Rising Waters
An Update
August 2022

Dr. Chris Halle, Nature!Tech Program Developer
Dr. Claudia Luke, Director
Ms. Kerry Wininger, Outreach & Communications Lead

“At this moment in time, we are called to lead and act with courage. We are called to embrace change. Change in our societies. Change in the management of our economies. Change in our relationship with our one and only planet.”

United Nations 2014, p. 3

Transformational Goal

An Environmentally Ready Society

…one where everyone has the skills to find solutions to challenges facing the North Bay.

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Education for a changing planet:

- First-hand understanding of our connection with the environment
- Skill-building experiences
- Innovative solutions

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www.sonoma.edu/waters

WATERS Accomplishments

- 233 projects
- 2,749 students (121 courses)
- 20+ partners/yr
- 30 faculty/yr; 15+ departs/yr
- Internships & jobs

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Flood

Challenge

Flooding Lichau Road access

Project

Flood modeling of Copeland Creek

Results

Sonoma Water flood control design

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Invasive Aquatics

Challenge

Ludwigia invasion in the Laguna

Project

Plant response to channel design

Results

Channel design for invasive species control

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Land Use Planning

Challenge

Water integration in land use planning

Project

General Plan assessments

Results

Issues, goals, policies, actions, success indicators

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Rising Waters Initiative

- Complex high-priority issues surrounding water
- Neutral meeting ground for diverse partners
- Cross-disciplinary engagement to address cultural, economic and environmental issues
- Facilitated process targeting innovative and practical solutions

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Rising Waters Process

- Rising Waters Working Group identifies issue(s)
- Multi-disciplinary faculty-student teams collect and summarize data
- Collaborative brainstorm for solutions and cost-benefit analysis by teams
- Presentations and reports

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Rising Waters supported by:

Sonoma Water

RRWA
RUSSIAN RIVER WATERSHED ASSOCIATION

Alexander Leff

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Year 2 Steering Committee:

- Michael Thompson, Assistant General Manager, Sonoma Water
- Andy Rogers, Executive Director, Russian River Watershed Association
- Emily Quig, Housing Administrator, City of Rohnert Park
- Lynea Seiberlich-Wheeler, Associate Director of Behavioral Health, West County Health Centers
- Sean McNeil, Deputy Director of Environmental Services, City of Santa Rosa
- Matt St. John, Executive Officer, North Coast Regional Water Quality Control Board
- Don McEnhill, Executive Director, Russian Riverkeeper

Rising Waters Timeline

- Fall 2018, Spring 2019 - Discussions Begin
- Fall / Spring 2020 - Funding Allocated
- Spring / Summer 2020 - Public Workshops To Hone Questions
- Fall 2020 - Identification of Steering Committee, Further Meetings to Hone Questions
- Fall 2020, - Faculty / Student Research Grants Awarded (including help with “bite sized pieces”)
- May 2021 - Initial Public Workshop Led by Students
- Sept 2021 - Formal Public Workshop (Year 1 Results)

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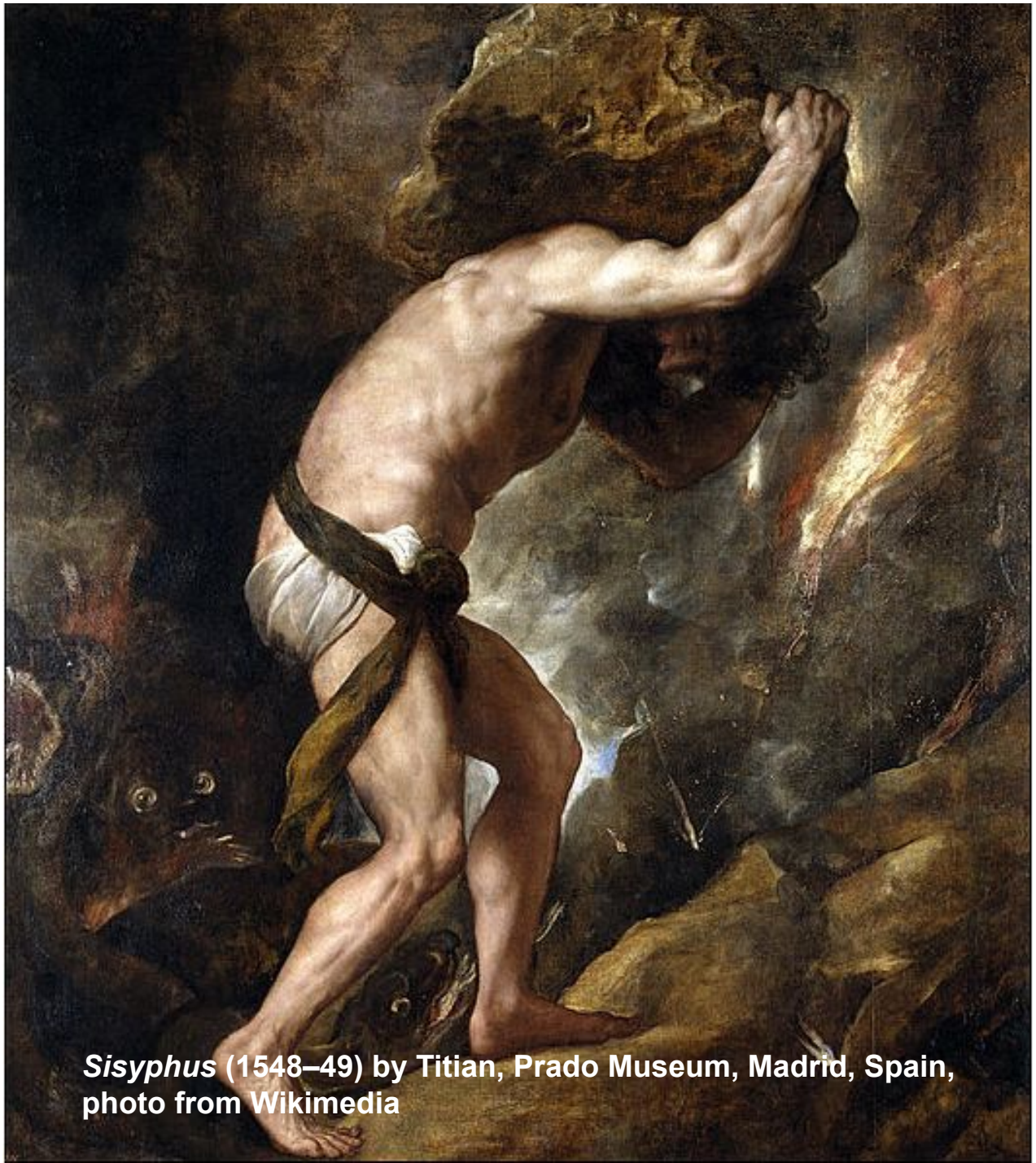

