# COMMUNITY PREFERENCE POLL

## Conceptual Sea Level Rise Adaptation Strategies for Marin's Ocean Coast

Collaboration: Sea-level Marin Adaptation Response Team (C-SMART) 2015

**This poll is intended for discussion purposes only.**

## Introduction

Thank you for participating in the Community Preference Poll on Sea Level Rise Adaptation Strategies for Marin's Ocean Coast. The conceptual adaptation ideas outlined below are intended to further the conversation about how Marin's coastal areas can prepare for sea level rise, NOT as a list of policies or projects that are ready for implementation. Further community-level planning and analysis of legal, environmental, economic and social consequences is needed. The strategies come from community members at public workshops, technical consultants Environmental Science Associates (ESA), guidance documents such as the California Coastal Commission Sea Level Rise Guidance (August 2015), and Marin County staff. Appropriate professionals, technical experts, and designated community members provided input on the strategy options.

Submit poll:

- Click "Submit" button in bottom left corner of page 14
- Email to MarinSLR@marincounty.org
- West Marin libraries (hard copies available)
- Mail to: Marin County Community Development Agency
  c/o Jack Liebster
  3501 Civic Center Drive, Suite 308
  San Rafael, CA 94903

Now, these professionals, technical experts, community members, and Marin County want your feedback on these concepts. The first part of this community poll presents policies that could apply to the potentially vulnerable areas, or "coastal hazard areas" along the entire West Marin coast. The second part provides community-specific maps with vulnerability information and potential locations for the conceptual strategies. Visit www.MarinSLR.org for supplemental information about the adaptation strategies. Your responses will help Marin County Community Development Agency gather information about which adaptation strategies might receive the most public support in the future. The Adaptation Strategy Report that will be available for public review in spring 2016 will summarize community preferences and identify next steps in moving adaptation strategies toward implementation.

## Poll Guide

- **Sea Level Rise Vulnerability Assessment**
  Summary of key findings from the Vulnerability Assessment, in order of timing and flood depth.
- **Policy questions for coastal hazard areas**
  Land use policies would be enacted primarily through the Local Coastal Program (LCP) certified by the California Coastal Commission. Public responses to the concepts in this poll are just one piece of a larger, detailed process of evaluating policies and adaptation strategies.
- **Community-specific adaptation concepts**
  Indicate the conceptual adaptation strategies you most support on charts organized by timeframe (Near, Medium and Long-term) and strategy type (Protect, Accommodate, Retreat, or Other).
- **Guiding principles**
  Overarching goals for adaptation planning that address general approach, available science, environment, economy, equity, and public engagement.

# Sea Level Rise Vulnerability Assessment

Over the past year, the Marin County Community Development Agency gathered information from technical advisors, utility managers, and West Marin residents on the potential impacts of sea level rise. The resulting Vulnerability Assessment summarizes the expected timing and extent of impacts, laying a foundation to guide adaptation planning. The Draft Vulnerability Assessment is available at www.MarinSLR.org. The Public Comment period is through December 14, 2015.

| Sea Level Rise Scenario | | Term |
|---|---|---|
| 1 | 10 inches+ Annual Storm | Near |
| 2 | 10 inches+20-year Storm | |
| 3 | 20 inches+20-year Storm | Medium |
| 4 | 40 inches+100-year Storm | Long (Low end) |
| 5 | 80 inches+100-year Storm | Long (High end) |

Statewide guidance indicates that adaptation efforts should consider near, medium and long-term impacts of sea level rise. The range of sea levels become broader as the time horizon extends further into the future. Storm impacts such as wave runup and terrestrial flooding, especially when coupled with high tides, could cause temporary flooding. Combined higher sea levels, storm impacts will become more severe.

