

# Giving Nature a Voice at the Negotiation Table

*Successful Use of Ecosystem Services  
Valuation to Change Policy, Fund  
Restoration and Support Rapid  
Response to Crises*

Jonathan Kochmer  
Director of Research and Development  
Earth Economics



# Representative Earth Economics Projects

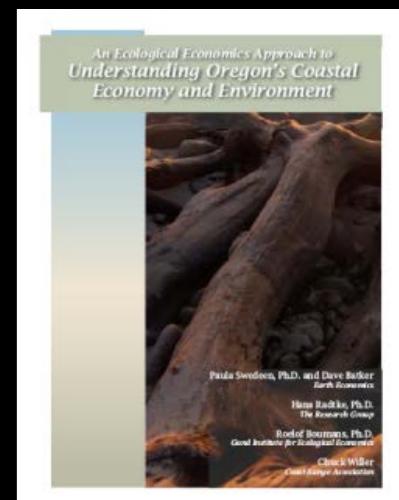
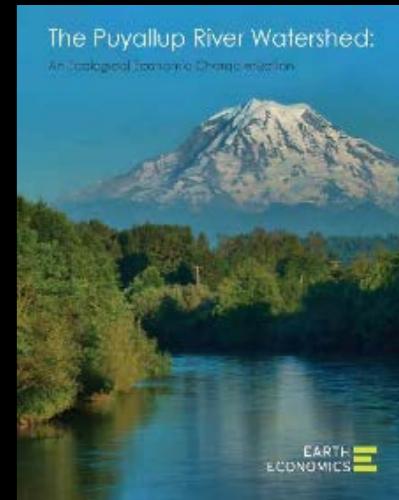
1. Since 1998, Ecosystem Service Valuations (ESVs) at many scales:

- Entire Colorado River Basin
- Alaska “Mat-Su” Valley (Anchorage to Mt. McKinley)
- Tulalip & Nisqually Tribe Valuations, WA State
- Colombia (Legal Settlement for Anchicaya Dam)
- Long Island Sound Watershed
- Costa Rica: Coastal Forests
- Central and Northern California (3 counties)
- Mississippi Delta

2. Data Provider to FEMA’s Benefit Cost Analysis Tool

3. “21<sup>st</sup> Century Utilities” (US GASB Accounting Rules)

Scores of current and past projects: [eartheconomics.org](http://eartheconomics.org)



A photograph of a lush forest floor. In the foreground, there are several large, mossy, rounded stones or tree stumps. The ground is covered with fallen leaves and some low-lying green plants. In the background, more trees and foliage are visible through a misty atmosphere.

# Underlying all of this...

EARTH  
ECONOMICS



ecosystem valuation toolkit

The Earth Economics logo consists of the company name in a bold, sans-serif font. To the right of the name is a graphic element made of four horizontal bars of increasing length from left to right, colored blue. Below the main name is the subtitle "ecosystem valuation toolkit" in a smaller, regular weight font.

# **1a. Changing National Policy: FEMA**



2013:  
FEMA requests,  
reviews, and adopts  
Earth Economics ES  
Values for Flood and  
Hurricane Mitigation





# FEMA

## MITIGATION POLICY – FP-108-024-01

Table I shows the types and values of environmental benefits included in the BCA for acquisition-demolition or acquisition-relocation projects:

Table I: Annual Estimated Monetary Benefits per Acre per Year

Environmental Benefit	Green Open Space	Riparian
Aesthetic Value	\$1,623	\$582
Air Quality	\$204	\$215
Biological Control	--	\$164
Climate Regulation	\$13	\$204
Erosion Control	\$65	\$11,447
Flood Hazard Reduction	--	\$4,007
Food Provisioning	--	\$609
Habitat	--	\$835
Pollination	\$290	--
Recreation/Tourism	\$5,365	\$15,178
Storm Water Retention	\$293	--
Water Filtration	--	\$4,252
<b>Total Estimated Benefits</b>	<b>\$7,853</b>	<b>\$37,493</b>

Table II shows total estimated benefits per acre per year and the total estimated benefits per-square-foot for green open space and riparian land use; the benefits can accrue for any lot size.

2015:  
FEMA contracts  
Earth Economics  
on Fire, Flood and  
Drought

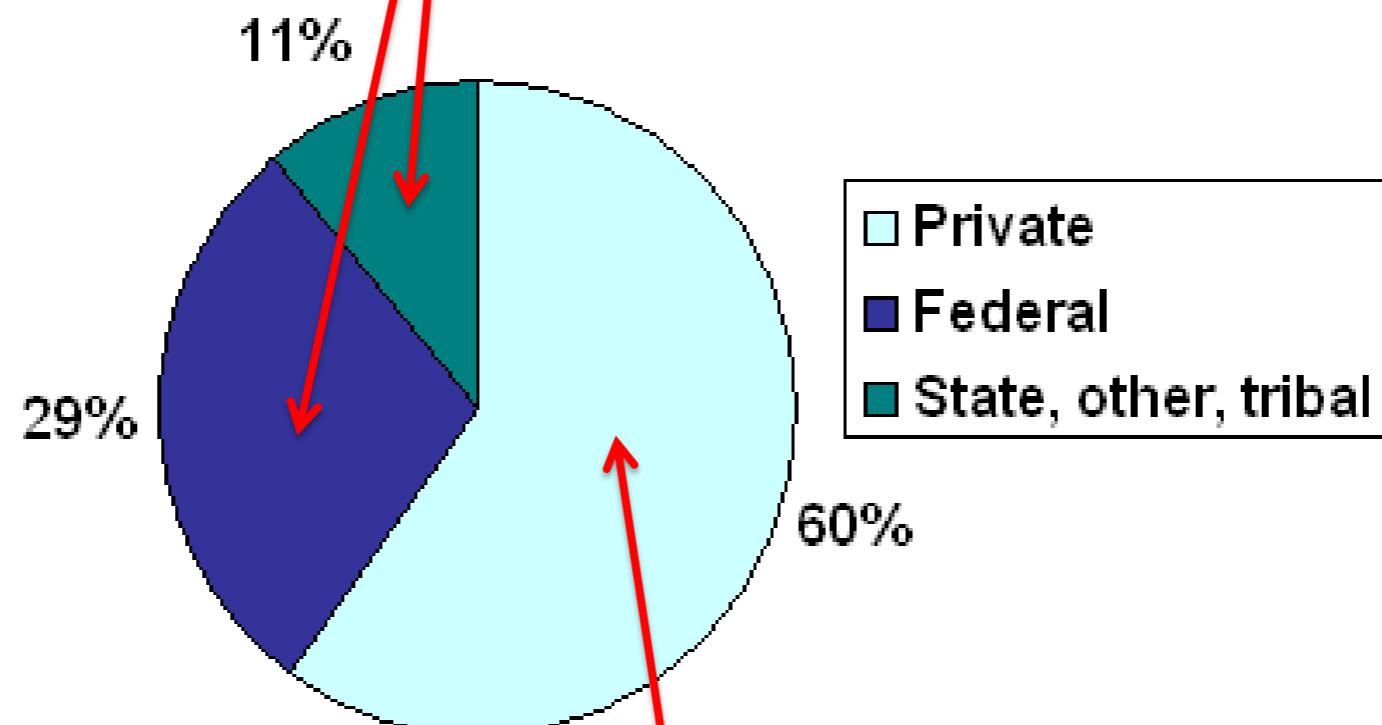


# **1b. Changing National Accounting Rules: GASB**



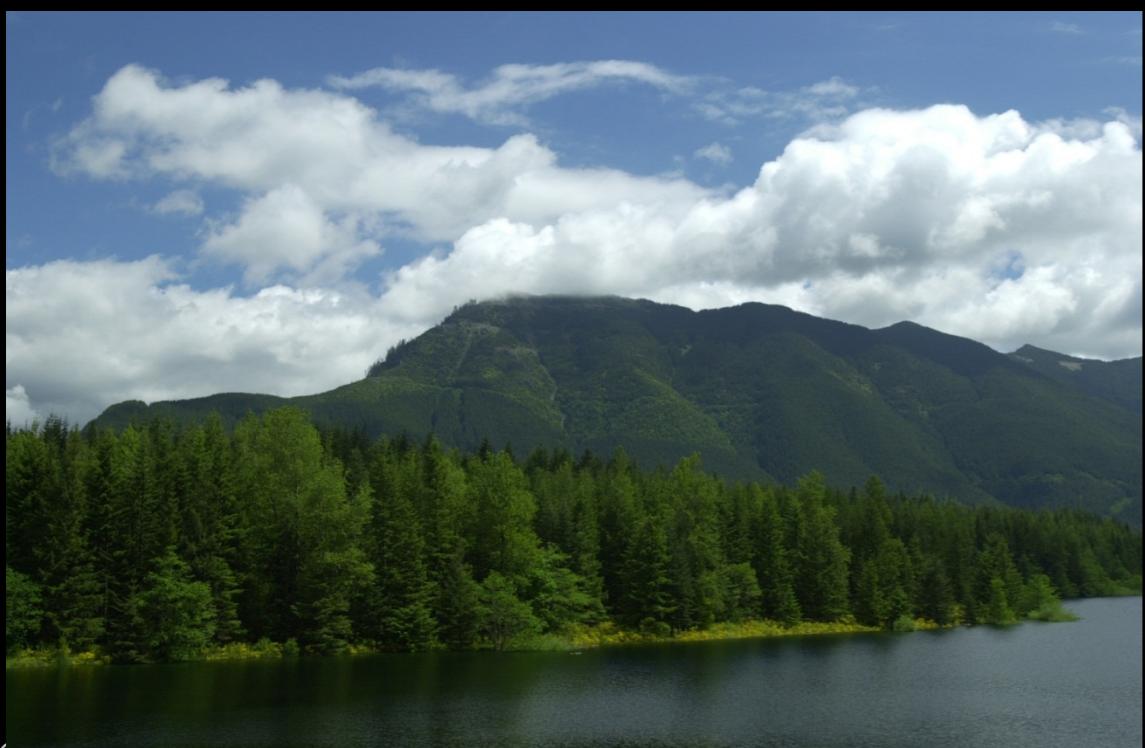


### US Land Ownership by Percentage



FINANCIAL ACCOUNTING STANDARDS BOARD

**SEATTLE PUBLIC UTILITIES - WATER FUND**  
 (An Enterprise Fund of the City of Seattle)  
**BALANCE SHEETS**  
**DECEMBER 31, 2009 AND 2008**



