

Scenario-Based Studies to Focus Planning in Coastal Regions

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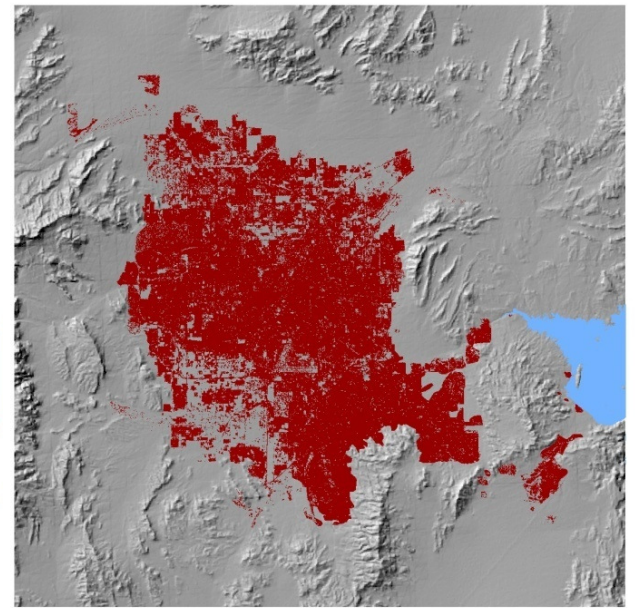
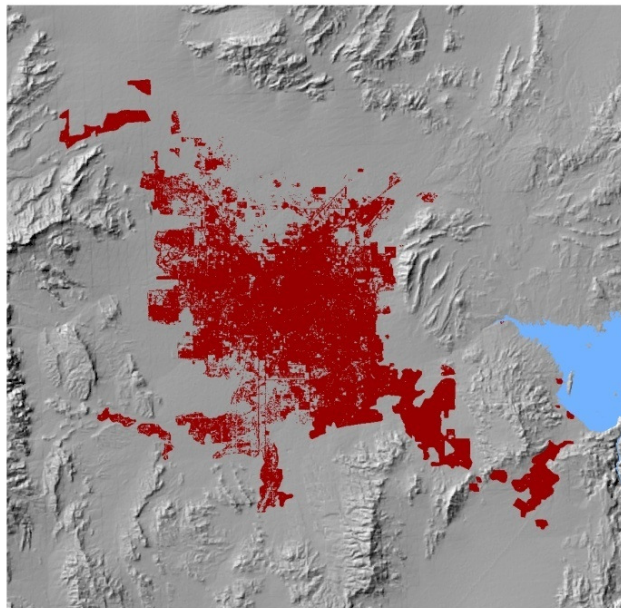
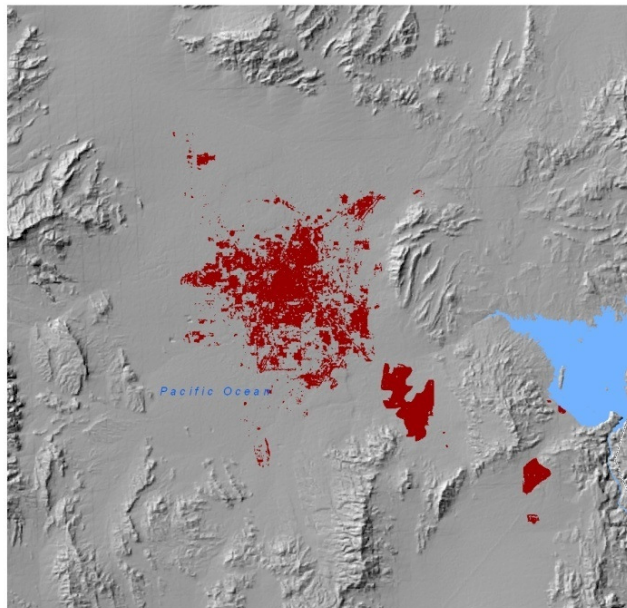
1975



1991

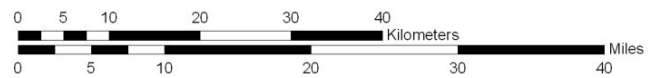


2008



Las Vegas Growth from 1975-2008

Urban Area



Draft



Scenario-Based Studies

The Process

- Identify framing issues and critical uncertainties that face a region
- Develop scenarios – “storylines”
- Spatially allocate alternative futures in a GIS framework
- Assess impacts



