



*Pescadero Creek Watershed*

Area	Hydrologic Units	Calwater Subbasins ---	(Planning Watersheds)
52,087 Acres	18050006	2202400101	Slate Creek (3854 acres)
21,079 Hectares	4th Field HUC	2202400102	Peters Creek (6173 acres)
81 Square Miles		2202400103	Teawater Creek (8415 acres)
	2202	2202400104	Honsinger Creek (6401 acres)
<b>Location</b>	4th Field Calwater	2202400105	Bradley Creek (4807 acres)
San Mateo County		2202400106	Waterman Creek (8568 acres)
Santa Cruz County		2202400301	Little Butano Ck. (5862 acres)
		2202400302	Butano Creek (8006 acres)

Species Potential	Miles of Streams with Species Present
Central California Coast <b>Coho</b> Santa Cruz Mountains Diversity Stratum - Independent Population	<u>Coho</u> 19 CDFG, Coho Distribution, May 2007
Central California Coast <b>Steelhead</b> Santa Cruz Mountains Diversity Stratum - Independent Population	<u>Steelhead</u> 58 NOAA Fisheries, Critical Habitat Redesignation, 2005

Critical Habitat
Central California Coast Steelhead: 58 Miles
Central California Coast Coho: All accessible river reaches between Punta Gorda & San Lorenzo River including 2 San Francisco Bay streams: Arroyo Corte Madera del Presidio and Corte Madera Creek (64 FR 24049)

Coho Intrinsic Potential	
Km of Historical Coho IP (21.5 C mask)	61
% of IP (21.5 C Mask) with Current Coho Distribution	46%
Spence, B. C., et al., 2008. A framework for assessing the viability of threatened and endangered salmon and steelhead in the North-Central California Coast Recovery Domain. NOAA Tech Memo NMFS-SWFSC-423.	

Miles of Waterway <sup>A</sup>	Miles	Number of Dams <sup>C</sup>
Naturally Occurring Waterways		25
Canal / Ditch	3	5 - Impassable
Intermittent Stream	89	13 - Partially and/or Temporally Impassable
Perennial Stream	90	5 - Unknown passage status
Artificial Path	3	2 - Not a Barrier

<sup>A</sup>USGS National Hydrography Dataset, High Resolution, 2004. 1:24,000

<sup>C</sup>Passage Assessment Database, Pacific States Marine Fisheries Commission, 2006

USGS Gaging Stations <sup>B</sup>	Number of Barriers <sup>C</sup>
Butano Creek near Pescadero, CA USGS11162540	103 25 Dams (5 Impassable)
Pescadero Creek near Pescadero, CA USGS11162500	34 Non-structural (Falls) (16 Impassable)
Pescadero Creek tributary USGS11162470	42 Road Crossings (7 Impassable)

<sup>B</sup>US Environmental Protection Agency BASINS Project, 2001

<sup>C</sup>Passage Assessment Database, Pacific States Marine Fisheries Commission, 2006



EPA Total Maximum Daily Load Classification (TMDL)<sup>1</sup>

Sediment / Siltation

Sources: Nonpoint source Medium Priority

<sup>1</sup>State Water Resources Control Board, 2003

Appropriated Waterways<sup>J</sup>

Pescadero Creek is a Fully Appropriated Stream

<sup>J</sup>California State Water Resources Control Board, 1998.

Average Annual Precipitation<sup>E</sup>

37.3 inches

Average Annual Precipitation Range<sup>E</sup>

22.5 - 55"

<sup>E</sup>California Mean Annual Precipitation Zones, 1900-1960, CA Department of Forestry, 1990

Roads<sup>A</sup>

Miles

Roads in Watershed

Secondary and connecting road, state highways	3
Local, neighborhood, and rural road, city street, unseparated	167
Vehicular trail, road passable only by 4WD vehicle, unseparated	37
Driveway or service road	12

Road Density

Miles of Roads per SqMi of Watershed	2.7
Miles of Roads per SqMi of 100m Riparian Buffer*	3.2

\*Buffer is 100 meters on either side of the stream centerline

<sup>A</sup>U.S. Census Bureau - Tiger 2000, 2002. 1:24,000

Slope<sup>D</sup>

Acres

Percent of watershed

Lands of 0-2 percent slope	1,181	2%
Lands of 2-4 percent slope	969	2%
Lands of 4-10 percent slope	2,846	5%
Lands of 10-15 percent slope	3,036	6%
Lands of 15-30 percent slope	14,535	28%
Lands of 30-60 percent slope	25,210	48%
Lands of 60-100 percent slope	4,283	8%
Lands of > 100 percent slope	27	0%

Elevation Range

0-2693 ft.

0-841 m

<sup>D</sup>Slope derived from USGS 10 meter Digital Elevation Models (DEM's)

Vegetation<sup>G</sup>

Acres

Percent of watershed

Agriculture	1440.62	3%
Annual grassland	3916.6	8%
Coastal Scrub	6753	13%
Conifer Forest		
Douglas Fir	904	2%
Montane Hardwood-Conifer	2	0%
Ponderosa Pine	146	0%
Redwood	27990	54%
Unknown Conifer Type	4972	10%
Hardwood Forest		
Montane Hardwood	116	0%
Valley Foothill Riparian	173	0%
Chamise-Redshank-Chaparral	902	2%
Mixed Chaparral	1077	2%
Unknown Shrub Type	2743	5%
Urban	907	2%
Water	77	0%

<sup>G</sup>Multi-source Land Cover Data (2002 v2), CA Department of Forestry, 2002. 100 meter Grid



<b>Erodability of Watershed<sup>F</sup></b>	Acres	Percent of watershed
Total Rating = 7	52087	100%

<sup>F</sup>Circuit Rider Productions, Salmonid Recovery Planning Information Resource for San Mateo and Santa Cruz Counties, 2004.  
Rating 0-10 [ 0 = Low slide potential, 10 = High slide potential]

<b>Land Ownership<sup>H</sup></b>	Acres	Percent of watershed
Private*	40,190	77%
Local (Parks & Rec.)	6,661	13%
State (Parks & Rec.)	5,124	10%
Federal (BLM)	86	0%

\*Private Land in Industrial Timber 4,347 8%

<sup>H</sup>Management Landscape, CA Department of Forestry, 2002 and US FWS (data supplied by major landowners who were undergoing an HCP), 2000

<b>Area Under a Timber Harvest Plan<sup>A</sup> past 10 years</b>		<b>Area Under a Timber Harvest Plan<sup>A</sup> past 13 years</b>	
5,589 Acres	11% of watershed	6,849 Acres	13% of watershed

<sup>A</sup>California Department of Forestry, Timber Harvest Plans for Region 1, 2006 (1994-2006)

<b>Population<sup>I</sup></b>	<b>Housing<sup>I</sup></b>
Total Population within The watershed -- 2,056 People	Total Housing Units within the watershed -- 811 Houses
	Housing Density
	0 to Less than 1 Housing Unit / 160 Acres 61%
	1 Unit / 160 Acres to 1 Unit / 20 Acres 37%
	1 Unit / 20 Acres to 1 Unit / 5 Acres 1%
	1 Unit / 5 Acres to 2 Units / Acre 1%
	2 Units / Acres to Greater than or Equal to 5 Units / Acre <1%

<sup>I</sup>Census 2000 Block Data (Migrated), CA Department of Forestry, 2003



**Pescadero Creek**

**Vegetation density and age class in the entire watershed**

California Department of Forestry and Fire Protection; fveg02\_2. Vector digital dataset. 100m Grid, 2002.

