



# Stinson Beach Adaptation and Resilience Collaboration General Public Meeting – May 18, 2023

# Agenda

Time	Topic
5:30	Welcome and team introductions
5:35	Stinson ARC overview and goals
5:45	Vulnerability Assessment findings
6:00	Next steps
6:10	Facilitated Q&A
6:30	Adjourn



# Meeting Guidelines

- Please **be respectful** of one another.
- Please **be patient** if there are technical difficulties.
- Please **remain muted** unless it is your turn to speak.
- Please **hold your questions** for Q&A at the end of the presentation.
  - Raise your hand with the "Raise Hand" feature in Zoom Reactions. Please unmute when it is your turn to speak.
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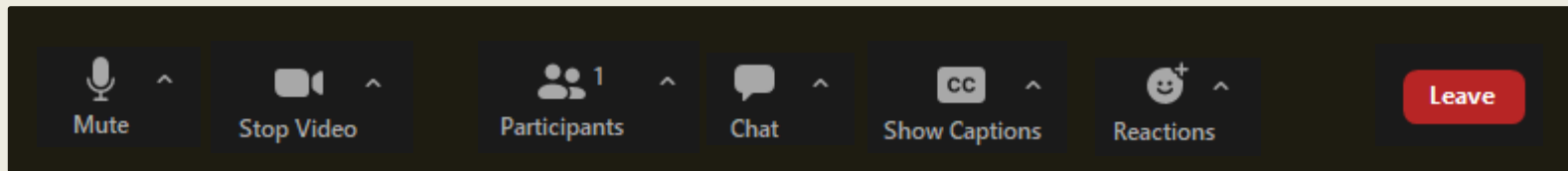
# Zoom Instructions

## Chat

- For tech support to Exec/Admin
- Ask a question to the Facilitator

## Reactions

Raise hand feature found here.



## Audio

Please mute yourself when not speaking.

## Closed Captions

If you want live closed captioning, click this feature in Zoom.

# Introductions – Meet the Team

## Marin County Community Development Agency

- **Isaac Pearlman**, project manager
- Jack Liebster, planning manager (recently retired!)

## Consultant team

- **Katie DeLeuw**, community engagement and facilitation
- **James Jackson**, civil/coastal engineer
- **Marlys Jeane**, community engagement and notetaker
- Marie Rainwater, community engagement and facilitation
- Rich Souza, wastewater and civil engineering
- Phil King, economics, cost benefit analysis
- Point Blue, surveys and ecological considerations for adaptation
- Brad Damitz, regulatory and permitting
- Juliano Calil, visualization tools

# Zoom Poll

What is your connection to  
Stinson Beach?

# Project Overview

# What is the Stinson Beach ARC and its goals?



A non-regulatory planning process to address sea level rise



Updates previous Vulnerability Assessment (2016)



Technical experts develop and analyze potential adaptation measures and pathways



Identifies next steps for adaptation, including implementation and monitoring approach



