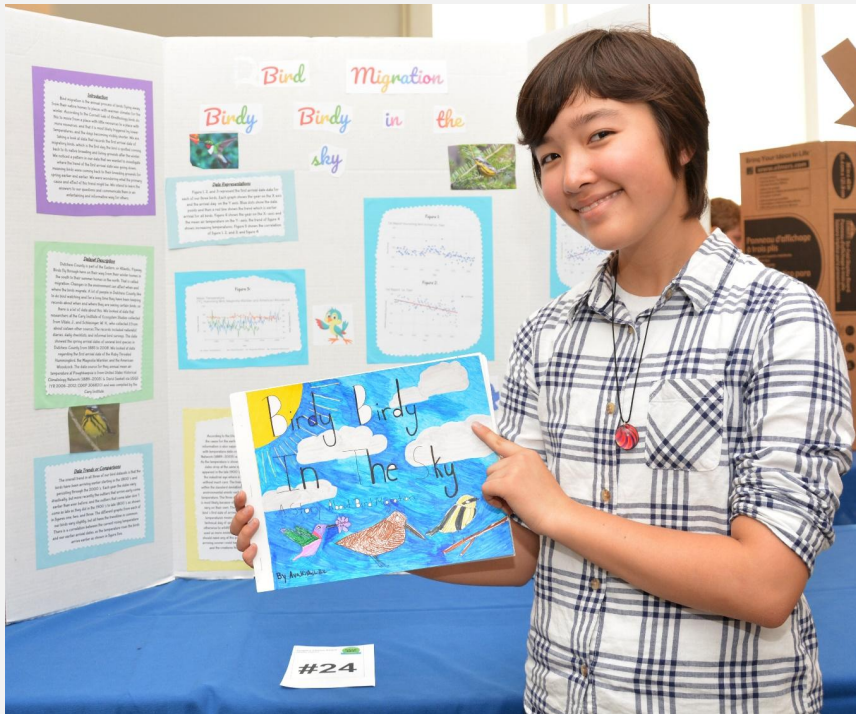
SEA LEVEL RISE VIA BATHING SUIT FASHION TRENDS

PALEOCLIMATE COMIC BOOK

PCBs in Hudson River Fish: Interpretive Dance

Now, the tomcod are able to eat whatever they want, no matter how PCB-loaded their food is

DATA JAM: INTENDED STUDENT OUTCOMES

Knowledge:
- Science involved with their projects - concepts & practices
- Hudson watershed
- Underlying ideas about data
- Availability of data about their local environment
- Scientist role models
- Study design

DATA JAM: INTENDED STUDENT OUTCOMES

- Skills/practices
  - Data literacy
    - Examples: Manipulating, summarizing, analyzing, representing, making evidence-based claims
  - Creative expression
  - Science communication: combining data with creativity

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DATA JAM: INTENDED STUDENT OUTCOMES

- Affective/feelings
  - Interest (motivation/confidence) in…
    - Data exploration
    - Creative expression
    - Combining the two
  - Identity as a data/science person

WHAT DO STUDENTS GET OUT OF DATA JAM?