	<b>ASSETS</b>	<b>2009</b>	<b>2008</b>
<b>CURRENT ASSETS</b>			
Cash and equity in pooled investments	\$ 8,354,548	\$ 7,339,673	
Accounts receivable, net of allowance for doubtful accounts of \$468,450 and \$141,192	11,461,848	10,062,715	
Unbilled revenues	9,108,669	8,936,009	
Due from other City funds	1,486,725	656,123	
Due from other governments	1,712,543	1,253,219	
Hydrant settlement receivable	-	10,088,286	
Current portion of notes and contracts receivable	21,239	22,400	
Materials and supplies inventory	4,171,450	4,995,657	
Prepayments and other	37,748	103,314	
BPA account - cash and equity in pooled investments	510,823	275,350	
Redemption account, restricted			
Cash and equity in pooled investments	-	31,795,164	
Dedicated investments	-	60,274,366	
Interest receivable	-	1,107,817	
Total current assets	36,865,593	136,910,093	
<b>RESTRICTED ASSETS</b>			
Bond parity account - cash and equity in pooled investments	-	68,062	
Bond reserve account - cash and equity in pooled investments	9,068,015	8,989,241	
Construction fund			
Cash and equity in pooled investments	15,708,119	8,483,751	
Dedicated investments	-	72,292,809	
Interest receivable	-	848,977	
Vendor deposits - cash and equity in pooled investments	89,952	167,390	
Revenue stabilization fund - cash and equity in pooled investments	13,333,321	13,136,077	
BPA account - cash and equity in pooled investments	252,422	1,615,878	
Total restricted assets	38,451,829	105,602,185	
<b>DEFERRED CHARGES AND OTHER</b>			
Unamortized bond issue costs	4,490,104	5,122,923	
Notes and contracts receivable	22,136	41,430	
Deferred conservation costs	34,221,752	36,382,434	
Other deferred charges	13,562,840	12,936,061	
Total deferred charges and other	52,296,832	54,482,848	
<b>CAPITAL ASSETS, at cost</b>			
Capital assets - excluding land	1,531,299,505	1,435,137,303	
Less accumulated depreciation	(483,482,403)	(443,118,860)	
Capital assets, net of accumulated depreciation	1,047,817,102	992,018,443	
Construction in progress	87,082,670	105,278,733	
Land and land rights	39,127,903	33,784,214	
Other property	865,497	810,926	
Total capital assets	1,174,893,172	1,131,892,316	
<b>TOTAL</b>	\$ 1,302,507,426	\$ 1,428,887,442	

See accompanying notes.

# San Francisco Public Utilities Commission

## Notes to Financial Statements-Capital Assets

June 30, 2010 and 2009

(Dollars in thousands)

	<b>Balance</b>			<b>Balance</b>
	<b>June 30, 2009</b>	<b>Increases</b>	<b>Decreases</b>	<b>June 30, 2010</b>
Capital assets not being depreciated:				
Land and rights-of-way	\$ 44,849	—	(1,267)	43,582
Intangible assets	—	3,269	—	3,269
Construction in progress	663,588	501,371	(263,694)	901,265
Total capital assets not being depreciated	708,437	504,640	(264,961)	948,116
Capital assets being depreciated:				
Facilities and improvements	4,024,904	169,468	(47,008)	4,147,364
Intangible assets	—	53,011	—	53,011
Machinery and equipment	259,963	66,683	(3,201)	323,445
Total capital assets being depreciated	4,284,867	289,162	(50,209)	4,523,820
Less accumulated depreciation for:				
Facilities and improvements	(1,662,192)	(94,881)	17,482	(1,739,591)
Machinery and equipment	(161,290)	(11,069)	4,789	(167,570)
Intangible assets	—	(17,040)	—	(17,040)
	(1,823,482)	(122,990)	22,271	(1,924,201)
Total capital assets being depreciated, net	2,461,385	166,172	(27,938)	2,599,619
Total capital assets, net	\$ 3,169,822	670,812	(292,899)	3,547,735

# **2a. Making Economic Case for Restoration**



# Loss of Natural Capital

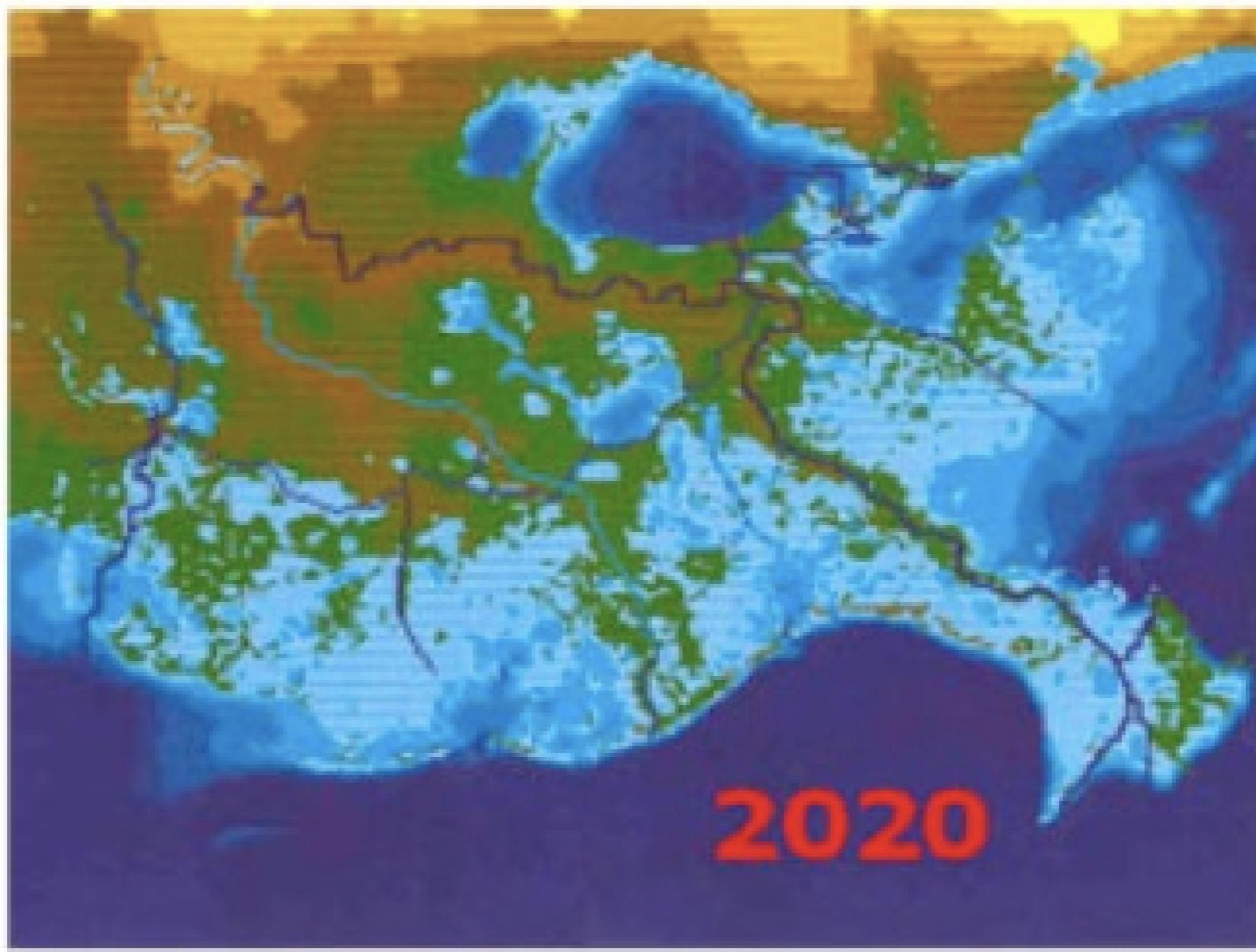
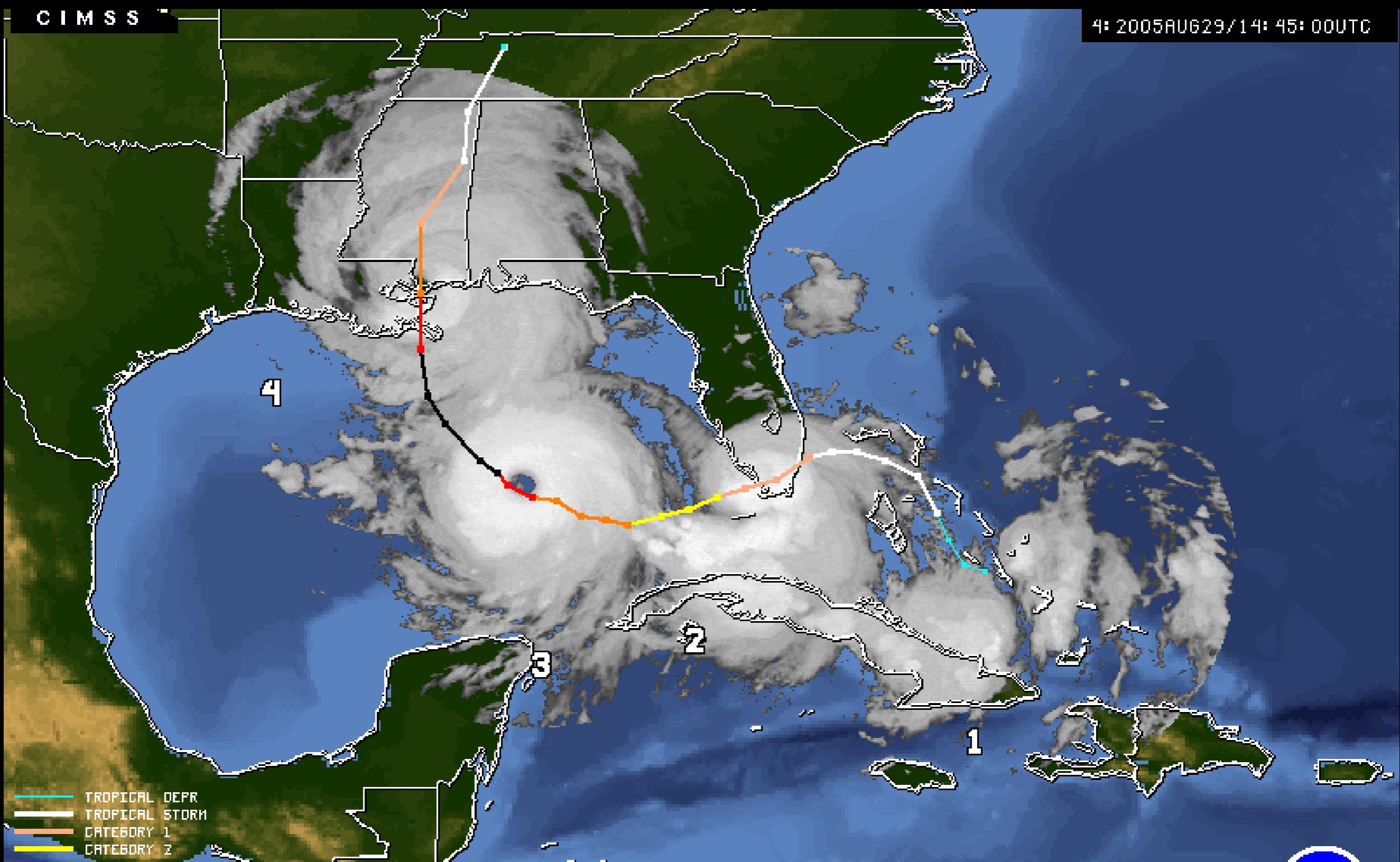


