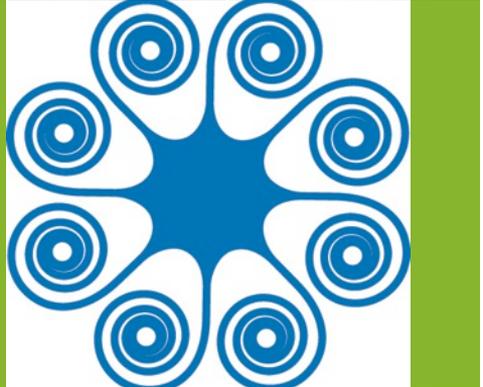




Getting to Climate-Savvy: Project design, implementation, partnerships and policy integration



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Associate Scientist



“We are made wise not by
the recollection of our past,
but by the responsibility for
our future”

-George Bernard Shaw

Adaptation Ladder of Engagement



7 Sharing

6 Evaluation

5 Integration

4 Implementation

3 Planning

2 Assessment

1 Awareness

Climate Savvy Planning Process



Interest

Assess

Strategy
to
Address

Implement
with
partners
and
resources

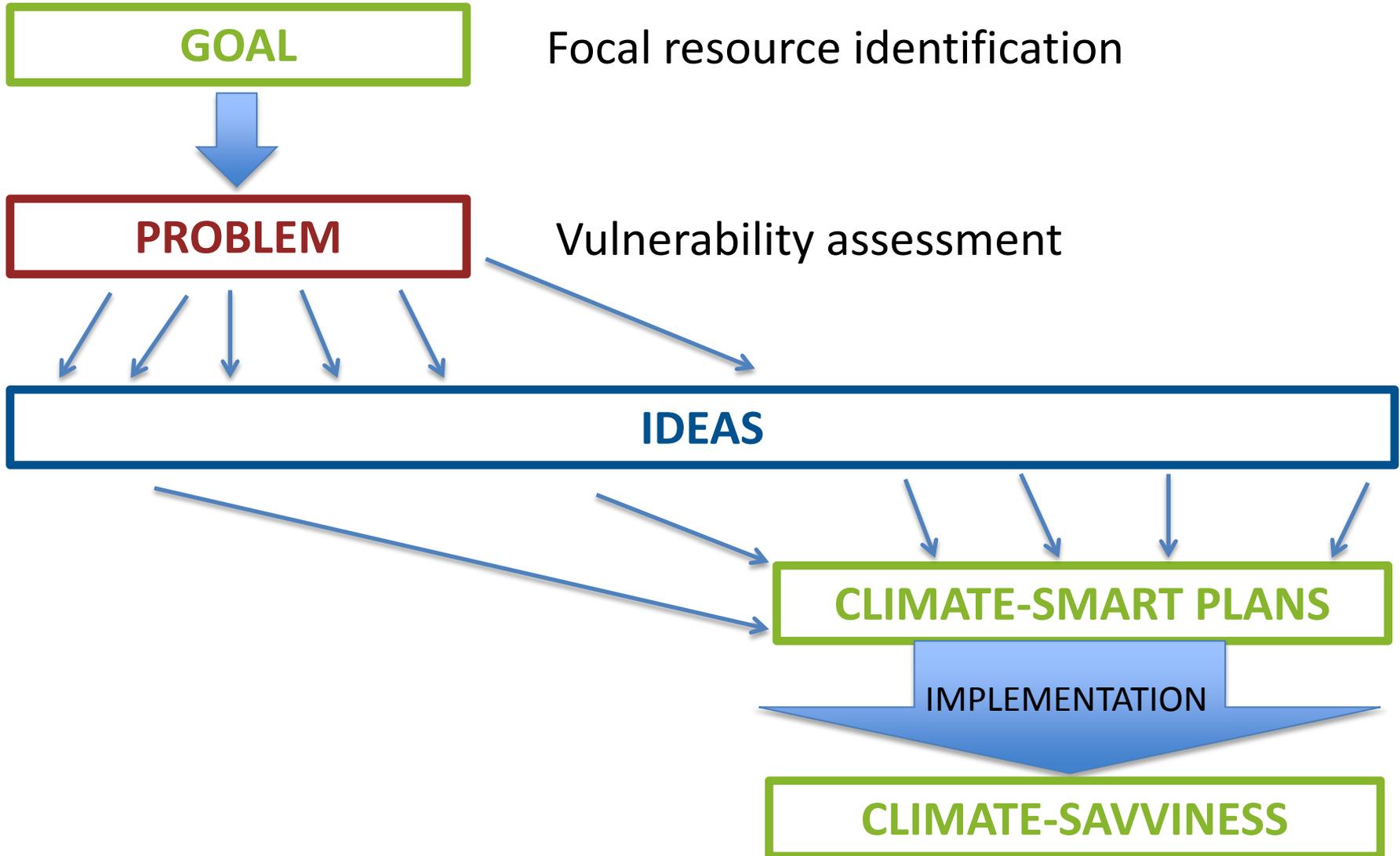
Evaluate

Update

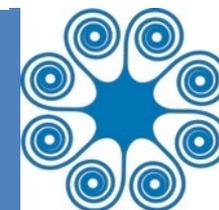
Proliferate

Project Design

Adaptation Planning Process Simplified



Implementation



The Forest Service Climate Change Performance Scorecard, 2011 (version 1.3) To be completed annually by each National Forest or Grassland (Unit).		
Scorecard Element	Unit Name	Yes/No
Organizational Capacity		
1. Employee Education	Are all employees provided with training on the basics of climate change, impacts on forests and grasslands, and the Forest Service response? Are resource specialists made aware of the potential contribution of their own work to climate change response?	
2. Designated Climate Change Coordinators	Is at least one employee assigned to coordinate climate change activities and be a resource for climate change questions and issues? Is this employee provided with the training, time, and resources to make his/her assignment successful?	
