

Climate Ready Coast – Southern Maine



SOS SACO BAY COASTAL CONFERENCE

TUESDAY, SEPTEMBER 27TH, 2022



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Southern Maine Planning and Development Commission





Project Overview

What?

- 2-year project to develop a regional coastal resilience plan

Why?

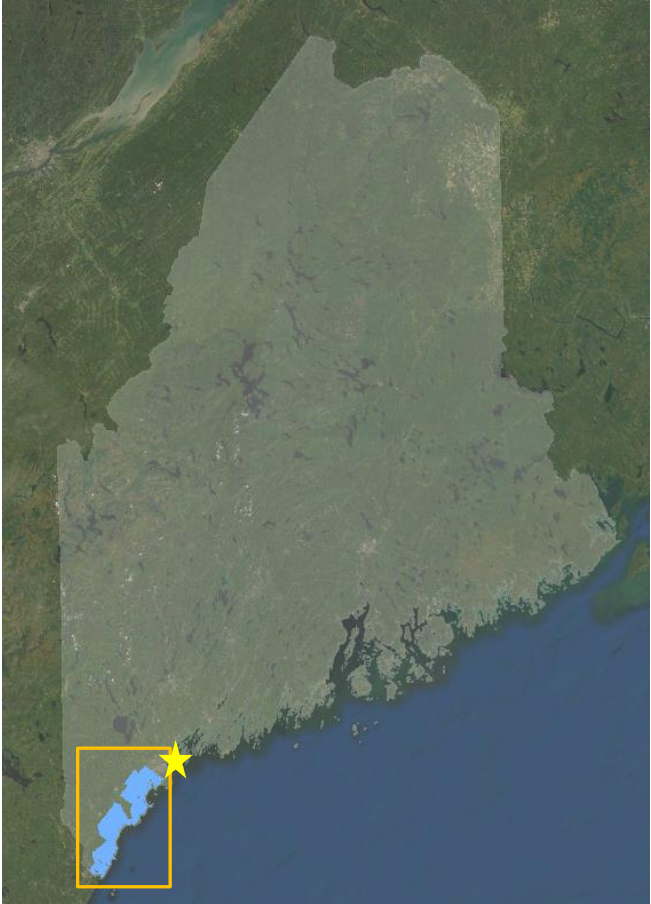
- Fill local and regional capacity gaps
- Continue and advance partnerships
- Coordinate on common priorities
- Leverage existing data, resources, and tools
- Enhance understanding of multi-hazard impacts and vulnerabilities
- Develop strategic priority projects and opportunities for advancing resilience



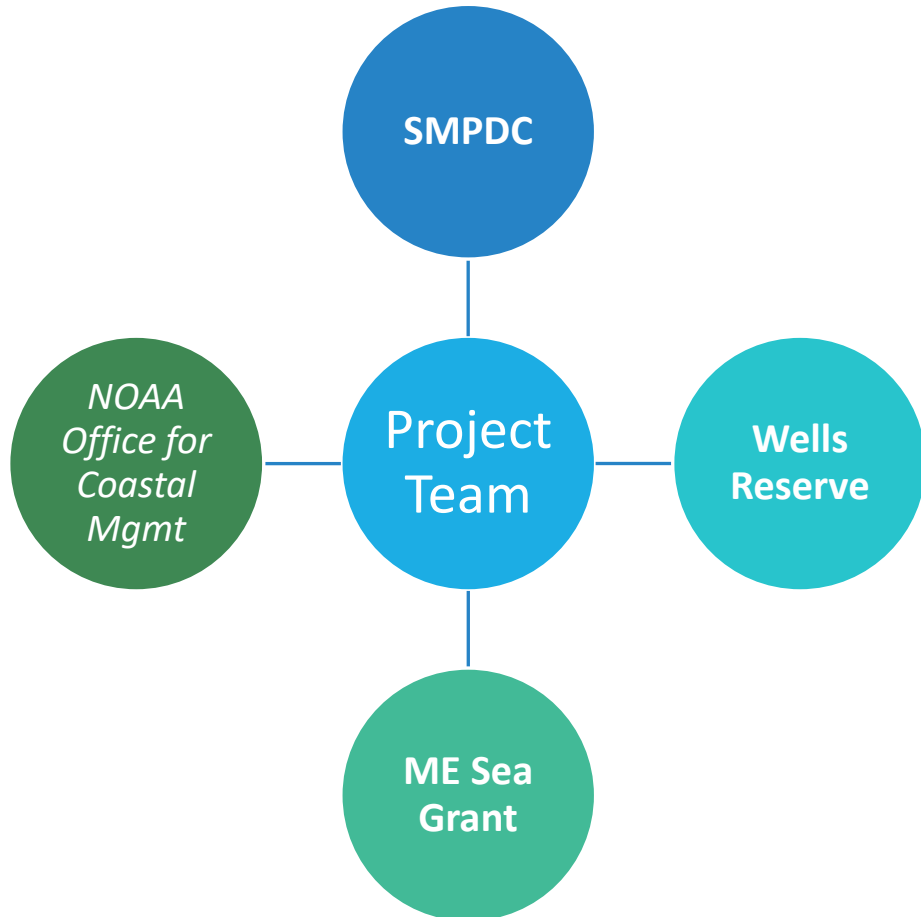
Project Goal

Advance coastal resilience action in southern Maine by developing a **Regional Coastal Resilience Plan** that addresses **regional & municipal needs** through coordinated **conservation efforts**, sound **land use planning**, tailored yet transferable **adaptation policies**, & **nature-based solutions** to coastal hazard impacts.

Project Region



Who's Involved



Working Group

- Municipal Staff
- Municipal Committees
- Land Trusts
- County EMAs
- Social Service Organization

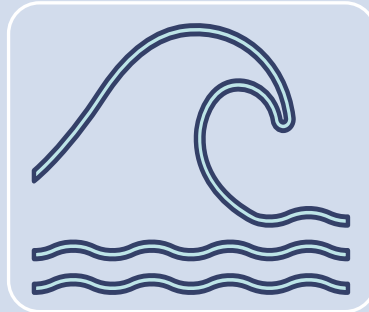
Advisory Committee

- State & Federal Natural Resource Programs & Agencies
- Conservation Organizations
- Regional Planning Organizations

Project Tasks



Assessment
of Resilience
Needs and
Socio-
Economic
Conditions



Geospatial
Vulnerability
Assessment

- Coastal hazards
- Infrastructure
- Social vulnerability
- Natural resources



Stakeholder
Engagement

- Working Group
- Workshops
- Field Trip
- Interactive website



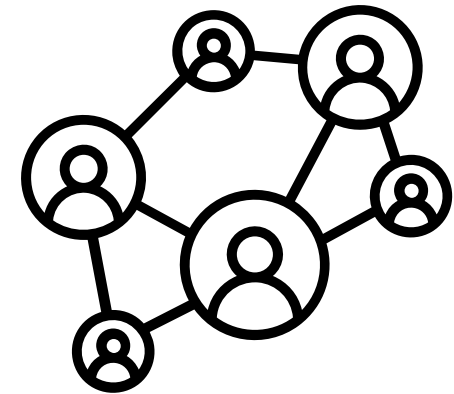
Identify &
Prioritize
Resilience
Projects