**Acres**

Size	Density	Agriculture	Barren	Conifer Forest	Conifer Woodland	Hardwood Forest	Hardwood Woodland	Herbaceous	Shrub	Urban	Water	Wetland	Grand Total by Size class	
Not Determined	Not Determined	1413		62				3939	2795	919	77			
	S													
	P			704										
	M			2152										
	D			30100										
	<b>Total</b>	1413		33018				3939	2795	919	77		42161	
Seedling	S													
	P													
	M													
	D													
	<b>Total</b>													0
Sapling	S													
	P													
	M													
	D													
	<b>Total</b>													0
Pole	S													
	P													
	M													
	D								2					
	<b>Total</b>								2					2
Small Tree	S													
	P			198	17									
	M			94										
	D			561	101	178		8703						
	<b>Total</b>			853	118	178		8703						9852
Medium/Large Tree	S													
	P													
	M													
	D													
	<b>Total</b>													0
Multi Layered	S													
	P													
	M													
	D													
	<b>Total</b>													0
<b>Grand Total by Species Type</b>		1413	0	33871	0	118	178	3939	11500	919	77	0	52015	

SIZE	Description	Diameter at Breast Height (DBH)
Not Determined		N/A
Seedling		Less Than 1 inch
Sapling		1 to 6 inches
Pole		6 to 11 inches
Small Tree		11 to 24 inches
Medium/Large Tree		Greater Than 24 inches
Multi Layered		Size 5 Over Size 4 Or 3; Total Tree Crown Closure Greater Than 60%

**Percent**

Size	Density	Agriculture	Barren	Conifer Forest	Conifer Woodland	Hardwood Forest	Hardwood Woodland	Herbaceous	Shrub	Urban	Water	Wetland	Grand Total by Size class	
Not Determined	Not Determined	3%		0%				8%	5%	2%	0%			
	S													
	P			1%										
	M			4%										
	D			58%										
	<b>Total</b>	3%		63%				8%	5%	2%	0%		81%	
Seedling	S													
	P													
	M													
	D													
	<b>Total</b>													0%
Sapling	S													
	P													
	M													
	D													
	<b>Total</b>													0%
Pole	S													
	P													
	M													
	D								0%					
	<b>Total</b>								0%					0%
Small Tree	S													
	P			0%	0%									
	M			0%										
	D			1%	0%	0%		17%						
	<b>Total</b>			2%	0%	0%		17%						19%
Medium/Large Tree	S													
	P													
	M													
	D													
	<b>Total</b>													0%
Multi Layered	S													
	P													
	M													
	D													
	<b>Total</b>													0%
<b>Grand Total by Species Type</b>		3%		65%				8%	22%	2%			100%	

SIZE (SHRUB)	Desc.	Crown Decadence	DENSITY	Description
Not Determined		N/A		None
Seedling Shrub		Seedlings or sprouts < 3 years	S	10 to 24%
Young Shrub		None	P	25 to 39%
Mature Shrub		1 - 25%	M	40 to 59%
Decadent Shrub		> 25%	D	60 to 100%

**Pescadero Creek**

Vegetation within Riparian Buffer (100 meter on either side of stream)

California Department of Forestry and Fire Protection; fveg02\_2. Vector digital dataset. 100m Grid, 2002.

**Acres**

Size	Density	Agriculture	Barren	Conifer Forest	Conifer Woodland	Hardwood Forest	Hardwood Woodland	Herbaceous	Shrub	Urban	Water	Wetland	Grand Total by Size class
Not Determined	Not Determined	274.0		47.0				388.0	447.0	336.0	27.0		
	S												
	P			163.0									
	M			67.0									
	D			7191.0									
	<b>Total</b>	274.0		7468.0				388.0	447.0	336.0	27.0		8940
Seedling	S												
	P												
	M												
	D												
	<b>Total</b>												0
Sapling	S												
	P												
	M												
	D												
	<b>Total</b>												0
Pole	S												
	P												
	M												
	D												
	<b>Total</b>												0
Small Tree	S												
	P			20.0	7.0								
	M												
	D			62.0	12.0	20.0		1473.0					
	<b>Total</b>			82.0	19.0	20.0		1473.0					1594
Medium/Large Tree	S												
	P												
	M												
	D												
	<b>Total</b>												0
Multi Layered	D												
	<b>Total</b>												0
<b>Grand Total by Species Type</b>		274	0	7550	0	19	20	388	1920	336	27	0	10534

**Percent**

Size	Density	Agriculture	Barren	Conifer Forest	Conifer Woodland	Hardwood Forest	Hardwood Woodland	Herbaceous	Shrub	Urban	Water	Wetland	Grand Total by Size class
Not Determined	Not Determined	3%		0%				4%	4%	3%	0%		
	S												
	P			2%									
	M			1%									
	D			68%									
	<b>Total</b>	3%		71%		0%	4%	4%	3%	0%			85%
Seedling	S												
	P												
	M												
	D												
	<b>Total</b>												0%
Sapling	S												
	P												
	M												
	D												
	<b>Total</b>												0%
Pole	S												
	P												
	M												
	D												
	<b>Total</b>												0%
Small Tree	S												
	P												
	M			0%	0%								
	D			0%					14%				
	<b>Total</b>			1%	0%	0%	0%		14%				15%
Medium/Large Tree	S												
	P												
	M												
	D												
	<b>Total</b>												0%
Multi Layered	D												
	<b>Total</b>												0%
<b>Grand Total by Species Type</b>		3%	0%	72%	0%	0%	0%	4%	18%	3%	0%	0%	100%

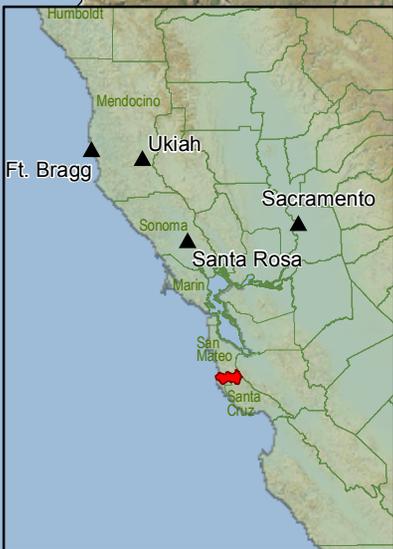
SIZE	Description	Diameter at Breast Height (DBH)
Not Determined	N/A	
Seedling	Less Than 1 inch	
Sapling	1 to 6 inches	
Pole	6 to 11 inches	
Small Tree	11 to 24 inches	
Medium/Large Tree	Greater Than 24 inches	
Multi Layered	Size 5 Over Size 4 Or 3; Total Tree Crown Closure Greater Than 60%	