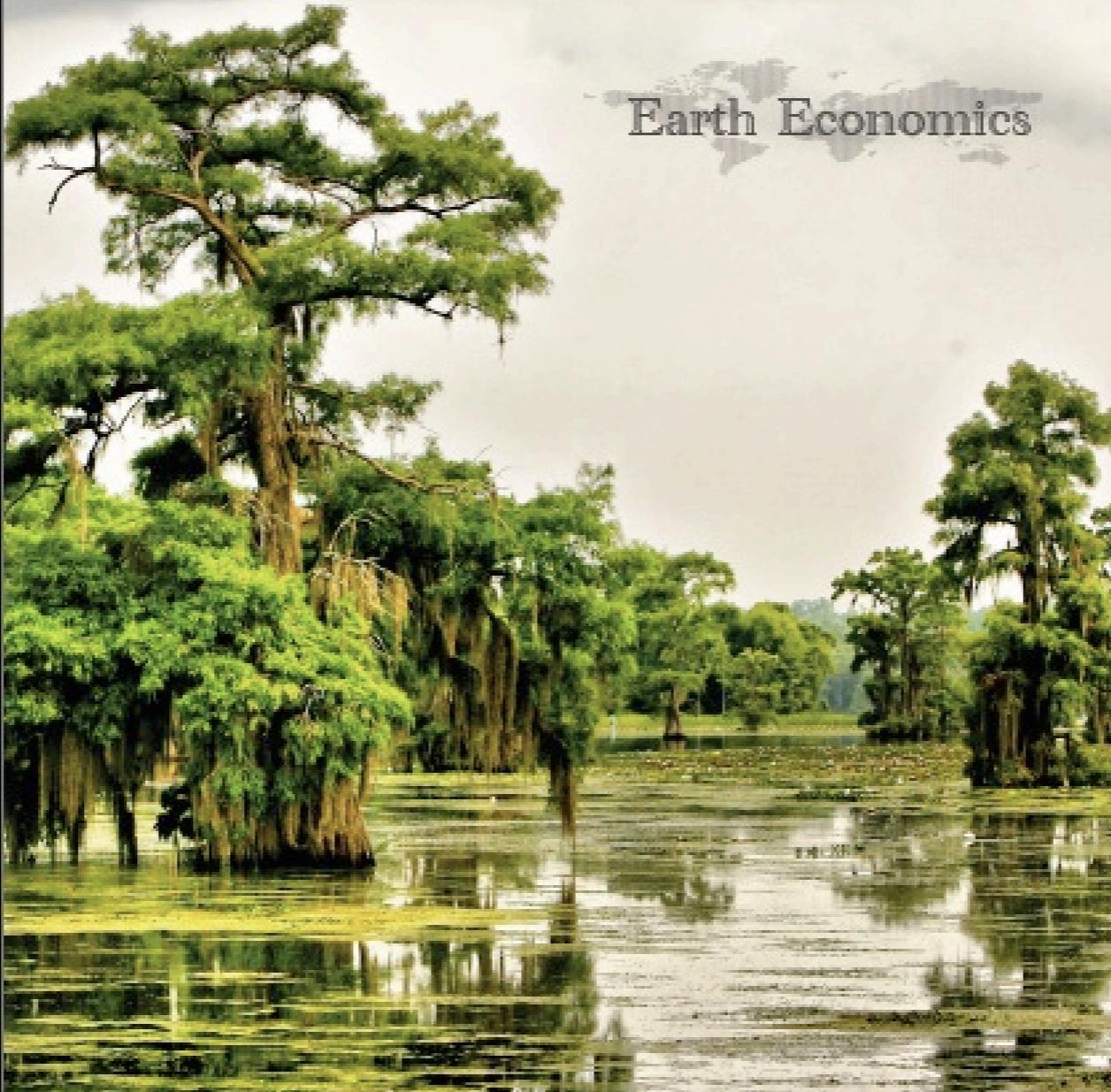
Figure 1. Track of Hurricane Katrina, August 23-29, 2005, showing spatial extent and storm intensity along its path (source: NOAA)