Regional
Coastal
Resilience
Plan

Assessment of Regional Resilience Needs and Socio-Economic Conditions

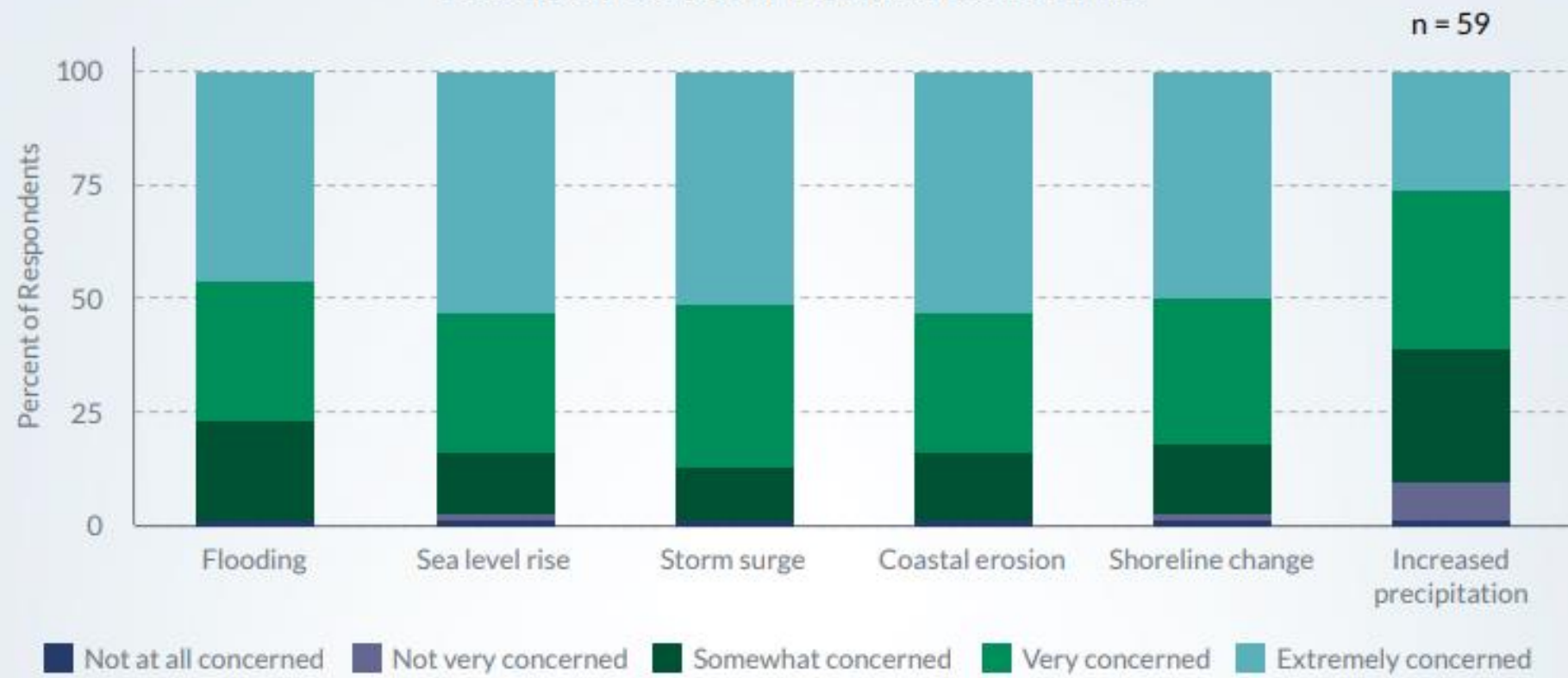
- Survey & interviews
- Interviews
- Assessment of demographic & economic conditions
- Incorporation in evaluation & prioritization criteria for resilience projects
- Explicit consideration of social vulnerability and equity



02

What are the Top Concerns?

Levels of Coastal Hazard Concerns



Built & Social Environment



Damage to transportation infrastructure

87% extremely or very concerned



Damage to public property

85% extremely or very concerned



Loss of coastal access

85% extremely or very concerned



Emergency access disruption

85% extremely or very concerned

Natural Environment



Coastal and beach erosion

90% extremely or very concerned



Increase of invasive species

86% extremely or very concerned



Habitat loss and degradation

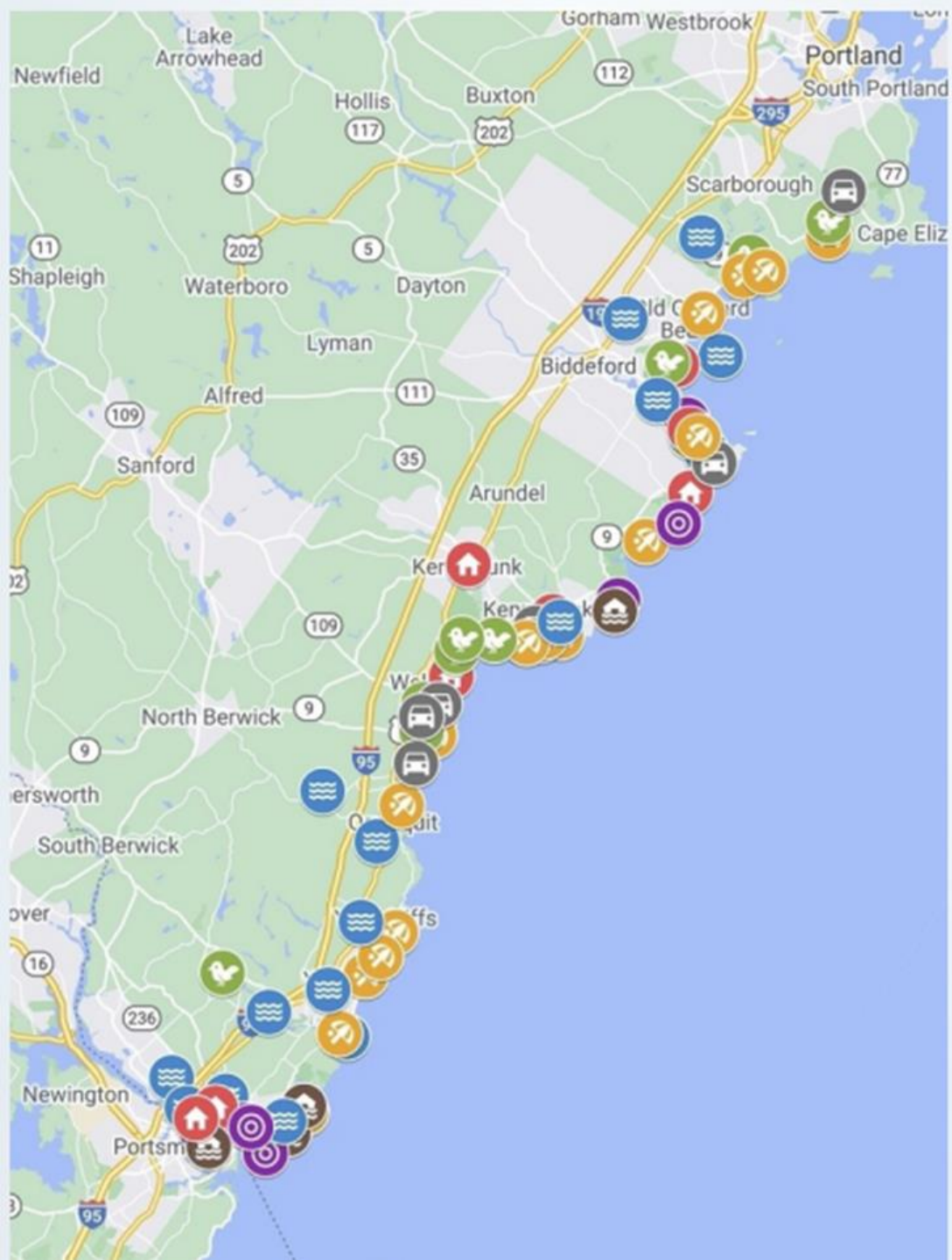
83% extremely or very concerned



Loss of plant and animal species

83% extremely or very concerned

Impacts of Concern



Beaches



Bodies of Water



Marshes/
Habitats



Harbor
Infrastructure



Islands



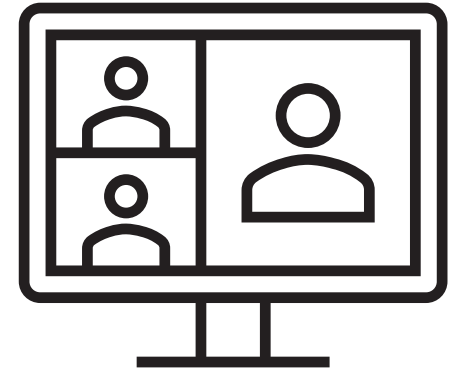
Residential/
Commercial
Areas



Where are Areas of Concern?