SIZE (SHRUB)	Desc.	Crown Decadence	DENSITY	Description
Not Determined	N/A			None
Seedling Shrub	Seedlings or sprouts < 3 years		S	10 to 24%
Young Shrub	None		P	25 to 39%
Mature Shrub	1 - 25%		M	40 to 59%
Decadent Shrub	> 25%		D	60 to 100%

# Pescadero Creek Watershed



# Pescadero Creek Watershed



SAN MATEO COUNTY

Loma Mar

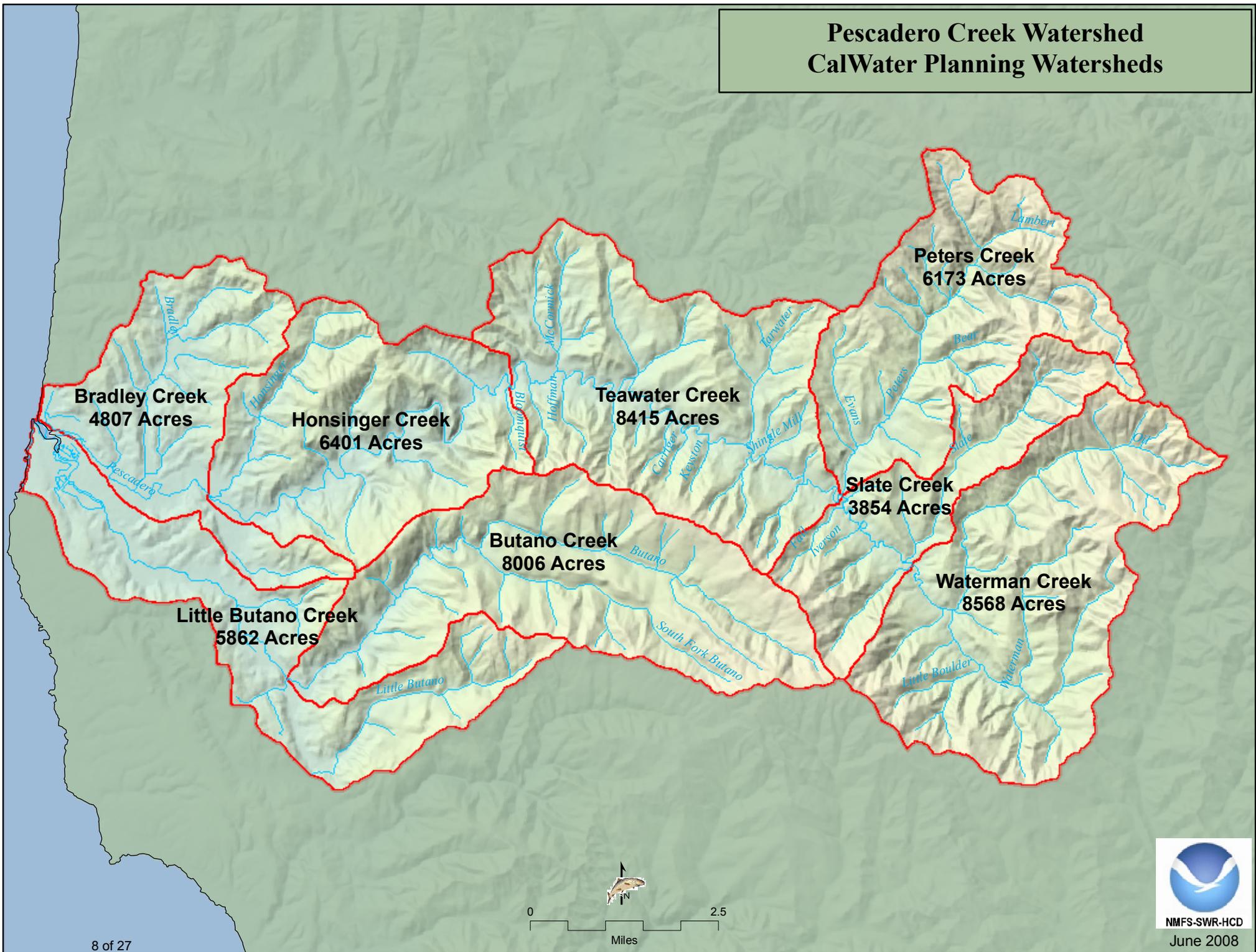
Pescadero

SANTA CRUZ COUNTY



NMFS-SWR-HCD  
June 2008

# Pescadero Creek Watershed CalWater Planning Watersheds



 CCC Steelhead Distribution and Critical Habitat

National Marine Fisheries Service, August 2005. 1:100,000.

 Coho Distribution

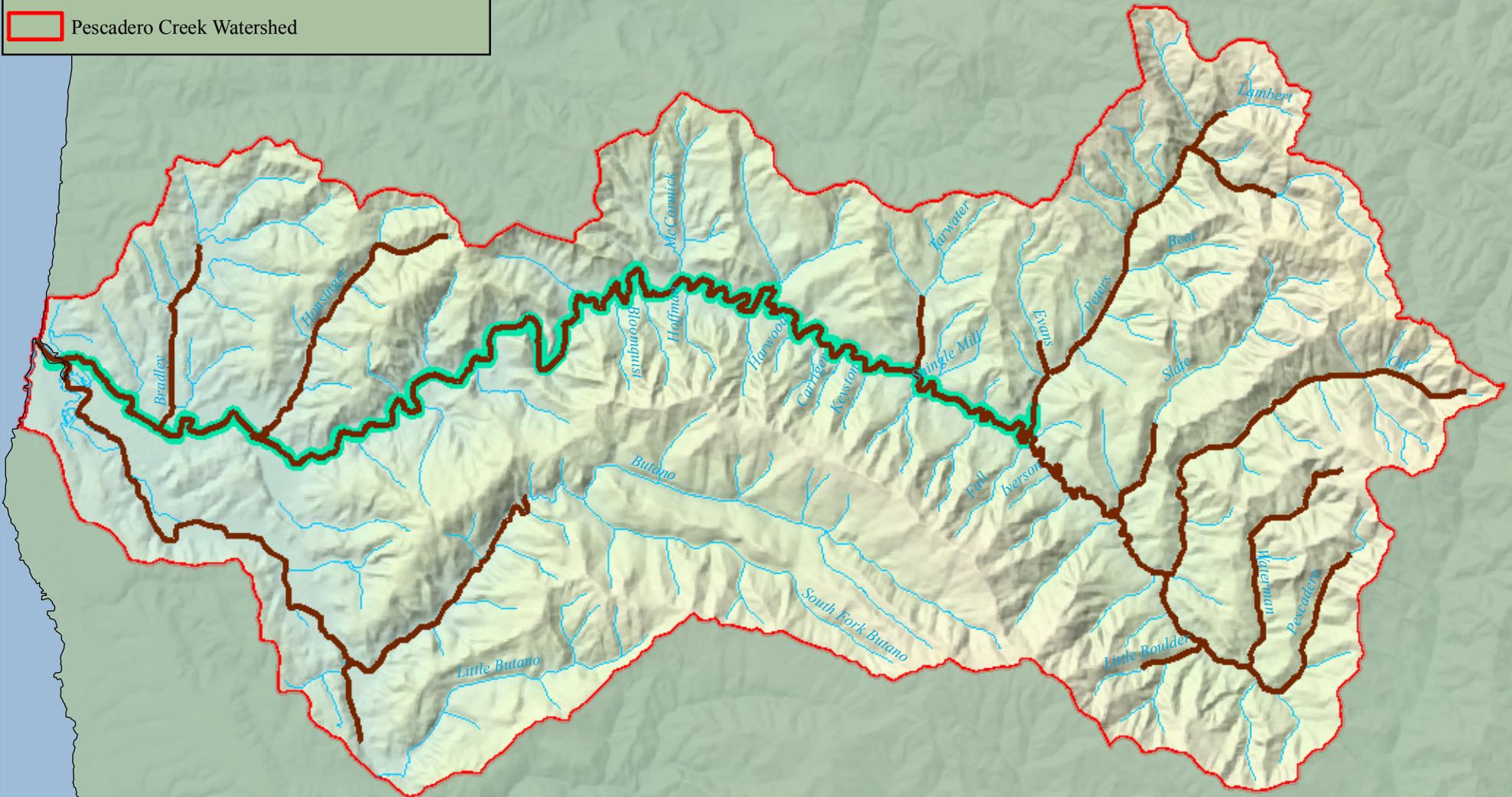
CDFG - NCNCR-ISB, 2007. 1:100,000.