The most vulnerable coastal Marin assets, in order of timing and flood depth, are:

**Near-term Vulnerabilities (~2030)**

- Beaches, septic systems, buildings, and streets in Stinson Beach west of Shoreline Highway.
- Shoreline Highway between Stinson Beach and Bolinas, at Green Bridge over Lagunitas Creek in Point Reyes Station, the Walker Creek crossing in Marshall, and bridges on Middle Road and Valley Ford Lincoln School Road.
- Beaches and beachfront and downtown buildings and streets in Bolinas.
- Septic systems, beaches, marshes, and buildings along the eastern and western shores of Tomales Bay.
- The water distribution pipe underneath Shoreline Highway and Sir Francis Drake Boulevard serving many Inverness residents.
- Rocky intertidal areas off Muir Beach and in Bolinas (Duxbury Reef).
- Fire service facilities and tsunami evacuation routes in Stinson Beach.
- Recreational facilities at Dillon Beach Resort and Lawson's Landing.
- Blufftop buildings in Muir Beach, Bolinas, and Dillon Beach may be vulnerable to accelerated erosion.

**Medium-term Vulnerabilities (~2050)**

- Olema-Bolinas Road, the only road to Bolinas.
- Additional buildings and streets in downtown Bolinas, including the historic district.
- Bolinas Public Utilities District lift station at the end of Wharf Road.
- Shoreline Highway in Pt. Reyes Station and East Shore, and Sir Francis Drake Blvd. in Inverness.

**Long-term Vulnerabilities (~2100)**

- Shoreline Highway along the East Shore.
- Buildings in Inverness west of Sir Francis Drake Blvd.
- Downtown Bolinas up to Brighton Road, including the market, library, community center, gas station, museum, and other valued places.

# Policy questions for coastal hazard areas

*Please indicate your level of support for the following CONCEPTUAL policy statements that could be applied within coastal hazard areas. Space is provided below each question for your comments.*

Oppose Neutral Support

1 2 3 4 5

1. **Planning timeframes for construction standards in hazard zones should take into consideration the life expectancy of the structure or development being proposed.** *For example, should construction standards and permits for private residential or commercial use be evaluated on a different timeframe from plans for major public facilities (such as a fire station, Highway 1 or a new bridge)?*

2. **Require a sea level rise hazards analysis as part of a Coastal Development Permit for new projects on vacant land or for projects that expand the size of existing development.** *Landowners would be required to: 1) Establish the projected sea level rise range for the proposed project's planning horizon; 2) Determine how physical impacts from sea level rise may constrain the project site, including erosion, structural and geologic stability, flooding and inundation; 3) Determine how the project may impact coastal resources, considering the influence of sea level rise upon the landscape and impacts of adaptation strategies that may be used over the lifetime of the project; and 4) Identify alternatives to avoid resource impacts and minimize risks throughout the expected life of the development.*

3. **Allow waivers or seek a Categorical Exclusion for projects in coastal hazard areas, including structures in the 100-year floodplain, that meet the following standards:**

   a. *Alterations to existing structures that consist of interior or exterior renovations/ remodeling or the replacement of structural components (such wall, floor, and roof framing and cladding or foundation components) that do not alter the existing building footprint or increase the height, bulk or floor area of the structure.*

   b. *Projects that meet safety standards, which may include breakaway walls, flood vents and elevation.*

   c. *Structures elevated to meet or exceed FEMA standards by up to 3 feet, result in up to 10% additional floor area[1], and do not exceed the current building height limit.*

[1] The certified Marin County Local Coastal Program identifies additions resulting in an increase of less than ten percent of the internal floor area of an existing structure as exempt from a Coastal Development Permit. (Sections 22.56.050I and 22.56.055I carry out California Public Resources Code Section 30610).