# Why is the Stinson Beach ARC needed?

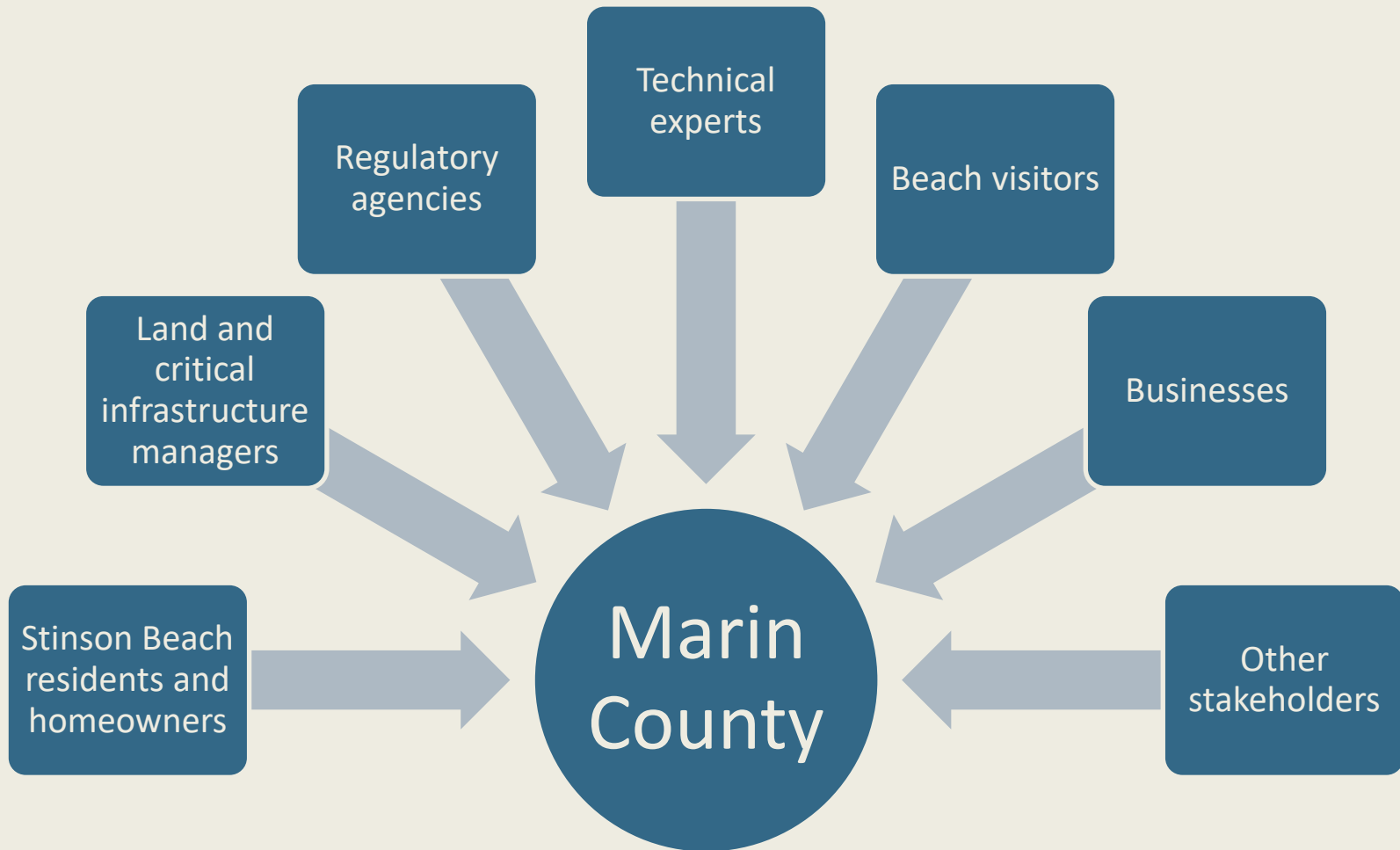
Stinson Beach already experiences impacts from coastal hazards.

Without action, modeling shows impacts will worsen with sea level rise:

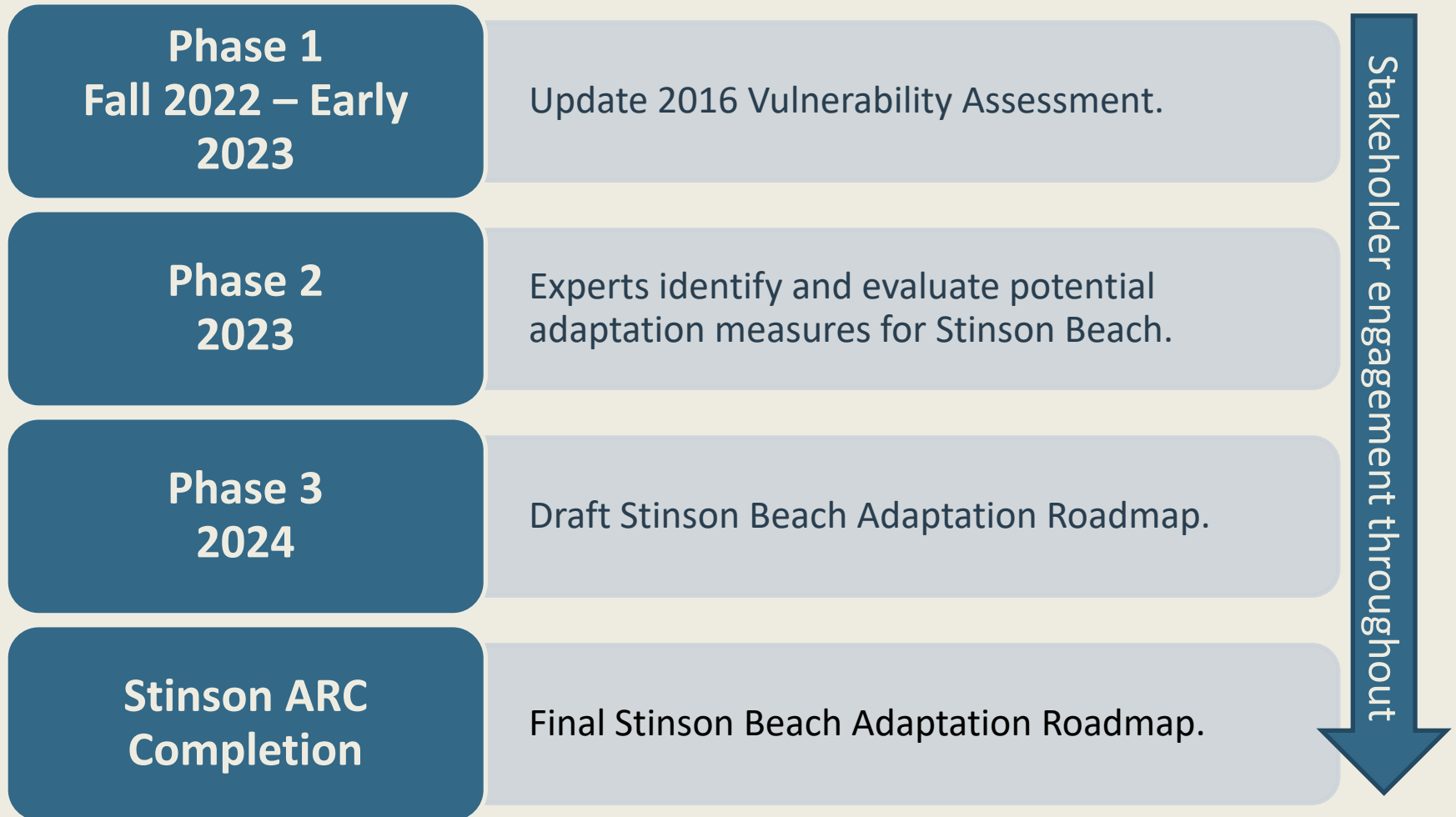
- Flooding of homes and properties
- Damage to infrastructure, like roads and utilities
- Loss of beach and marsh habitats