 1:24,000 Streams

USGS National Hydrography Dataset High Resolution, 2004. 1:24,000

 Pescadero Creek Watershed

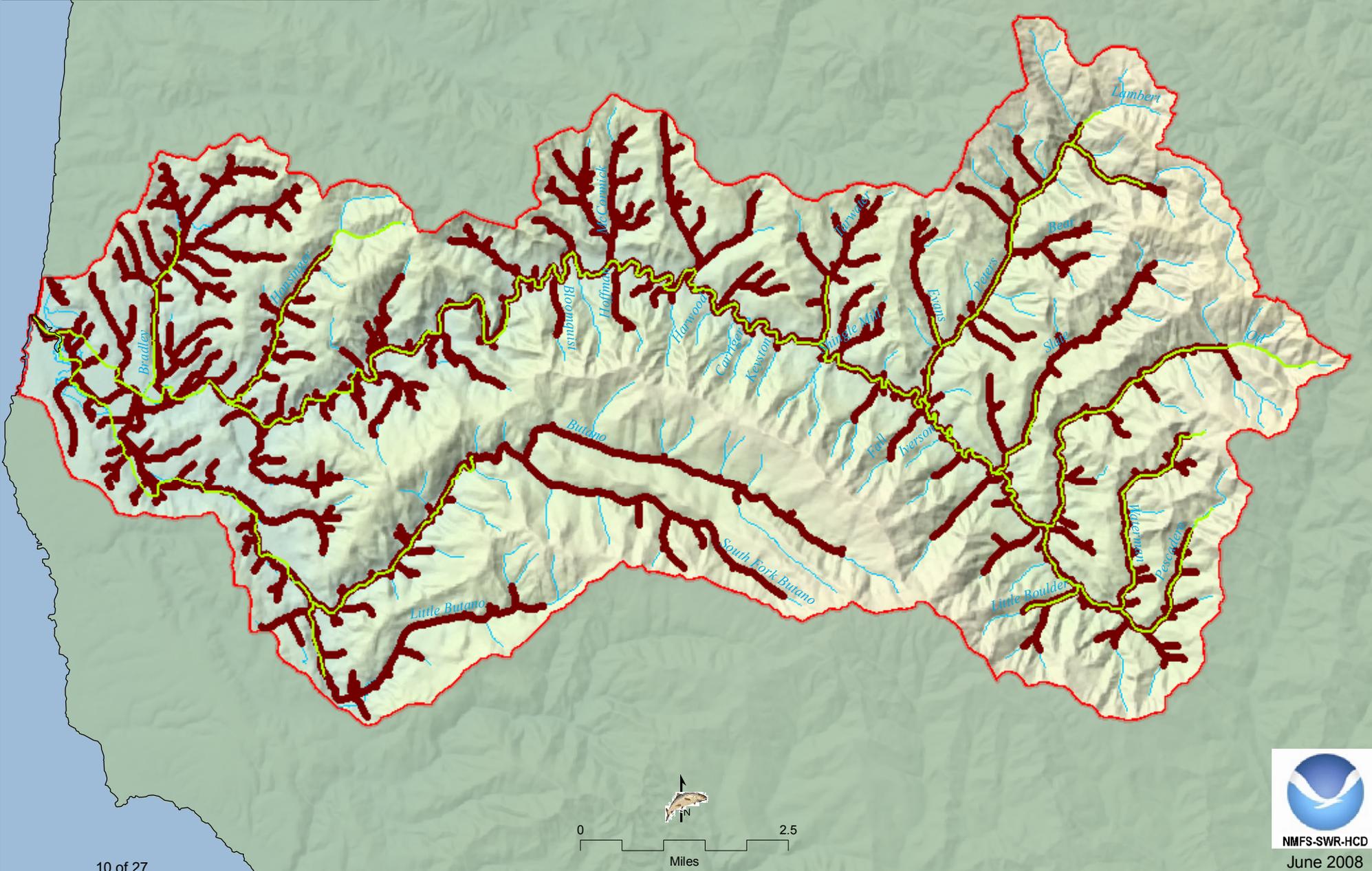
# Pescadero Creek Watershed Fish Distribution and Critical Habitat



# Pescadero Creek Watershed Steelhead Current vs. Historical

 Current CCC Steelhead Distribution  
National Marine Fisheries Service, August 2005. 1:100,000.

 Steelhead Intrinsic Potential  
NMFS SWR Fisheries Science Center, 2005.  
Potential historical suitable habitat



 Current Coho Distribution  
 California Department of Fish & Game, 2007. 1:100,000  
 Coho Intrinsic Potential (SWFSC)  
 NMFS SWR Fisheries Science Center, 2005.  
 Potential historical suitable habitat

# Pescadero Creek Watershed Coho Current vs. Historical





**Housing Density**

- 0 to Less than 1 Housing Unit / 160 Acres (61%)
- 1 Unit / 160 Acres to 1 Unit / 20 Acres (37%)
- 1 Unit / 20 Acres to 1 Unit / 5 Acres (1%)
- 1 Unit / 5 Acres to 2 Units / Acre (1%)
- 2 Units / Acre to Greater than or Equal to 5 Units / Acre