Sisyphus **(1548–49) by Titian, Prado Museum, Madrid, Spain, photo from Wikimedia**

Year 1-2: Homelessness and Watersheds

- flood protection
- water quality
- sanitation/health
- habitat conservation
- community engagement
- mythbusting

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Rising Waters Year 2

Preliminary Results

Question 1: Where Are Services Needed to Reduce Water Quality Impacts?

Refined Goal: Resource Mapping, instead of Impact / Location mapping.

Year 1: Dr. David Sul
MPA Candidate Nadine Magallanes
MPA Candidate Matt Roehm
MPA Candidate Jamie Thompson
Graduate Samantha Stevens

Year 2: Dr. Mark Gondree
Student Kyle Drewes
Student Field Team

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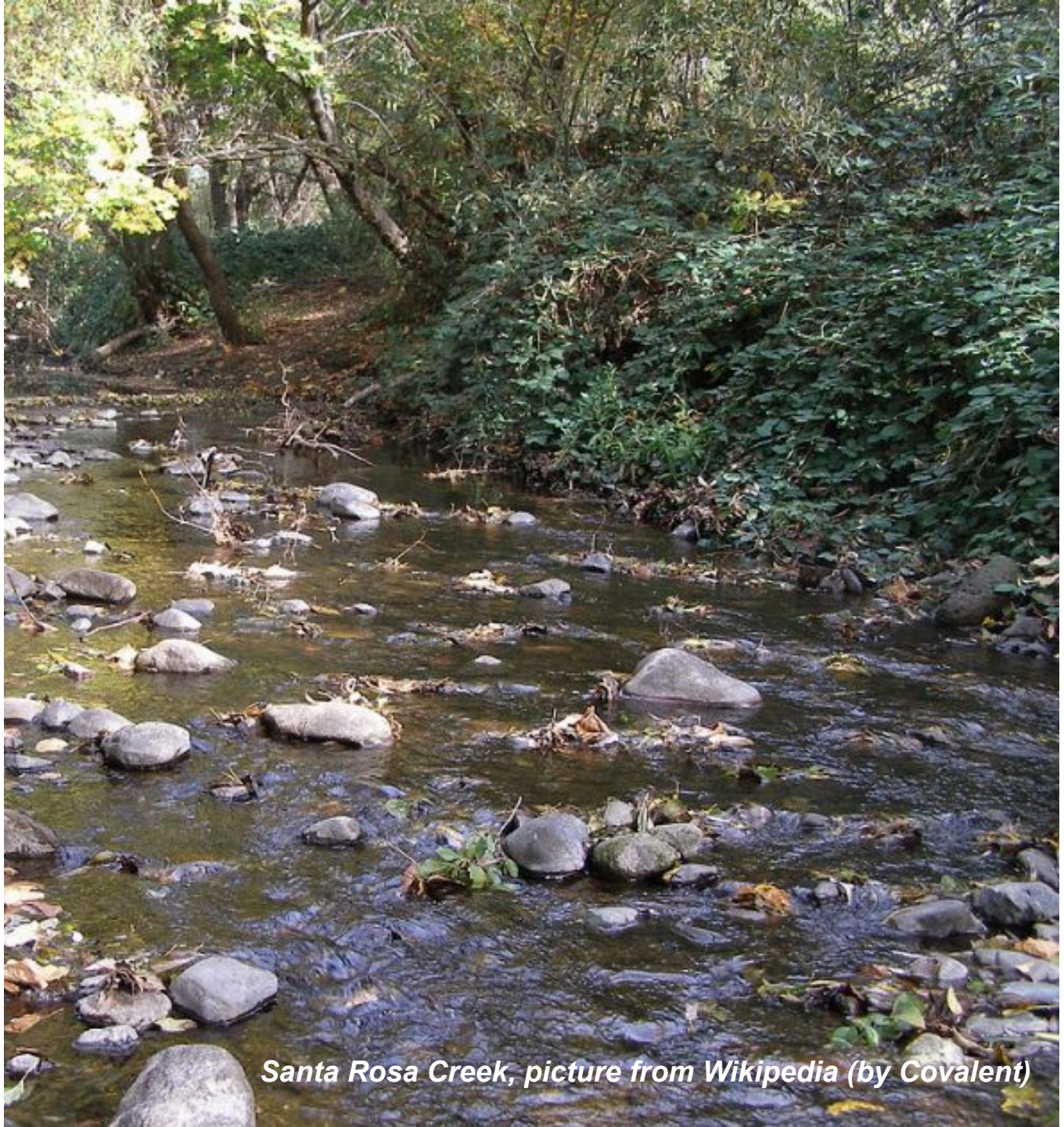
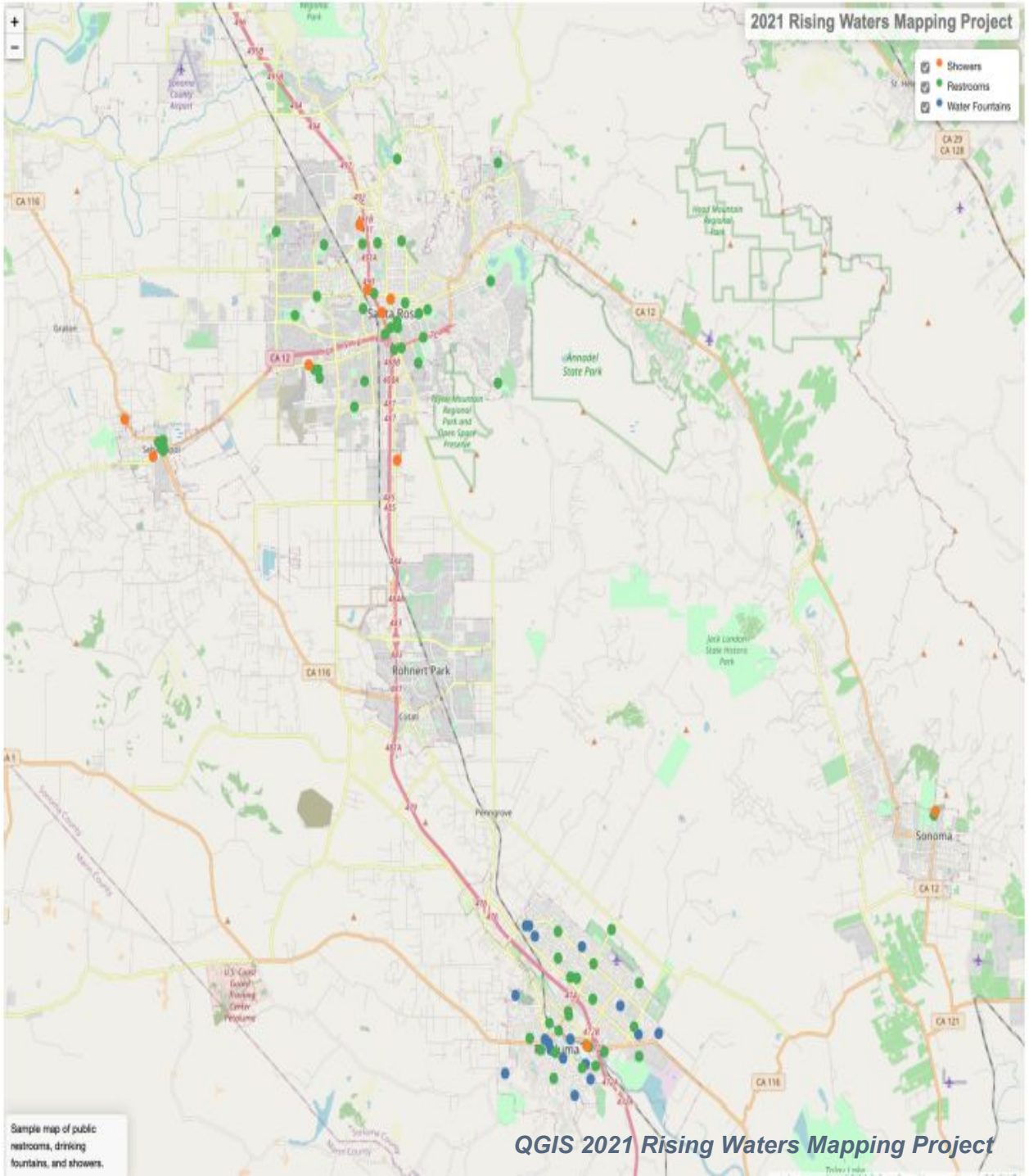


Santa Rosa Creek, picture from Wikipedia (by Covalent)

Question 1 - Resource Mapping: Methods / Results

- Two methods developed (open source versus cloud based service)
- Database of restrooms, water fountains, etc. developed
- Cloud based service is easier for sharing, maintainability, and expansion of restroom mapping to general public
- Annual cost for cloud-based service approximately $600 - $5,000.



QGIS 2021 Rising Waters Mapping Project

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Question 1: Resource Mapping Next Steps?

- Identify funding source for ongoing maintenance of the application.
- Implement security protocols to address privacy and safety issues .
- Compare mapping tool results with water-quality sampling for fecal contamination.
- Add historical observations of trash from previous encampments to better understand distribution through time.
- Add locations of agencies engaged in homeless issues (from Question 3).

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Question 2: What are the economic, social and political barriers to providing services to people experiencing homelessness?