Framing Issues, Critical Uncertainties, and Scenario Formulation

Methods

- Planning Studio
- Questionnaires
- e-mail surveys
 - Delphi method



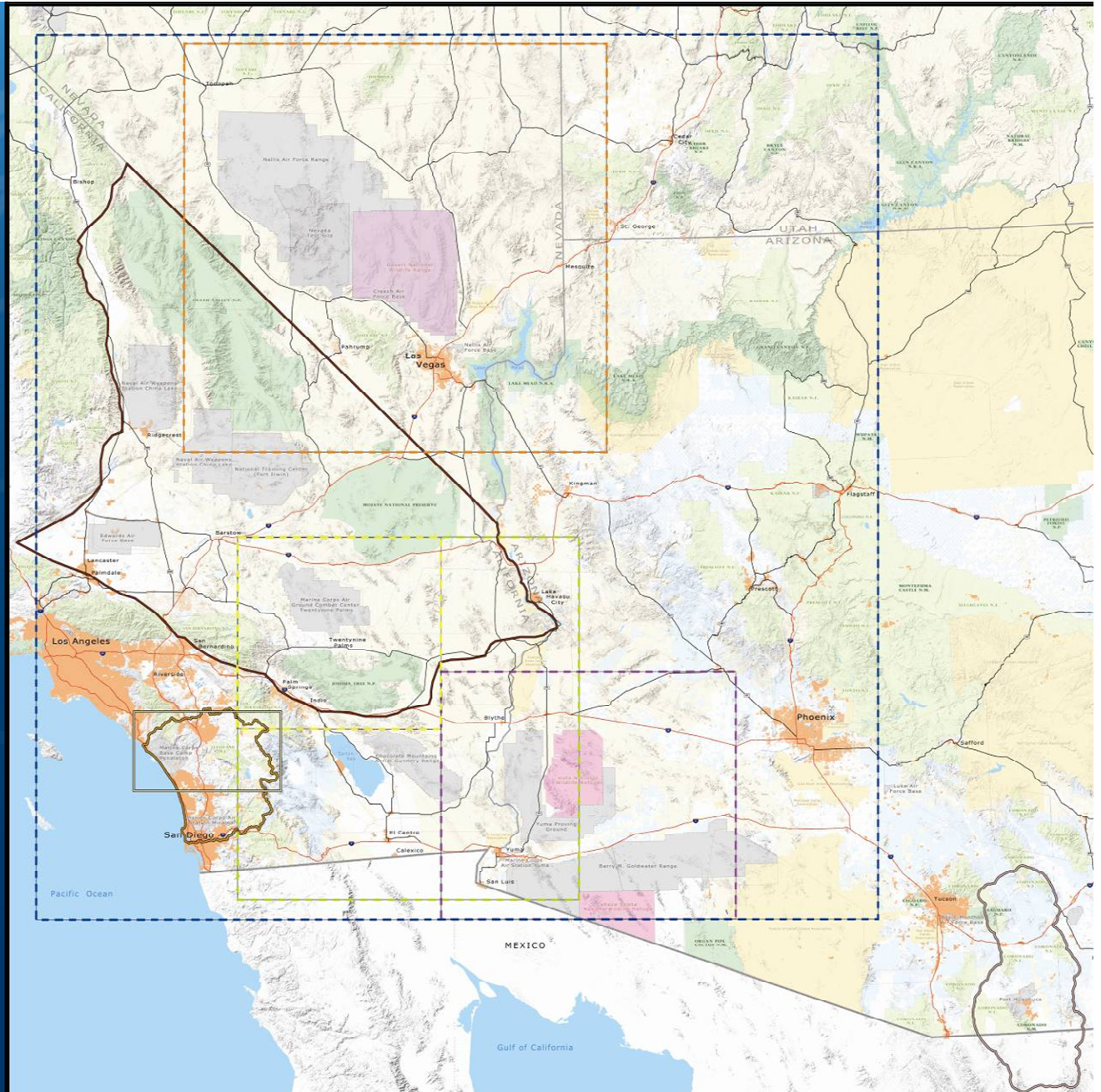
Why Use Scenarios?

- Planning by agencies and municipalities typically focuses attention and resources inward
- However, long-term success will be determined, in part, by external factors
- Scenarios provide a context for discussing planning options among leaders and planners internally and with diverse stakeholders regionally



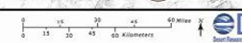
Study Areas in Southwest

- Upper San Pedro River Watershed
- Mojave Desert
- Camp Pendleton & MCAS Miramar
- SW Range Complex