Oppose Neutral Support

1 2 3 4 5

4. **Raise building height limits in coastal hazard areas to allow for adaptation to sea level rise.** *If strict height limits are maintained, some landowners may need to construct flat roofs or seek a variance to exceed the maximum height. Raising building height limits may affect views, but may also allow for greater design flexibility.*

5. **Encourage the creation of local self-funded assessment districts to manage common hazard risks.** *Local assessment districts, such as County Service Areas, Hazard Abatement Districts or similar neighborhood-level entities, could enable communities to pool resources to obtain insurance coverage, conduct a community coastal hazards analysis, and fund local risk reduction and adaptation measures (e.g. raising private roads).*

6. **Establish a managed retreat program.** *Purchase properties vulnerable to coastal hazards. Structures are typically demolished or relocated. The property would be restored to a natural state and used for open space or recreation. Lands of lesser habitat value and hazard vulnerability could be rezoned or made available in exchange for properties in hazard areas, along with equitable financing arrangements.*

   a. *Acquire vacant vulnerable properties.*
   b. *Acquire developed vulnerable properties before damage occurs.*
   c. *Acquire developed vulnerable properties only after significant destruction by storms or high tides.*
   d. *Explore the feasibility of a public parkland exchange programs that encourage landowners to move out of hazardous areas.*
   e. *Identify and make available (eg. through rezoning) land outside the hazard areas to allow owners of vulnerable properties to relocate nearby.*
   f. *Your idea:*

7. **Prioritize adaptation options that protect, enhance, and maximize protection of coastal resources and public access.** *Give full consideration to innovative nature-based approaches such as living shoreline techniques.*

8. **Please provide any other suggestions for policy initiatives to address sea level rise in Marin County.**

# Community-Specific Adaptation Concepts

## STINSON BEACH

**Please mark the <u>CONCEPTUAL</u> adaptation strategies you support**. Feel free to write in additional comments. The numbers refer to locations on the community maps. *Entities in blue italics represent POTENTIAL implementing agents or funding sources.*

| | ***Near-term*** | ***Medium-term*** | ***Long-term*** |
|---|---|---|---|
| **Protect** | ☐ 1) Restore and enhance dunes. *Local assessment district*<br>☐ 2) Place sand on beaches. *Local assessment district*<br>☐ 3) Enhance living shoreline on lagoon side for temporary flood protection. *Local assessment district, Government grants*<br>☐ 4) Maintain existing seawalls and revetments throughout community. *Landowners* | ☐ 5) Construct low-profile sand-covered seawall from end of existing Seadrift revetment toward southeast end of beach. *Local assessment district*<br>☐ 6) Continue to place sand on beaches. *Local assessment district*<br>☐ 7) Construct artificial reef or other offshore structure to minimize wave and erosion damage. *Local assessment district* | ☐ 8) Continue to place sand on beaches. *Local assessment district* |
| **Accommodate** | ☐ 9) Elevate red buildings impacted in the near-term. *Landowners*<br>☐ 10) Flood proof red buildings. *Landowners*<br>☐ 11) Update substandard septic systems to meet code. *Landowners*<br>☐ 12) Continue to retrofit water meter connections. *Landowners*<br>☐ 13) Elevate Calle del Arroyo. *County, local assessment district*<br>☐ 14) Elevate private roads in Calles and Patios. *Local assessment district* | ☐ 15) Elevate orange buildings and utilities (impacted in the medium-term). *Landowners*<br>☐ 16) As needed, abandon leach fields and convert septic tanks to holding vessels. *Landowners*<br>☐ 17) Elevate Shoreline Hwy. along Bolinas lagoon. *State*<br>☐ 18) Realign Shoreline Hwy. along Bolinas lagoon. *State*<br>☐ 19) Develop boardwalk access to elevated buildings in the Calles and Patios. *Local assessment district* | ☐ 20) Elevate roads that are subject to flooding. *Local assessment district*<br>☐ 21) Develop community wastewater system. *Local service providers, Local assessment district* |
| **Retreat** | ☐ 22) Relocate critical facilities such as fire station and/or emergency generator. *Local service providers, County*<br>• See options in the "Policy Questions for Entire Coastal Zone" section. | ☐ 23) Relocate red buildings. *Landowners*<br>☐ 24) Remove shoreline protective devices that limit inland migration of beach. *Landowners*<br>☐ 25) Remove development that limits inland migration of beach. *Landowners* | ☐ 26) Relocate orange buildings. *Landowners* |
| **Other** | *Write in other suggestions.* | | |