Refined Goal Year 1: Investigate the barriers and cost of providing sanitation services. (Team: Dr. Armand Gillinsky, MBA Candidate Lauren Hart, MBA Candidate Itze Pena-Andrade)

Refined Goal Year 2: How can we engage the business community in implementing solutions? (Team: Dr. Nadiya Parekh, Social Entrepreneurship Class Students)

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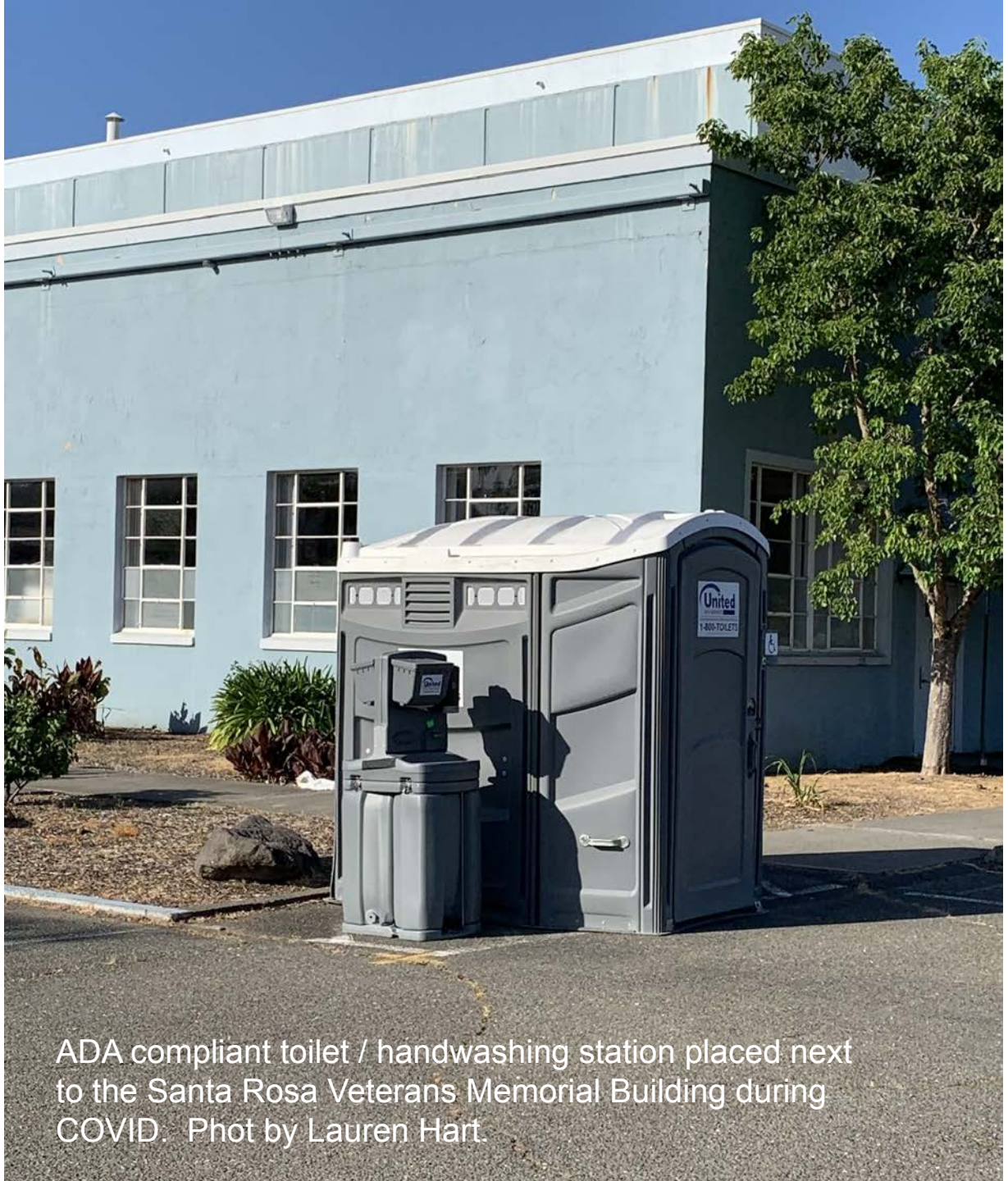

ADA compliant toilet / handwashing station placed next to the Santa Rosa Veterans Memorial Building during COVID. Phot by Lauren Hart.

Question 2: Sanitation Case Studies Methods / Results (Year 1)

- Evaluated 5 Options
- Choice of Option Depends Upon Situation
- "Do Nothing" Option Can Have Significant Costs
- SWOT Analysis (Strengths, Weaknesses, Opportunities) of Rising Waters
- PESTEL Analysis of Homelessness in Sonoma County

LavaMae Bus. *Courtesy of photographer Henrik Kam, San Francisco USA.*

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Question 2: Sanitation Case Studies Methods / Results (Year 2)

- Root causes of the “wicked problem” of water & homelessness evaluated
- Identify what has already been tried and *is* working, and what has already been tried and *is not* working
- *Suggest social enterprise solutions based on each root cause and what has already been tried*

LavaMae Bus. *Courtesy of photographer Henrik Kam, San Francisco USA.*

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Question 2: Sanitation Case Studies: “Doing Nothing”

- Hazardous Waste: up to $60,000 per clean up event.
- Law Suits (e.g. violation of the Clean Water Act): up to $100M
- Public Health Risks: The 2016-2018 California Hepatitis A outbreak was attributed to lack of handwashing and restroom facilities for persons experiencing homelessness.
- Costs that were not quantified in the study: social, environmental, recreation, tourism.

Question 2: Sanitation Case Studies Next Steps? (I)

- Identify if additional economic cost evaluations (e.g., social, environmental, recreation, health) are needed by organizations and agencies to justify the need for sanitation services.
- Work through the entire installation process with government officials at selected sites to identify the legal and logistic process of installing and funding a new station. Include social barriers as part of the study.

Portland Loo, Santa Rosa City Hall Annex, March 2021. Photo by Itze Peña-Andrade.

