

## Climate-Smart Adaptation Working Group: A Planning Roadmap

### Required Reading:

- Climate Scenarios for the region
- Management Goals (for your habitat)
- Vulnerability Assessment Summary (for your habitat)
- Coastal and Marine Adaptation Strategies and Actions Table
- Greater Farallones NMS Management Plan

### Supplemental Resources:

- California Coastal Commission Sea Level Rise Guidance (Ch. 7, Section C)
- Living Shorelines: From Barriers to Opportunities
- Climate-Smart Conservation: Putting Adaptation Principles Into Practice (Ch. 8)
- Climate Policies and Programs at the Federal, State, and Regional Levels: Context and Opportunities for Local Action
- Application of Land Use Practices and Tools to Prepare for and Adapt to Climate Change

#### *For estuaries group:*

- Bolinas Lagoon Restoration Project: Design Review Group Meeting Summary and Synthesis

## Details for Planning Strategy

### I. Planning Group Structure:

Recommendations will be developed for all four climate scenarios<sup>1</sup> in three planning groups organized by major habitat type:

- Beaches and dunes (including cliffs)
- Estuaries
- Rocky Intertidal

### II. Recommendation Organization:

Recommendations will be developed for scenarios, nested within habitat types.

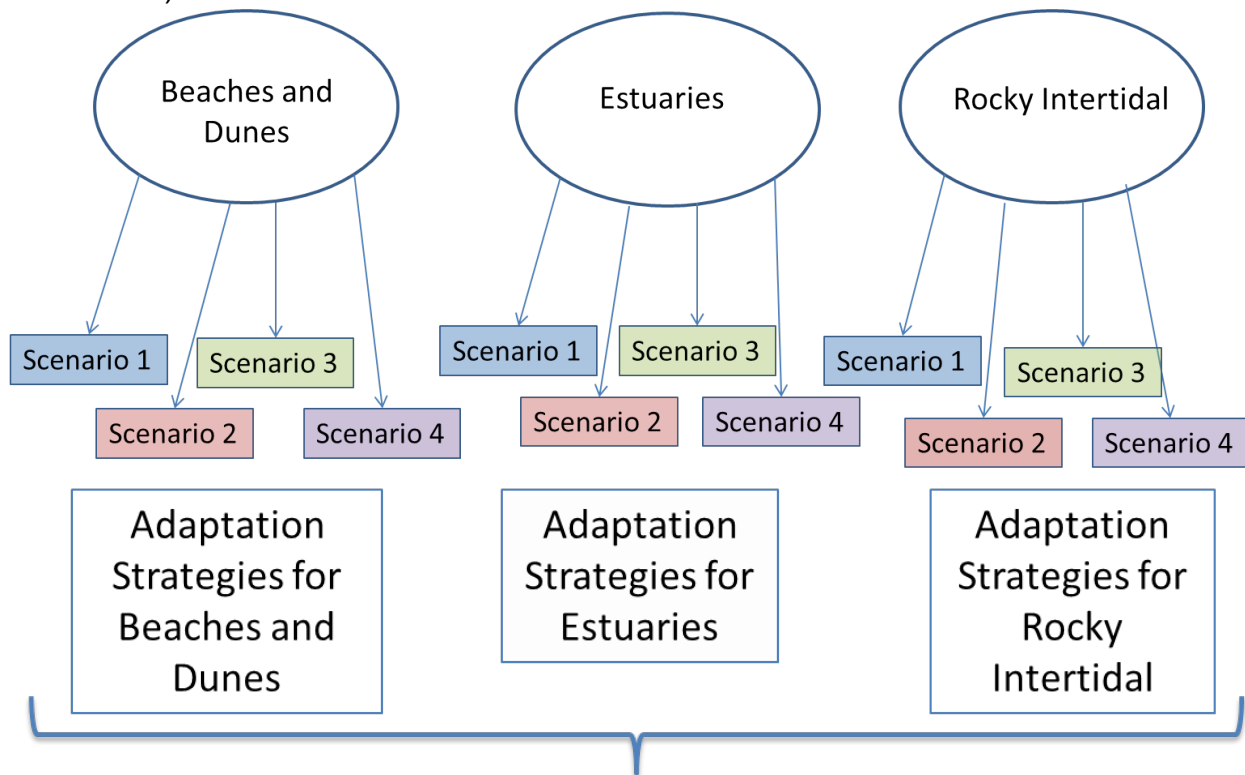
Additional information provided for each recommendation will include:

- Time horizon (short-term and long-term)
- The major impact being addressed and its implications (i.e. sea level rise and wave action that may lead to enhanced erosion, habitat loss, road damage, etc.)
- Spatial detail (if applicable, site-specific recommendations, i.e. Bolinas Lagoon, and/or spatial groupings, i.e. urban vs. rural)
- Lead agency to implement action
- Required resources (partner agencies, staffing, funds)

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<sup>1</sup> Climate scenarios: Cold/dry, Cold/wet, Warm/dry, Warm/wet

- Potential interactions you foresee with other habitat types for any given recommendation (such as potential conflict, required cooperation or anything else)



Identify common strategies across 2 or more scenarios within each habitat.

Identify common strategies across habitats, as well as potential interactions (mutual benefit, conflict, required cooperation, etc.).

