



# EJ Bay Plan Amendment

## Shoreline Protection



San Francisco Bay Conservation  
and Development Commission



# Environmental Justice and Social Equity Bay Plan Amendment

## Goal:

*Amend the San Francisco Bay Plan to incorporate principles of environmental justice and social equity into the planning, design, and permitting of shoreline projects in and along the San Francisco Bay*

# Overview

- Shoreline Protection Basics
- BCDC and Shoreline Protection
- Current Conditions
- Shoreline Protection and EJ
- Examples
- Questions

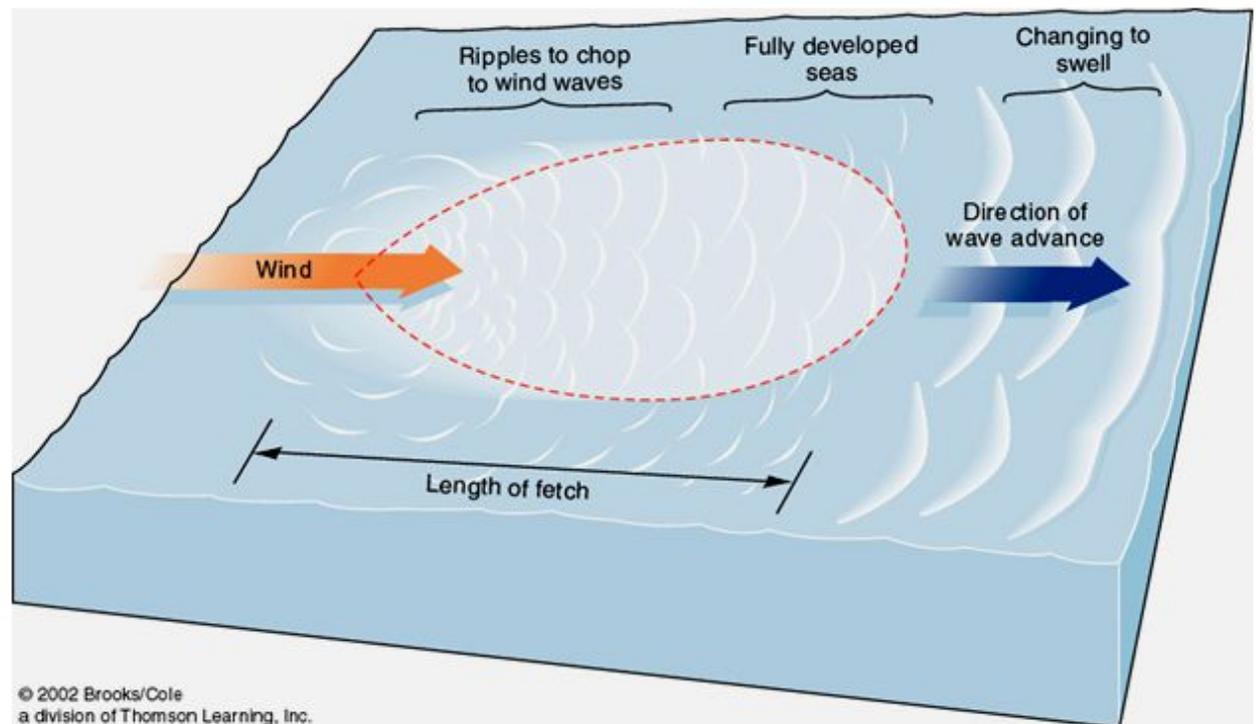


# Factors Affecting Wind Wave Development

**Wind strength** - wind must be moving faster than the wave crests for energy transfer to continue.

**Wind duration** - winds that blow for a short time will not generate large waves.

**Fetch** - the uninterrupted distance over which the wind blows without changing direction.



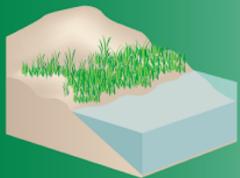
# What is shoreline protection?

HOW GREEN OR GRAY SHOULD YOUR SHORELINE SOLUTION BE?