# Community-Specific Adaptation Concepts

## BOLINAS

**Please mark the CONCEPTUAL adaptation strategies you support**. Feel free to write in additional comments. The numbers refer to locations on the community maps. *Entities in blue italics represent POTENTIAL implementing agents or funding sources.*

| | Near-term | Medium-term | Long-term |
|---|---|---|---|
| **Protect** | ☐ 1) Maintain existing revetments, seawalls, and levees. *Landowners, local assessment district*<br>☐ 2) Protect bluffs with armoring. *Local assessment district*<br>☐ 3) Place sand on beaches. *Local assessment district* | ☐ 4) Continue to place sand on beaches. *Local assessment district*<br>☐ 5) Create oyster reef in Bolinas Lagoon. *Government grants* | ☐ 6) Install wall around sewage lift station entrance. *Local service provider* |
| **Accommodate** | ☐ 7) Elevate red buildings and utilities impacted in the near-term. *Landowners*<br>☐ 8) Flood proof red buildings. *Landowners*<br>☐ 9) Elevate bridge over Pine Gulch Creek. *County*<br>☐ 10) Elevate Wharf Rd. *County*<br>☐ 11) Acquire agricultural land for wetland restoration. *County, land trust* | ☐ 12) Elevate orange buildings and utilities impacted in the medium-term. *Landowners*<br>☐ 13) Flood proof orange buildings. *Landowners*<br>☐ 14) Elevate Olema-Bolinas Road. *County*<br>☐ 15) Increase height of opening enclosures and pedestals for above ground equipment. *Local service provider*<br>☐ 16) Realign Bob Stewart Trail at exposed segments. *County, State* | ☐ 17) Elevate yellow buildings impacted in the long-term. *Landowners*<br>☐ 18) Flood proof yellow buildings. *Landowners*<br>☐ 19) Acquire land to develop alternative route from Big Mesa to Horseshoe Hill Road. *County* |
| **Retreat** | • See options in the "Policy Questions for Entire Coastal Zone" section. | ☐ 20) Relocate red buildings. *Landowners*<br>☐ 21) Remove shoreline protective devices that limit inland migration of beach. *Landowners*<br>☐ 22) Remove development that limits inland migration of beaches. *Landowners*<br>☐ 23) Relocate coastal access points *County, State*<br>☐ 24) Relocate sewage lift station to upland location. *Local service provider*<br>☐ 25) Realign section of Shoreline Hwy. along lagoon (would require cutting into bluffs and stabilizing them). *State* | ☐ 26) Relocate orange buildings. *Landowners*<br>☐ 27) Remove structures that inhibit sediment supply to marshes and beaches. *Landowners* |
| **Other** | *Write in other suggestions.* | | |

# Community-Specific Adaptation Concepts

## INVERNESS

**Please mark the CONCEPTUAL adaptation strategies you support**. Feel free to write in additional comments. The numbers refer to locations on the community maps. *Entities in blue italics represent POTENTIAL implementing agents or funding sources.*

| | Near-term | Medium-term | Long-term |
|---|---|---|---|
| **Protect** | ☐ 1) Restore/ enhance wetlands along Tomales Bay. *Local assessment district, State, Government grants*<br>☐ 2) Create oyster reef in Tomales Bay. *Local assessment district, State, Government grant* | ☐ 3) Construct horizontal levee along Tomales Bay. *Local assessment district, State, Government grant*<br>☐ 4) Convert affected segments of Sir Francis Drake Blvd. to levee (also protects water pipeline in Inverness Park and downtown. *County, local service providers* | ☐ 5) Armor/ convert additional segments of Shoreline Hwy. or Sir Francis Drake Blvd. to levee. *County, local service providers* |
| **Accommodate** | ☐ 6) Elevate red buildings and utilities impacted in the near-term. *Landowners*<br>☐ 7) Flood proof red buildings. *Landowners*<br>☐ 8) Permit houseboats. *County, State*<br>☐ 9) Update old septic systems. *Landowners* | ☐ 10) Elevate orange buildings and utilities impacted in the medium-term. *Landowners*<br>☐ 11) Flood proof orange buildings. *Landowners*<br>☐ 12) Elevate Shoreline Hwy. *State*<br>☐ 13) Develop community wastewater system. *Local service provider, local assessment district* | ☐ 14) Elevate yellow buildings impacted in the long-term. *Landowners*<br>☐ 15) Flood proof yellow buildings. *Landowners*<br>☐ 16) Create moorings for boats when marinas are inundated. *State, County* |
| **Retreat** | • See options in the "Policy Questions for Entire Coastal Zone" section. | ☐ 17) Relocate red buildings. *Landowners*<br>☐ 18) Relocate coastal access points *County, State*<br>☐ 19) Remove shoreline protective devices that limit inland migration of beaches and wetlands. *Landowners*<br>☐ 20) Remove development that limits inland migration of beaches and marshes. *Landowners*<br>☐ 21) Realign affected segments of Sir Francis Drake Blvd. along Tomales Bay. *State* | ☐ 22) Relocate orange buildings. *Landowners*<br>☐ 23) Remove structures that inhibit sediment supply to marshes and beaches. *Landowners* |
| **Other** | *Write in other suggestions.* | | |