Stakeholder Engagement

- Working Group & Advisory Committee
 - 4 workshops
 - Assess priorities & focus areas
 - Discuss resilience needs
 - Develop list of priority resilience projects & strategies
 - Field trip to example sites – areas vulnerable to hazards & resilience projects
- Interactive website ([link](#))





CLIMATE READY COAST - SOUTHERN MAINE

Developing a regional coastal resilience plan for Southern Maine communities

GET INVOLVED, SHARE YOUR THOUGHTS!

Share your ideas, concerns, and priorities to help us identify vulnerable areas and find solutions to build coastal resilience in southern Maine



IDENTIFY PRIORITY AREAS

Identify areas that are important to you and that are vulnerable to flooding, erosion, and other coastal hazards

Coming Soon!



SHARE RESILIENCE IDEAS

Share coastal resilience ideas that you would like to see investigated and implemented in southern Maine


Share









VOICE YOUR THOUGHTS ABOUT COASTAL HAZARDS

Tell us what coastal hazards you are most concerned about for southern Maine

Join The Discussion



Drag to comment >
 Natural Resources
  Public Infrastructure
  Buildings
  Social Vulnerability
  Coastal Hazards
  Other

< RETURN

Directions

Activity

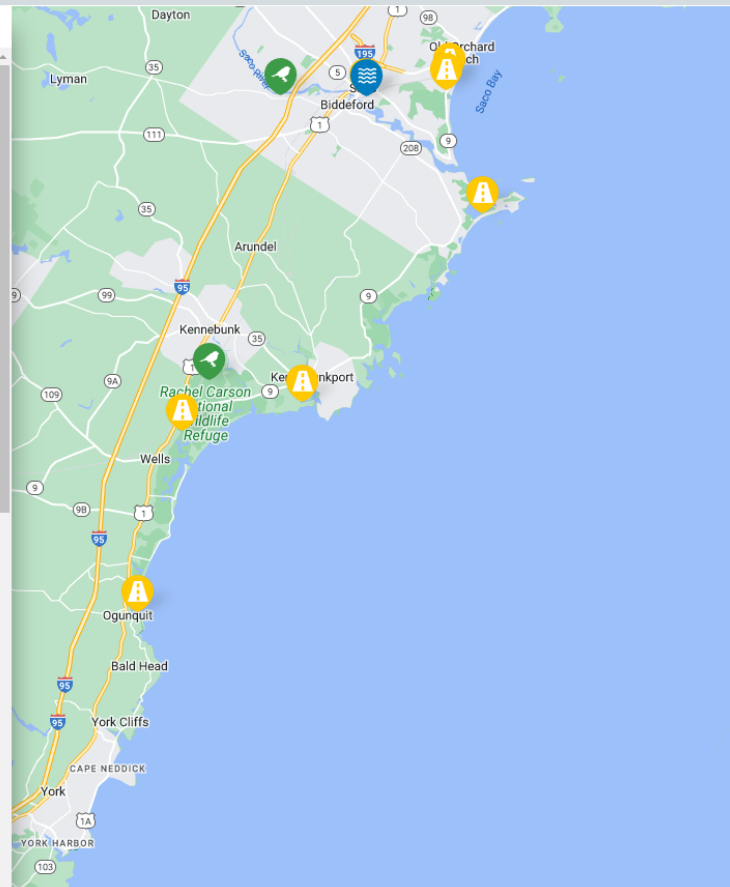
Are there any areas of interest or concern that aren't captured on the web mapping tool and vulnerability assessment layers?

Help us by identifying areas that our assessment missed or that are important to you and that are vulnerable to flooding, erosion, and other coastal hazards.

Drag and drop the icons located at the top of the page on the map to identify areas of interest or concern or areas that our web mapping tool and vulnerability assessment don't capture.

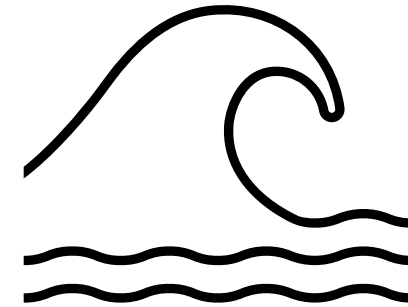
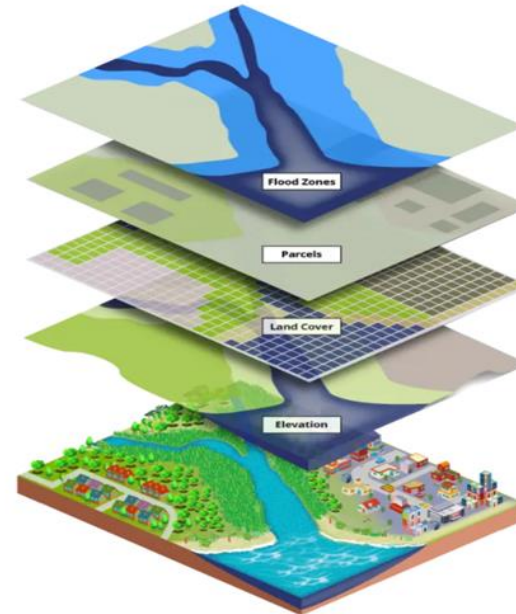
Once you've 'dropped' the icon on the map, a pop-up box will appear and you can explain why the area is of interest or concern by typing in the 'Comment' field. You also have the option to upload a photo of the area to accompany your comment and map icon. (Note that the pop-up box automatically includes a field for your phone number and zip code- **you do NOT need to provide that information.**)

- Natural Resources:** areas of significant natural resources or habitat
- Public infrastructure:** areas where important public infrastructure is located
- Buildings:** public and private buildings that are vulnerable
- Social vulnerability:** Areas where there might be socially vulnerable populations
- Coastal Hazards:** Areas with specific coastal hazards not identified



Assessment of Coastal Impacts and Vulnerabilities

- Regional assessment
 - Informed by survey and interview findings
- Compilation of existing data
 - Coastal hazards
 - Transportation & land use data
 - Critical infrastructure & facilities
 - Wildlife & habitat
 - Demographic & economic information (*task 1*)
- Serve as basis for identification of priority vulnerable areas & resilience projects



Assessment Information Based on Stakeholder Input

What ECOLOGICAL information would you like to see included in the vulnerability assessment?

Examples: Beginning with Habitat wildlife data, marsh migration, conserved lands

An assessment of the land status of areas of salt marsh habitat and likely marsh migration lands. Who owns these lands and what condition are they in? Maybe classify in broad categories such as excellent, good, poor, very degraded?

data on inland land parcels that are vulnerable to flooding due to climate change.

Any municipal survey or research data on intertidal species, including shellfish and their habitat. For example, harvesters in certain areas have said that most soft-shell clams are shifting from the lower intertidal to

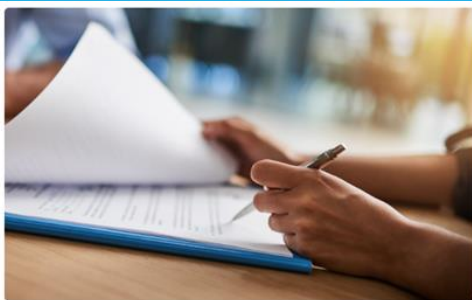
The occurrence of threatened and endangered species as well as at risk wildlife species in the assessment area. This likely should include the piping plover, least tern, saltmarsh sparrow, roseate tern and red knot.