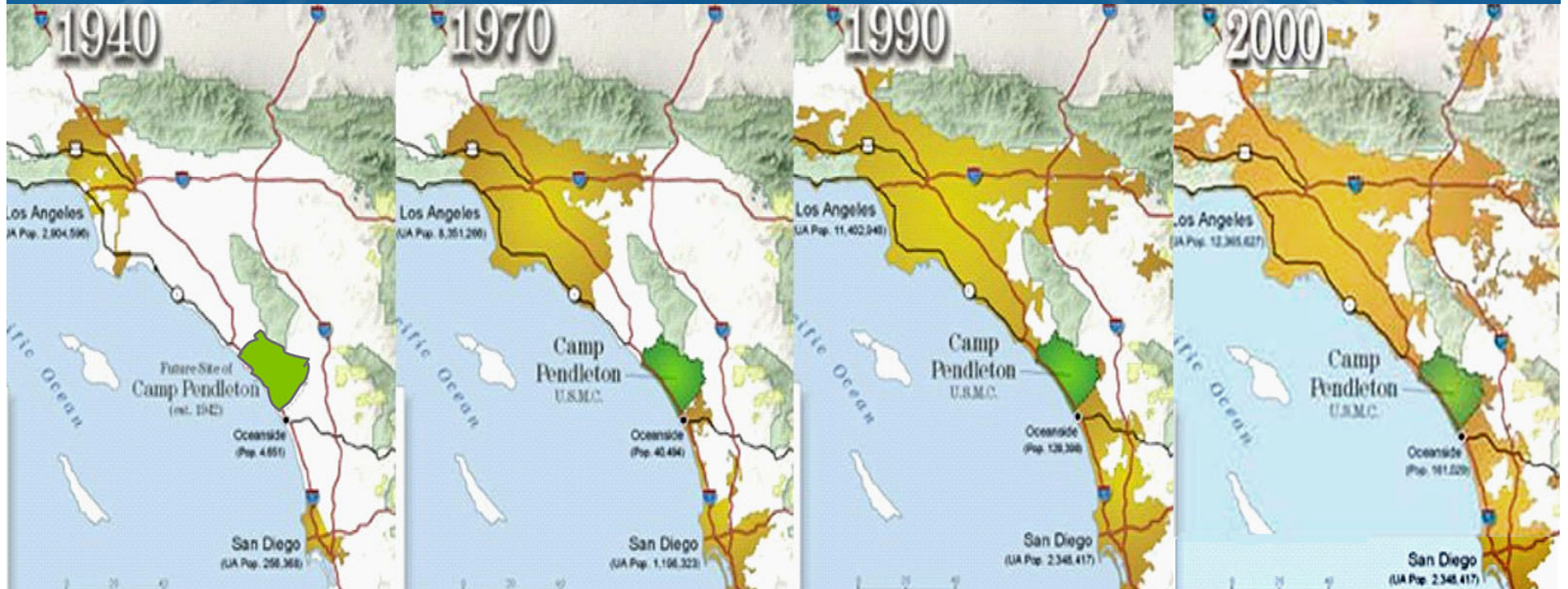


ALTERNATIVE FUTURES STUDY AREAS IN THE SOUTHWEST U.S.

PREVIOUS PROJECTS	ONGOING PROJECTS	Land Management Designations	Other Features
Mojave Study Area	Yuma Study Area	National Park Service Land	Military Operating Areas
Camp Pendleton I Study Area	Las Vegas Study Area	U.S. Forest Service Land	Interstate
Camp Pendleton II Study Area	And Southwest Study Area	Bureau of Land Management Land	Road
Upper San Pedro R. Watershed Study Area (Fl. Huachuca)	Twenty-nine Palms Study Area	Department of Energy Land	State Boundary
	Alternative Futures: Southwest U.S.	U.S. Fish & Wildlife Service Land	U.S. - Mexico Boundary



Urbanization in Southern California



Santa Margarita River Flooding

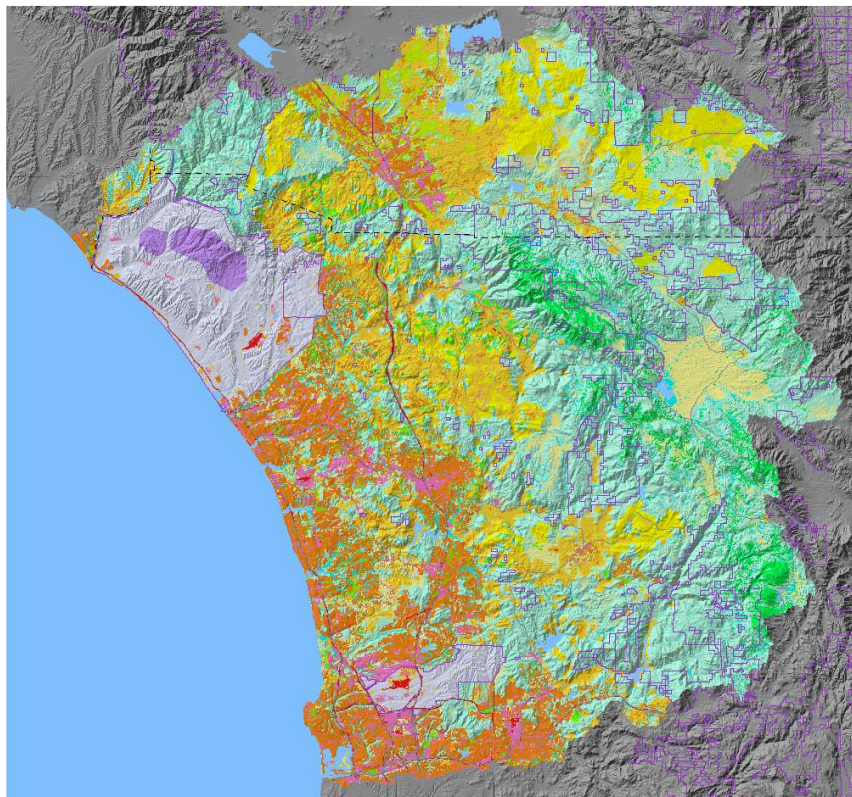


Practical Impacts of Urbanization

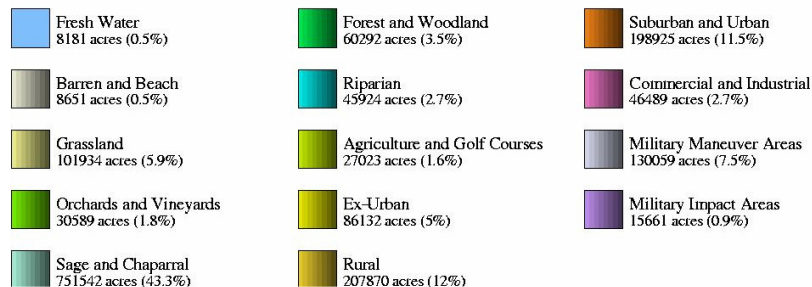
- Decreasing habitat in region
 - Edge effect
 - Noise impacts
 - “More eggs in one basket” in remaining natural areas
- Altered base flows in streams
- Wetlands
- Flood attenuation
- Quality of water and air
- Impaired scenic views and aesthetic impression