RESULTS FROM 2018 DATA JAM STUDENT SURVEYS IN NM, NY, MD, PR
(N=160)
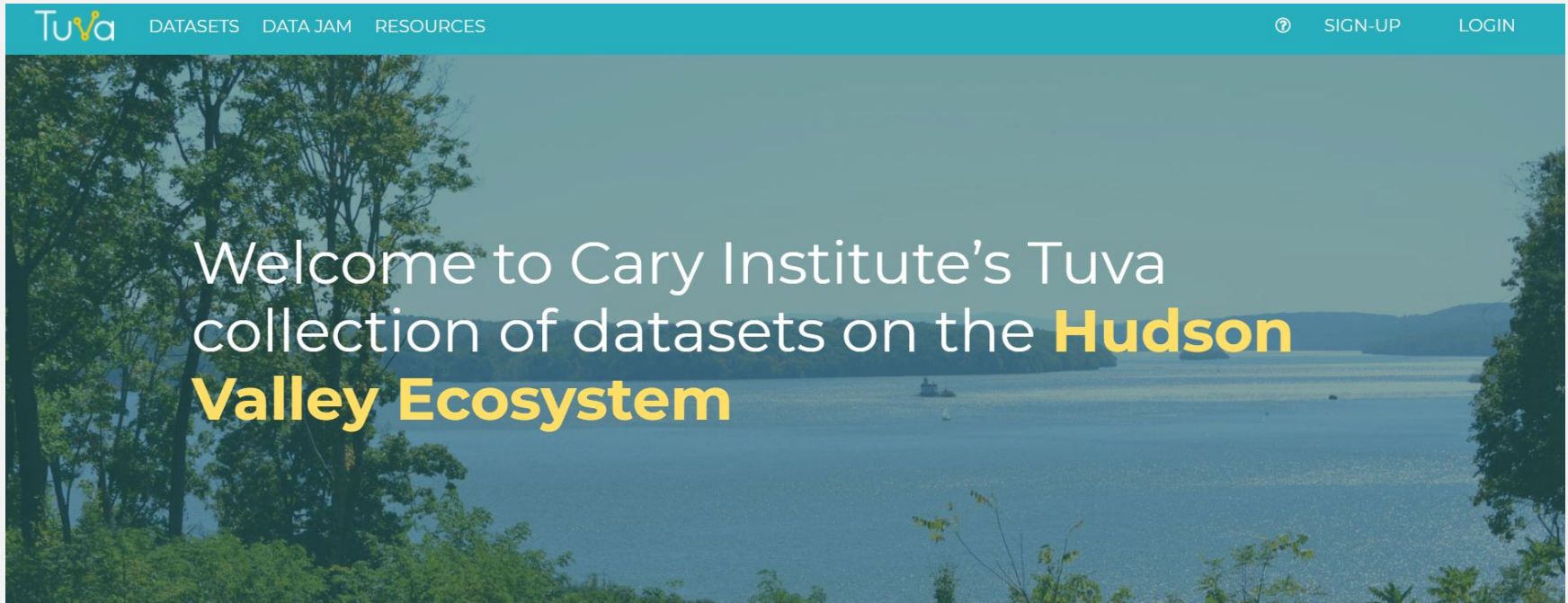
Students reporting high or very high knowledge & interest in the local environment
- Before Data Jam
- After Data Jam
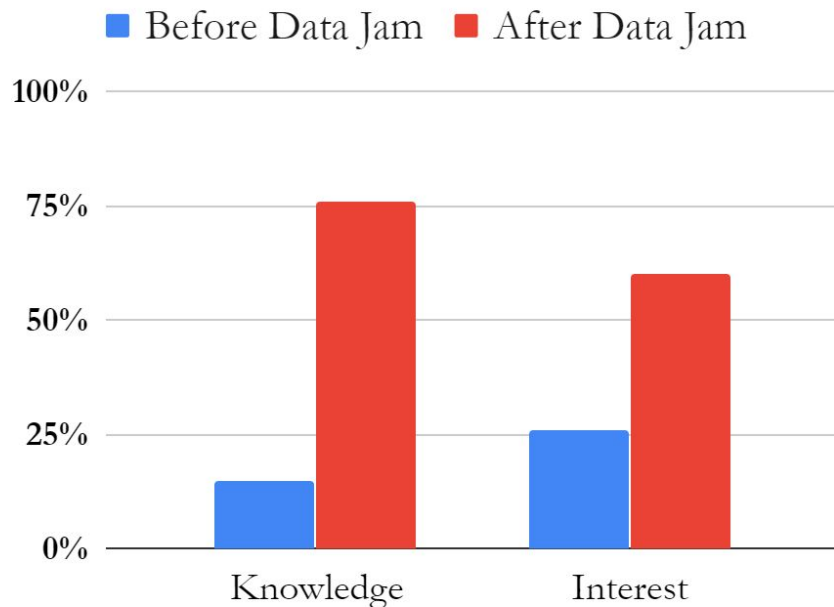
Students reporting high or very high confidence with data and creative products
- Before Data Jam
- After Data Jam
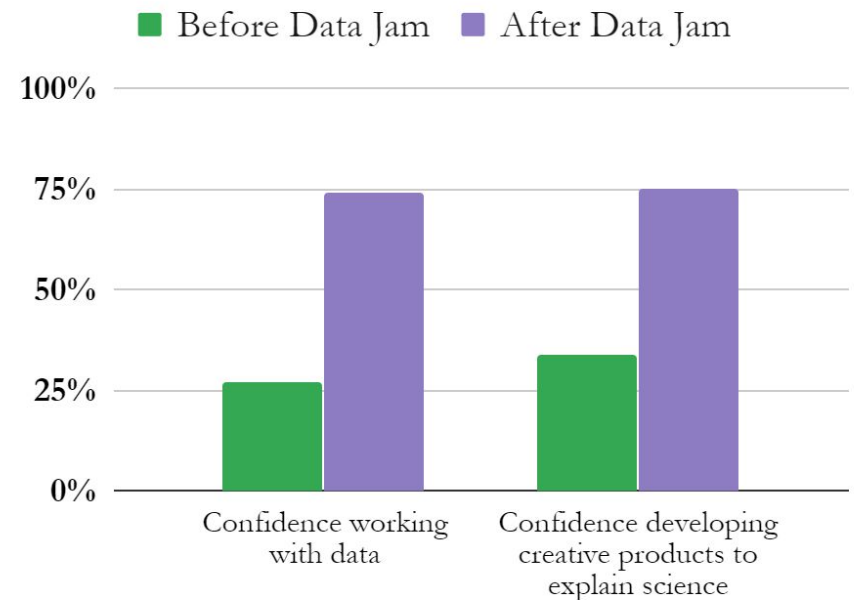
"I WANT TO USE LOCAL CLIMATE DATA WITH MY STUDENTS, BUT CAN'T COMMIT TO A LONG-TERM PROJECT LIKE DATA JAM…"

HUDSONVALLEYDATA.TUVALABS.COM

WHAT KINDS OF DATA DO WE PROVIDE?