Question 2: Sanitation Case Studies Next Steps? (II)

- Expand study to characterize social and political barriers.
- Explore whether cities or the county can receive credits from water quality regulators for providing restrooms and sanitation. Is there an appropriate set of guidelines or a framework to receive credits?
- Gauge interest with city officials in implementing some of the proposals to engage the business community.

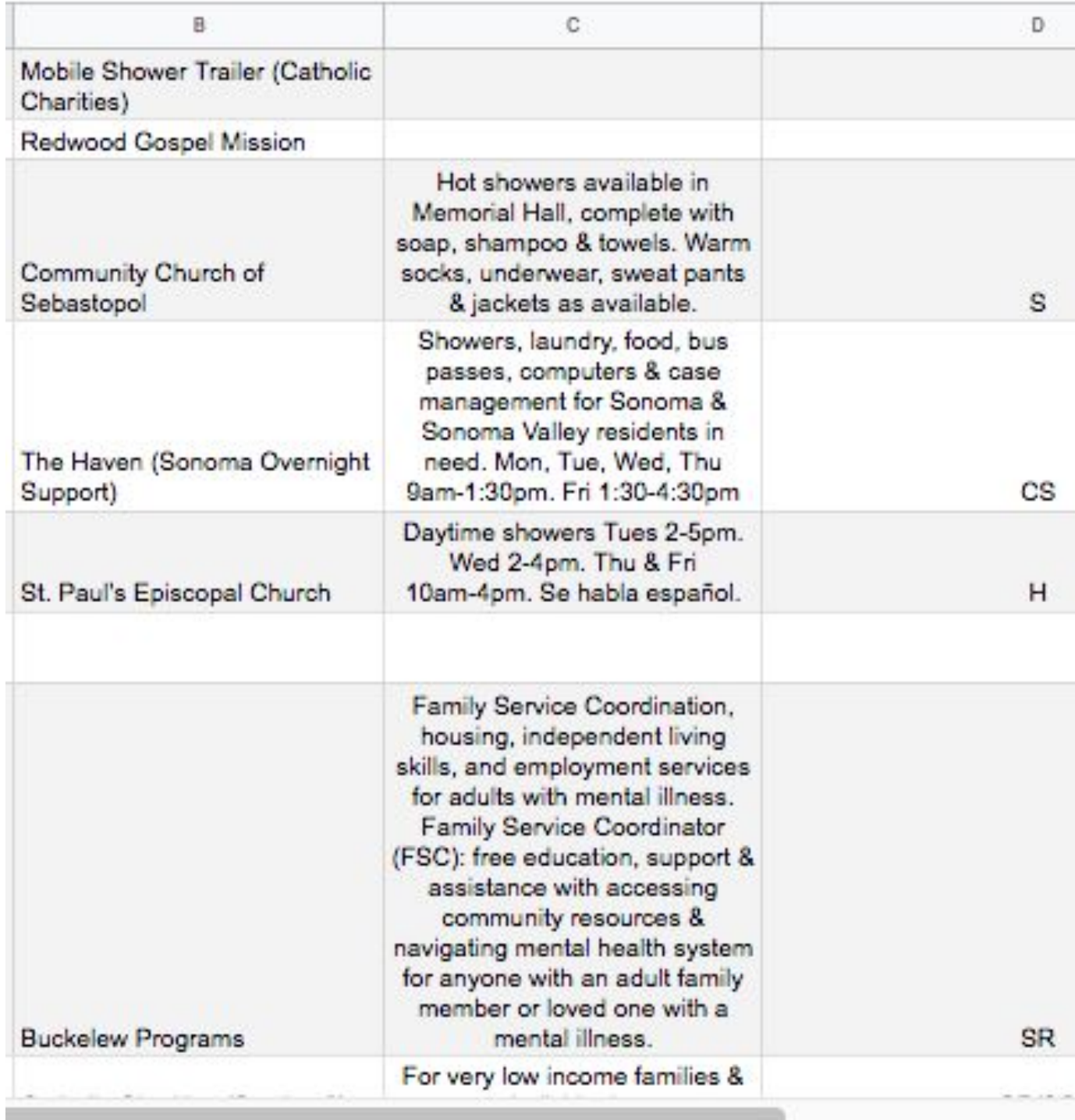
Portland Loo, Santa Rosa City Hall Annex, March 2021. Photo by Itze Peña-Andrade.

Question 3: How Can we better align investments across all sectors?

Refined Goal: Develop an inventory of organizations and individuals that work on homeless issues in Sonoma County. Interview advocates and summarize pressing issues. Begin exploring presenting this inventory in a "knowledge map".

Year 1: Dr. Megan Burke, Deborah Barrera, Lauren Williams, Camille Babida

Year 2: Emily Dewing, Darryl Maney, Teo Minkoff, Anna Ristaino



B	C	D
Mobile Shower Trailer (Catholic Charities)		
Redwood Gospel Mission		
Community Church of Sebastopol	Hot showers available in Memorial Hall, complete with soap, shampoo & towels. Warm socks, underwear, sweat pants & jackets as available.	S
The Haven (Sonoma Overnight Support)	Showers, laundry, food, bus passes, computers & case management for Sonoma & Sonoma Valley residents in need. Mon, Tue, Wed, Thu 9am-1:30pm. Fri 1:30-4:30pm	CS
St. Paul's Episcopal Church	Daytime showers Tues 2-5pm. Wed 2-4pm. Thu & Fri 10am-4pm. Se habla español.	H
Buckelew Programs	Family Service Coordination, housing, independent living skills, and employment services for adults with mental illness. Family Service Coordinator (FSC): free education, support & assistance with accessing community resources & navigating mental health system for anyone with an adult family member or loved one with a mental illness.	SR
	For very low income families &	