\$200 Billion  
in damage  
1,600 people die

# Gaining Ground

**Wetlands, Hurricanes and the Economy:  
The Value of Restoring the Mississippi River Delta**

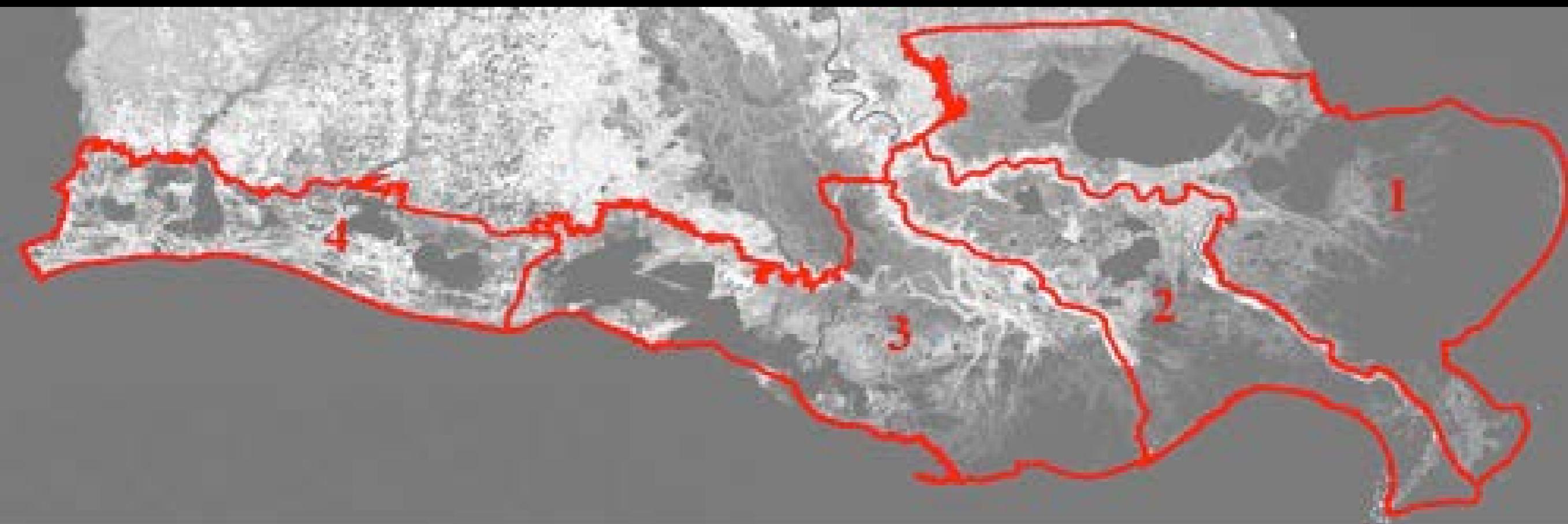


Earth Economics

# Key Findings of 1<sup>st</sup> 2007 Mississippi Delta Valuation:

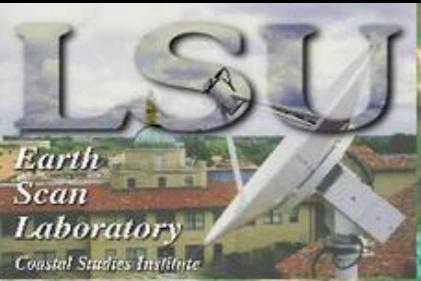
- Storm surge reduced by 1 foot for every 2.5 miles of intact wetlands
- For 11 of 23 candidate ESS:
  - Annual economic benefits \$12-47 billion
  - Net present value of \$330 -\$1,300 Billion (3.5% discount rate)

# 2012: Louisiana Adopts \$50 billion restoration plan



2014: Louisiana  
contracts EE to  
calculate economic  
impacts of  
Mississippi river  
diversions to  
rebuild delta





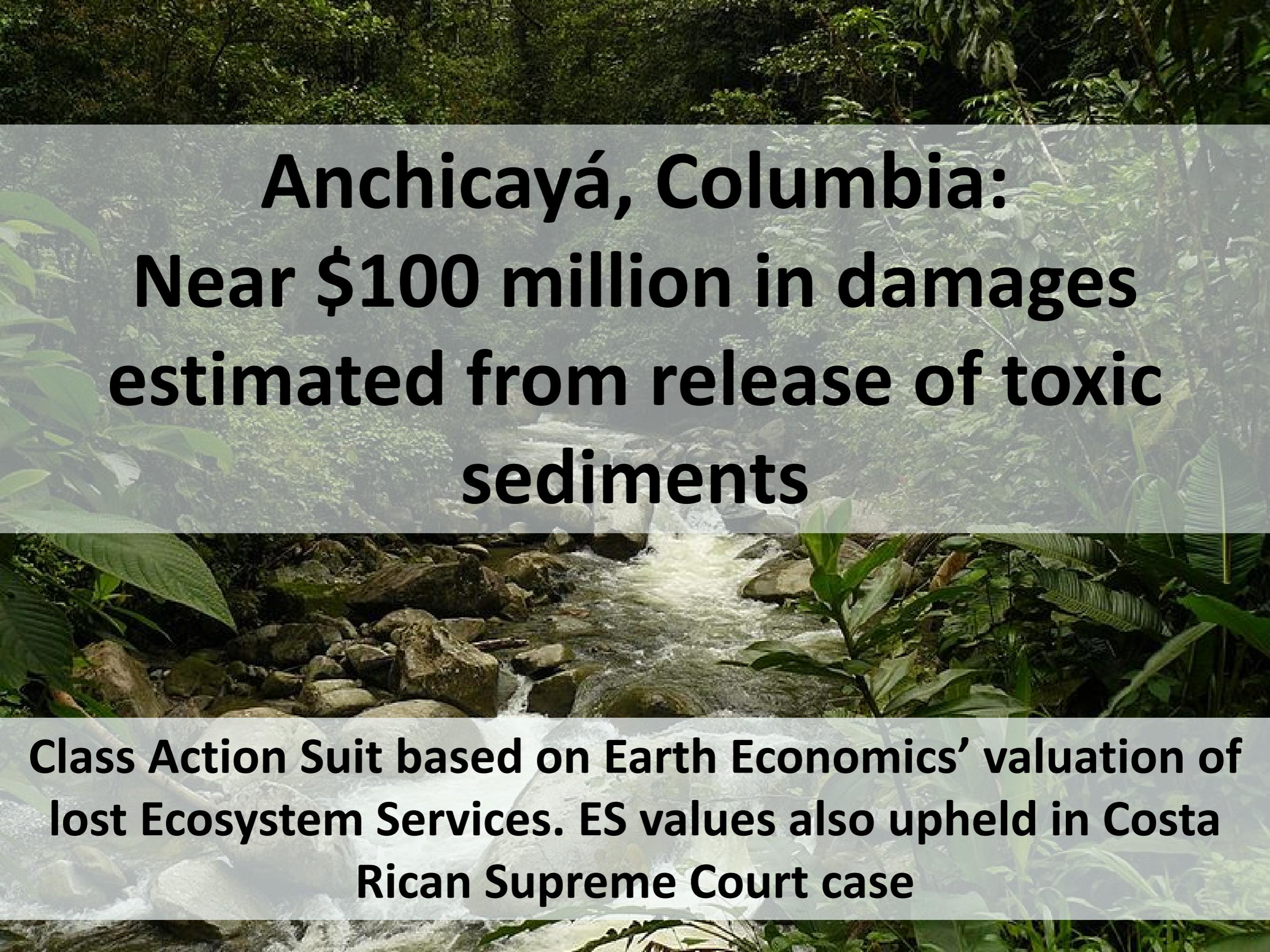
### 3. Ecosystem Services Valuation...



...and rapid response

# 3a. Supporting Environmental Damages Assessments in Legal Cases



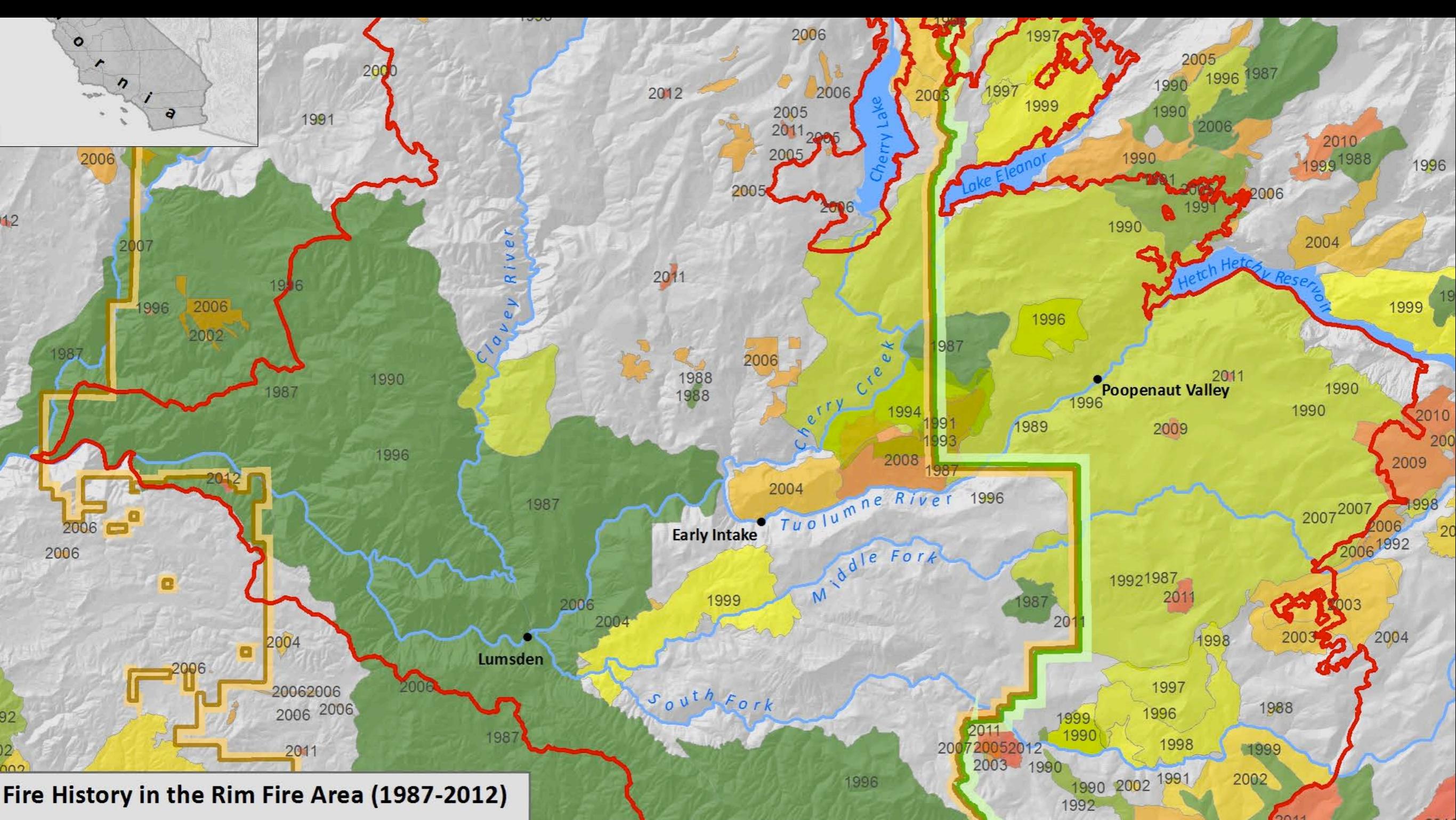
A photograph of a dense tropical forest. In the foreground, a rocky stream flows over mossy rocks. The water is clear and reflects the surrounding greenery. The forest is filled with various shades of green from different plants and trees.