# Stakeholder Input



# What is the process and schedule?



# Stinson Beach ARC Vulnerability Assessment Findings

# Stinson Beach ARC Vulnerability Assessment Update

- **Purpose:** Provide update to Marin County's 2016 Sea Level Rise Vulnerability Assessment
- Update addresses:
  - Sea level rise scenarios
  - Stinson Beach assets and resources
  - Anticipated hazards



# Sea Level Rise Projections for Stinson Beach ARC

(San Francisco projections from State Guidance: OPC 2018)

Sea level Rise Scenario	Projected Year
0 feet	Today
1.6 feet	2050
3.3 feet	2070
6.6 feet	2100

# Stinson Beach Asset Inventory



# Anticipated Hazards

- Hazard exposure to monthly high tide conditions and 100-year storm impacts
- Coastal storm wave run-up
- Updated coastal erosion projections
- Groundwater levels and emergence
- Easkoot Creek flooding





# Overview – Sea level Rise Explorer



# Coastal Hazard Vulnerabilities at Stinson Beach Today and with 1.6 feet Sea Level Rise (2050)

## Homes & Properties

- **TODAY**  
240+ buildings at risk from 100-yr coastal storm  
120+ buildings at risk from 100-year creek flood
- **SLR 1.6 feet**  
7/10 Calles roads inundated monthly  
450+ buildings at risk from 100-yr flooding

## Beaches & Dunes

- **TODAY**  
Exposed to storm erosion, such as recent El Niño storms and January 2023.
- **SLR 1.6 feet**  
33% reduction in summer beach. Beaches shrink until limited to pocket beaches at Patios and NPS with

## Marshes

- **TODAY**  
Existing marsh habitats are limited to lower Easkoot Creek and narrow strips between homes, roads and Bolinas Lagoon.
- **SLR 1.6 feet**  
~40% reduction in marsh habitat. With limited space to migrate upland, marshes will ultimately drown.