# Community-Specific Adaptation Concepts

## POINT REYES STATION

**Please mark the CONCEPTUAL adaptation strategies you support**. Feel free to write in additional comments. The numbers refer to locations on the community maps. *Entities in blue italics represent POTENTIAL implementing agents or funding sources.*

| | Near-term | Medium-term | Long-term |
|---|---|---|---|
| **Protect** | ☐ 1) Restore/ enhance wetlands along Tomales Bay. *Government grants*<br>☐ 2) Armor segments of Shoreline Hwy prone to flooding in near-term. *County, State* | ☐ 3) Horizontal levee along Tomales Bay *Local assessment district, Government grant*<br>☐ 4) Armor segments of Shoreline Hwy prone to flooding in medium-term. *County, State* | ☐ 5) Armor road segments of Shoreline Hwy. or Sir Francis Drake Blvd. prone to flooding in long-term. *County, State* |
| **Accommodate** | ☐ 6) Elevate Green Bridge on Shoreline Hwy. *State* | ☐ 7) Elevate affected segments of Shoreline Hwy. *State*<br>☐ 8) Elevate Sir Francis Drake Blvd. with pipeline below. *County, NMWD* | ☐ 9) Elevate yellow buildings. *Landowners*<br>☐ 10) Flood proof yellow buildings *Landowners* |
| **Retreat** | • See options in the "Policy Questions for Entire Coastal Zone" section. | ☐ 11) Relocate red buildings. *Landowners*<br>☐ 12) Relocate coastal access points *County, State*<br>☐ 13) Realign affected segments of Shoreline Hwy. *State* | ☐ 14) Relocate orange buildings *Landowners*<br>☐ 15) Relocate Gallagher well upstream *Local service provider*<br>☐ 16) Remove shoreline protective devices that limit inland migration of beaches and wetlands. *Landowners*<br>☐ 17) Remove development that limits inland migration of beaches and marshes. *Landowners* |
| **Other** | *Write in other suggestions.* | | |

# Community-Specific Adaptation Concepts

## EAST SHORE

**Please mark the CONCEPTUAL adaptation strategies you support**. Feel free to write in additional comments. The numbers refer to locations on the community maps. *Entities in blue italics represent POTENTIAL implementing agents or funding sources.*