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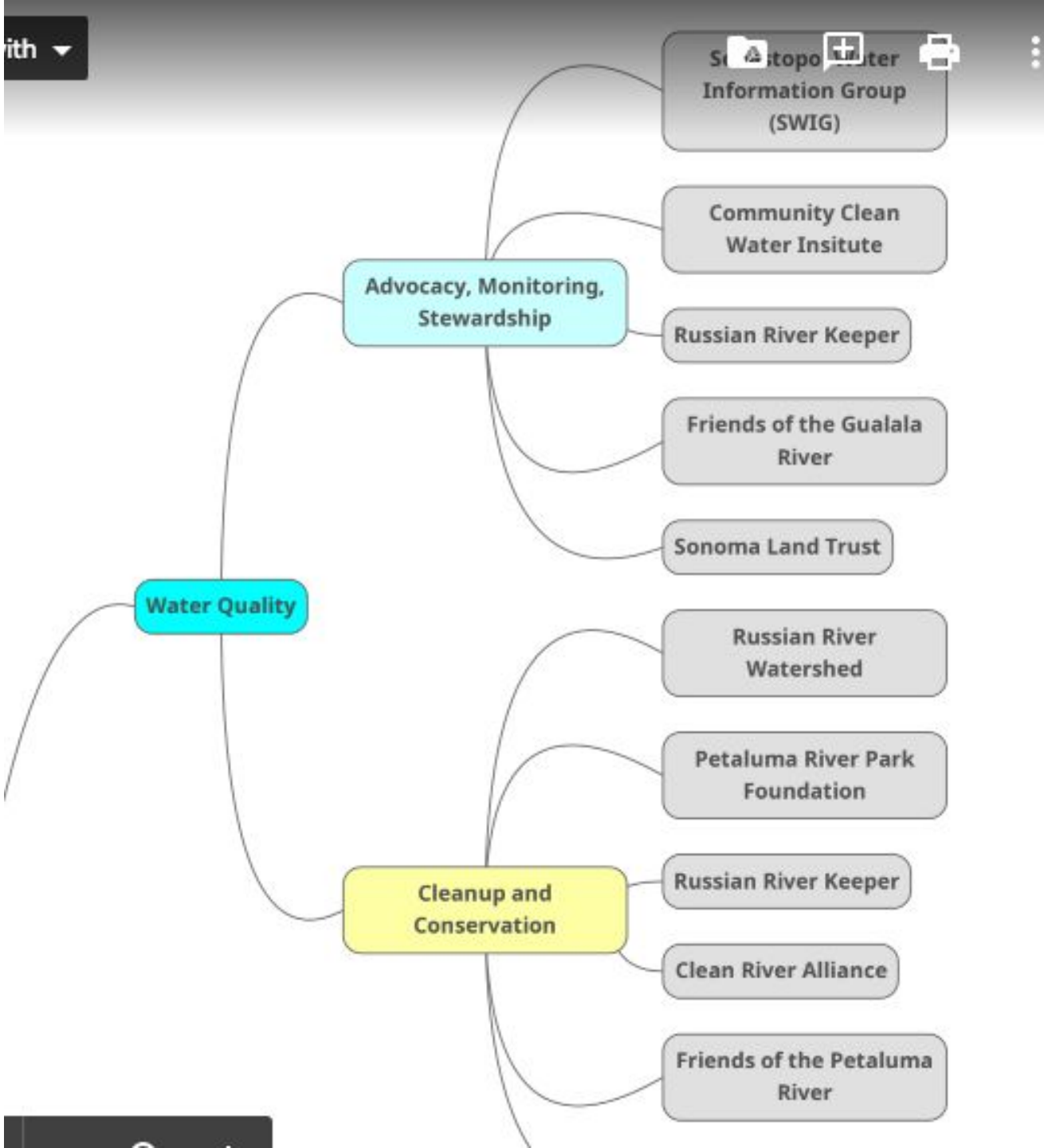
Question 3: Knowledge Mapping Methods / Results

- Initial database of 150 stakeholder organizations developed, with 33 interviewed, and more than double that contacted. Interviewees often preferred to remain anonymous.
- Education is key, even among advocates / stakeholders.
- Flexible steady funding approach identified as major stumbling block.