Camp Pendleton-Miramar Study Area 2000



Region of MCB Camp Pendleton & MCAS Miramar
Existing Conditions 2000
Land Use/Land Cover



➤ Population Increase

- 500,000
- 1,000,000

➤ Uncertainties

- Water
- Energy
- Mass Transportation
- Acceptance of high-density living
- Public value of conservation

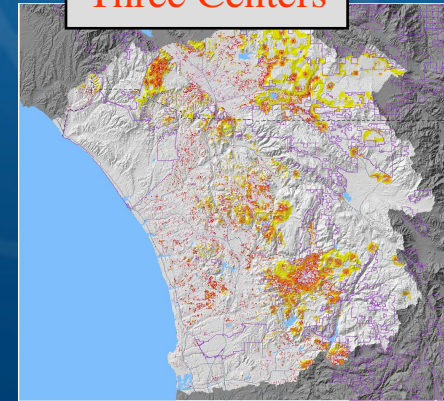
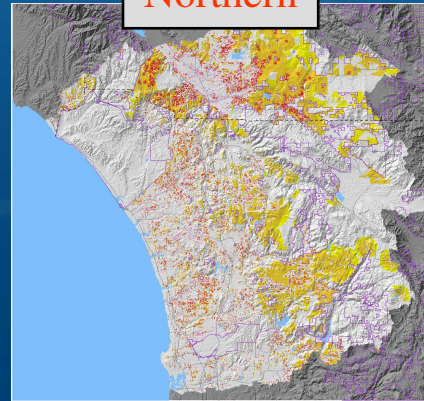
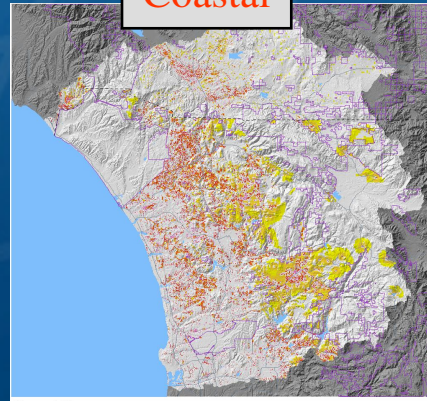
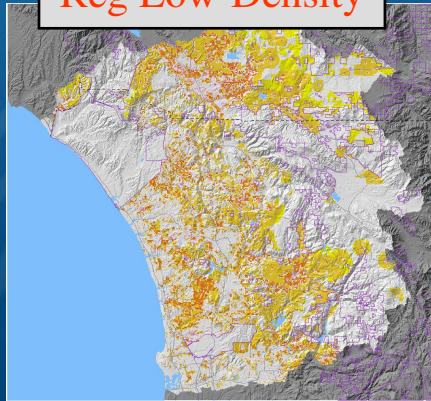
Alternative Futures 2025

Reg Low-Density

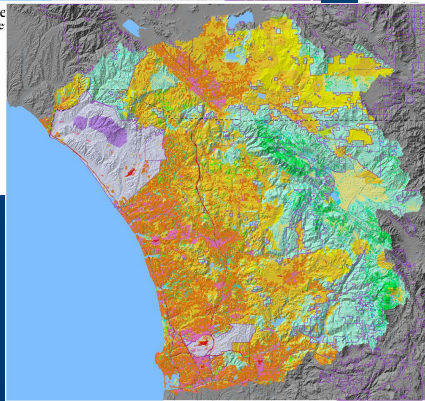
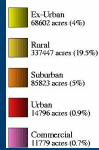
Coastal

Northern

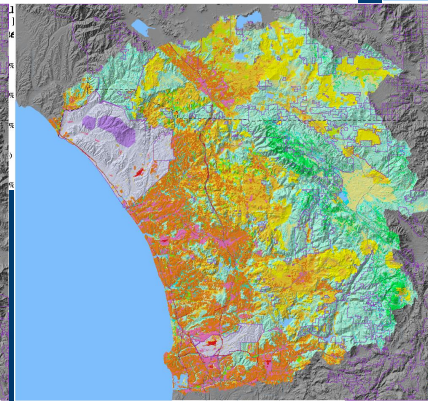
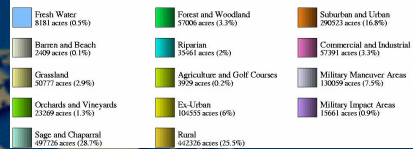
Three Centers



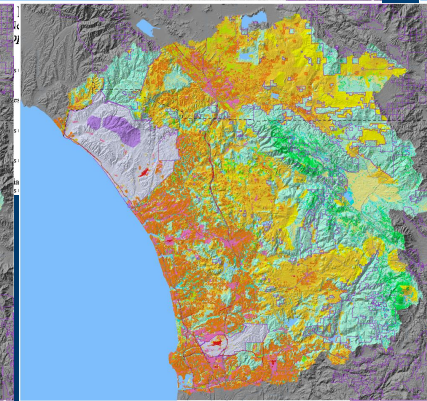
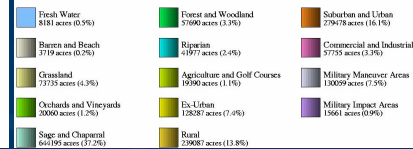
Regional Low-Density
1,000,000 New Residents
New Development



