

Vashon  Nature Center

**Hands-On Science  
with Jordan  
Browning's 9th grade  
biology students**

Methods in community science research, data analysis, and communication



# **Vashon Nature Center has mentored biology students in field research since 2014.**

**2020 required a new approach to continue these projects thru distance learning.**

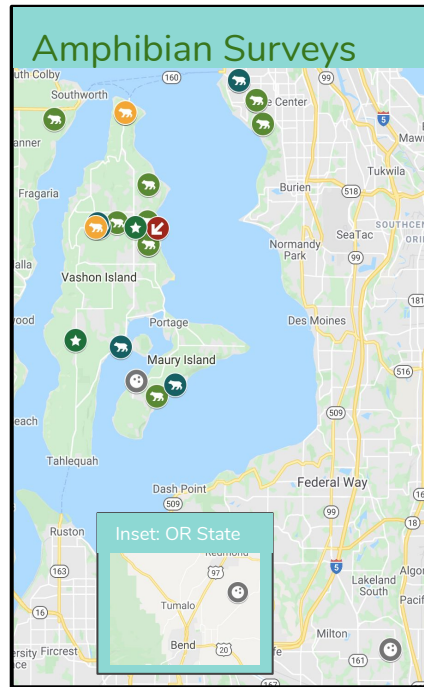
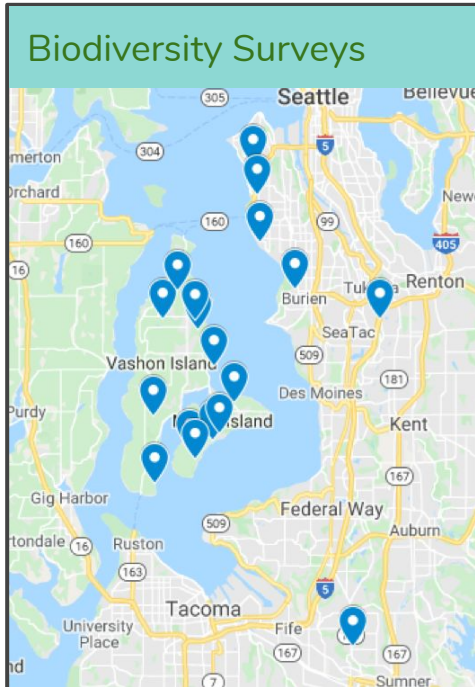
- **Independent research projects replaced the typical group field data collection**
- **Virtual round table discussions were used to communicate the research rather than communal data analysis projects.**
- **Projects included:**
  - **Seastar Wasting Syndrome monitoring**
  - **Amphibian monitoring**
  - **Biodiversity surveys**