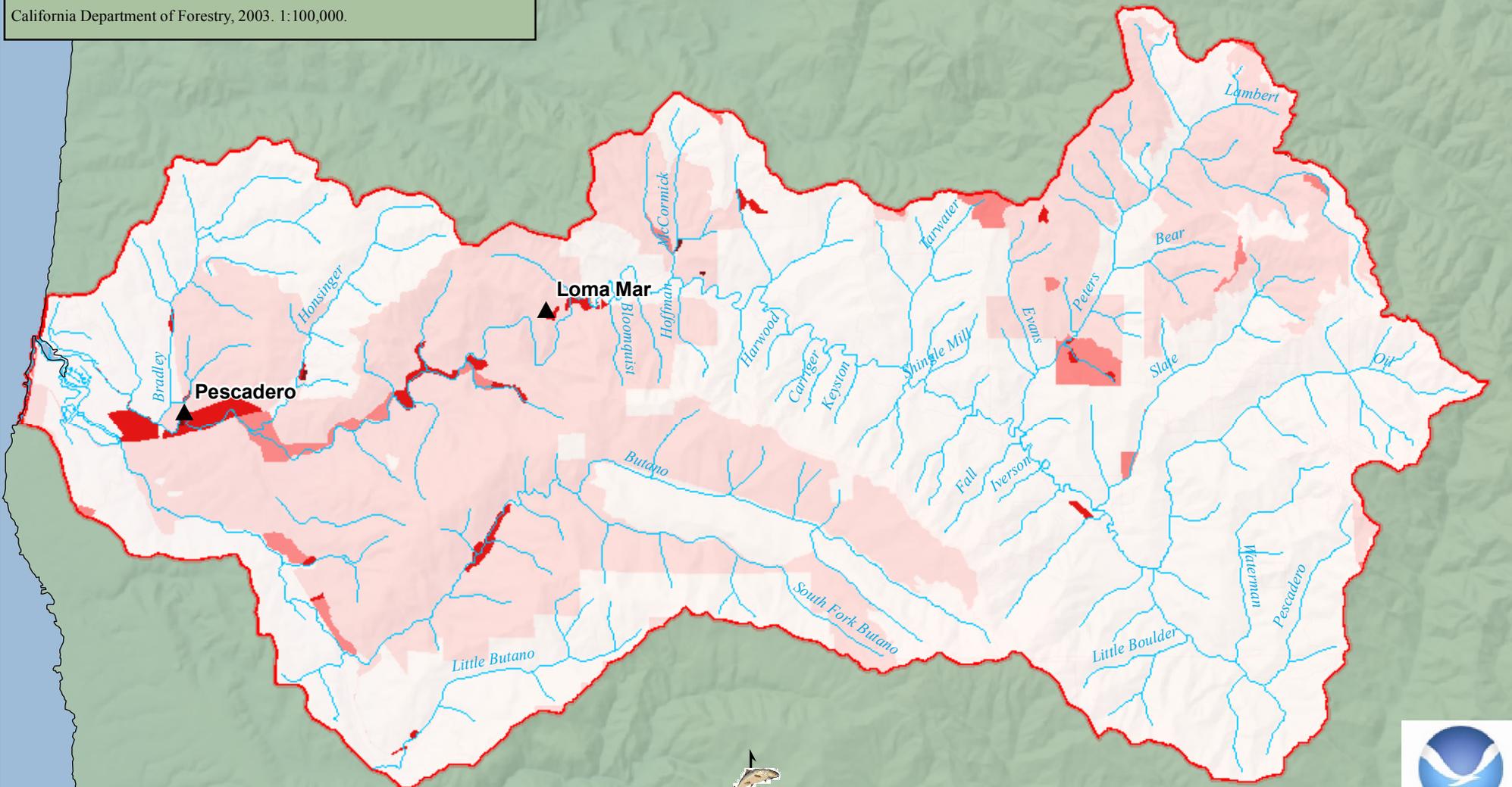
---

Population within the Watershed = 2,056 People  
 Houses within the Watershed = 811

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California Department of Forestry, 2003. 1:100,000.

## Pescadero Creek Watershed Development and Population



### Ownership

California Department of Forestry, 1999. 1:100,000.

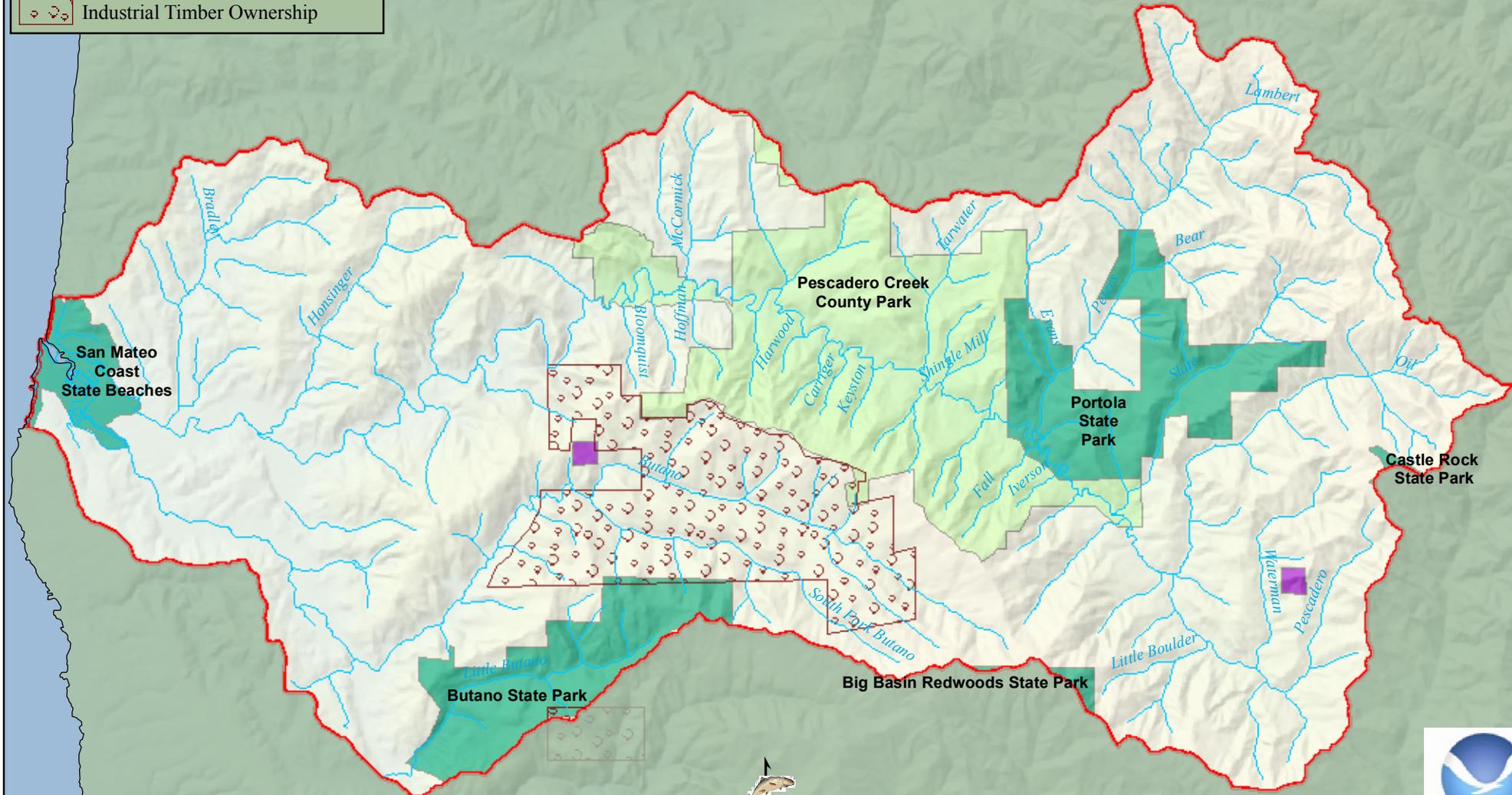
- Private
- Local, City/County Park
- State, Parks/Recreation
- Federal, BLM