## Shoreline Highway

- **TODAY**  
Exposed to coastal storm surge in a couple locations along Bolinas Lagoon.
- **SLR 1.6 feet**  
2/3 mile exposed to monthly tides

## Septic Systems & Utilities

- **TODAY**  
480 parcels at risk from seasonal high groundwater and septic issues
- **SLR 1.6 feet**  
increased septic failure risk, other buried utilities impacts

# Potential Adaptations to be Evaluated

- Elevating homes on piles in wave zone
- Elevating homes on fill in targeted flood zones
- Coastal armoring along beach
- Floodwalls along Bolinas Lagoon
- Pump stations
- Maintaining and restoring beaches and dunes
- Improving septic systems and/or transition to community wastewater treatment
- Elevating and/or rerouting roads and Shoreline Highway
- Improving marsh perimeter transitional habitat
- Upgrading utilities lines, connections and utility trenches
- Relocation and/or realignment



*Example of elevated home with ground floor garage*



*Dune restoration visualization (Manhattan Beach)*

# Next Steps: Developing Adaptation Pathways

# Next Step: Develop Adaptation Pathways & Analysis

**Adaptation Pathways are potential measures, implementation triggers, and sequencing**

## What do they do?

- Respond to projected conditions identified in the vulnerability assessment
- Draws from a range of potential actions to address impacts
- Define measures that are specific to each resource

## Pathways will include:

- Identifying steps that are contingent on each other
- Strategic timing
- Identification of potential funding sources
- Steps for implementation
- Suggested monitoring approach for adaptation

# What is the process and schedule?

**Phase 1**  
**Fall 2022 – Early 2023**

Update 2016 Vulnerability Assessment.

**Phase 2**  
**2023**

Experts identify and evaluate potential adaptation measures for Stinson Beach.

**Phase 3**  
**2024**

Draft Stinson Beach Adaptation Roadmap.

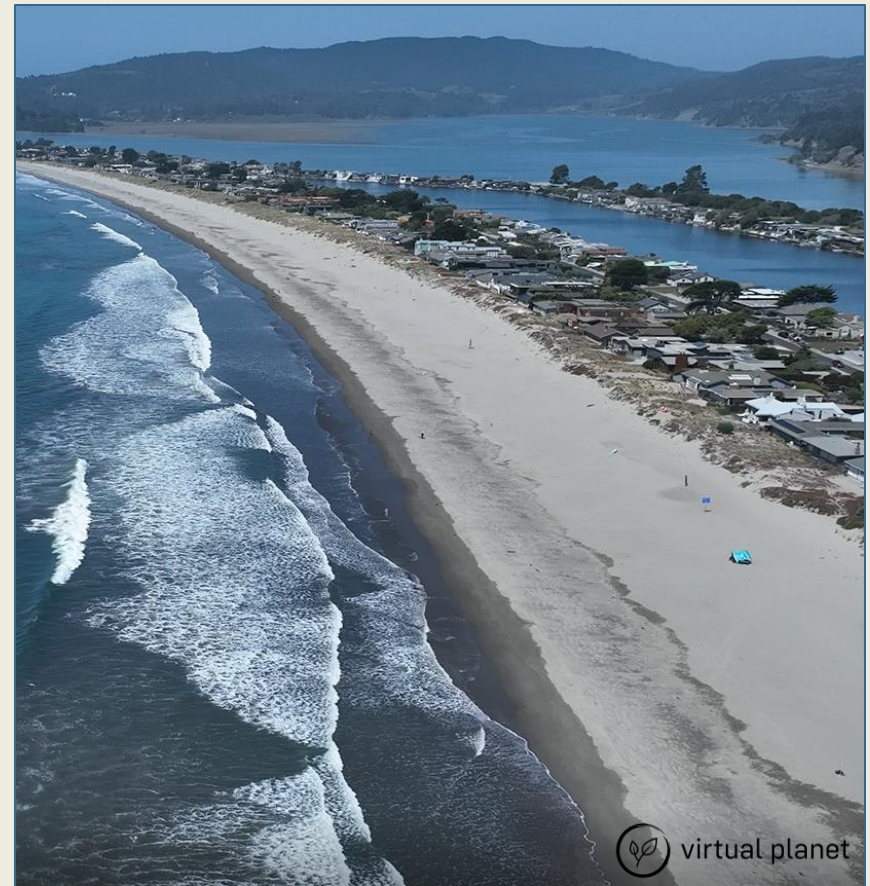
**Stinson ARC**  
**Completion**

Final Stinson Beach Adaptation Roadmap.

- Includes triggers/thresholds for action, implementation next steps, monitoring approach

# Next Steps & Schedule

- Ongoing stakeholder engagement
  - Website comments
  - Focus groups
  - Beach pop-up
  - Virtual reality visualization
- 2023: Draft Evaluation of Adaptation Measures
  - Stakeholder feedback opportunities
- 2023: Develop and Analyze Adaptation Pathways
- 2024: Present Draft Adaptation Roadmap Report



# Q&A



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# Questions?

**Contact: [StinsonARC@marincounty.org](mailto:StinsonARC@marincounty.org)**  
**Please visit us at [marinslr.org](http://marinslr.org)**