50 students - Sea Star Wasting Syndrome monitoring

42 students - Amphibian surveys

37 students - Biodiversity research

# Student Participation & Research Locations



# Students report from the field





# Scientists volunteered time to participate in Round Table Discussions



**Melissa Miner**  
Ecology and  
Evolutionary Biology  
Academic Specialist  
UC Santa Cruz



**Jeff Adams**  
Marine Ecologist  
WA Sea Grant

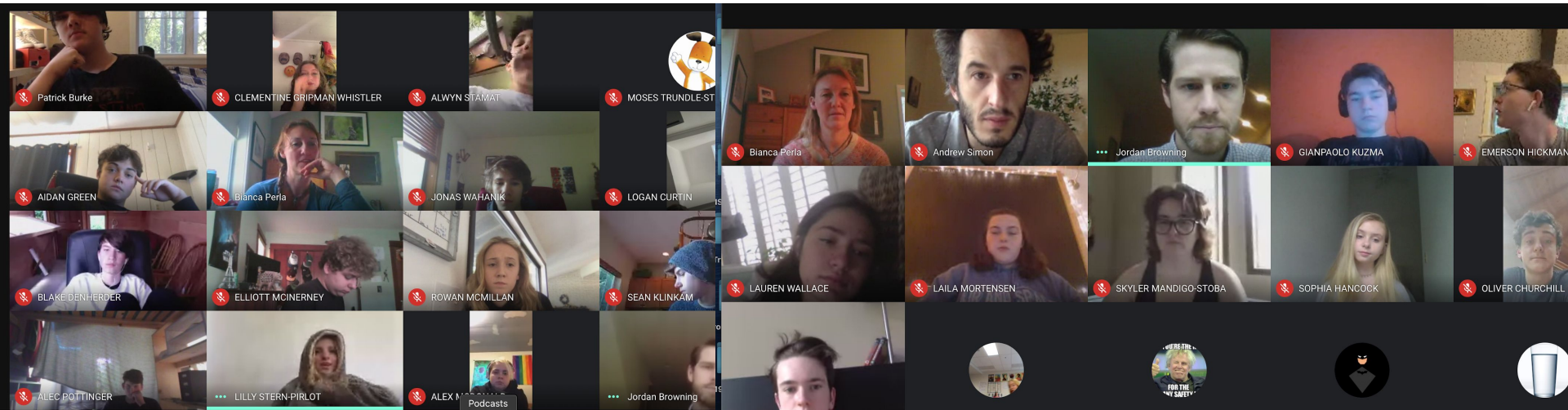


**Gary Shugart**  
Curator of Collections  
Slater Museum of  
Natural History



**Andrew Simon**  
Curator  
Galiano Biodiversity  
Project





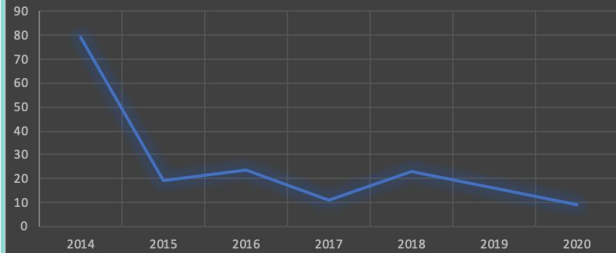
In virtual round tables, students and experts discussed the results and implications of student research as well as insights into STEM career options.



# Sea Star research results

88% decline in Vashon-Maury Island Population  
Percent Change 2014 - 2020, VHS student data

Average Number of Sea Stars per beach across all Vashon-Maury island monitored sites 2014 - 2020

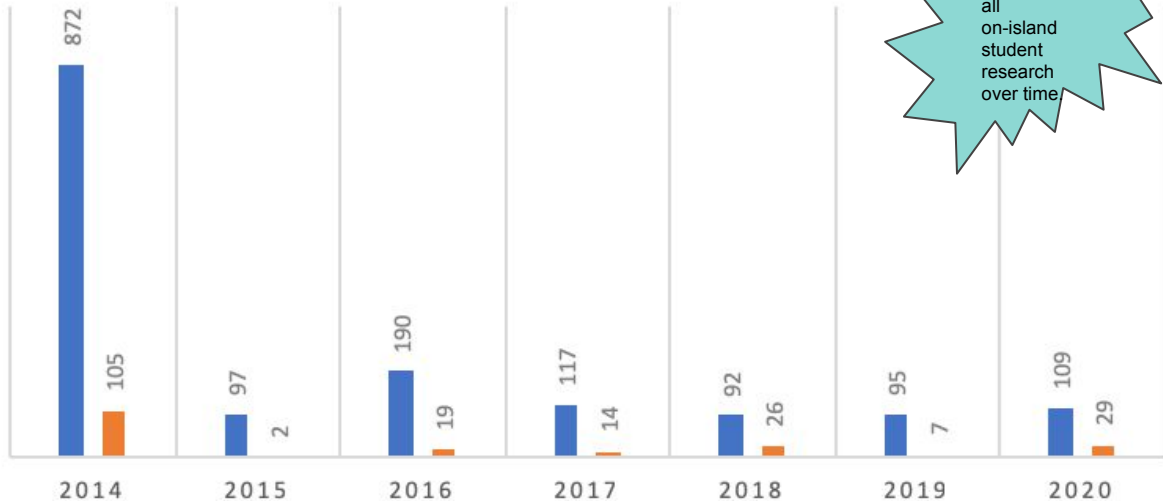


% Wasted Over time on Vashon-Maury island



## ANNUAL TOTAL SEASTAR COUNT AND NUMBER OF WASTED OBSERVED

■ Total Sea Star Count ■ Total Wasting Count



This graph is an analysis of all on-island student research over time

2020 students conducted 12 surveys on Vashon-Maury island; 8 on the mainland; and 1 on the Kitsap Peninsula.

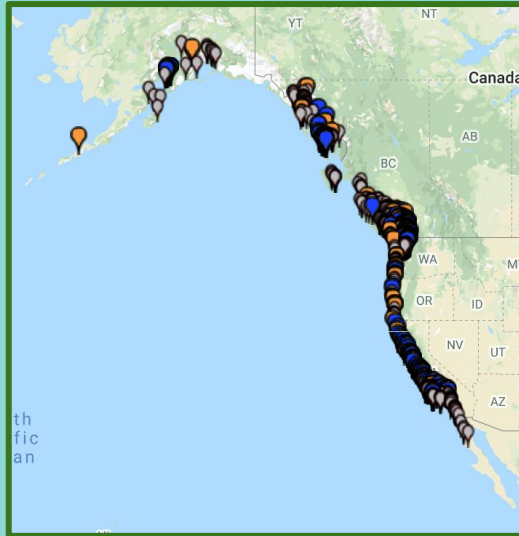
# Student research contributes to an international effort to monitor sea stars.