### Forest Industrial Ownership

USFS, 2000

- Industrial Timber Ownership

# Pescadero Creek Watershed Ownership



NMFS-SWR-HCD  
June 2008



— Road Segments within the 200 meter Riparian Corridor

U.S. Census Bureau - Tiger 2000, 2002. 1:24,000

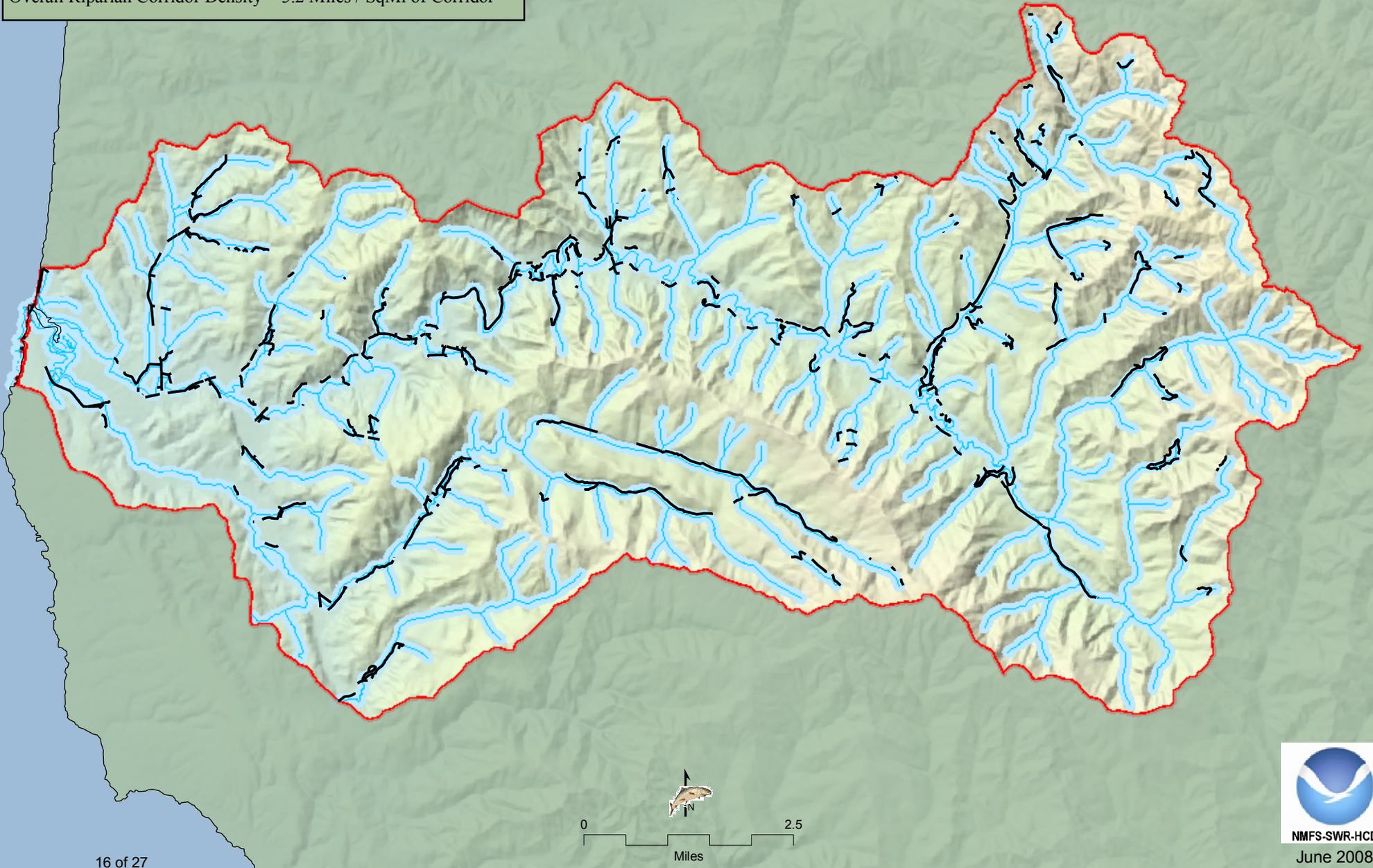
— 1:24,000 Streams

USGS National Hydrography Dataset High Resolution, 2004. 1:24,000

200 Meter Riparian Buffer (100 m on either side of stream centerline)

Overall Riparian Corridor Density = 3.2 Miles / SqMi of Corridor