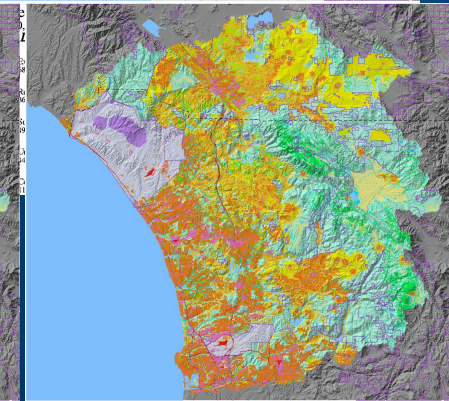
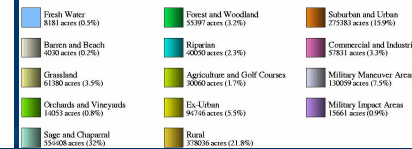
Regional Low-Density Future
1,000,000 New Residents
Land Use/Land Cover



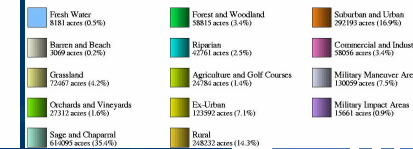
Coastal Future
1,000,000 New Residents
Land Use/Land Cover



Northern Future
1,000,000 New Residents
Land Use/Land Cover

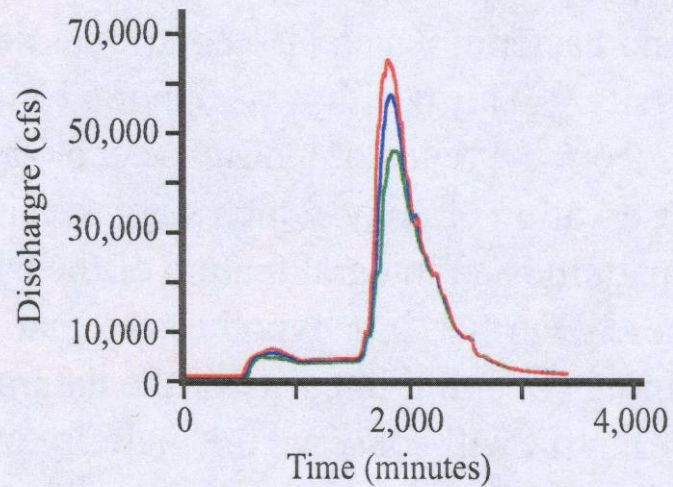


Three-Centers Future
1,000,000 New Residents
Land Use/Land Cover

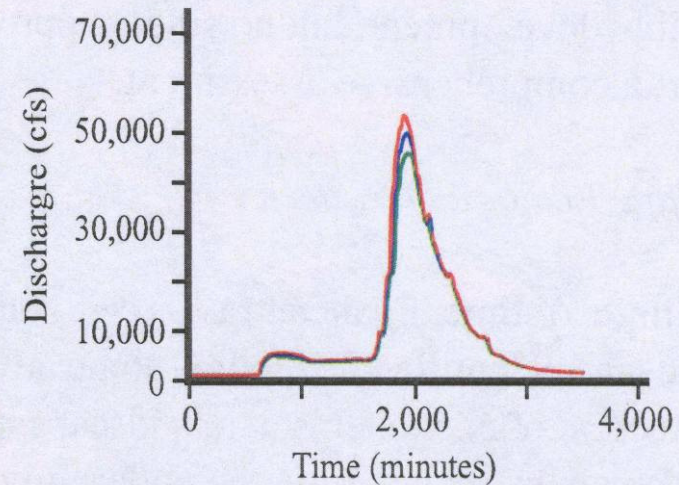


100-Year Storm Event Hydrographs for Santa Margarita River

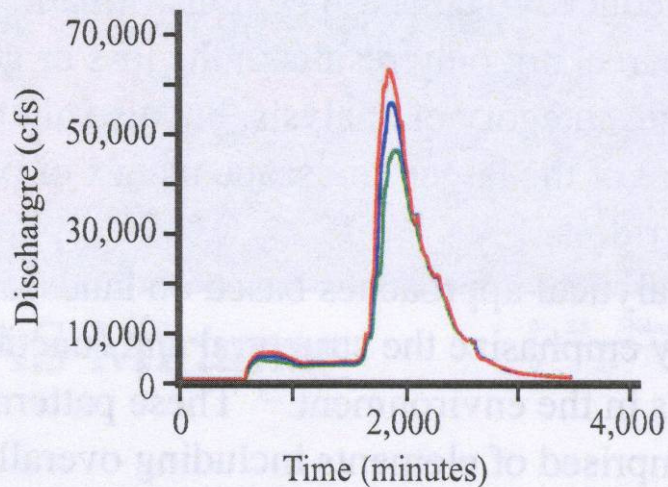
Northern Future



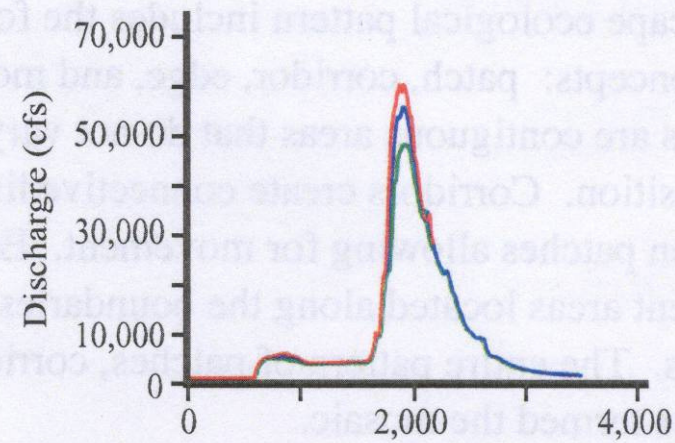
Coastal Future



Regional Low-Density Future