The multi-agency Rocky Intertidal Monitoring network centered at UC Santa Cruz catalogues observations along the entire West Coast of North America, assisting researchers in better understanding the cause,

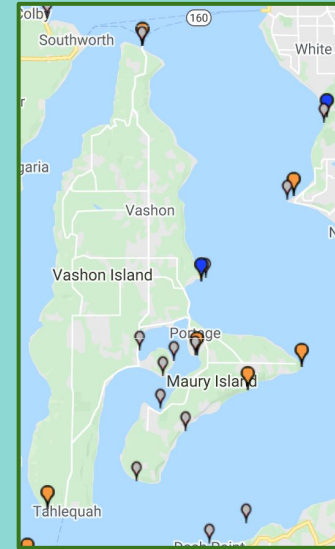
transmission, and ecological implications of this disease outbreak.



Map showing the extent of coast-wide monitoring efforts



Map showing Vashon-Maury island long-term monitoring sites.







## Amphibian research results

- ❖ Monitoring provided good spatial coverage of the island with the exception of the South end of Vashon. Data was also collected for off-island sites.
- ❖ American Bullfrogs (invasive) tended to be in pond habitats.
- ❖ Native tree frogs were detected on many surveys including sites where they coexist with American Bullfrogs.
- ❖ Certain sites detected the presence of all three of the species included in the survey. Further research is required to determine whether these are, potential amphibian hot-spots.



## Student research contributes to national amphibian monitoring

This community science program from the American Association of Zoos and Aquariums helps people around the nation monitor ponds and wetlands in their areas for amphibians.

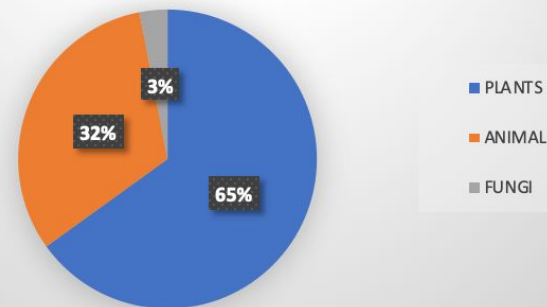


Due to their role in the food chain and diverse habitat use throughout their lives, amphibians are good indicators of biological health. Populations around the world are in decline.

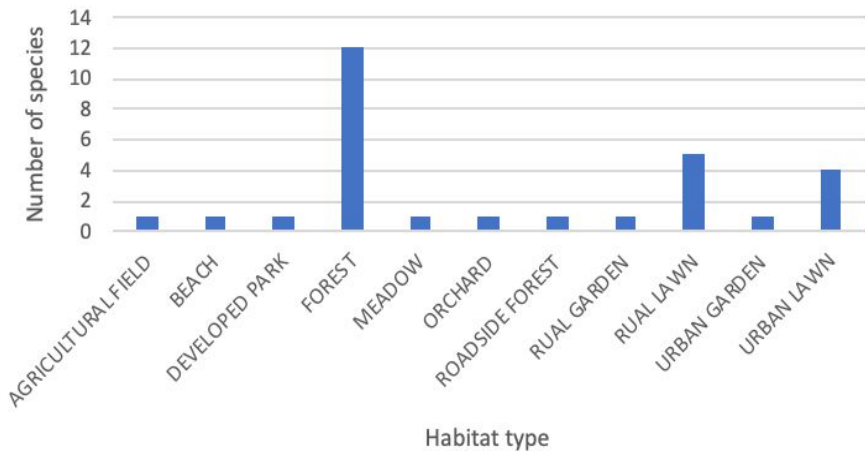
# Biodiversity research results

29 observers made 334 combined observations of 216 plant, 106 animal & 10 fungi records for 174 Individual species records

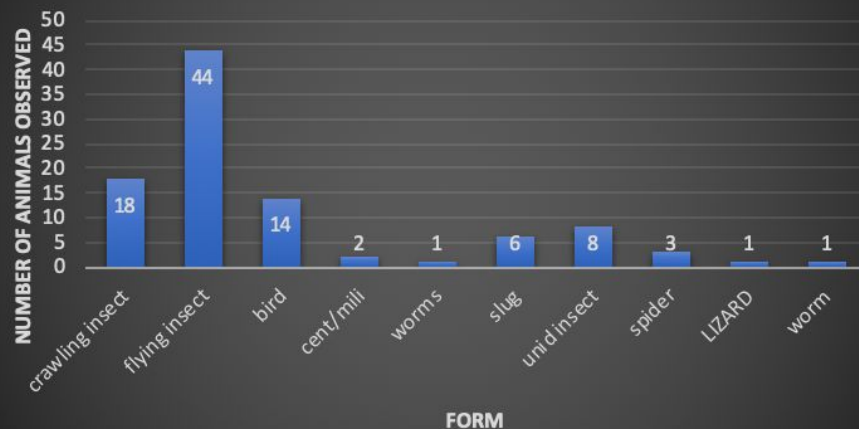
## WHAT WAS SEEN IN THE COMBINED 334 observations