# **Anchicayá, Columbia: Near \$100 million in damages estimated from release of toxic sediments**

**Class Action Suit based on Earth Economics' valuation of  
lost Ecosystem Services. ES values also upheld in Costa  
Rican Supreme Court case**

A dramatic photograph of a forest fire. The upper half of the image is dominated by a massive plume of dark smoke and ash, with bright orange and yellow flames visible at the base and edges. In the lower half, numerous tall, charred tree trunks stand silhouetted against the intense fire. The overall scene conveys a sense of immense power and destruction.

## **3b. Rapid Response to Natural Disasters: 2013 Yosemite Rim Fire**



**10/8/2013:** Governor Brown applies for disaster declaration.

**11/4/2013:** FEMA denies disaster declaration request.

“...the severity and magnitude of the Rim Fire [is] not beyond State and local capabilities...”

**12/2/2013:** Governor Brown appeals; includes Earth Economics data.

“...the State and its communities face ... **complex and multifaceted environmental damages...**”

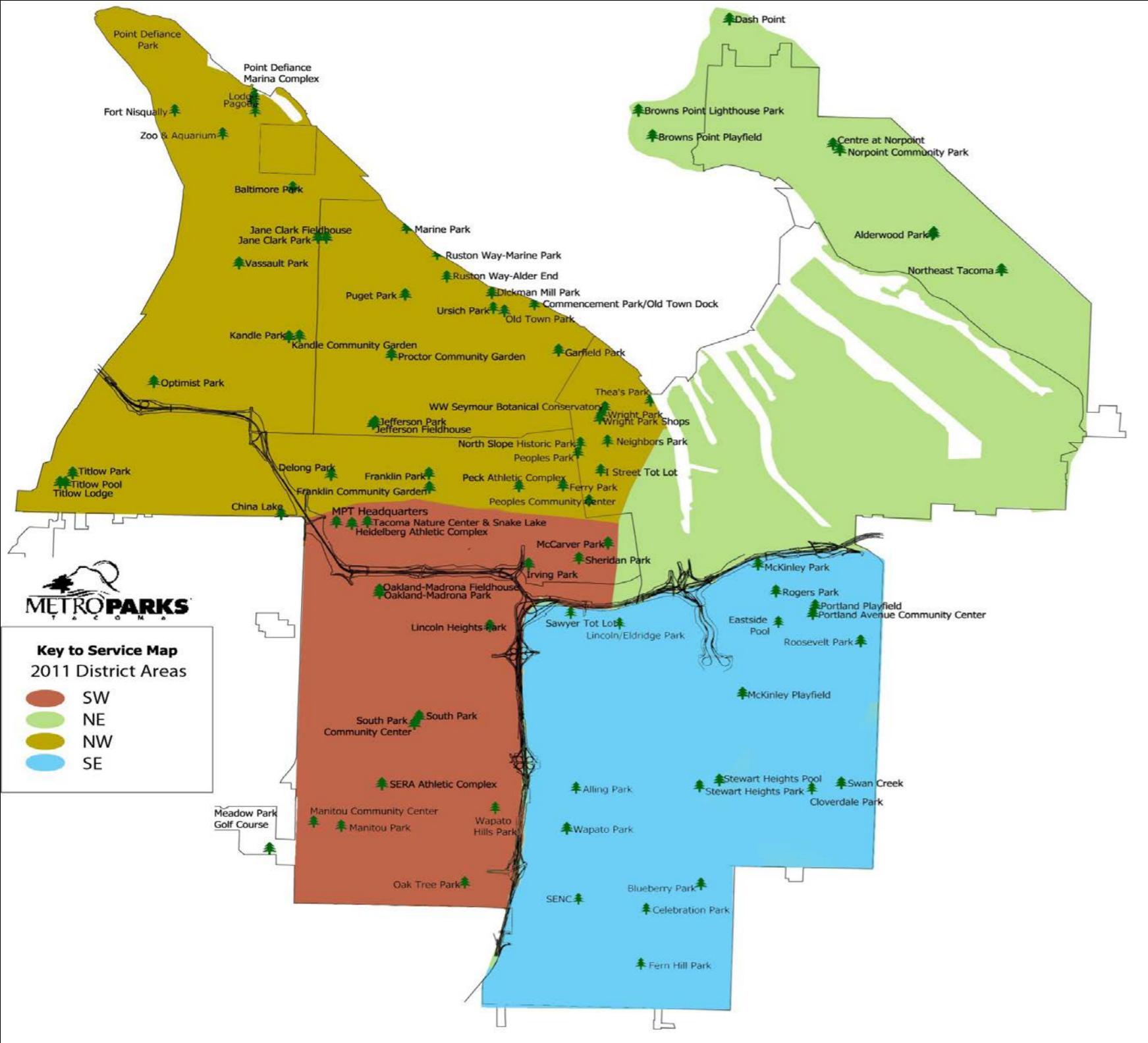


**12/13/2013:** President Obama approves the appeal.



# **4. Making Economic Case for Natural Capital Investment: urban, county & state levels**

# 4a. Urban ES: Tacoma Metro Parks serves 200,000 people



EE's Urban ES valuation documented benefits to residents

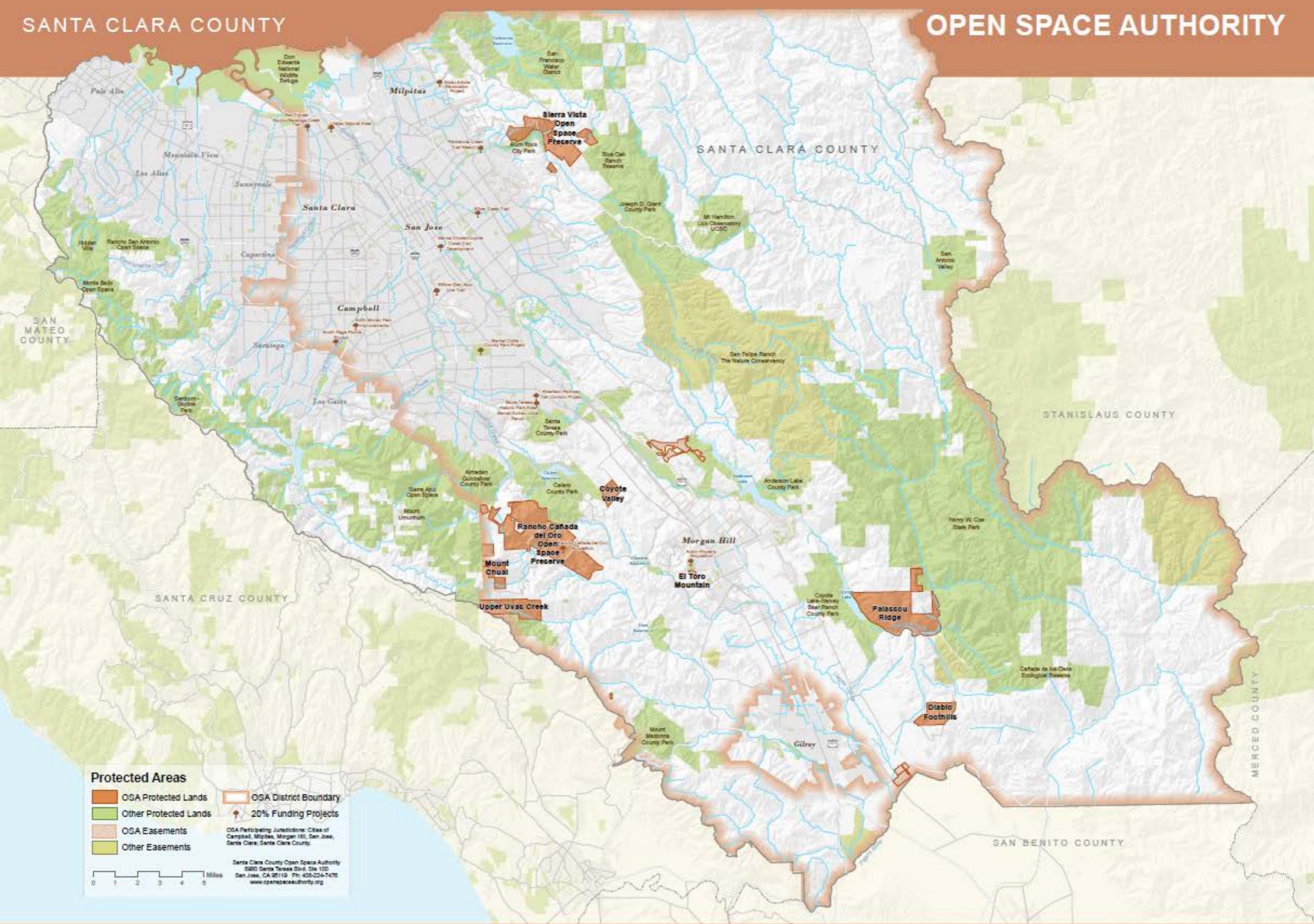
\$198 million bond passed

# 4b. County Level (Santa Clara County Open Space Authority)



# SANTA CLARA COUNTY

# OPEN SPACE AUTHORITY



Land Cover	Restrictions							Area (Ac)	Low Value (\$/acre/year)	High Value (\$/acre/year)	Low Value (\$/year)	High Value (\$/year)
	Urban	Rural	Coastal	Inland	Riparian	Agriculture	High Intensity					
Barren Land								171.47	\$0	\$0	\$0	\$0
Bay								3,336.63	\$4,611	\$15,286	\$15,385,129	\$51,004,6
Cultivated Crops								20,667.82	\$121	\$2,517	\$2,507,453	\$52,018,9
Deciduous Forest	x							85.13	\$727	\$782	\$61,870	\$66,5
	x			x				31.40	\$1,148	\$1,322	\$36,044	\$41,5
	x							14.48	\$7,695	\$21,782	\$111,431	\$315,4
	x			x				34.88	\$7,655	\$45,768	\$267,033	\$1,596,5
	x		x	x				0.01	\$3,349	\$24,983	\$22	\$1
Developed, High Intensity								19,860.53	\$0	\$0	\$0	\$0
Developed, Low Intensity								54,500.09	\$0	\$0	\$0	\$0
Developed, Medium Intensity								88,264.73	\$0	\$0	\$0	\$0
Developed, Open Space								61,481.94	\$524	\$2,960	\$32,226,724	\$182,015,0
Emergent Herbaceous Wetlands	x							353.10	\$7,609	\$48,851	\$2,686,700	\$17,249,3
	x		x					9.64	\$8,077	\$53,209	\$77,854	\$512,8
	x		x	x				6.88	\$8,071	\$53,209	\$55,527	\$366,0
	x							782.50	\$30,635	\$50,952	\$23,972,280	\$39,869,8
	x				x			19.30	\$25,090	\$52,011	\$484,225	\$1,003,7
	x	x						1,894.94	\$30,957	\$47,669	\$58,660,749	\$90,329,4
	x	x		x				362.19	\$25,412	\$48,728	\$9,203,953	\$17,648,9
	x	x	x					29.01	\$6,149	\$48,889	\$178,364	\$1,418,2
	x	x	x	x				81.24	\$737	\$48,889	\$59,908	\$3,971,5
	x	x	x	x	x			30.50	\$1,063	\$59,350	\$32,423	\$1,810,0
	x	x	x	x	x			3.99	\$604	\$49,948	\$2,408	\$199,2
	x			x	x			38.24	\$737	\$48,889	\$28,203	\$1,869,6
	x			x	x	x		0.38	\$604	\$49,948	\$232	\$19,2
Evergreen Forest	x							17,045.39	\$900	\$985	\$15,334,694	\$16,782,4
	x			x				12,376.18	\$872	\$1,494	\$10,790,839	\$18,489,7
	x		x					380.24	\$755	\$1,759	\$287,006	\$668,7
	x		x	x				257.31	\$1,375	\$4,492	\$353,814	\$1,155,7
	x				x			9,029.70	\$7,695	\$21,782	\$69,479,802	\$196,685,5
	x				x			14,022.79	\$7,695	\$21,793	\$107,912,246	\$305,597,9

Land Cover	Restrictions							Area (Ac)	Low Value (\$/acre/year)	High Value (\$/acre/year)	Low Value (\$/year)	High Value (\$/year)