3. Program Guidance	Does the Unit have written guidance for progressively integrating climate change considerations and activities into Unit-level operations?	
Engagement		
4. Science and Management Partnerships	Does the Unit actively engage with scientists and scientific organizations to improve its ability to respond to climate change?	
5. Other Partnerships	Have climate change related considerations and activities been incorporated into existing or new partnerships (other than science partnerships)?	
Adaptation		
6. Assessing Vulnerability	Has the Unit engaged in developing relevant information about the vulnerability of key resources, such as human communities and ecosystem elements, to the impacts of climate change?	
7. Adaptation Actions	Does the Unit conduct management actions that reduce the vulnerability of resources and places to climate change?	
8. Monitoring	Is monitoring being conducted to track climate change impacts and the effectiveness of adaptation activities?	
Mitigation and Sustainable Consumption		
9. Carbon Assessment and Stewardship	Does the Unit have a baseline assessment of carbon stocks and an assessment of the influence of disturbance and management activities on these stocks? Is the Unit integrating carbon stewardship with the management of other benefits being provided by the Unit?	
10. Sustainable Operations	Is progress being made toward achieving sustainable operations requirements to reduce the environmental footprint of the Agency?	

7 Sharing

6 Evaluation

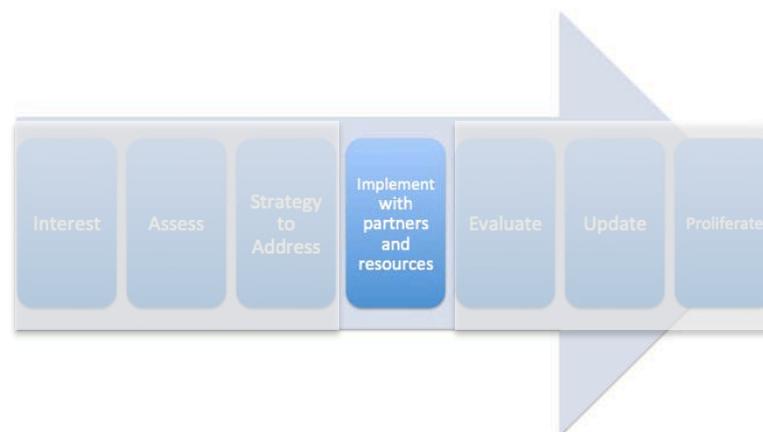
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Adaptation Options