It would be great if the economic analysis part included the value of ecosystem

Locations of focus areas for rare species as well as identifying areas high in invasive species that could be restored

Approximate the monetary value of these ecological resources.

Marsh Migration information, vulnerabilities to local fish populations



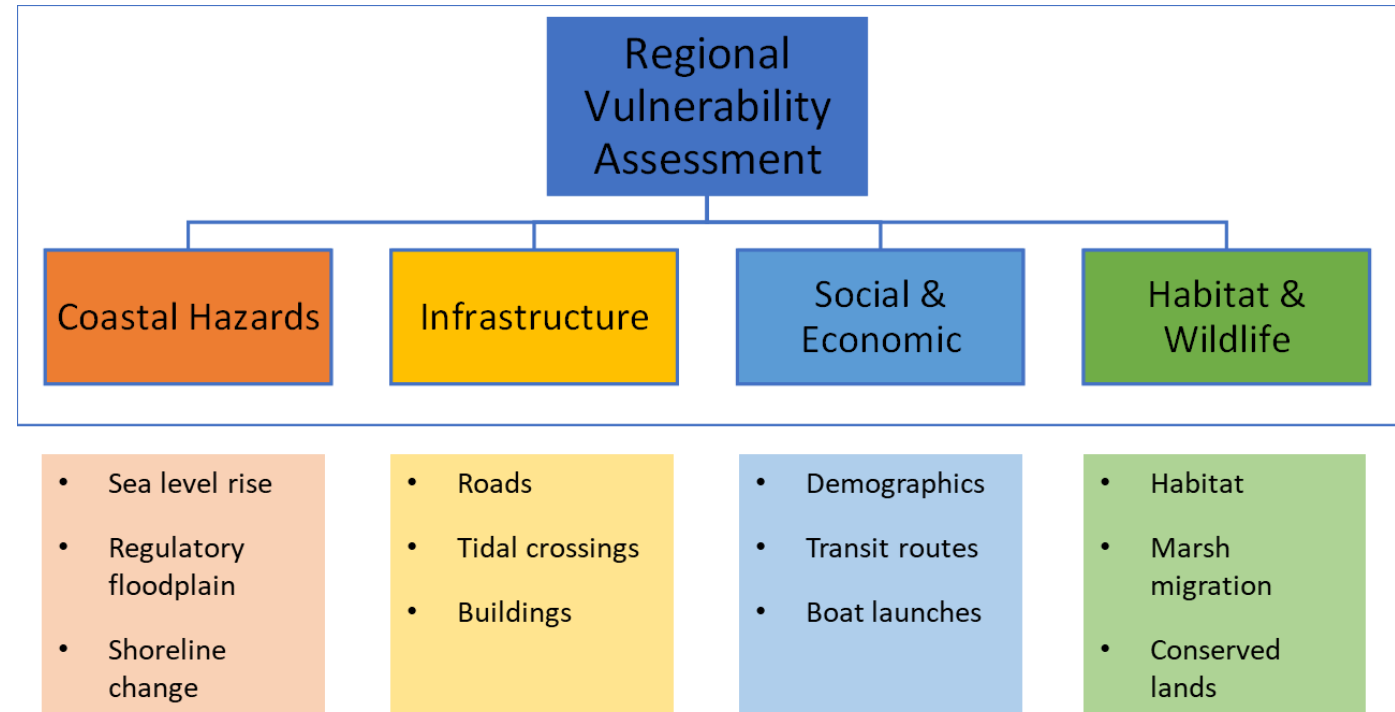
VULNERABILITY ASSESSMENT SURVEY

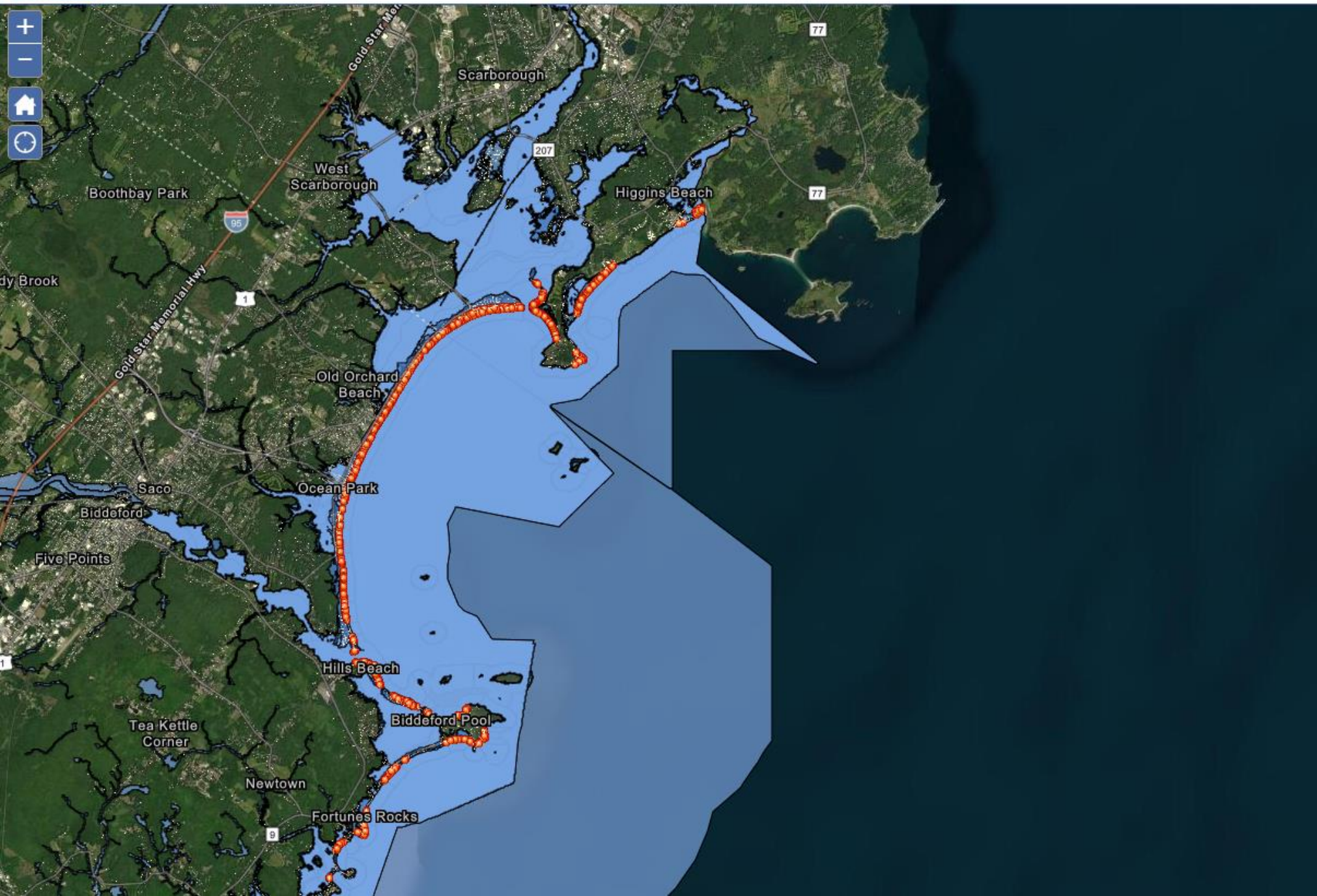
Please take a quick 5-question survey to help the project team refine the vulnerability assessment and plan for sharing it with the working group