Three-Centers Future



From Steinitz et al. 1996

% of Selected T&E Potential Habitat on DoD Lands

	2000	Coastal		Northern		Reg L-D		3-Centers	
		0.5m	1.0m	0.5m	1.0m	0.5m	1.0m	0.5m	1.0m
Willowy Monardella	30	32	35	32	35	33	36	30	30
Fairy Shrimp	70	76	82	75	79	77	82	70	70
Calif. Gnatcatcher	33	36	39	36	38	36	52	34	34
W. Snowy Plover	45	47	47	46	47	46	46	45	45
S.W. Wil. Flycatcher	18	19	20	19	21	20	24	19	20
Least Bell's Vireo	16	16	18	17	19	18	21	17	18

Environmental Decisions and Uncertain Futures

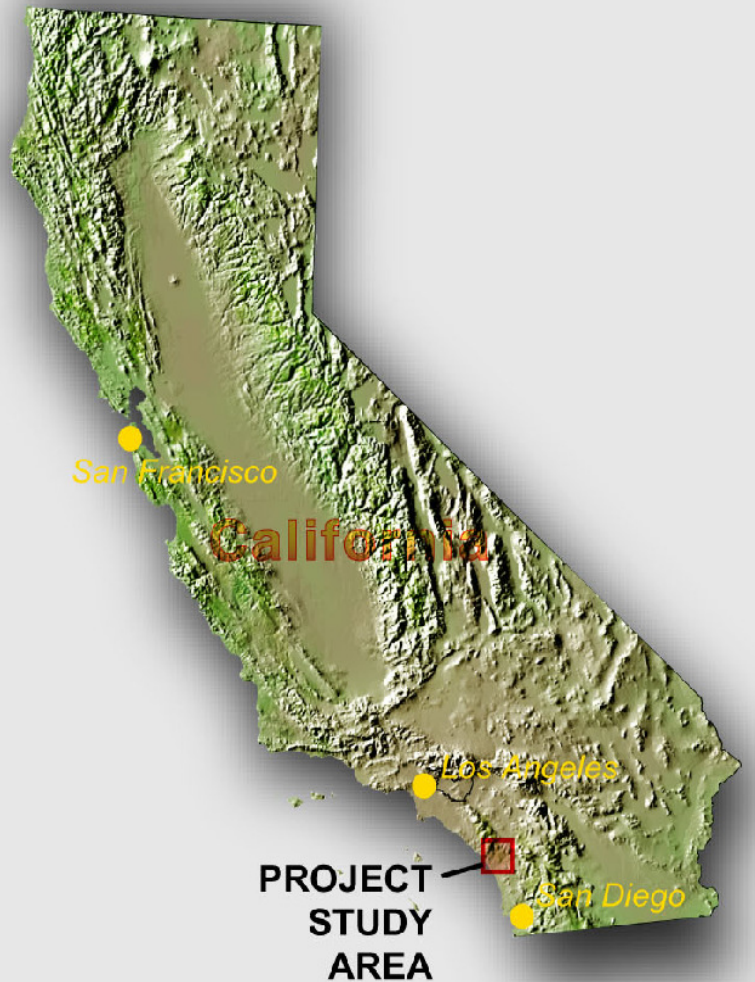
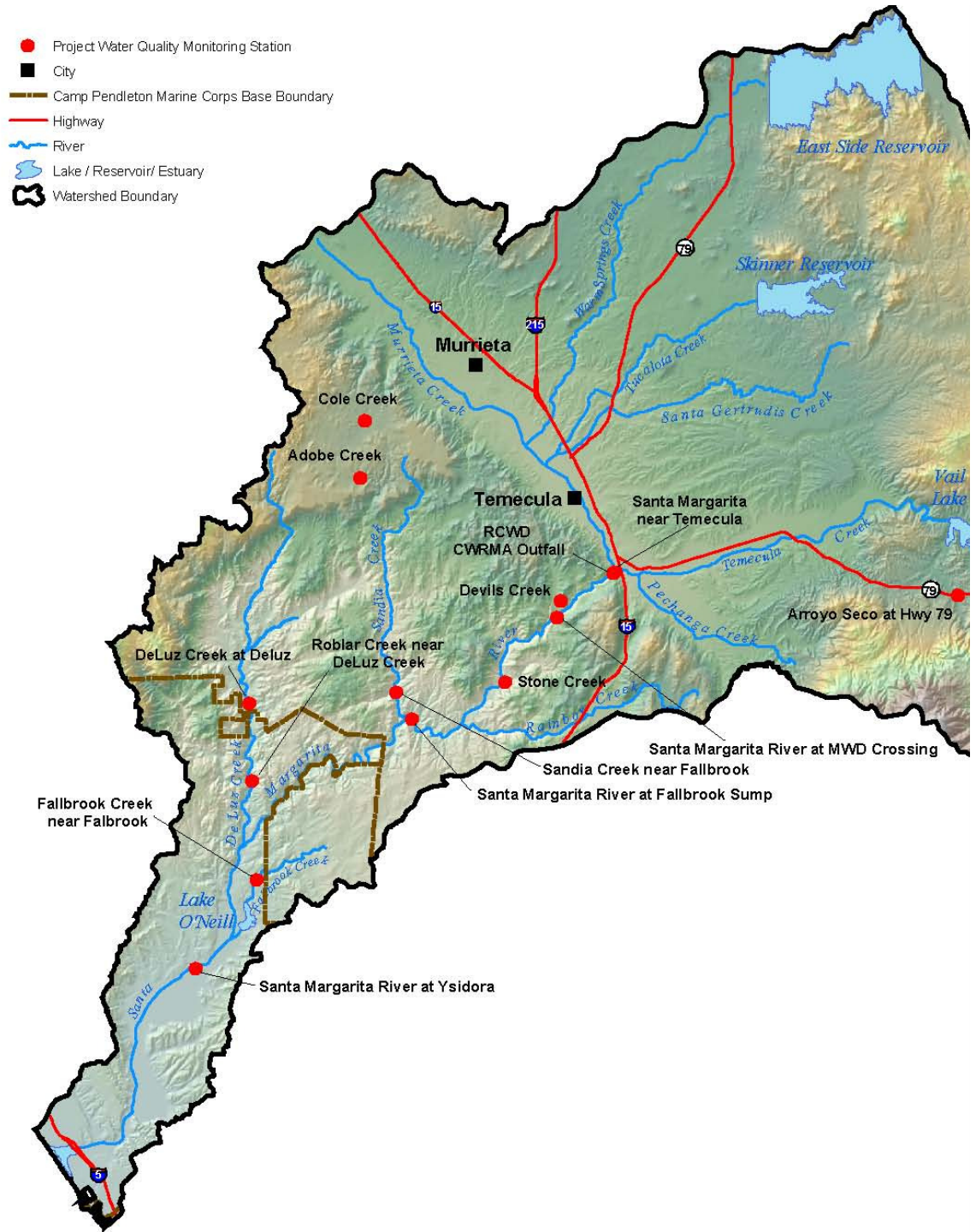
Scenarios for the Region of MCB Camp Pendleton & MCAS Miramar, California