Resistance

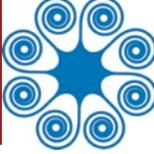


Resilience



Response

Adaptation Strategy Table



Adaptation Strategy
Protect vulnerable areas from sea level rise, storm surge, higher wave action, erosion, and other climate impacts

Specific Adaptation Action
Use “soft-engineering” techniques and/or natural infrastructure to replenish or mimic natural buffers^{1,2,3}

Examples and Case Studies

- [South Bay Salt Pond Restoration Project, California](#): restoring tidal marsh for coastal protection, as well as habitat, recreation, and water quality services
- [San Francisco Bay Living Shorelines Project, California](#): experimentally utilizing a variety of living shoreline techniques (e.g., native vegetation and natural materials placement) to increase shoreline protection and provide habitat
- [Alligator River National Wildlife Refuge, North Carolina](#): using oyster reefs to dissipate wave/storm surge energy, reduce shoreline erosion, and slow currents



Incorporate changing climate conditions into policy, planning efforts, and regulatory, legal, and financial mechanisms

Update or amend comprehensive and zoning plans^{1,2,3}

- [Maryland](#): regional strategy for reducing Maryland’s vulnerability to climate change recommends integration of sea level rise into comprehensive and zoning plans
- [Somerset County, Maryland](#): updated comprehensive and zoning plan incorporates current and future floodplains and suggests moving vulnerable structures
- [Huron River Watershed Council, Michigan](#): working with several communities to incorporate climate change considerations into regulations and permitting