	Urban	Rural	Coastal	Inland	Riparian	Agriculture	High Intensity					
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Bay								3,336.63	\$4,611	\$15,286	\$15,385,129	\$51,004,6
Cultivated Crops								20,667.82	\$121	\$2,517	\$2,507,453	\$52,018,9
Deciduous Forest	x							85.13	\$727	\$782	\$61,870	\$66,5
	x			x				31.40	\$1,148	\$1,322	\$36,044	\$41,5
	x							14.48	\$7,695	\$21,782	\$111,431	\$315,4
	x			x				34.88	\$7,655	\$45,768	\$267,033	\$1,596,5
	x		x	x				0.01	\$3,349	\$24,983	\$22	\$1
Developed, High Intensity								19,860.53	\$0	\$0	\$0	\$0
Developed, Low Intensity								54,500.09	\$0	\$0	\$0	\$0
Developed, Medium Intensity								88,264.73	\$0	\$0	\$0	\$0
Developed, Open Space								61,481.94	\$524	\$2,960	\$32,226,724	\$182,015,0
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	x		x	x				6.88	\$8,071	\$53,209	\$55,527	\$366,0
	x							782.50	\$30,635	\$50,952	\$23,972,280	\$39,869,8
	x				x			19.30	\$25,090	\$52,011	\$484,225	\$1,003,7
	x	x						1,894.94	\$30,957	\$47,669	\$58,660,749	\$90,329,4
	x	x		x				362.19	\$25,412	\$48,728	\$9,203,953	\$17,648,9
	x	x	x					29.01	\$6,149	\$48,889	\$178,364	\$1,418,2
	x	x	x	x				81.24	\$737	\$48,889	\$59,908	\$3,971,5
	x	x	x	x	x			30.50	\$1,063	\$59,350	\$32,423	\$1,810,0
	x	x	x	x	x			3.99	\$604	\$49,948	\$2,408	\$199,2
	x			x	x			38.24	\$737	\$48,889	\$28,203	\$1,869,6
	x			x	x	x		0.38	\$604	\$49,948	\$232	\$19,2
Evergreen Forest	x							17,045.39	\$900	\$985	\$15,334,694	\$16,782,4
	x			x				12,376.18	\$872	\$1,494	\$10,790,839	\$18,489,7
	x		x					380.24	\$755	\$1,759	\$287,006	\$668,7
	x		x	x				257.31	\$1,375	\$4,492	\$353,814	\$1,155,7
	x				x			9,029.70	\$7,695	\$21,782	\$69,479,802	\$196,685,5
	x				x			14,022.79	\$7,695	\$21,793	\$107,912,246	\$305,597,9

Land Cover	Restrictions							Low Value (\$/year)	High Value (\$/year)			
	Urban	Rural	Coastal	Inland	Riparian	Agriculture	High Intensity					
							5 Acre	Area (Ac)	Low Value (\$/acre/year)	High Value (\$/acre/year)		
Pasture/Hay	x							63.38	\$487	\$10,454	\$30,879	\$662,622
	x							1,227.84	\$1,051	\$9,926	\$1,290,027	\$12,188,089
Herbaceous / Grassland	x							28,681.60	\$2,128	\$3,992	\$61,045,186	\$114,499,724
	x			x	x			53,482.37	\$2,125	\$7,502	\$113,673,536	\$401,221,629
	x		x					428.38	\$2,146	\$4,043	\$919,250	\$1,732,057
	x		x	x				288.83	\$13,022	\$23,608	\$3,761,260	\$6,818,645
	x							1,174.96	\$5,249	\$5,512	\$6,167,075	\$6,476,285
	x				x			11,385.60	\$5,249	\$11,959	\$59,760,244	\$136,164,001
	x			x				3,431.96	\$5,246	\$9,022	\$18,003,438	\$30,962,322
	x			x	x			54,846.42	\$5,246	\$8,914	\$287,714,643	\$488,890,225
	x		x					11.60	\$5,266	\$5,563	\$61,093	\$64,537
	x		x	x				45.46	\$16,038	\$25,023	\$729,168	\$1,137,652
Lake	x		x		x			60.00	\$5,266	\$12,011	\$315,991	\$720,666
	x		x	x	x			486.37	\$16,038	\$31,471	\$7,800,667	\$15,306,475
								775.15	\$2,840	\$3,322	\$2,201,212	\$2,574,661
Mixed Forest	x							64,101.20	\$828	\$883	\$53,068,370	\$56,578,881
	x			x				73,195.63	\$1,249	\$1,423	\$91,420,847	\$104,160,921
	x		x					1,079.57	\$758	\$1,762	\$818,205	\$1,901,905
	x		x	x				1,088.99	\$1,378	\$4,495	\$1,500,810	\$4,894,855
	x							18,223.56	\$7,886	\$21,974	\$143,719,419	\$400,443,533
	x				x			47,405.16	\$7,887	\$21,985	\$373,901,812	\$1,042,193,934
	x			x				407.31	\$3,753	\$23,452	\$1,528,440	\$9,552,149
	x		x	x				719.98	\$3,747	\$25,449	\$2,697,595	\$18,323,169
Reservoir								2,872.45	\$4,735	\$4,735	\$13,599,781	\$13,599,781
Salt Pond								7,209.01	\$405	\$405	\$2,920,058	\$2,920,058