HOW YOU CAN BE A PART OF

Hudson
DATA
JAM
competition
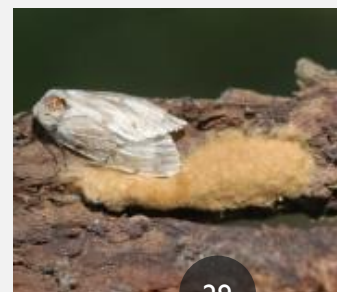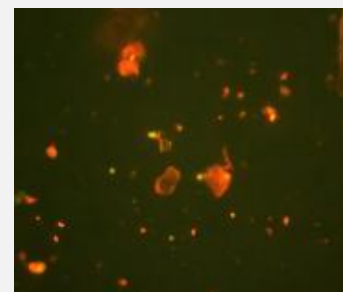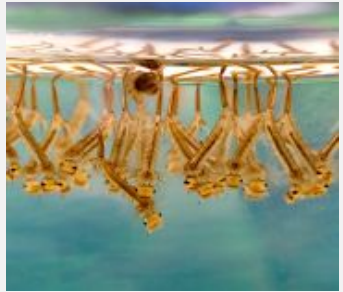
Any time!	Check out the DJ Website (www.caryinstitute.org/data-jam)
October 22	2022 Program Launch!
November 12	Pre-registration deadline
February 22	Registration deadline
March 8	Projects Due
March 31	Virtual Awards Ceremony & Celebration

Recorded Data Jam Webinars (including this one!):
https://www.caryinstitute.org/eco-inquiry/workshops-webinars

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Breakout Groups

What kinds of ideas sparked in your mind of how your students can work with data related to climate change and/or the local environment?

Sea Level in Battery Park
1856 — 2014
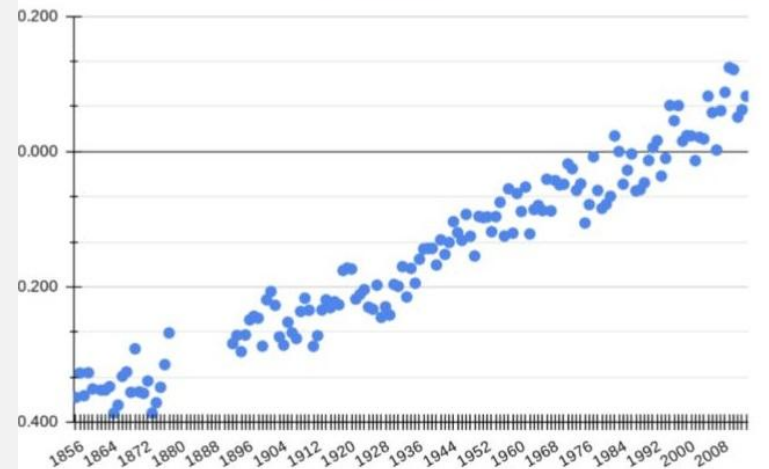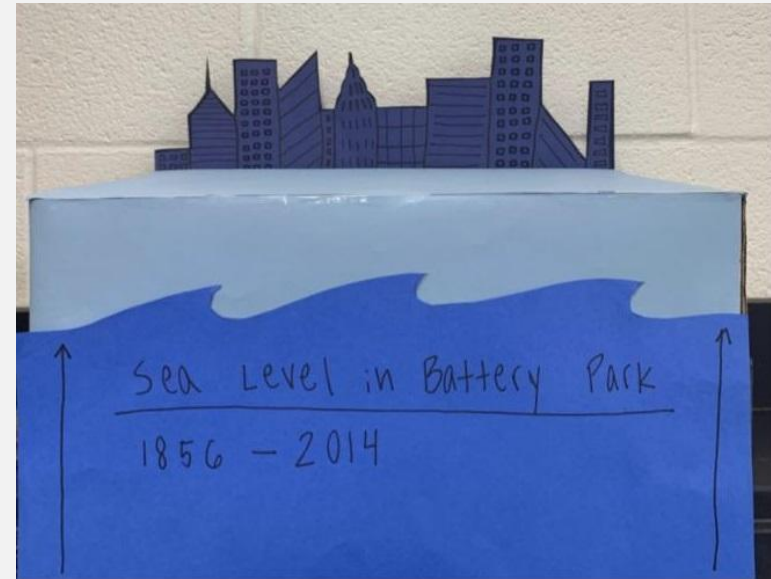
Thank You!

Questions?
Email alreda@caryinstitute.org