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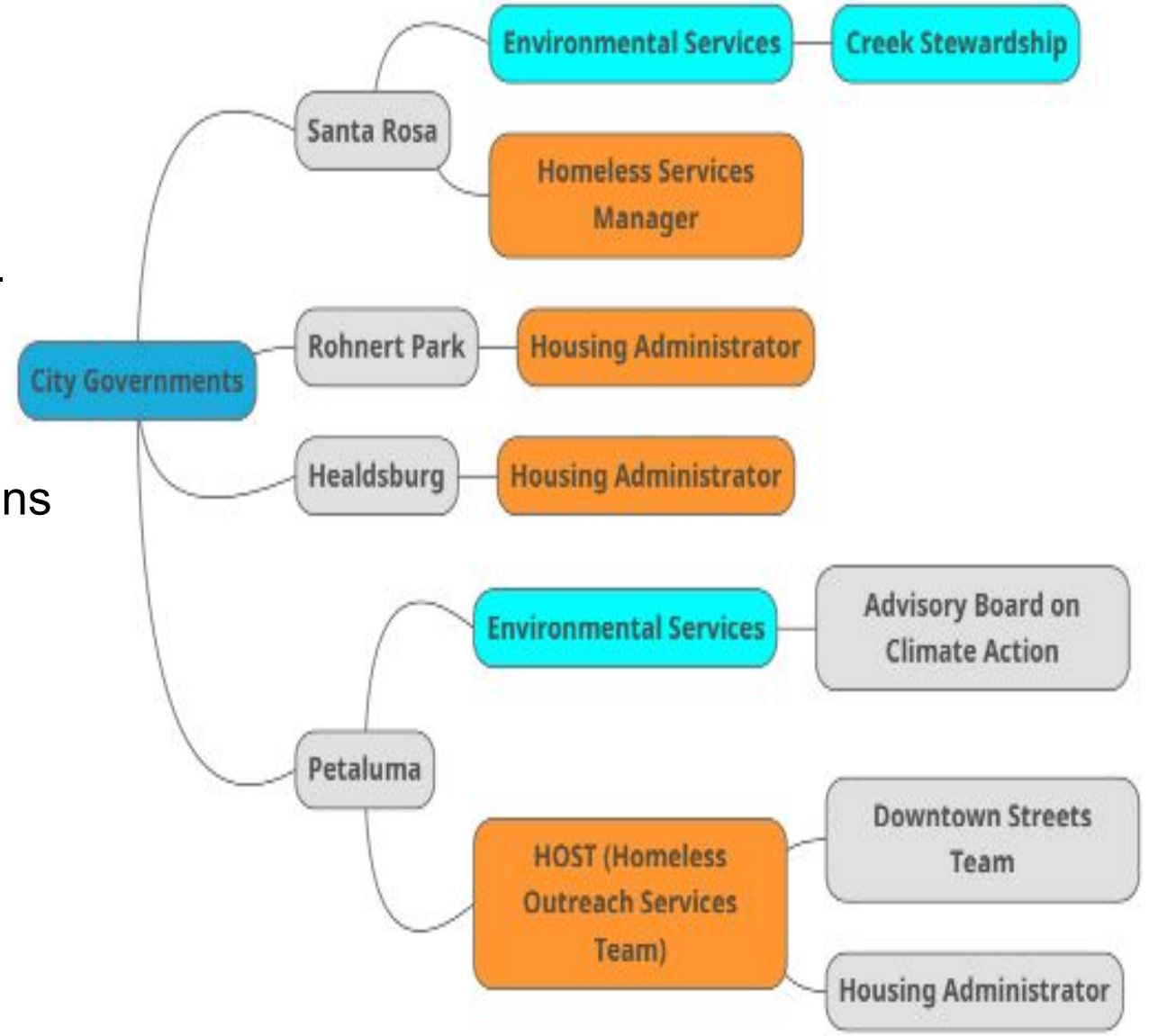
Question 3: Knowledge Mapping Next Steps? (I)

- Email and phone contact was difficult with many of these organizations. With the relaxation of COVID restrictions, perform in-person interviews?
- Use the mapping tool app (Question 1) to create a map of locations where organizations provide services to people experiencing homelessness.
- Quantify the value (reduction in human and social cost) of using the knowledge map to better coordinate efforts.