## Number of species found by habitat type



## TYPES OF ANIMALS OBSERVED

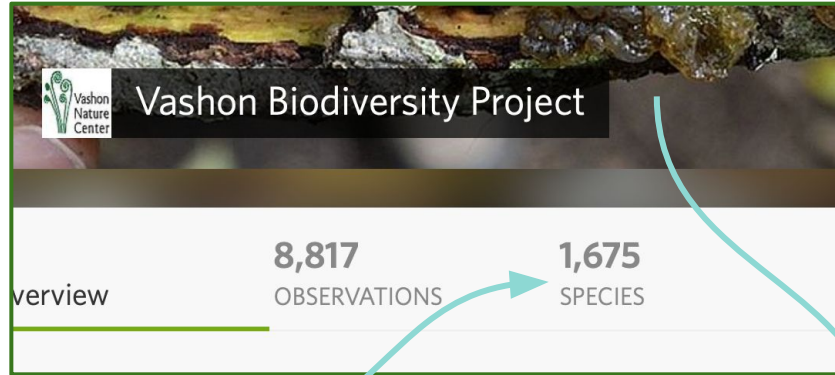


# Students contribute to worldwide biodiversity knowledge

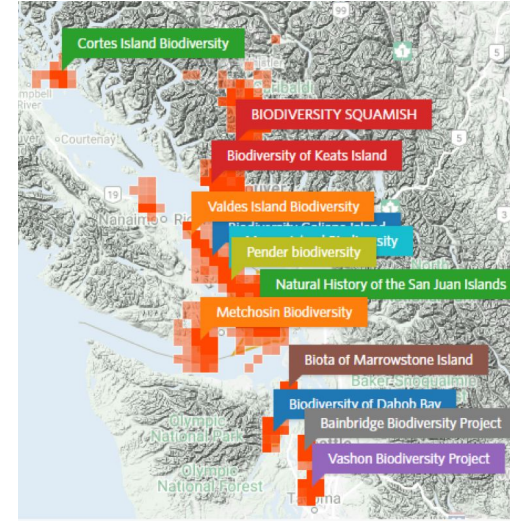
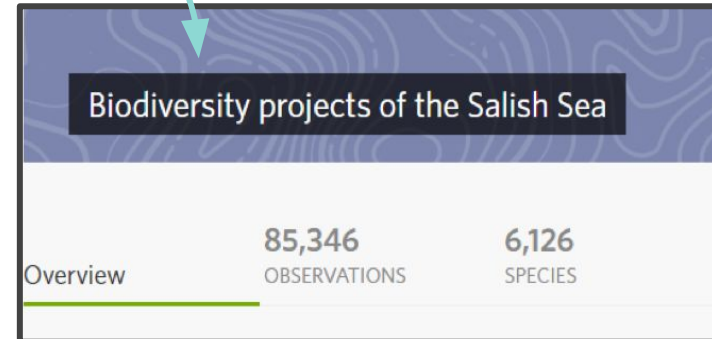
iNaturalist



Vashon Nature Center staff scientists will select student data records to add to the Vashon Biodiversity Project on iNaturalist. Which contains nearly 1,700 species catalogued on Vashon-Maury islands to date.



This data automatically feeds into a larger project which records observations throughout the entire Salish Sea.







# Student reactions to their projects...

Peaceful.

Scary.

Very adventurous.

The sun didn't set until so late.

Really fun.

Therapeutic.

Hard to take photos of moving animals.

I had to wait for eagles to fly away before surveying.

Most of the stars were in one spot.

I was surprised at how many insects there were.

Intriguing.

I didn't expect to find so many plant species in my backyard.

I had never seen tidepools before.

## **One of the more fun projects I have done.**

I did not find any sea stars.

Chill.

Cool being outside.

Surprisingly fun.

I liked being able to explore my backyard.

I learned new plants and more about the ones I already could identify.

Creepy.

I found a lot of sea stars at Raabs lagoon, most of them were healthy.

Thrilling.

Very wet.

A bit of a hike but a good experience.

I liked being out at night.

I couldn't reach the stars crammed under the rocks to measure them.



# Vashon Nature Center thanks you!

Delivering Hands on Science to students provides experiential education in the methods of field research, data analysis and reporting.



These programs would not be possible without the support of our funders and community.