## Pescadero Creek Watershed Road Density in the Riparian Corridor

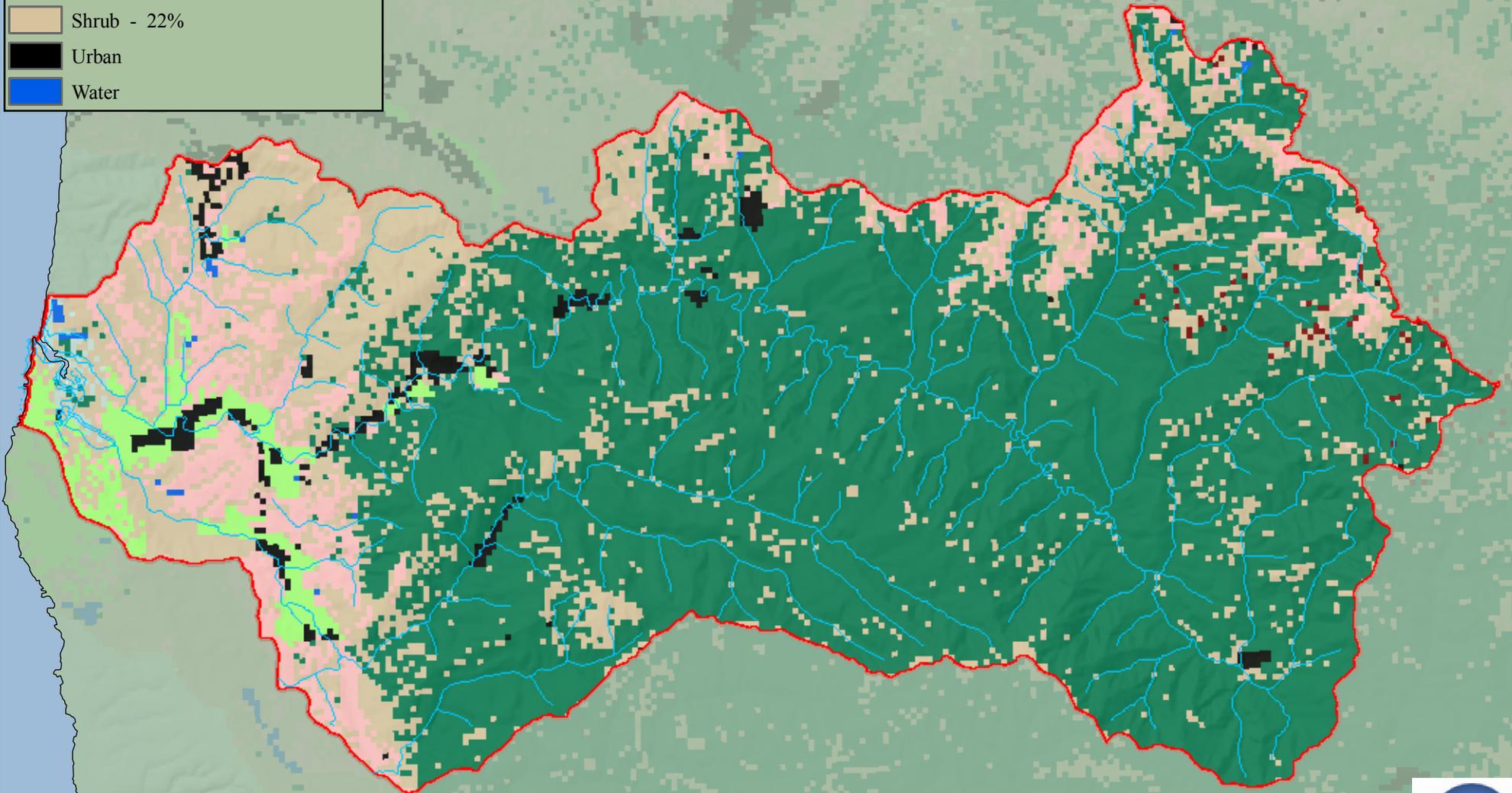


# WHR13 Vegetation Classification

California Department of Forestry, 2002.100 meter Grid

-  Agriculture
-  Barren/Other
-  Conifer Forest - 65%
-  Hardwood Forest
-  Herbaceous - 8%
-  Shrub - 22%
-  Urban
-  Water

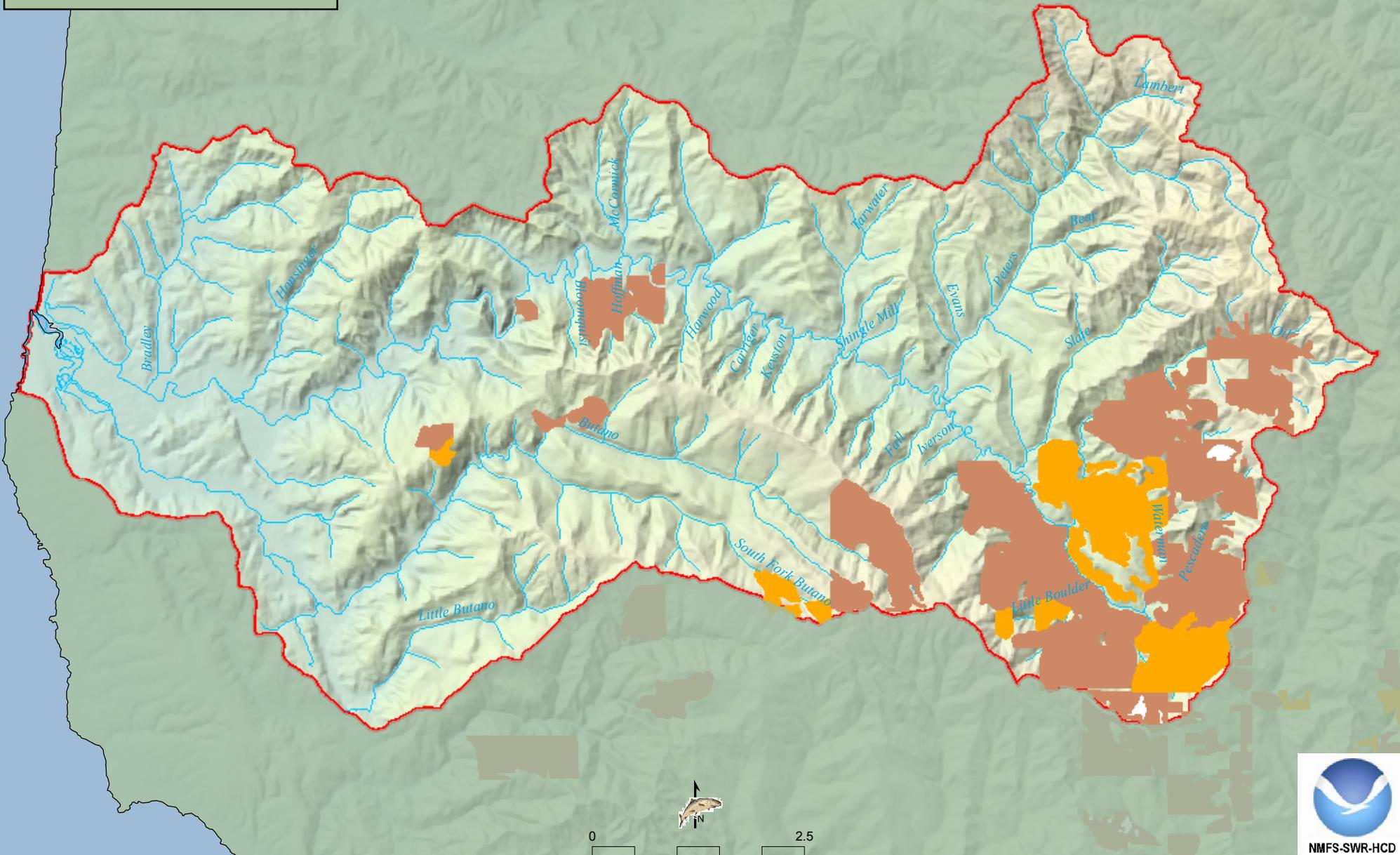
# Pescadero Creek Watershed Vegetation



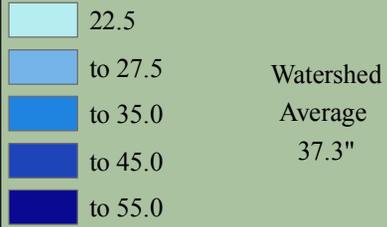
1:24,000 Streams  
USGS National Hydrography Dataset, 2004. 1:24,000  
**Timber Harvest Plans 1994-2006**  
California Department of Forestry, 2006.