| | Near-term | Medium-term | Long-term |
|---|---|---|---|
| **Protect** | ☐ 1) Restore/ enhance wetlands along Tomales Bay. *Government grants*<br>☐ 2) Create oyster reef along Tomales Bay. *Government grant* | ☐ 3) Construct horizontal levee along Tomales Bay. *Local assessment district, Government grant*<br>☐ 4) Armor segments of Shoreline Hwy prone to flooding in the medium-term. *State* | ☐ 5) Armor segments of Shoreline Hwy prone to flooding in the long-term. *State* |
| **Accommodate** | ☐ 6) Elevate red buildings and utilities impacted in the near-term. *Landowners*<br>☐ 7) Floodproof red buildings. *Landowners*<br>☐ 8) Permit houseboats. *County, State*<br>☐ 9) Update old septic systems. *Landowners* | ☐ 10) Elevate orange buildings and utilities impacted in the medium-term. *Landowners*<br>☐ 11) Floodproof orange buildings. *Landowners*<br>☐ 12) Elevate affected roads, including Shoreline Highway at Walker Creek. *State*<br>☐ 13) Improve coastal access facility or trail to account for sea level rise. *County, State* | ☐ 14) Elevate yellow buildings. *Landowners*<br>☐ 15) Flood proof yellow buildings. *Landowners*<br>☐ 16) Create moorings for boats when marinas are inundated. *State, County* |
| **Retreat** | ☐ 17) Relocate shoreline wells and septic leach fields to the east of Shoreline Hwy. *Landowners, County (ongoing)*<br>• See options in the "Policy Questions for Entire Coastal Zone" section. | ☐ 18) Relocate red buildings. *Landowners*<br>☐ 19) Relocate coastal access points *County, State*<br>☐ 20) Realign affected segments of Shoreline Hwy. *State*<br>☐ 21) Relocate critical facilities. *Local service providers, County* | ☐ 22) Relocate orange buildings. *Landowners* |
| **Other** | *Write in other suggestions.* | | |

# Community-Specific Adaptation Concepts

## DILLON BEACH

**Please mark the CONCEPTUAL adaptation strategies you support**. Feel free to write in additional comments. The numbers refer to locations on the community maps. *Entities in blue italics represent POTENTIAL implementing agents or funding sources.*

| | Near-term | Medium-term | Long-term |
|---|---|---|---|
| **Protect** | N/A | ☐ D2) Maintain sand dunes with sand placement and revegetation *Landowner, government grants* | ☐ D7) Continue to maintain sand dunes with sand placement and revegetation *Landowner, government grants* |
| **Accommodate** | N/A | ☐ D3) Elevate orange buildings and utilities impacted in the medium-term. *Landowners*<br>☐ D4) Flood proof orange buildings. *Landowners* | N/A |
| **Retreat** | ☐ D1) Relocate well along Dillon Creek at Bay Dr. inland. *Local service providers*<br>• See options in the "Policy Questions for Entire Coastal Zone" section. | ☐ D5) Relocate red buildings. *Landowners*<br>☐ D6) Relocate sewage pump inland. *Local service providers* | ☐ D8) Relocate orange buildings. *Landowners*<br>☐ D9) Relocate parking lot. *Landowners* |
| **Other** | *Write in other suggestions.* | | |

# DRAFT Adaptation Strategy Guiding Principles

*Please comment on the appropriateness of the guiding principles below by adding or deleting language as you see fit. Feel free to add additional principles at the end of this document.*

## 1. General Approach

- Recognize that West Marin is affected by the world around it.[2]
- Recognize that sea level rise is one of several climate change and other typical coastal impacts (earthquakes, wildfires, erodible soils, creek and river flooding, storm winds and waves, and fluctuating tides) current and future residents will likely face. Interrelationships between these factors could impact real-world outcomes and should be monitored moving forward.
- Facilitate adaptation of existing developments to reduce their vulnerability to sea level rise impacts over time.[3]
- Prioritize sea level rise adaptation strategies that have minimal adverse impacts and co-benefits for other climate risks, safety, health, the economy, social equity, species and habitats, and ecological function.[4]
- Design adaptation to fit into existing programs and mechanisms, so as to not create a new bureaucracy[5] or significant demands for new funding.[6]
- Adaptation planning, and initial plan implementation, must begin now,[7] and improvements can be made as more information becomes available.[8]
- Due to the high degree of uncertainty,[9] use an adaptive management approach, with indicators and established monitoring. Adaptation policies need to be flexible enough for circumstances that may not yet be fully predictable.[10] Avoid unnecessarily prescriptive adaptation actions, encourage decisions at the local level.[11]
- Utilize a precautionary approach to minimize risk borne by local communities.[12]
- Acknowledge that there will be losses, and rationally assign budgets and efforts to those assets that have the highest value and the best chances of success. Discuss value of adding some life to certain assets while forgoing long-term preservation, rather than complete preservation.[13] Strike a balance between protection of homes, infrastructure and conservation of natural resources.[14]
- Avoid, and where unavoidable, minimize, significant coastal hazard risks to new development and redevelopment.[15]
- Warn property owners that they need to understand and assume the risk of new development in hazardous areas.[16]