START 20 May 2022

END 3 Jun 2022

Take The Survey



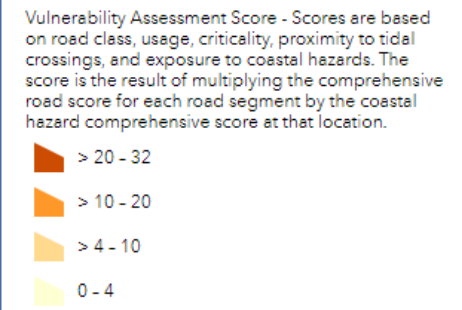


Legend

Building Footprints Vulnerability Assessment



Roads Vulnerability Assessment



Maine Coastal Overtopping Potential Dune Crest Points



Maine Sand Dune Boundaries

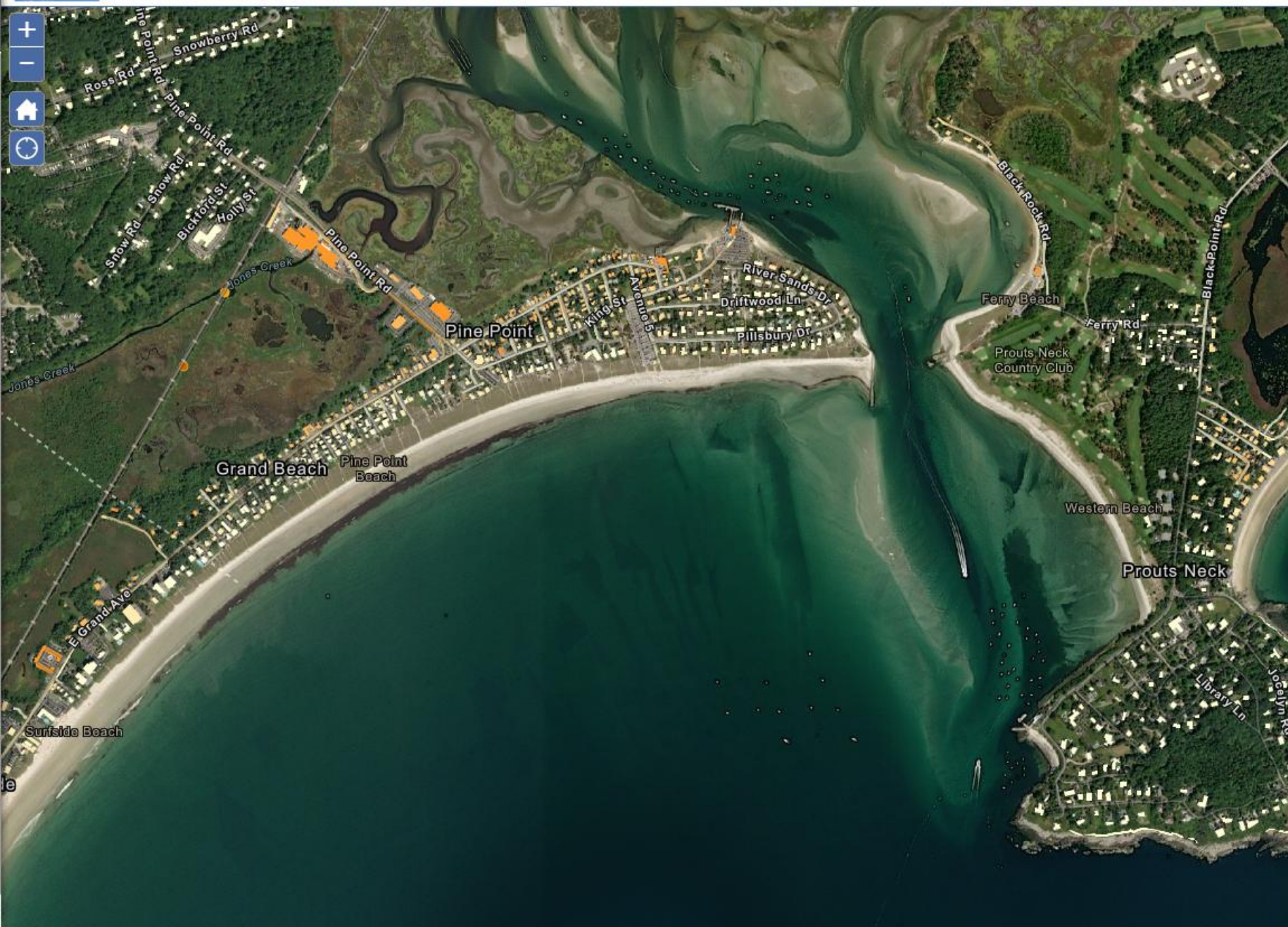


Coastal Hazard HAT + 1.6 ft Sea Level Rise



Coastal Hazard HAT + 3.9 ft Sea Level Rise





Tidal Crossings and Dams Vulnerability Assessment

Vulnerability Assessment Score - The score is from multiplying the comprehensive score for each crossing/dam by the comprehensive score of the coastal hazard dataset at that location. The higher the score the more exposed the crossing/dam is to flooding and/or the more wildlife and habitat types are present near the crossing/dam.

- > 16 - 20
- > 12 - 16
- > 8 - 12
- > 4 - 8
- 0 - 4

Building Footprints Vulnerability Assessment

Vulnerability Assessment Score - Scores are an estimate of how critical a building is for community safety, function, and lifelines and exposure to coastal hazards. Higher scores represent buildings with greater criticality from a flood hazard perspective and/or greater exposure to flood hazards.

- > 8
- 6
- 4
- 2
- < 0

Roads Vulnerability Assessment

Vulnerability Assessment Score - Scores are based on road class, usage, criticality, proximity to tidal crossings, and exposure to coastal hazards. The score is the result of multiplying the comprehensive road score for each road segment by the coastal hazard comprehensive score at that location.