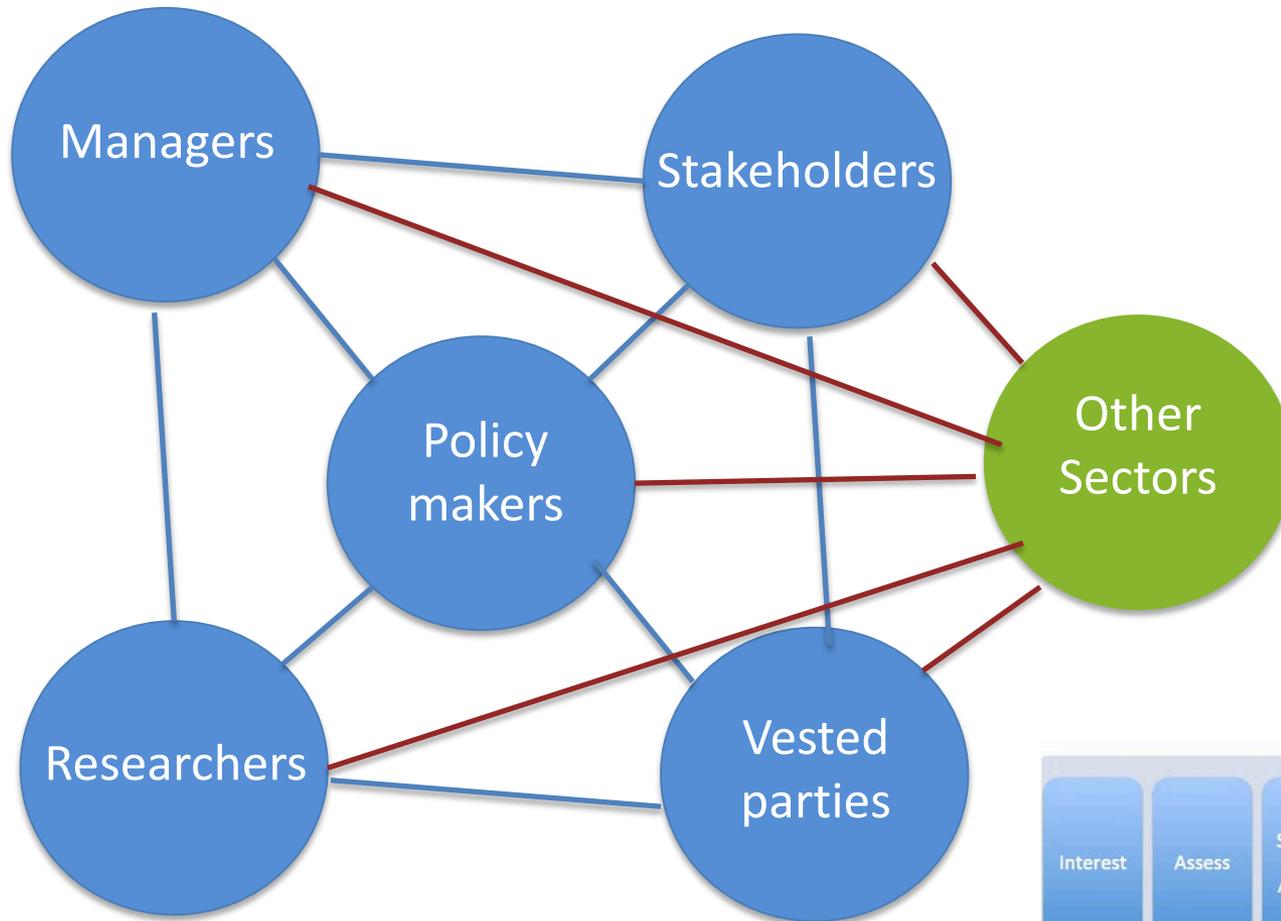
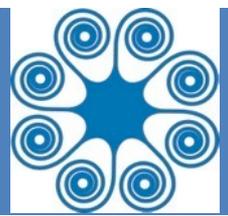


Prepare the landscape for change

Remove structures that are exceedingly vulnerable, exacerbate climate impacts, and/or that prevent habitat migration^{1,2,3,4,5,6}

- [City of Ventura, California](#): removing rip-rap, concrete barriers, and asphalt adjacent to beach to reduce erosion and enhance beach resilience (part of larger managed retreat effort of local infrastructure)
- [Estero de Limantour Coastal Watershed Restoration Project, California](#): removal of two flood- and sea level rise-vulnerable dams to enhance freshwater/saltwater habitat connectivity and enhance anadromous fish habitat

Partnership



7 Sharing

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Partnerships



Managers

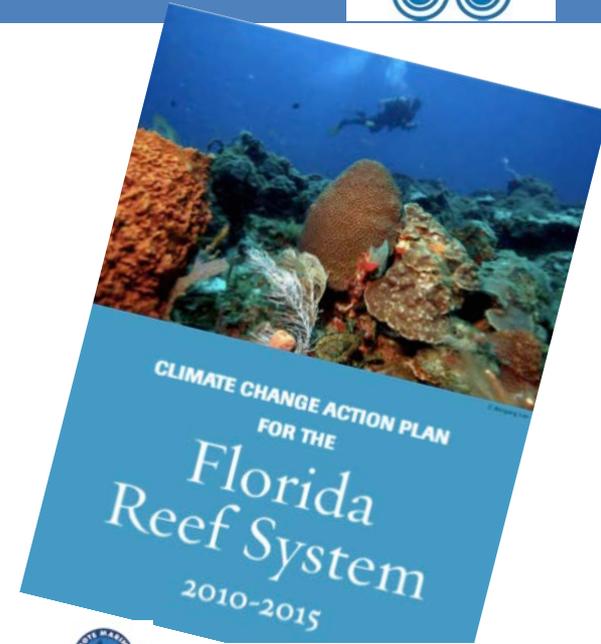
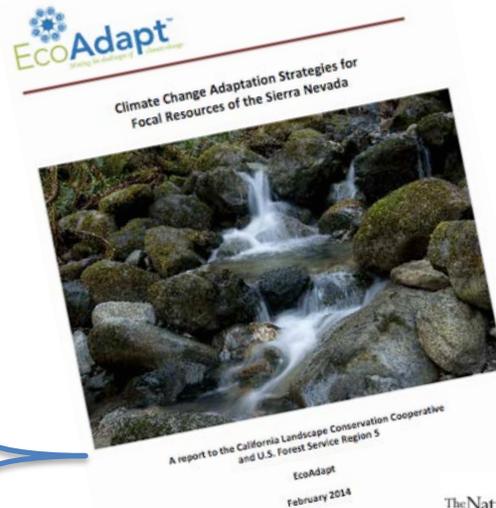
Policy makers