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2 Natural Adaptation Forum http://www.nationaladaptationforum.org/program/good-adaptation-pledge
3 ICLEI-Local Governments for Sustainability. January 2012. Sea Level Rise Adaptation Strategy for San Diego Bay (adapted from California Climate Adaptation Strategy) ("ICLEI, 2012")
4 Natural Adaptation Forum http://www.nationaladaptationforum.org/program/good-adaptation-pledge
5 Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware.
6 ICLEI, 2012.
7 ibid
8 Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware
9 California Coastal Commission. *Sea Level Rise Policy Guidance*. Adopted August 2015.
10 ICLEI, 2012.
11 Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware
12 ICLEI, 2012.
13 C. Harrington, personal communication, 2015.
14 Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware
15 California Coastal Commission. *Sea Level Rise Policy Guidance*. Adopted August 2015.

- Encourage priority for coastal-dependent and coastal-related development over other development.[17]
- Recognize that sea level rise will probably cause the public trust boundaries to move inland.
- Avoid adaptation options that exacerbate climate impacts through increased greenhouse gas emissions (e.g., energy intensive or concrete-dependent options).[18]
- Avoid options that commit Marin County to strategies that are difficult to change in the future, creating a path dependency.

## 2. Available Science

- Use available science and knowledge as it evolves to consider present, past, and foreseeable future conditions[19], and use best available technology for decision-making and adaptation strategies and actions. [20, 21, 22, 23]
- Take account of locally relevant and context-specific sea level rise estimates in planning, project design, and permitting reviews.[24]
- Stay abreast of the responses of threatened areas around the globe to learn of effective strategies.[25]

## 3. Environment (One of Marin County's 3E's)

- Maximize natural shoreline values and minimize shoreline armoring.[26]
- Protect ocean and coastal ecosystems if feasible. [27] Protect public access to coastal areas and beaches, natural shoreline, and park and recreational resources, if possible.[28]
- Address potential coastal resource impacts (wetlands, habitat, agriculture, scenic, *etc.*) and recognize the desirability of measures to protect coastal resources in coastal planning and regulatory decisions.[29]

## 4. Economy (One of Marin County's 3E's)

- Adaptation planning should identify and address potential impacts to the economy from sea level rise and storms.
- Adaptation efforts that preserve and enhance habitat contribute to healthy working and living conditions, provide a continuing draw for tourism and recreational industries, and stimulates related economic investment opportunities.
- Appropriate and timely adaptation measures can benefit the economy, by maintaining a diverse and sustainable local economy, and providing for the safe and efficient movement of people and goods.[30]

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[16] California Coastal Commission. *Sea Level Rise Policy Guidance*. Adopted August 2015.
[17] ibid
[18] Barnett and O'Neill, 2010.
[19] Natural Adaptation Forum http://www.nationaladaptationforum.org/program/good-adaptation-pledge
[20] Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware
[21] California Natural Resources Agency. *Safeguarding California*. 2015.
[22] Environmental Protection Agency (EPA) National Estuary Program.
[23] ICLEI, 2012.
[24] California Coastal Commission Sea Level Rise Policy Guidance Adopted August 2015.
[25] C. Harrington
[26] California Coastal Commission. *Sea Level Rise Policy Guidance*. Adopted August 2015.
[27] ICLEI, 2012.
[28] ibid
[29] California Coastal Commission. *Sea Level Rise Policy Guidance*. Adopted August 2015.