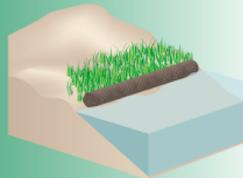
GREEN - SOFTER TECHNIQUES

GRAY - HARDER TECHNIQUES

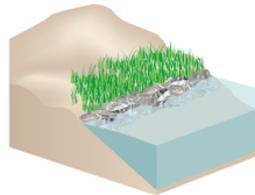
## *Living Shorelines*



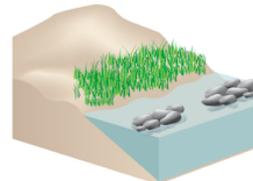
**VEGETATION ONLY -**  
Provides a buffer to upland areas and breaks small waves. Suitable for low wave energy environments.



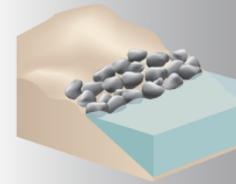
**EDGING -**  
Added structure holds the toe of existing or vegetated slope in place. Suitable for most areas except high wave energy environments.



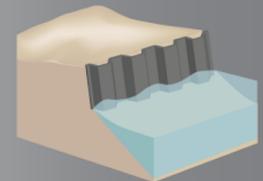
**SILLS -**  
Parallel to vegetated shoreline, reduces wave energy, and prevents erosion. Suitable for most areas except high wave energy environments.



**BREAKWATER -**  
(vegetation optional) - Offshore structures intended to break waves, reducing the force of wave action, and encourage sediment accretion. Suitable for most areas.



**REVETMENT -**  
Lays over the slope of the shoreline and protects it from erosion and waves. Suitable for sites with existing hardened shoreline structures.



**BULKHEAD -**  
Vertical wall parallel to the shoreline intended to hold soil in place. Suitable for high energy settings and sites with existing hard shoreline structures.

# Why do we need shoreline protection?



Source: Shannon Fiala



Source: Shannon Fiala

# McAteer-Petris Act and Shoreline Protection



## 66605. Findings and Declarations as to Benefits, Purposes and Manner of Filling.

- The Legislature further finds and declares:

(e) That public health, safety, and welfare require that fill be constructed in accordance with sound safety standards which will afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters;

# Bay Plan and Shoreline Protection



- P1 – shoreline protection should be authorized:
  - Flood or erosion protection
  - Structure is appropriate for site conditions
  - Properly engineered to protect for the life of the project based on 100-yr flood and SLR
  - Designed to prevent significant impediments to public access
  - Integrated with current or planned adjacent protection
  - Professionals should participate in design

# Bay Plan and Shoreline Protection



- P2 – riprap design
- P3 – maintenance
- P4 – non-structural protection whenever feasible and appropriate
- P5 – avoid or mitigate adverse impacts to natural resources or public access

# Other Relevant Bay Plan Chapters

- Climate Change
- Safety of Fills
- Public Access

Note: Regional Adaptation Plan



# Current Conditions

<https://arcg.is/1Cufbi>



# Shoreline Protection and EJ Issues



- Cost prohibitive
  - Maintenance
- Adjacent and regional impacts
- Contaminated lands
  - Including groundwater rise
- Community involvement in design/planning
- Unintended consequences
  - Cost of additional assessments on low-income communities
  - Property value increase → displacement



# Recent Examples



Source: Lucas Oliver Oswald/Peninsula Press

# Recent Examples



Source: THE CENTER FOR LAND USE INTERPRETATION

# Potential Next Steps



- Amend existing Shoreline Protection policies
- Add Shoreline Protection policies regarding EJ
- Amend Permit Application to include equity/EJ analysis
- Improved coordination with CalEPA on contaminated lands
- Revise BDN to include Climate Change policies
- Prioritize Regional Adaptation Plan

# Questions

- Do you know of any other intersections of EJ and shoreline protection?
- What can BCDC learn from other policy examples or recommendations? How could BCDC's existing policies be amended? Or are there new policies that could be created?
- Can or should BCDC require an equity or EJ analysis in the permitting of shoreline protection structures? What would such an analysis look like?
- How can BCDC address current and future inundation of contaminated lands?