Vested parties

Researchers

Stakeholders

PROCESS PARTNERSHIPS

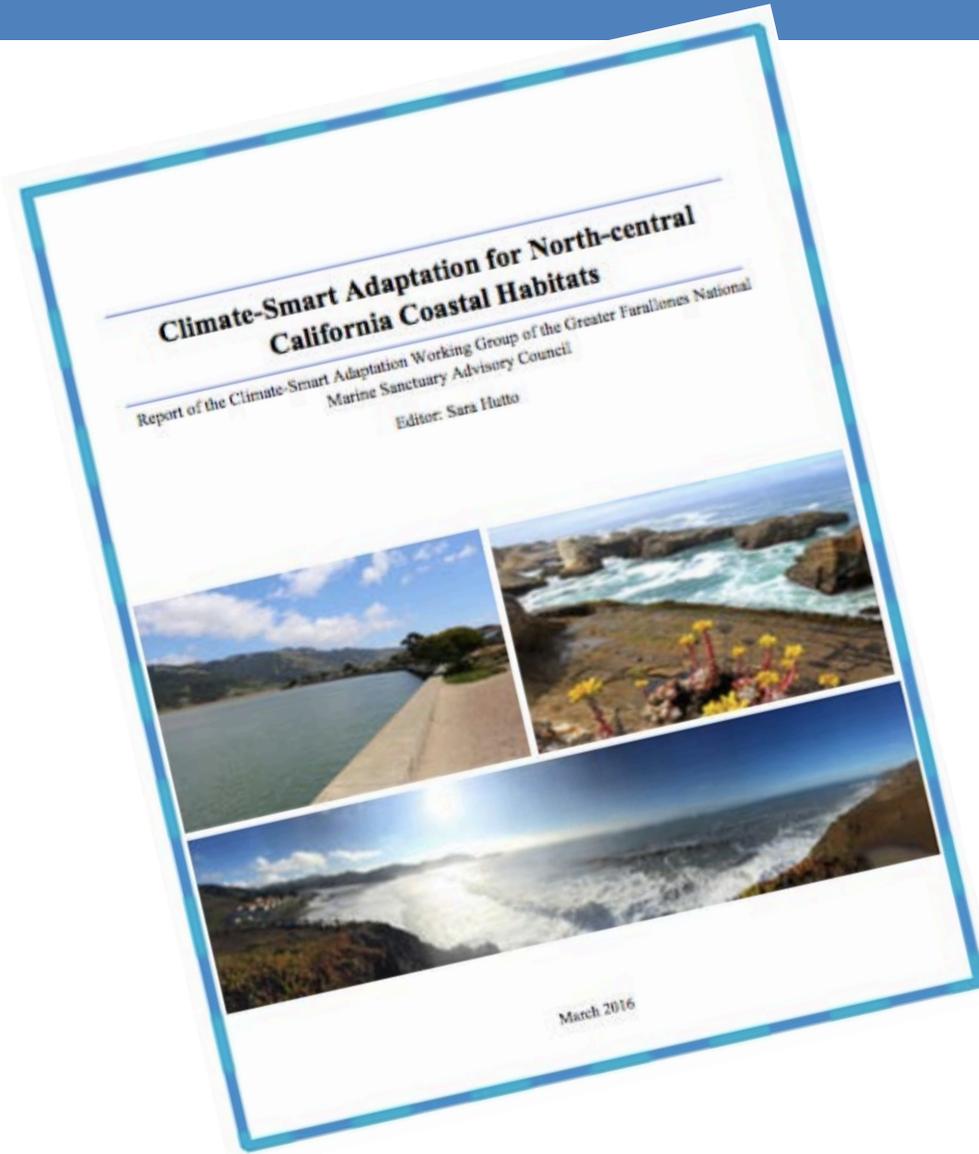


IMPLEMENTATION PARTNERSHIPS

Manage Dynamic Conditions: strategies that are responsive and adaptive to changing conditions

Ref #	Strategic Management Action	Spatial or site-specific details	Time-frame	Stressor(s) addressed	Key Partners	Required Resources	Notes
1	Add or relocate sediment to areas that are sediment-starved in estuaries and wetlands to help keep pace with sea level rise.	Sediment-starved areas in estuaries, or where needed.	Near-term	sea level rise, sediment supply	Sanctuary in partnership with Army Corps of Engineers and other sediment suppliers.	May be able to use dredge materials. There must be a process to ensure quality sediment is used. Incorporate into a larger, watershed-specific sediment management strategy. CCC permit or federal consistency review.	