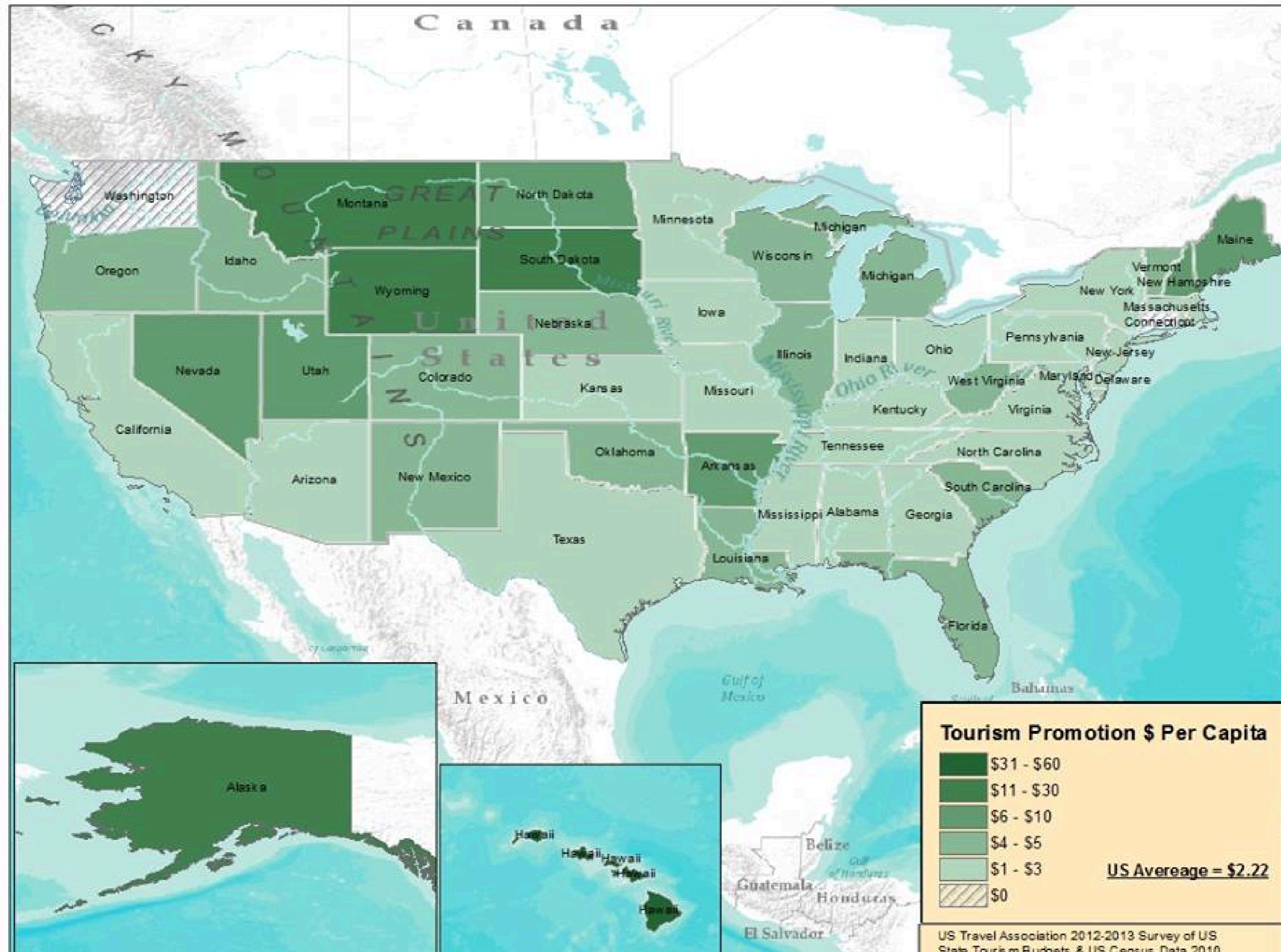
Land Cover	Restrictions							Low Value (\$/acre/year)	High Value (\$/acre/year)	Low Value (\$/year)	High Value (\$/year)	
	Urban	Rural	Coastal	Inland	Riparian	Agriculture	High Intensity					
Shrub/Scrub	x							86,688.19	\$281	\$316	\$24,372,428	\$27,382,902
	x			x				44,116.97	\$453	\$756	\$19,995,103	\$33,347,554
	x		x					1,057.41	\$361	\$1,003	\$381,911	\$1,061,092
	x		x	x				385.16	\$533	\$1,443	\$205,388	\$555,975
	x							1,935.06	\$281	\$281	\$543,977	\$543,977
	x			x				3,557.97	\$11,539	\$11,539	\$41,055,773	\$41,055,773
	x			x				5,679.43	\$453	\$721	\$2,573,889	\$4,095,592
	x			x	x		x	11,866.58	\$11,711	\$11,979	\$138,971,880	\$142,151,325
	x			x				19.69	\$532	\$1,513	\$10,487	\$29,788
	x		x		x			15.36	\$613	\$12,227	\$9,408	\$187,788
Woody Wetlands	x		x	x				60.01	\$785	\$2,640	\$47,087	\$158,443
	x		x	x	x			35.24	\$785	\$12,667	\$27,651	\$446,409
	x			x				80.93	\$599	\$33,569	\$48,474	\$2,716,611
	x			x				231.30	\$599	\$33,569	\$138,549	\$7,764,606
	x		x					12.14	\$427	\$33,569	\$5,181	\$407,547
	x		x	x				53.32	\$420	\$33,569	\$22,402	\$1,790,016
	x		x					36.32	\$644	\$73,688	\$23,404	\$2,675,997
	x		x	x	x			620.98	\$644	\$73,688	\$400,205	\$45,759,148
	x		x	x	x	x		19.89	\$504	\$74,747	\$10,022	\$1,486,371
	x	x						20.80	\$644	\$63,155	\$13,405	\$1,313,621
TOTAL	x	x	x	x	x			3.20	\$644	\$63,155	\$2,062	\$202,104
	x	x		x	x	x		54.34	\$504	\$64,214	\$27,385	\$3,489,114
	x	x			x	x		14.99	\$504	\$64,214	\$7,556	\$962,660
	x	x	x	x	x			1.98	\$466	\$64,241	\$921	\$127,042
	x	x	x	x	x	x		34.78	\$332	\$65,299	\$11,540	\$2,271,219
	x	x	x	x	x	x		1.79	\$332	\$65,299	\$595	\$117,090
	x			x		x		34.50	\$504	\$65,299	\$17,386	\$2,252,554
	x			x				5.52	\$472	\$64,241	\$2,605	\$354,361
	x			x	x			133.35	\$466	\$64,241	\$62,086	\$8,566,480
	x			x	x	x		2.40	\$332	\$74,747	\$795	\$179,064
	x			x	x	x		13.00	\$332	\$74,747	\$4,314	\$971,949
								835,181.15			\$1,829,700,383	\$4,224,024,061

Santa Clara County  
Chamber of  
Commerce cites EE  
numbers in bond,  
\$150 million bond  
passes by 2/3 of voters



# 4b. State Level: WA Outdoor Recreation Valuation





N

**Legend**

County Boundary	US Forest Service	Army Corps of Engineers
• State Parks	US National Park Service	Bureau of Land Management
• Boat Launches	WA Dept of Natural Resources	
• Local Parks	WA Dept Fish and Wildlife	
DNR Public Waters	US Fish & Wildlife	
Non-Public Timberland		