- > 20 - 32
- > 10 - 20
- > 4 - 10
- 0 - 4

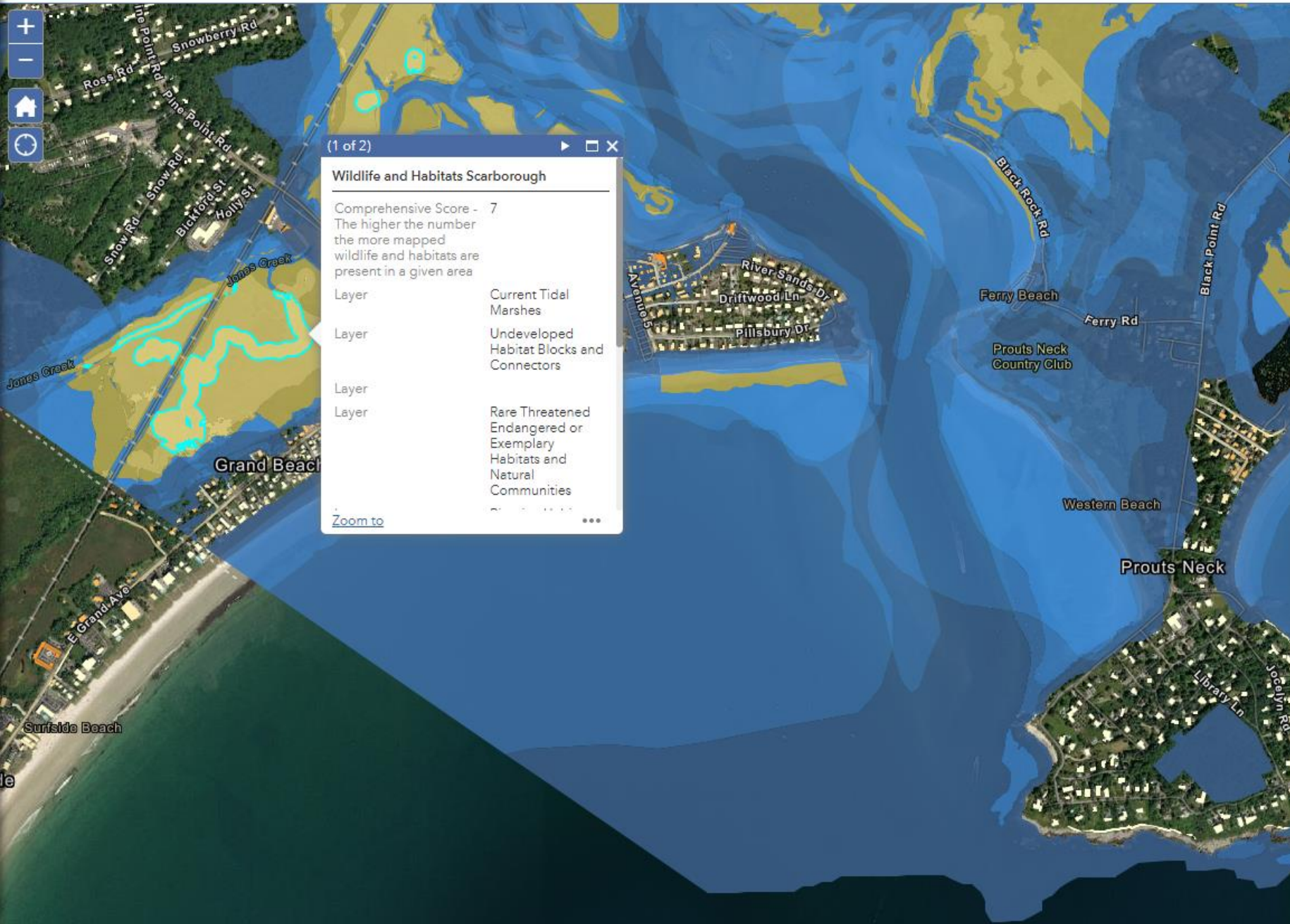




Wildlife and Habitats Vulnerability Assessment

Vulnerability Assessment Score - Score is based on multiplying the comprehensive score for each wildlife and habitats area with the comprehensive score of the coastal hazard dataset at that location. The higher the score the more wildlife and habitats are vulnerable to coastal flood hazards.

-  29 - 32
-  25 - 28
-  21 - 24
-  17 - 20
-  8 - 16
-  1 - 7



(1 of 2) ▶ □ ✕

Wildlife and Habitats Scarborough

Comprehensive Score - 7
The higher the number the more mapped wildlife and habitats are present in a given area

Layer: Current Tidal Marshes

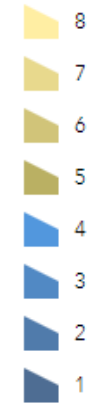
Layer: Undeveloped Habitat Blocks and Connectors

Layer: Rare Threatened Endangered or Exemplary Habitats and Natural Communities

[Zoom to](#) ⋮

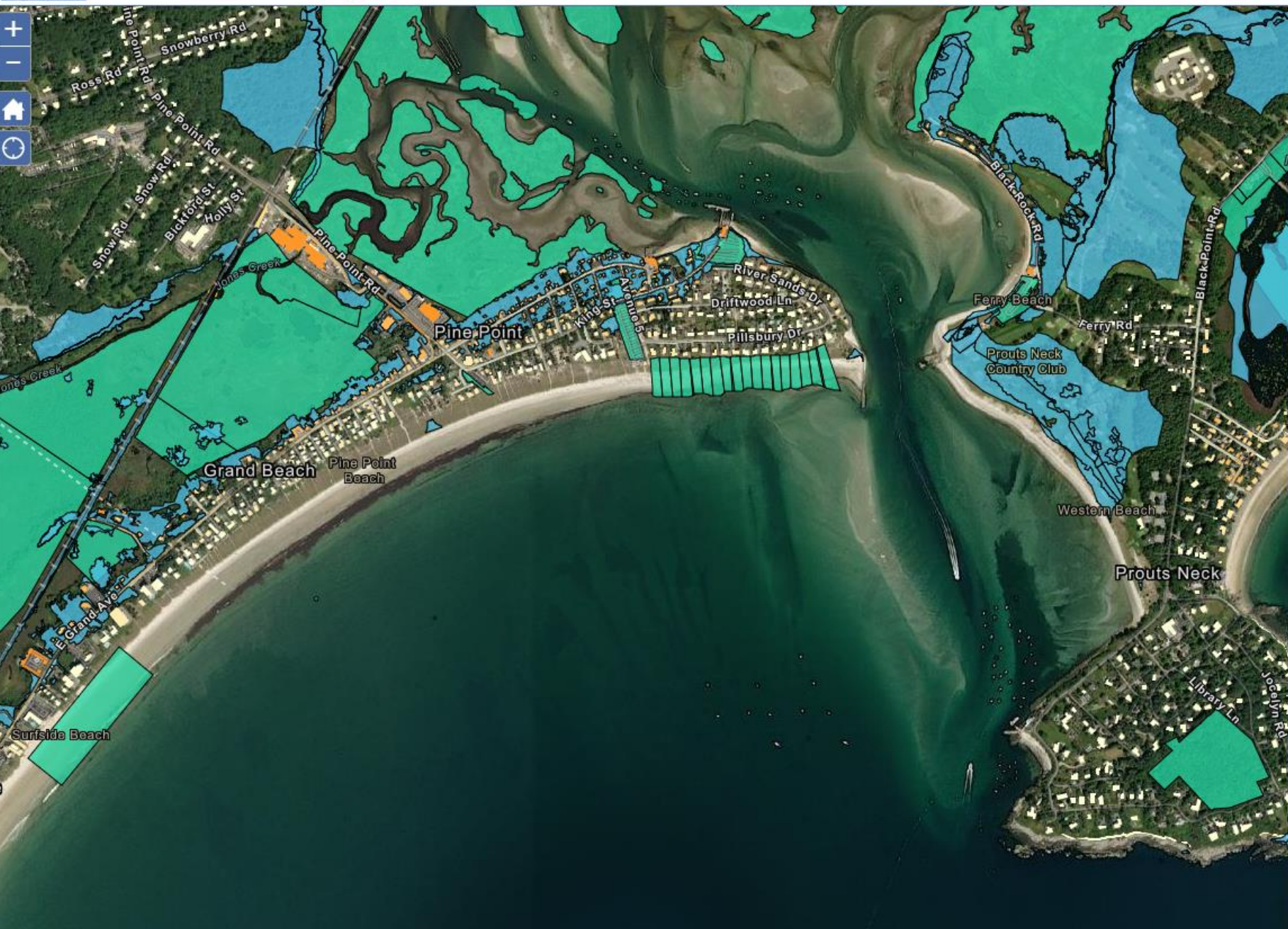
Comprehensive Wildlife and Habitats

Comprehensive Score - The higher the number the more mapped wildlife and habitats are present in a given area