Creates/m area and f face of se Potential TMDLs.

Policy Implementation



7 Sharing

6 Evaluation

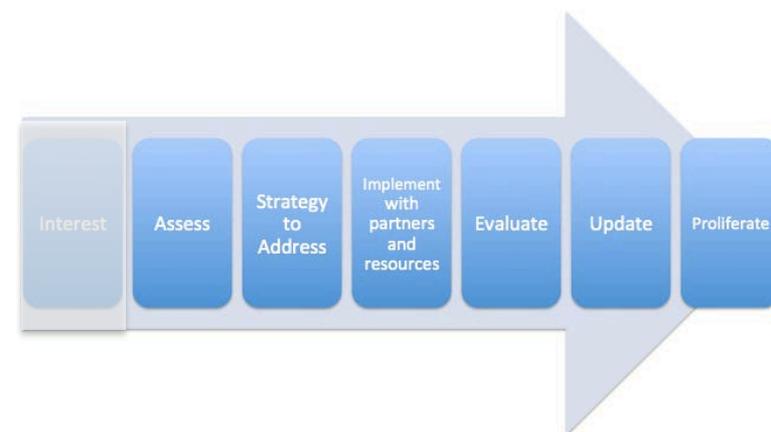
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“The future ain’ t what it
used to be.”

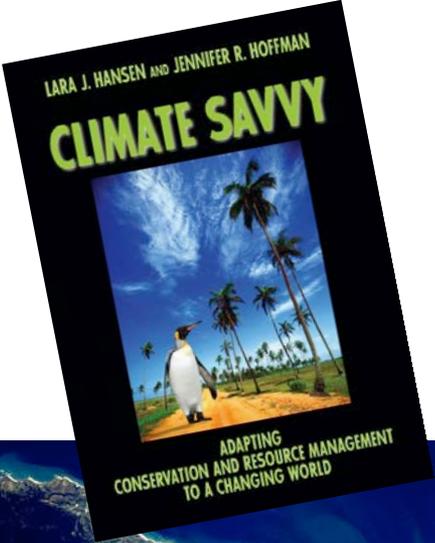
-Yogi Berra



Contact us or use our resources

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Five tenets of adaptation



- 1. Protect adequately and appropriately for a changing world**
- 2. Reduce non-climate stressors that are exacerbated by or exacerbate the effects of climate change**
- 3. Manage for uncertainty**
- 4. Reduce the rate and extent of local and regional climate change**
- 5. Reduce the rate and extent of global climate change**