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ENVS 3999: UConn Climate Corps

Climate Vulnerability Assessment and Business Resilience Council Propositions within the Mystic River Watershed

Overview:

The Mystic River watershed is located in southeastern Connecticut and includes parts of the towns Stonington, Groton, Ledyard, and North Stonington, as well as the Eastern and Mashantucket Pequot Nations. This part of the state is a popular tourist destination, especially in the summer. Downtown Mystic is home to dozens of bustling restaurants and shops. The Eastern and Mashantucket Pequot Nations own the Foxwoods casino, which is also a large tourist attraction year long. The watershed is feeling the effects of climate change, as are the communities and businesses in the area. For this project, I worked with the Alliance for the Mystic River Watershed. The general goal of the Alliance is to create a comprehensive watershed resilience and adaptation plan by the end of 2025. The report will have three parts. One-third of the report will consist of a repository of community data. The other two parts are based on the data, including an ecological health plan and a climate resilience plan. I am going to be helping them with the climate resilience part. The overall goal of my project will be to talk to communities, specifically people who work or own businesses in Groton and Stonington, and let them voice their concerns. I will be reaching out to employees and business owners in the Mystic area. I will also be reaching out to other relevant people, including oyster retailers, the head of

the Chamber of Commerce, town sustainability directors, professionals doing their climate vulnerability assessments, as well as many other community members. The end goal of the project will be hosting a design clinic, or essentially a gathering where the people I have met with can come together

Stage 1: Research and Planning

Connecticut is experiencing severe effects due to climate change. The state has seen a 3.5°F increase in its average temperature. Sea levels are estimated to rise 1-4 feet by 2100. Mystic is located on the southern coast of the state which connects to the Long Island Sound. Based on Groton's 2024 Downtown Mystic Resiliency and Sustainability Plan, Mystic is most vulnerable to flooding due to sea level rise, flooding due to increased rain events, and extreme heat. Mystic is a wealthy area. Its estimated median household income in 2022 was nearly \$125,000, which is over \$35,000 higher than the Connecticut average.

The first planning step was creating a list of contacts. Through recommendations from Maggie Faveretti, Julianna Barrette, and my prior knowledge of Mystic I created a list of over 20 businesses in and around downtown Mystic.

Stage 2: Interviews

I reached out to over 20 businesses in the Mystic area including Mystic Art Center, Old Mystic History Center, Mystic Seaport, Red 36, Bravo Bravo, Sift Bake Shop, Young Buns, Mystic Sweet Shoppe, Kenzie's Fudge & Chocolate shop, Mystic Park Ice Cream, Army/Navy Store, Company of Craftsmen, Mystic Bookstore, Fatface, Blue Heaven Kayak Adventures, Lis Bakery, Richard Dixon law firm, Adventure Mystic, The Ditty Bag, Schaeffer's' Marine, Mystic

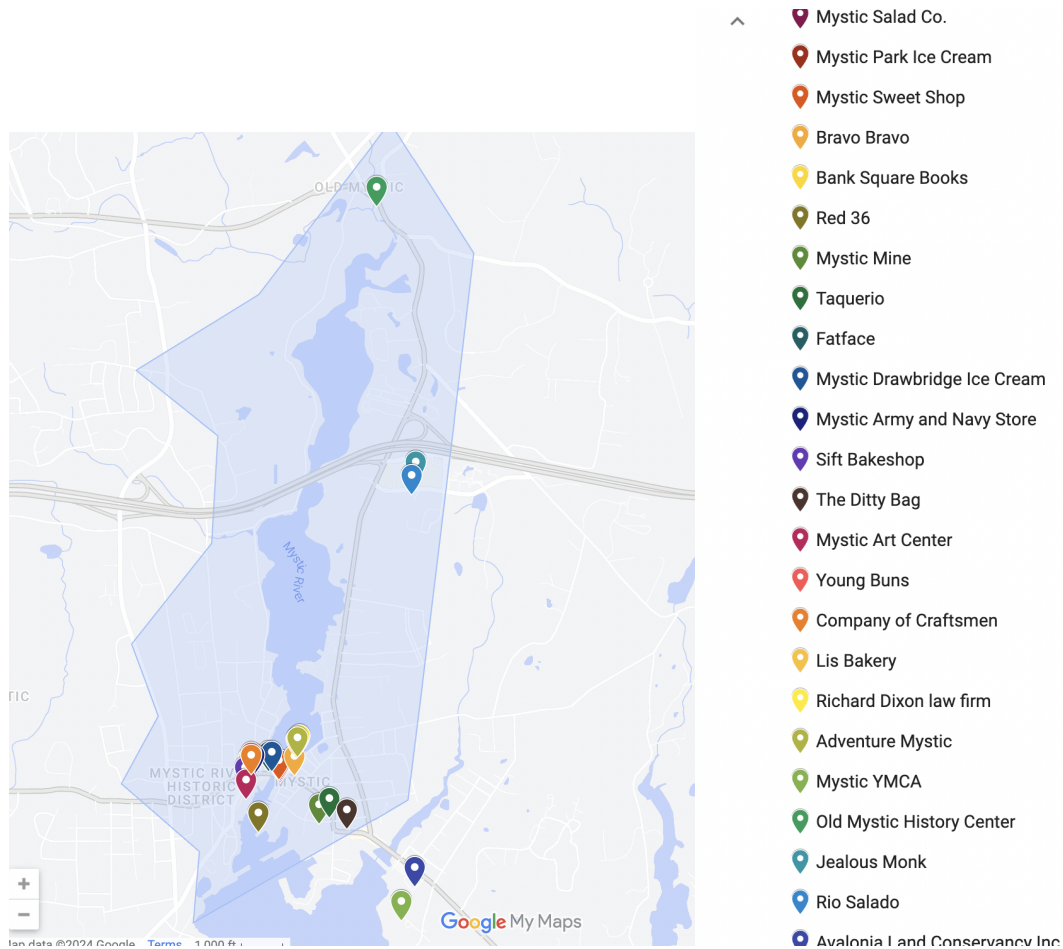
YMCA, Mystic Mine, Jealous Monk, Rio Salado, Taqueria, and Mystic Salad Co. Richard Dixon law firm and the Mystic YMCA did not believe they were the best fit for my project and therefore did not answer any of my questions. The questions I asked each other the businesses included:

- What is your name and what business do you work for?
- What is your position in the business?
- How long have you worked here?
- Where are you from? How long have you been in CT?
- Have you experienced any of the following within the last year: downpours, clogged drains, tidal flooding including high tides and king high tides, heavy precipitation, stormwater flooding, coastal storms, algal blooms, drought, or increased need to use air conditioners?
- If you have been in the business for multiple years, have you noticed an increase in these events? If so elaborate
- Have you noticed any of these events interfering with your business or services?
- Have you noticed a fluctuation in tourists due to any of these events?
- Has your business experienced any damage or required renovations because of climate-related events?
- Are you aware of the hazards and risks that may occur because of climate change in your area?
- Would you be interested in joining our Resilient Business Coalition and participating in a brainstorming and resilience session?

I was able to talk to 5 business owners (The Ditty Bag, Red 36/Bravo Bravo, Sift/Young Buns, Mystic Army and Navy store, Mystic Sweet Shop), 1 COO of a group of businesses (including Jealous Monk, Rio Salado, Taqueria), 1 keyholder, and many other employees.

Stage 3: Analysis and Meeting Objectives

Based on accounts from local business owners, as well as previous climate vulnerability assessments from the area, the largest concern for Mystic businesses is flooding. Every single business representative I talked to stated they had noticed flooding in the Downtown Mystic area. Additionally, half of the business representatives stated that they have noticed increased flooding events over the last year. I had over 5 businesses talk about how the flooding has affected their business, and one business owner stated she could see the effects on her business's profits. The owner of Kenzie's Fudge and Chocolate Shop explained how the flooding was getting so bad that she is expecting to have to relocate her businesses eventually if the issue continues to get worse. Another major issue that two of the businesses mentioned was extreme heat. One long-term employee of Fatface recalled a time when a patron entered their store on a hot summer day and was exhibiting signs of heat stress. The employee expects these events to increase as global warming continues. I created an interactive map where you can see more detailed accounts of each of the interviews I conducted below.



Interactive map of the businesses in the Mystic River Watershed

https://www.google.com/maps/d/u/0/viewer?hl=en&hl=en&mid=11d_18rRTPLzqfWml2RcTSyneUlXh3fA&ll=41.34867898648965%2C-71.94413038657227&z=13

Alongside the Alliance and Bruce Flax from the Mystic Chamber of Commerce, a resilient business brainstorming meeting was planned for April 24th. The flier shown below was sent to each of the businesses I was in contact with, listed above. Additionally, the flier was passed off to the Chamber of Commerce to be showcased on their social media and in their newsletter. However, due to the timing of the event and the busy nature of the month, the event

was postponed to a later date. The event will still take place and the materials I prepared for the event can be updated. Below is the meeting agenda:

- Greeting/ Purpose/ Outcomes (10 minutes)
 - This will start with my introduction, followed by introductions from the alliance and then everyone else in attendance. I will then present a brief slideshow outlining the purpose of the meeting and the results from my research, as well as what I learned from the business interviews. Finally, there will be a brief explanation of what outcomes the meeting will ideally produce. This includes how we want the participants to feel.
- Part 1: Discussion groups (20 minutes)
 - Depending on the number of attendees, they will be split up into small groups. Each group will have a set of prompts and/or questions printed out onto strips of paper. The purpose of these is to get people talking about their experiences regarding climate change and its effects. Each of the groups will have a large piece of paper to record any commonalities or important details. We will leave some time at the end of this section for people to share with the full group some of the details they recorded.
- Part 2: Brainstorming solutions (25 minutes)
 - In this section, each of the groups will begin brainstorming solutions for the issues discovered in part 1. Idealization means coming up with ideas that may be completely impossible or unrealistic. The goal of this is to see how many each of the groups can come up with. Once the brain has its chance to be creative, people

can start brainstorming more realistic solutions. All of these ideas will be recorded on another sheet of paper.