Identify potential timelines and unique circumstances to build a responsive adaptation strategy integrating information from the Vulnerability Assessment, workshop and other resources.

### III. Recommendation Structure:

Recommendations will be structured in a consistent manner across planning groups to include the following components:

1. Overall Approach (e.g. reduce recreational impact)
2. Strategic Actions to accomplish the approach (e.g. educate public to reduce visitation impact through signage, closure zones, increased outreach and enforcement, etc.)

3. Rational for Approach – how does this help accomplish your management goal(s) and reduce identified vulnerabilities?

## **Planning Process**

### *Summer (June – August)*

- Working group is on summer break; staff and working group chair produce the resources outlined at the beginning of this document.
- Staff will hold an informational webinar at the end of the summer break to prepare working group members for their third meeting, introduce the materials, and explain the process.

### *September 15: Planning Meeting*

- Goal: develop adaptation recommendations in habitat planning groups for all four scenarios
- Future meeting schedule and targeted SAC meeting date will be determined

### *September 15 – October 16: Review and Meeting Preparation*

- Staff will compile all recommendations within habitats and produce an organized, comprehensive and compiled list to be circulated in advance of next meeting.
- Staff will work with working group members to identify information needs and update resources as necessary

### *October 16: 2nd planning meeting*

Working group will:

- Continue the development of recommendations, working from prior meeting's list
- Provide greater level of detail for all recommendations (i.e. location, detailed methods, etc.)

### *December 3: Final planning meeting - Finalize and Prioritize Recommendations*

Working group will:

1. Screen actions against criteria to remove actions that may not be feasible or may have unacceptable consequences.
2. Evaluate final list of adaptation actions using a criteria table that enables participants to score each action for each criterion.
3. Decide on final recommendations to present to the advisory council.  
\*\*note: the final number of recommendations that are presented to the council will be determined by the working group based on how many are put forth and how the group wants their recommendations to be available (e.g. list top 5 per habitat, but include all others as an attachment, or only list strategies that are robust across scenarios and habitats)
4. (Time dependent) Develop questions that regional groups can ask to assess feasibility of management actions for their area (for use in evaluation process and by managers in perpetuity).

### *December – January 31st: Final review of recommendations*

- Working group chair and staff will develop the final recommendation document and circulate with working group members for final review.

*February 3 (date subject to change): Final day to circulate recommendations with the Sanctuary Advisory Council*

*February 17 (date subject to change): Presentation of final recommendations to the Sanctuary Advisory Council*

- Working group chair will present final recommendations to the SAC, and the SAC will hold a vote to forward the recommendations on to the Superintendent

## **Guidance for Adaptation Planning**

Dealing with uncertainty of system:

- If questions come up regarding how a system may react to certain climate changes and the resulting management response, build those uncertainties into your recommendation, identifying knowledge gaps and information needs that need to be addressed prior to implementation.

Detailed strategies:

- For each strategy, managers need to understand what the action is, where it is prioritized, and why it is proposed at that location or prioritized in the way presented.
- Where possible, indicate a specific location for each strategy (i.e. Stinson Beach, the north end of Bolinas Lagoon). If there is insufficient local knowledge to identify a specific location, describe the conditions that would call for the proposed strategy (i.e. on north-facing beaches with little to no sediment supply).
- Consider bundling recommendations for a particular area (i.e. beach nourishment in the short term for a specific beach, highway removal as a long-term strategy for that location).

Priority locations:

- Consider the flooding visualizations provided by the OCOF tool when determining the locations for strategy implementation.
- The following specific locations are priority areas for GFNMS, and would thus greatly benefit from very targeted strategies:
  - Estuaries: Tomales Bay, Bolinas Lagoon, Estero Americano and Estero de San Antonio
  - Beaches/Dunes: Pescadero Beach (due to proximity of Hwy 1), other San Mateo County beaches
  - Rocky Intertidal:

## **Tips for Adaptation Planning**

- Things to consider when developing adaptation actions
  - Did you consider these different types of actions<sup>2</sup>?

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<sup>2</sup> Peterson et al. 2011: [http://www.fs.fed.us/pnw/pubs/pnw\\_gtr855.pdf](http://www.fs.fed.us/pnw/pubs/pnw_gtr855.pdf)

- Resistance: actions that enhance the ability of species, ecosystems, or environments (including social) to resist forces of climate change and maintain values and ecosystem services in their present or desired states and conditions.
- Response: actions that work directly with climate-induced changes to assist transitions to future states by mitigating and minimizing undesired and disruptive outcomes.
- Resilience: actions that enhance the capacity of ecosystems to withstand or absorb increasing effects without irreversible changes in important processes and functionality.
- Increased knowledge
- Enhanced collaboration
- o Did you think creatively, attempt to be innovative and bold?
- o Did you consider how effective each action may be to reduce vulnerability, and how feasible it will be to implement?
- How to move from an understanding of vulnerability to the development of adaptation actions?
  - o Review “potential management actions” in the habitat vulnerability assessments
  - o Using the issue statement and identified “key vulnerabilities”, target actions to address 1 of 3 components of vulnerability (exposure, sensitivity, adaptive capacity)
  - o Use the adaptation strategies table as a springboard and develop specific actions for each general strategy