0.2mi





Future Coastal Habitats - Future Coastal Habitats

Conserved Lands



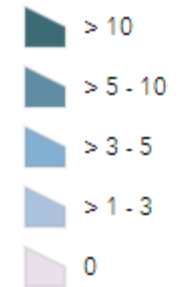
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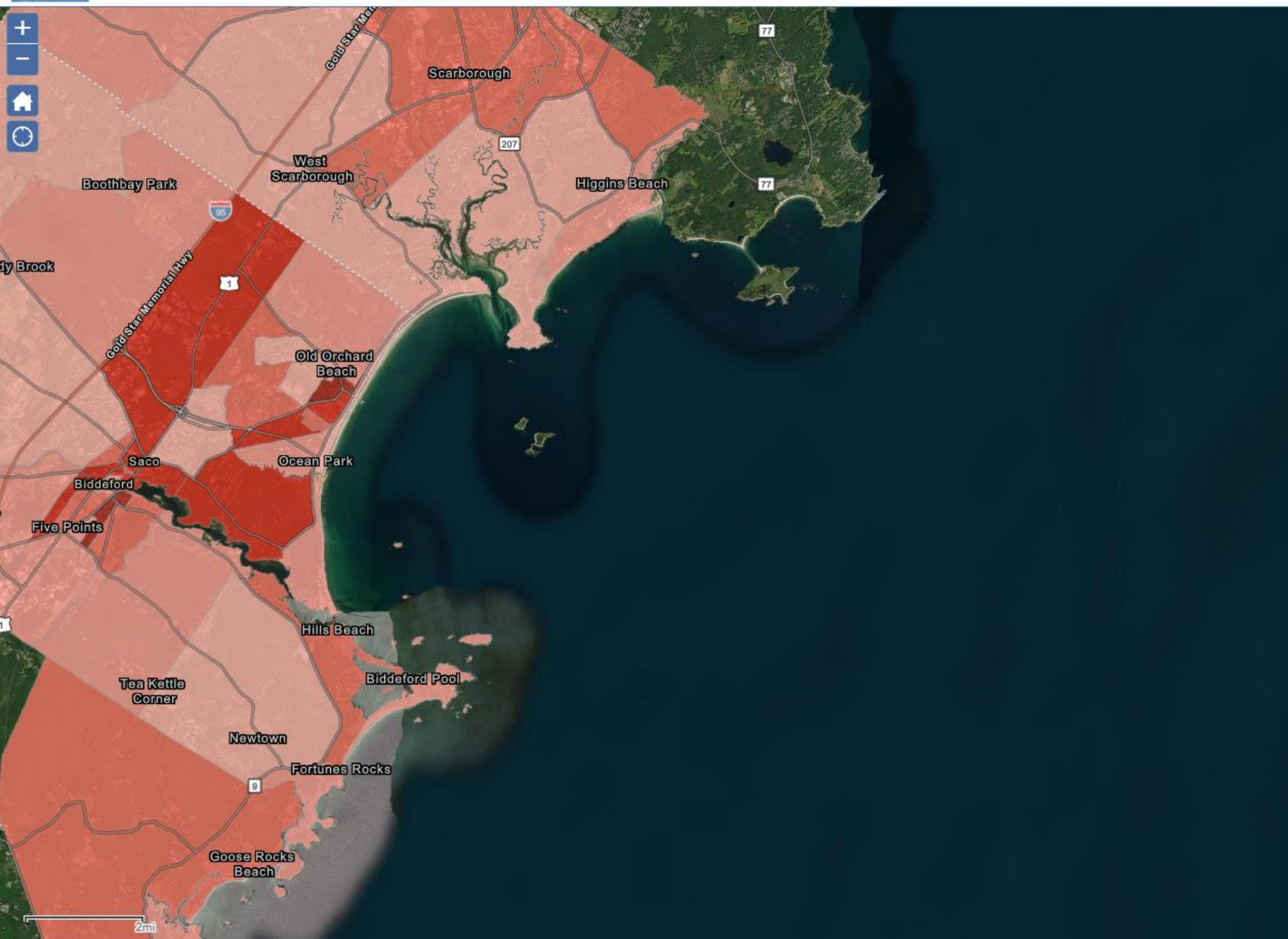
Wells Development Potential

Build Out Parcels



0.2mi





Map navigation toolbar containing icons for information, layers, home, refresh, and other map controls.

Legend

Social Vulnerability Index - Social Vulnerability Index

Social vulnerability ranking based on socioeconomic and demographic data at the census block group level. A vulnerability ranking of 80% means the community is more vulnerable than 80% of the other coastal Block Groups in Maine. (Source: Maine Social Vulnerability Index)

- > 0.8 - 0.977 Most Vulnerable
- > 0.6 - 0.8
- > 0.4 - 0.6 Moderately Vulnerable
- > 0.2 - 0.4
- 0.004 - 0.2 Least Vulnerable

Identifying 'Hot Spots' of Vulnerability and Exposure

VULNERABILITY ASSESSMENT & WEB MAPPING TOOL

- Quantitative
- Limited by data & assessment methodology
- Focused on flood exposure
- Only tells part of the story

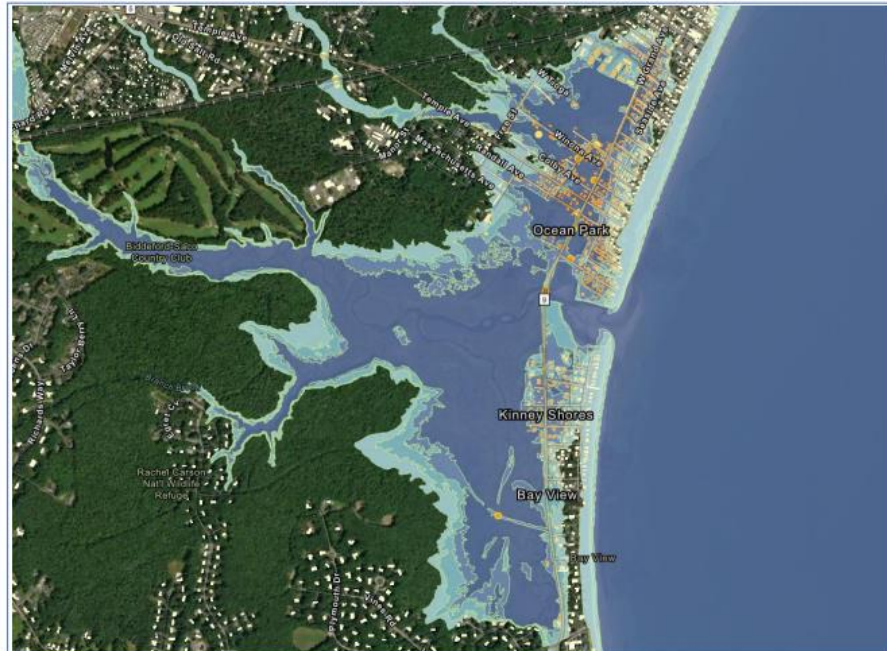
STAKEHOLDER KNOWLEDGE & EXPERTISE

- Qualitative information
- Critical for understanding local vulnerability
- What areas matter?
- What else is going on in these areas that makes them important from a resilience perspective?

Goosefare Brook – Kinney Shores – Ocean Park

Site Description: This area is located around the mouth of Goosefare Brook along Route 9 at the border of Saco and Old Orchard Beach.

Map Image



Map Caption: Comprehensive Coastal Hazards layer and Vulnerability Assessment layers for roads, crossings and dams, and building footprints.