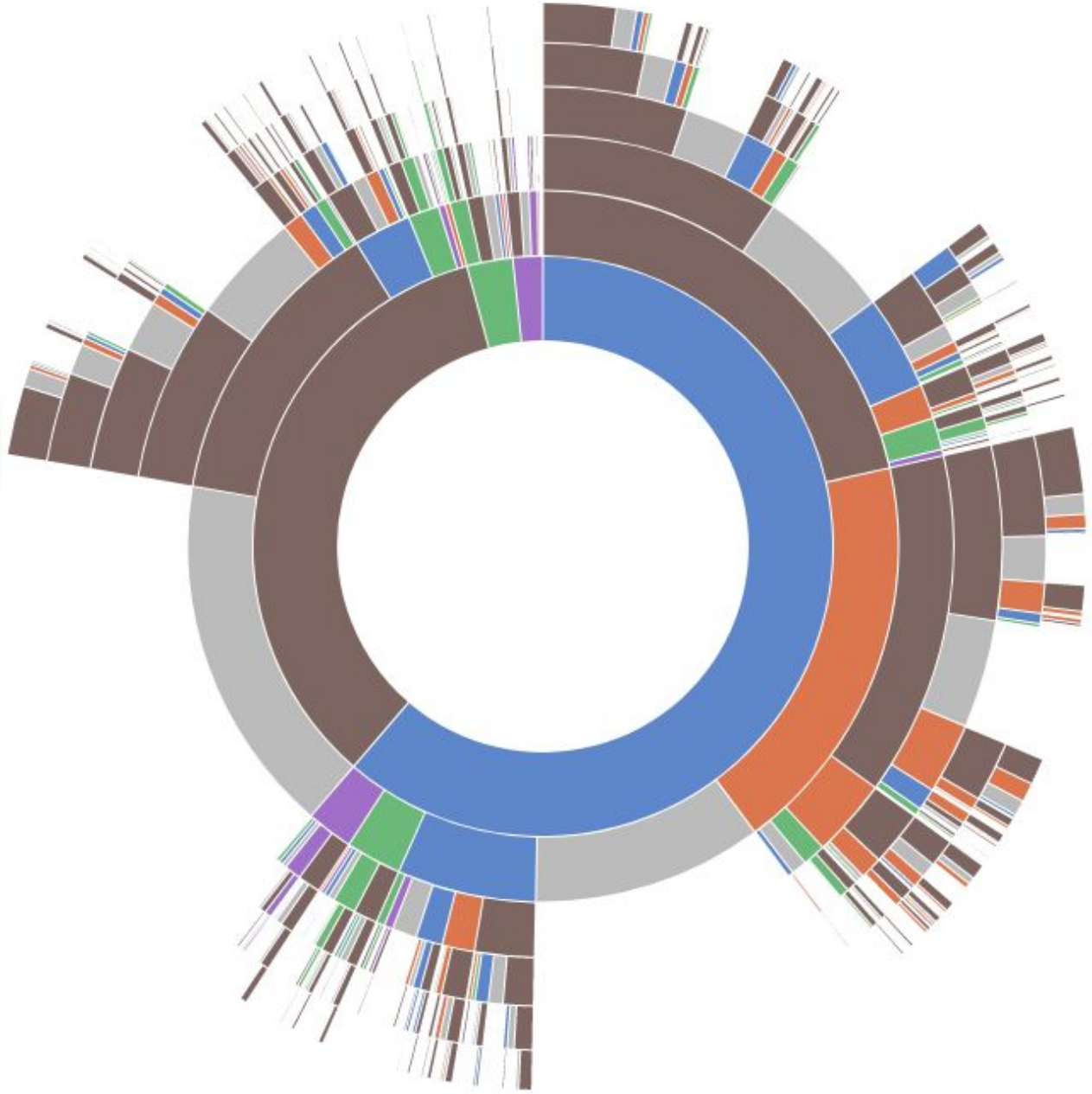


Question 3: Knowledge Mapping Next Steps? (II)

- Decide on a graphical presentation (example map from: https://observablehq.com/@kerryrodden/sequences-sunburst)

- Work with legislators to reduce the “silo effect” of distributing funds.

- Provide list of organizations to County Board of Supervisors to include with the KPMG report.



Additional Year 2 Question: Social Media Campaign (NIMBY)

Misconceptions and frustration were encountered by all Year 1 student teams. Some of these occurred even among public and homeless advocates.

Project: Begin to develop an Education / Public Media / Story Campaign about homelessness and water issues.

Team: Dr. Emily Acosta-Lewis, Catherine Eisenhauer, Priscilla Navas, Paige Wear, and SSU's Intro to Public Relations course students

Homeless Shelters at Finley Community Center.
Picture courtesy of Santa Rosa Press Democrat.

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Additional Year 2 Question: Social Media Campaign (NIMBY)

Items Developed:

- Public Relations plan
- Media product library
    - Social media posts
    - Poster presentation
    - Flyers
    - News Release

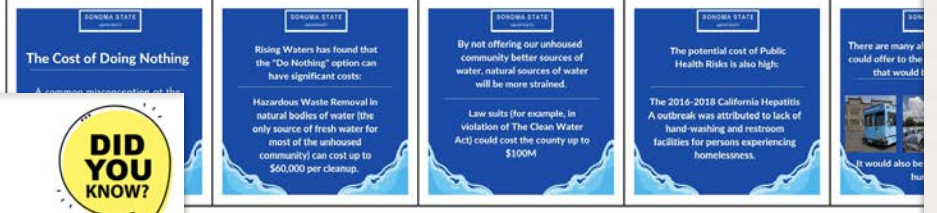
Work Planned to Continue, Seeking Input

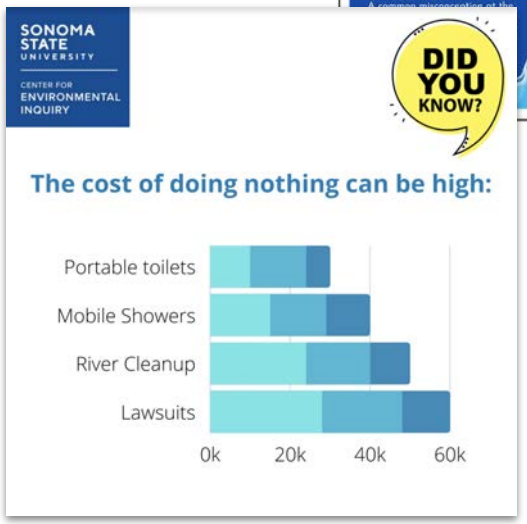
Week's Worth of Posts with a small description.

Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.
Rising Waters Info	Student Involvement	Rising Waters General Post	Myth vs. Fact: Long Term Residents	Did you know? Water Services	Cost of Doing Nothing	Myth vs. Fact: Cost of Doing Nothing

Multi-Slide Post

Slide 1	Slide 2	Slide 3	Slide 4	Slide 5





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In Development: Water Quality Sampling

- Field Work May Be Possible This Coming Season
- Clearly document / establish link between homeless encampments and water quality issues?
- What kind of water are individuals experiencing homelessness exposed to?
- Can cities receive credits for cleaning areas impacted by camps?

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Academic Year 2022 - 2023

- **Resource Mapping**: Identify funding and ownership? Student-run event for feedback then update features?
- **Sanitation:** Continue Study? Mock-facility installation? Shift to Engagement of Business Community?
- **Knowledge Mapping**: Engage with Board of Supervisors? Move to in-person outreach? Create a graphical map? Fit results into KPMG report? Work on power & water stations with Lehigh University?
- **Public Relations:** Implement the PR plan? Create new content (e.g., interviews)? Present to city councils?
- **Water Quality Sampling:** Begin Sampling?

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Feedback?

- Would you like to be involved?
- Do you have suggestions for the coming year?
- Is the information useful?
- Do you agree with the next steps we outlined? Are there next steps we missed?

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Transformative Impact

> “I am walking away with valuable skills: teamwork, leadership, communication, and creativity.”

Nicole Manzares

An Environmentally Ready Society

More Waters Information:

http://cei.sonoma.edu/waters/about

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Claudia Luke: lukec@sonoma.edu
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