# DRAFT Adaptation Strategy Guiding Principles

## 5. Equity (One of Marin County's 3E's) & Engagement

- Promote a diversity of partners and stakeholders[31] in conversations and decisions.[32, 33, 34, 35, 36]
- Work to ensure the equitable sharing of the benefits and costs of sea level rise.[37] Consider equity in selection and funding of adaptation measures.[38] Safeguard integrity: Encourage transparency, accountability & follow-through.[39]
- Adaptation measures should consider the distinct vulnerabilities of potentially affected sub-populations.[40,41]
- Strive to establish and maintain partnerships between government, tribes, businesses, landowners, and non-governmental organizations [42] in the development and implementation of adaptation strategy recommendations. [43] Support each other in research and monitoring efforts.[44]
- Coordinate and consider consequences of adaptation among jurisdictions and among resource types. [45]
- Communicate within and between the coastal communities to share information, successes, failures and funding resources.
- Foster an inspired community: tap into hope and creativity that engages and inspires the community to develop the long-term plan and vision.[46]
- Maintain an ongoing public outreach and communication program.

## 7. Others?

*Please use the space below to add additional guiding principles for consideration.*

[30] Marin Countywide Plan. Prepared by the Marin Community Development Agency. November 6, 2007.
[31] California Natural Resources Agency. *Safeguarding California*. 2015.
[32] Natural Adaptation Forum http://www.nationaladaptationforum.org/program/good-adaptation-pledge
[33] Environmental Protection Agency (EPA) National Estuary Program.
[34] California Coastal Commission. *Sea Level Rise Policy Guidance*. Adopted August 2015.
[35] Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware
[36] ICLEI, 2012.
[37] Natural Adaptation Forum http://www.nationaladaptationforum.org/program/good-adaptation-pledge
[38] Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware
[39] Natural Adaptation Forum http://www.nationaladaptationforum.org/program/good-adaptation-pledge
[40] California Climate Change Center
[41] California Coastal Commission. *Sea Level Rise Policy Guidance*. Adopted August 2015.
[42] California Natural Resources Agency. *Safeguarding California*. 2015.
[43] ICLEI, 2012.
[44] California Coastal Commission. *Sea Level Rise Policy Guidance*. Adopted August 2015.
[45] Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware
[46] Natural Adaptation Forum http://www.nationaladaptationforum.org/program/good-adaptation-pledge

# Evaluation and Participant Information

**Tell us a bit about yourself!** Please answer these demographic questions to help us know if we are getting a representative sampling of your community. This information is kept confidential. Please circle your response.

1. Where do you live?
   - Muir Beach
   - Inverness
   - Marshall
   - Point Reyes Station
   - Dillon Beach
   - Tomales
   - Other
   - Stinson Beach

   Specify area in Stinson (optional)

2. Do you own or rent your home? Own Rent

3. Do you own other property or business in the locations in question 8?
   Own Business Own Property Own Both No

4. What is your gender? Male Female

5. What is your age bracket? Under 14 15-18 19-24 25-44 45-64 65-74 75+

6. What is your race/ethnicity (circle all that apply)?
   White Black/ African American Asian/Pacific Islander Latino Native American
   Other

7. What is your household Income?
   $0-34,999 $35,000-74,999 $75,000-99,999 $100,000-149,999 $150,000+

**Did you attend the C-SMART workshop on November 14?** Marin County would appreciate your feedback on how the event went for you. Please answer the ranking and written response questions below.

| | | Ranking 1 2 3 4 5 | |
|---|---|---|---|
| 8. How organized was the workshop | not | ◯ ◯ ◯ ◯ ◯ | very |
| 9. Pace of the workshop | too slow | ◯ ◯ ◯ ◯ ◯ | too fast |
| 10. How informative were the presentations? | not | ◯ ◯ ◯ ◯ ◯ | very |
| 11. How productive was the open house? | not | ◯ ◯ ◯ ◯ ◯ | very |
| 12. How relevant was the poll? | not | ◯ ◯ ◯ ◯ ◯ | very |

13. What suggestions for improvement or comments do you have regarding the workshop?

**Thank you for completing the survey! You can submit by clicking here.**

Submit