Utility for Camp Pendleton

- Use futures to inform planning:
 - Biodiversity [ESA Sect. 7 & Recovery Plans]
 - Habitat segmentation
 - Changes in watersheds
 - Flooding regime
 - Water supply & quality
 - Erosion/sediment transport regime
 - Fire regime
 - Compatible development
 - Location of urban growth
 - Transportation infrastructure and usage
 - Air quality



Santa Margarita River Water Quality Sampling



Geomorphology & Habitat Assessment Santa Margarita River



Plan View
Scale: 1" = 400'



Flow X-Sec Plan View
Scale: 1" = 50'



Name	Easting	Northing	Elev.	Description
South End X-Sec 9	622096.04	269917.21	95.09	2 nd Head base cap
North End X-Sec 9	622004.29	269907.28	95.88	2 nd Head base cap
South End X-Sec 10	622097.99	269954.19	100.19	2 nd Head base cap
North End X-Sec 10	622091.20	269913.91	103.59	2-4x4 Rebar
South End X-Sec 11	622001.39	269923.37	81.36	2-4x4 Rebar
North End X-Sec 11	622078.48	269978.77	119.88	2-4x4 Rebar
CP1	622018.1	269918.00	78.01	2-4x4 Rebar
CP2	622010.72	269908.40	77.02	2-4x4 Rebar

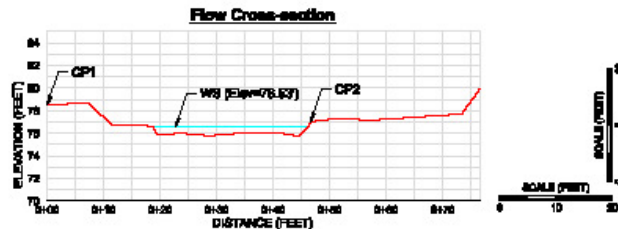
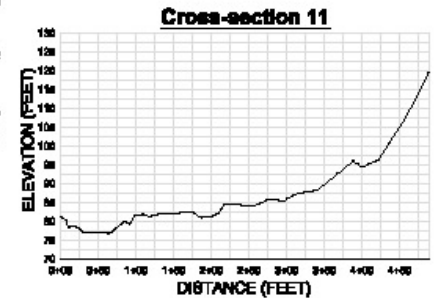
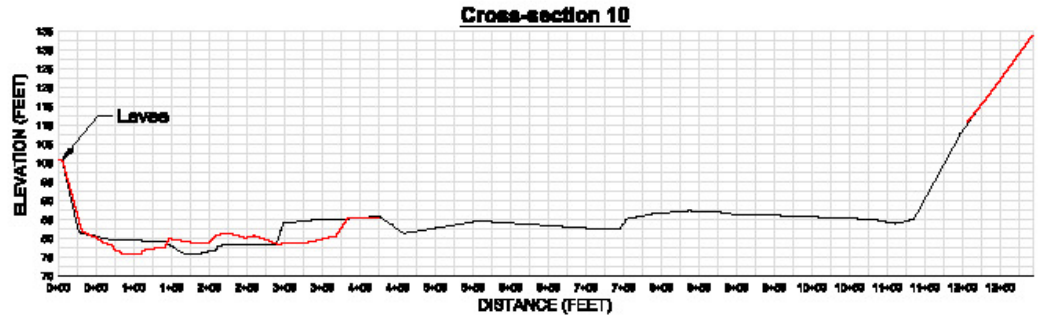
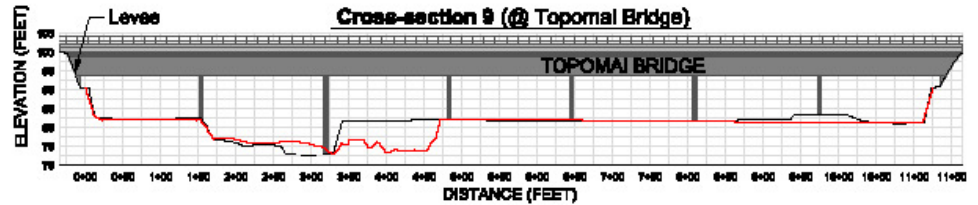
Legend