- Part 3: Find a consensus of ideas and separate them into different areas (25 minutes)
 - Taking the solutions created in part 2, participants will merge into one group and analyze common ideas. Solutions can then be separated into different categories based on the feasibility, the purpose, the location, etc. For example, any LID solutions can be grouped.
- Part 4: Reflection and priority ideas (10 minutes)
 - Finally, the last thing the meeting will consist of is a reflection. Remembering back to the beginning of the meeting, participants will reflect on the objectives of the meeting. Finally, the Alliance and participants will determine which ideas should be priority solutions. People who would like to join the resilient business coalition and continue to plan solutions will provide a contact email to the Alliance.

**HOW TO STAY OPEN IN HIGH WATER:
A Resilient Business Challenge**

The Alliance for the Mystic River Watershed invites you to join us for an evening of brainstorming and problem-solving. Through statements from local business owners and employees, the issues that many Mystic businesses face have been revealed. The biggest one is flooding which affects access to local businesses. Come meet people who share your concerns and begin to come up with tangible solutions. Refreshments will be provided.

If you plan to come, we challenge you to bring with you a friend or colleague. Everyone brings their own unique experiences and ideas!

For more information, email pajec.booth@uconn.edu.

**WEDNESDAY, APRIL 24TH
7 PM
THE MYSTIC SEAPORT MUSEUM'S
MASIN ROOM**

↑ Scan to RSVP! ↑

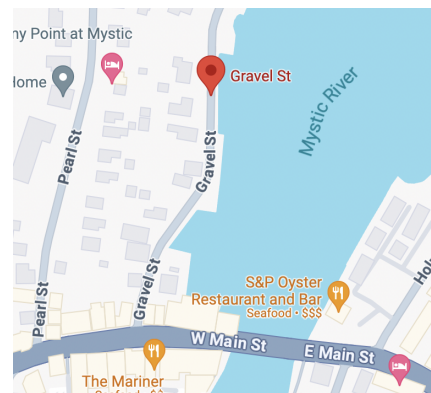
Image of flier made for the resilient business meeting

As mentioned above, the major issues that the resilience secession will focus on include flooding and extreme heat.

Stage 4: Suggestions

As flooding that interferes with parking is a large issue for many of the businesses in downtown Mystic, I think implementing low-impact development practices would be beneficial. Low-impact development (LID) practices, including green stormwater infrastructure, aim to prevent runoff by mimicking natural landscapes. Examples of LID practices include rain gardens, bioretention, green roofs, tree box filters, pervious pavers, or pervious asphalt. They work by aiding water infiltration. Natural substances, such as grass, absorb water to a certain point. On the other hand, many man-made materials, such as concrete or asphalt cannot absorb water and therefore allow the water to run into the nearest storm drain or water body. The more impervious pavement in an area, the more runoff there is and therefore the more likely for flooding. While the flooding in Mystic is caused by a mix of sea level rise and increased rain events, LID can still help.

Gravel Street is located perpendicular to the Mystic River and perpendicular to W Main St. Gravel Street is a high-traffic area and a common parking space for tourists and employees alike. Recently, after heavy rain events the river level will rise causing the road to be flooded, therefore inhibiting people from reaching and accessing Main Street. I believe Gravel Street could be a





Left, Gravel Street normally. Right, Gravel Street flooded after heavy rain

good place for pervious pavers, which are interlocking concrete or brick blocks with spaces between them to allow for infiltration. While this solution doesn't necessarily involve specific businesses, adding LID to the nearby streets will aid nearby businesses by increasing accessibility. Logistically this project would be tough as pervious pavers can be fairly expensive and labor intensive, also Gravel Street is partially a residential area, this could be viewed as an idealistic solution.

Another form of LID that individual businesses can do to help with flooding at a lower cost is disconnecting their downspouts and constructing rain gardens or bioretention basins.

Downspouts attached to buildings, as well as storm drains are connected through pipes which end up being released into the Mystic River. After heavy rain events, all of the water that lands on the roofs of buildings, as well as nearby sidewalks or driveways, will end up in the pipes that connect to the river. If businesses disconnect their downspouts then the water that came from the roof will no longer contribute to the flooding of the river. In place, a rain garden can be constructed. Here is a brief description of how a rain garden can be constructed. First, the amount of impervious surface needs to be calculated. If a roof downspout is being disconnected then the amount of impervious cover would be the roof's square footage. Then that number is placed into a formula to reveal the size of the raingarden needed to support that amount of impervious cover. After that the rain garden simply needs to be dug up, mulched, and planted. Depending on the size of the garden this whole process can be completed by hand with simple tools. Businesses within the Alliances Business Resilient coalition could help each other out by providing time and labor to speed up the process.

Some business owners in Mystic mentioned having experience writing bills, which could be another tangible solution for Mystic Businesses. A proposal could be written that allows businesses in Mystic to get compensated if they partake in sustainable practices, such as installing solar power or avoiding single-use plastics. This bill example is more of a mitigation strategy, but if more people with their own unique knowledge and expertise help then a bill related to adaptation may be created.

References

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