Vulnerabilities and Exposure Information

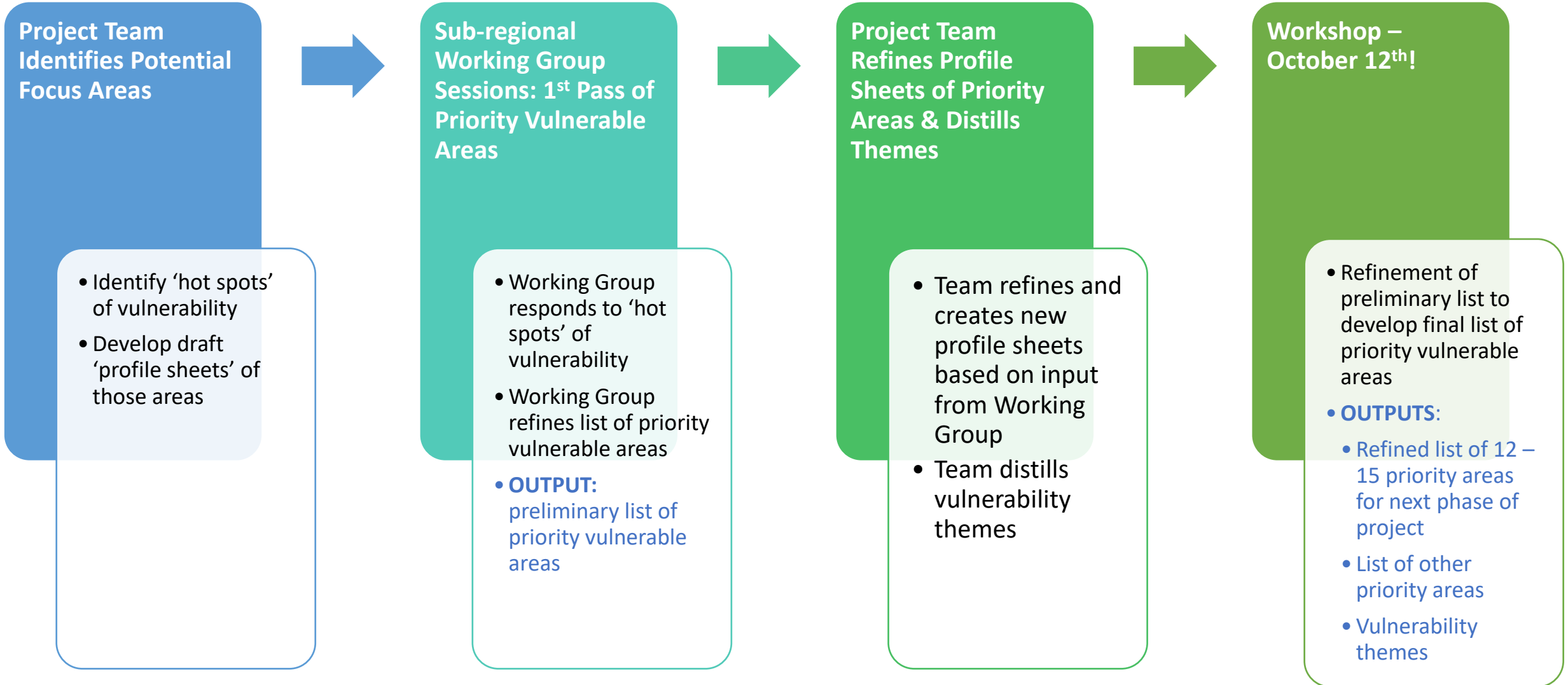
[A site may have multiple 'things' that have been assessed/scored in the web mapping tool. This section should highlight the maximum scores of some of the key features/things that are vulnerable/exposed and of concern and are driving the determination that the area is a 'hot spot'.]

Vulnerability Assessment Layer	Maximum Score of Area	Additional Information
Coastal Hazard Score	4 (out of 4)	Significant areas appear to be vulnerable to current extreme flooding, with additional large areas vulnerable to the 100-year flood and sea level rise.
Infrastructure Scores		
• Roads Score	16 (out of 32)	Numerous streets are exposed to multiple coastal flood hazards.
• Crossings & Dams	16 (out of 20)	There are 9 exposed tidal crossings located in this area including the Route 9 bridge over Goosefare Brook.

• Building Footprints	4 (out of 8)	Hundreds of buildings are exposed to multiple coastal hazards in this area, particularly around a tidal creek to the west of Route 9 in Ocean Park.
Wildlife and Habitat Score	28 (out of 32)	There is high value habitat exposed to coastal hazards within the Goosefare Brook estuary and Rachel Carson National Wildlife Refuge.
Social Vulnerability Index Ranking	0.66	Score is higher than most coastal block groups in Maine.
Development Potential	653	There is development potential in this area, though many of the larger parcels are in conservation.

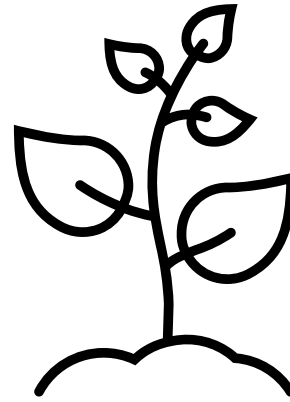
Supplemental Information about Vulnerability and Exposure: [Narrative description of vulnerabilities/exposure based on qualitative input from Working Group. Exact format to be determined post-work sessions.]

Identifying Priority Vulnerable Areas

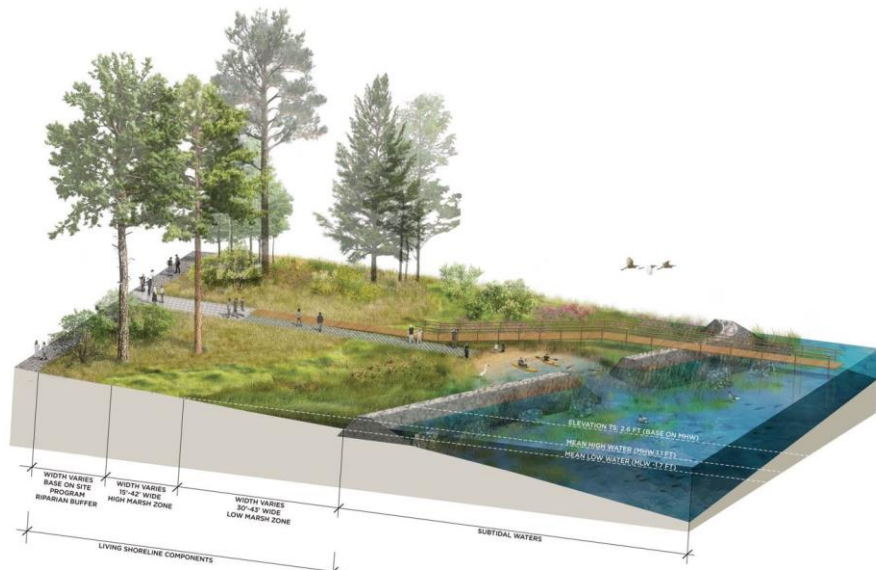


Identify & Prioritize Regional Resilience Strategies and Projects

- Identify resilience strategies
 - Policy, land use, projects
 - **Nature-based solutions**
- Visual renderings of select strategies
- Develop prioritization scheme, focus on co-benefits
- Prioritize projects



Visualizing what Resilience Strategies Could Look Like



ERP RESILIENCE LAB - LIVING SHORELINE RENDERING

S/G/A LANDSCAPE ARCHITECTURE
PLANNING
STROMBERG / GARRIGAN & ASSOCIATES

ERP RESILIENCE LAB
City of Norfolk, VA

s-ga.com



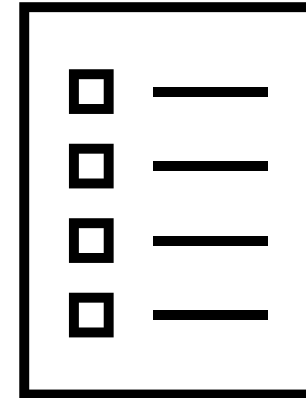
neiwppcc.org



stantec.com

Develop Regional Coastal Resilience Plan

- Regional Plan
- Compilation of information developed in tasks 1 – 4
 - Priority vulnerable areas
 - Site-specific & general adaptation & resilience strategies
- Local and regional resilience needs
- Resilience actions & projects
 - Emphasis on those that align with funding opportunities
- Recommended actions for plan implementation





Next Steps

- Workshop on Oct. 12th
 - List of 12 - 15 priority vulnerable areas
 - Coastal resilience themes
- Engage consultant for adaptation strategies and visual renderings
- Prioritization of strategies and projects
- Trainings and field trip
 - Nature-Based Solutions Training – Nov. 15th
- Development of Regional Resilience Plan

Thank You

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