- 2004 Survey Ground
- 2008 Survey Ground



Site 1: Ysidora and Levee Cross-Sections

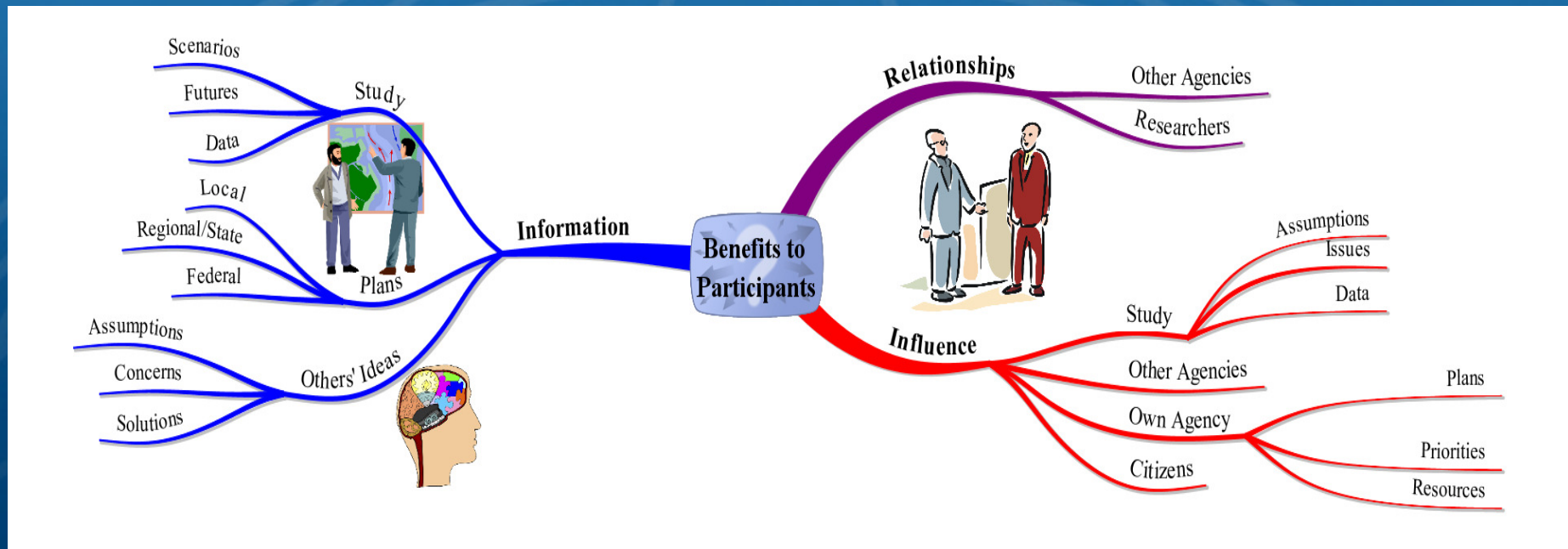
FIGURE O-1



Notes:

1. All the Cross-Sections (X-Sec) are looking downstream
2. Vertical exaggeration for Cross-Section 9, 10 and 11 is 5 times and for the Flow X-Sec is 2 times.
3. The coordinate system used on this figure are in NAD83 California State Plane Coordinates, Zone VI in feet, see table for control points coordinates information.
4. Elevations shown are NAVD 88.
5. These cross-sections are based on the survey work performed by Station Engineers on October 22 and November 23, 2004 named 2004 Survey and April 20 to 22, 2008 named 2008 Survey.

Scenarios and Collaboration



- Contributes to enhanced communication among stakeholders
- Provides compelling framework for visualizing future landscapes
- Illustrates possible conflicts, their causes and potential solutions
- Assists stakeholders to:
 - Plan for future and protect against uncertainties
 - Promotes understanding of potential consequences of current choices
 - Motivates joint action

Conclusions

- Scenario-based studies enhance:
 - Planning processes
 - Understanding how consequences of today's policy choices may affect future social and environmental conditions
 - Collaboration
 - Intersections of urban growth with priority areas for landscape conservation provide partnering opportunities to influence patterns of growth and mitigate ecosystem impacts
 - Calibrate discussion of consequences to the scale of human action
 - Environmental Consultations
 - Adaptive management programs



Conclusions

➤ Scenarios Lead to Better Plans

- Plans robust to multiple potential futures are better than plans focused on the extrapolated present and near past
- Broadened perspective raises institutional resilience
- Functions as vulnerability assessment

➤ The specificity of description required for the scenarios can lead to concise, measurable objectives

- Provides more concrete view of future consequences of today's choices



Acknowledgments:

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