50

Miles

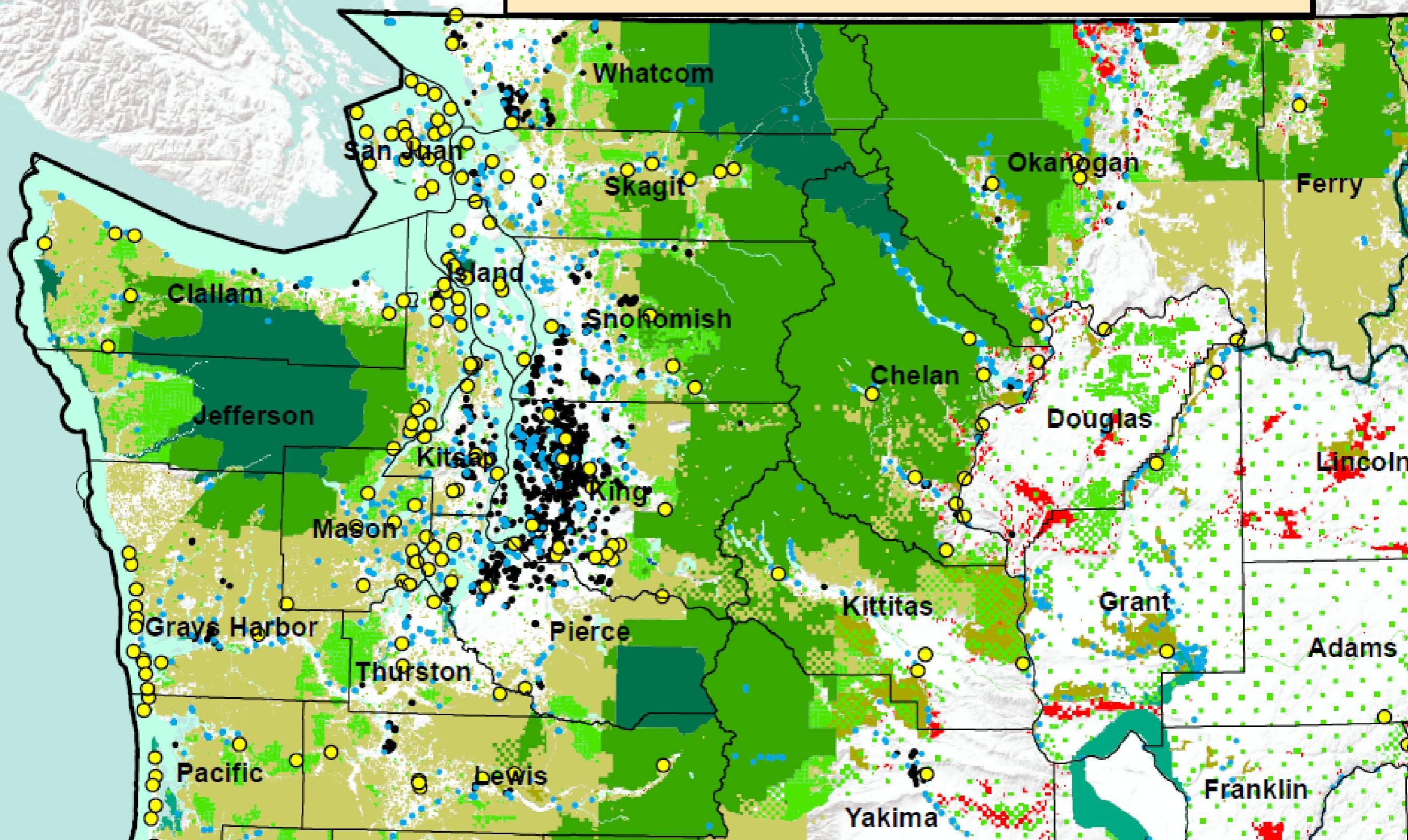
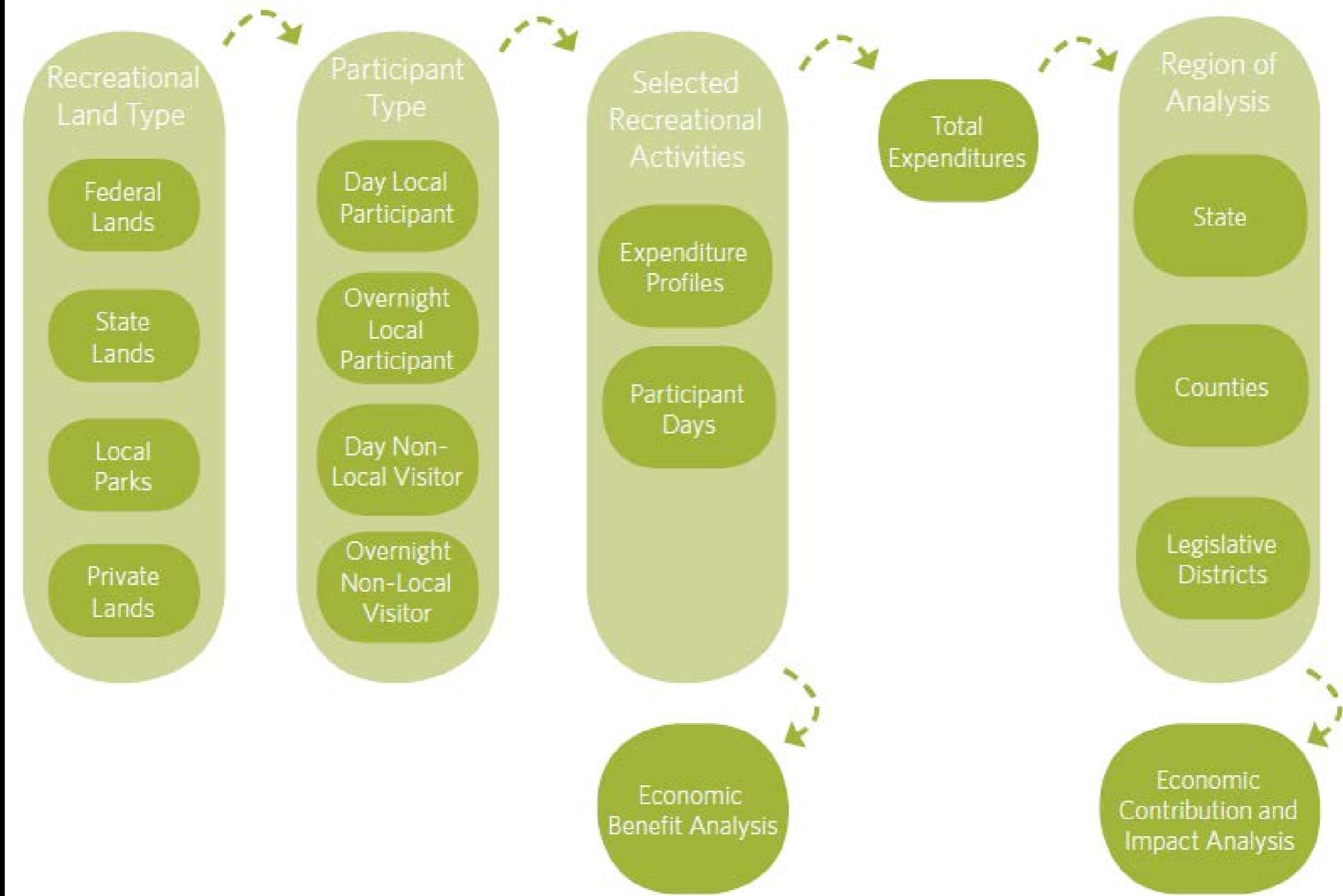


Figure 4. Schematic On Data Components and Methodology



**Table 7. Participant Days and Expenditures by Public Land Type**

Land Type	Participant Days ('000s)	Expenditures** ('000s, 2014 USD)	Per-Person Per-Day Expenditures (2014 USD)
<b>Total Federal Lands</b>	<b>32,853</b>	<b>\$1,323,545</b>	<b>\$40</b>
National Parks & National Recreational Areas	6,466	\$344,057	\$53
National Forests	12,279	\$535,494	\$44
National Wildlife Refuges	898	\$18,090	\$20
U.S. Army Corps of Engineers	12,748	\$405,772	\$32
BLM	462	\$20,133	\$44
<b>Total State Lands</b>	<b>49,095</b>	<b>\$1,347,192</b>	<b>\$27</b>
State Parks	33,059	\$699,289	\$21
State DNR Lands	10,281	\$448,359	\$44
WDFW Game Management Units	1,755	\$118,945	\$68
WDFW Wildlife Areas	4,000	\$80,600	\$20
<b>Public Waters</b>	<b>101,701</b>	<b>\$4,630,986</b>	<b>\$46</b>
Fishing	19,494	\$805,288	\$41
Motorized Boating & Sailing	19,171	\$1,641,007	\$86
Non-Motorized Paddle Sports	7,669	\$578,669	\$75
Inner tubing or floating	12,753	\$560,219	\$44
Non-Motorized Windsurfing/Surfing	1,399	\$123,153	\$88
Swimming in natural waters	26,624	\$525,818	\$20
Swimming (outdoor pools)	13,498	\$266,591	\$20
Scuba diving	1,094	\$130,242	\$119
<b>Total Local Parks</b>	<b>189,915</b>	<b>\$1,439,096</b>	<b>\$8</b>
County Parks	34,857	\$243,999	\$7
City and Special district Parks	153,371	\$1,073,597	\$7
Municipal Golf	1,687	\$121,500	\$72
<b>Events*</b>	<b>44,516</b>	<b>\$1,439,096</b>	<b>\$45</b>
<b>Total</b>	<b>418,081</b>	<b>\$10,727,131</b>	

\* Events occurring on public lands

\*\* Excludes equipment expenditures

**Table 3. Economic Contributions by Economic Sector, All Recreational Lands**

Sector	Total ('000s, 2014 USD)
Food and beverage places	\$2,473,498
Retail Stores-Sporting goods, hobby, and books	\$1,606,277
Wholesale trade businesses	\$1,443,031
Other amusement and recreation industries	\$1,397,971
Hotels and motels	\$1,325,500
Petroleum refineries	\$1,103,919
Retail Stores-Motor vehicle and parts	\$666,613
Retail Stores-Miscellaneous	\$650,047

**Table 2. Economic Contributions, All Recreational Lands**

Contribution	Total (000's, 2014 USD)
Direct	\$12,520,000
Indirect	\$3,300,000
Induced	\$4,701,000
<b>Total</b>	<b>\$20,521,000</b>

**Table 4. Local and State Tax Contributions, All Recreational Lands**

Tax	Total ('000s, 2014 USD)
Tax on Production and Imports	\$1,966,981,634
Households	\$30,980,445
Employee Compensation	\$11,712,469
Corporations	\$1,317,259
<b>Total</b>	<b>\$2,010,991,807</b>

**Table 5. Employment Associated with Outdoor Recreation, by Sector**

Sector	Employment
Food and beverage places	36,047
Retail Stores - Sporting goods, etc.	30,190
Other amusement and recreation industries	25,170
Retail Stores – Miscellaneous	12,000
Hotels and motels	10,046

# Thank you

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