Selection  
Not Coded

# Pescadero Creek Watershed Timber Harvesting 1994-2006

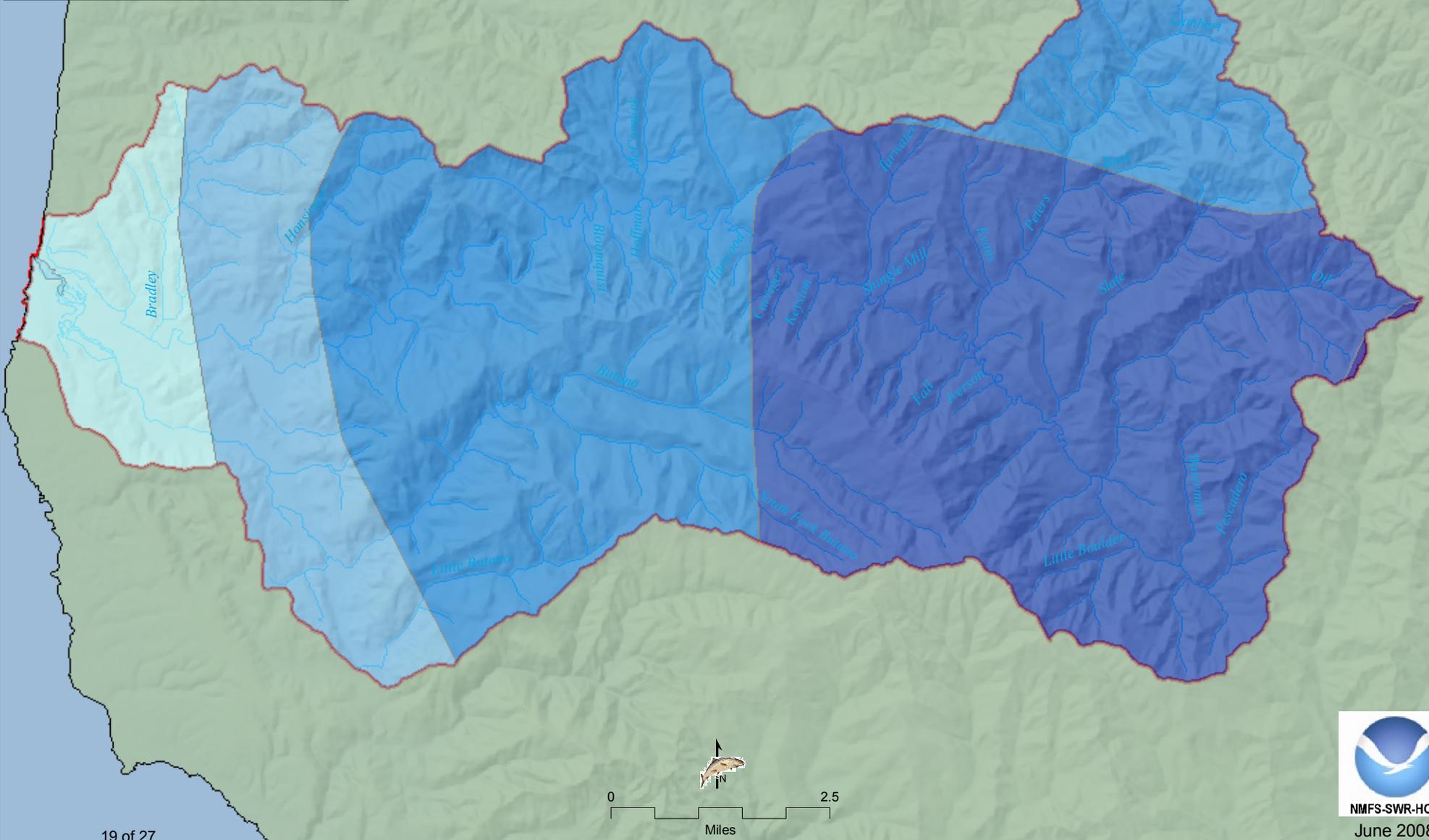


**1900-1960 Annual Precipitation**



California Department of Forestry, 1990. 1:100,000

**Pescadero Creek Watershed  
Precipitation**

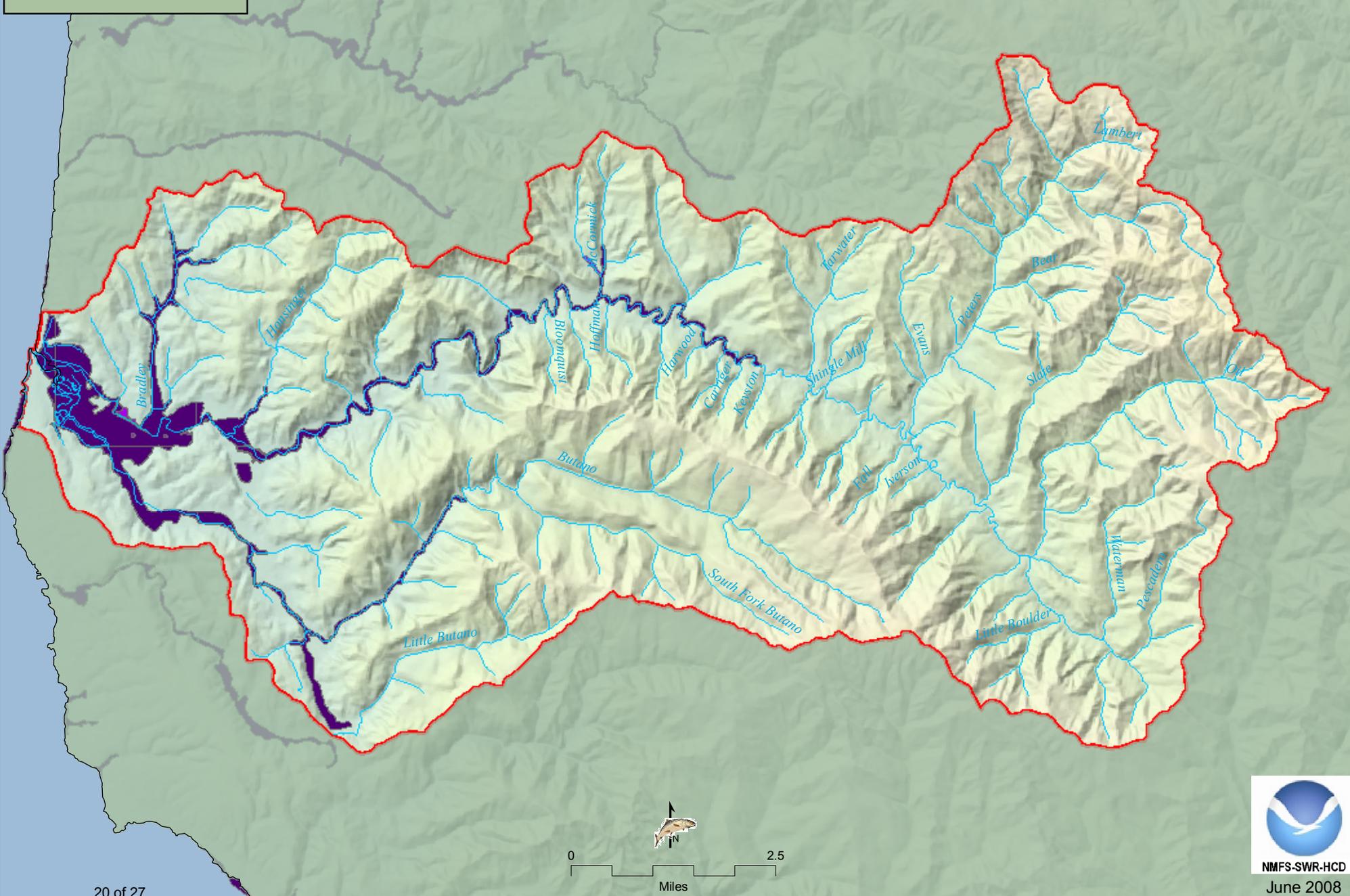


**FEMA Flood Zones**

FEMA, 1996. 1:24,000

-  100 Year Flood Zone
-  500 Year Flooding

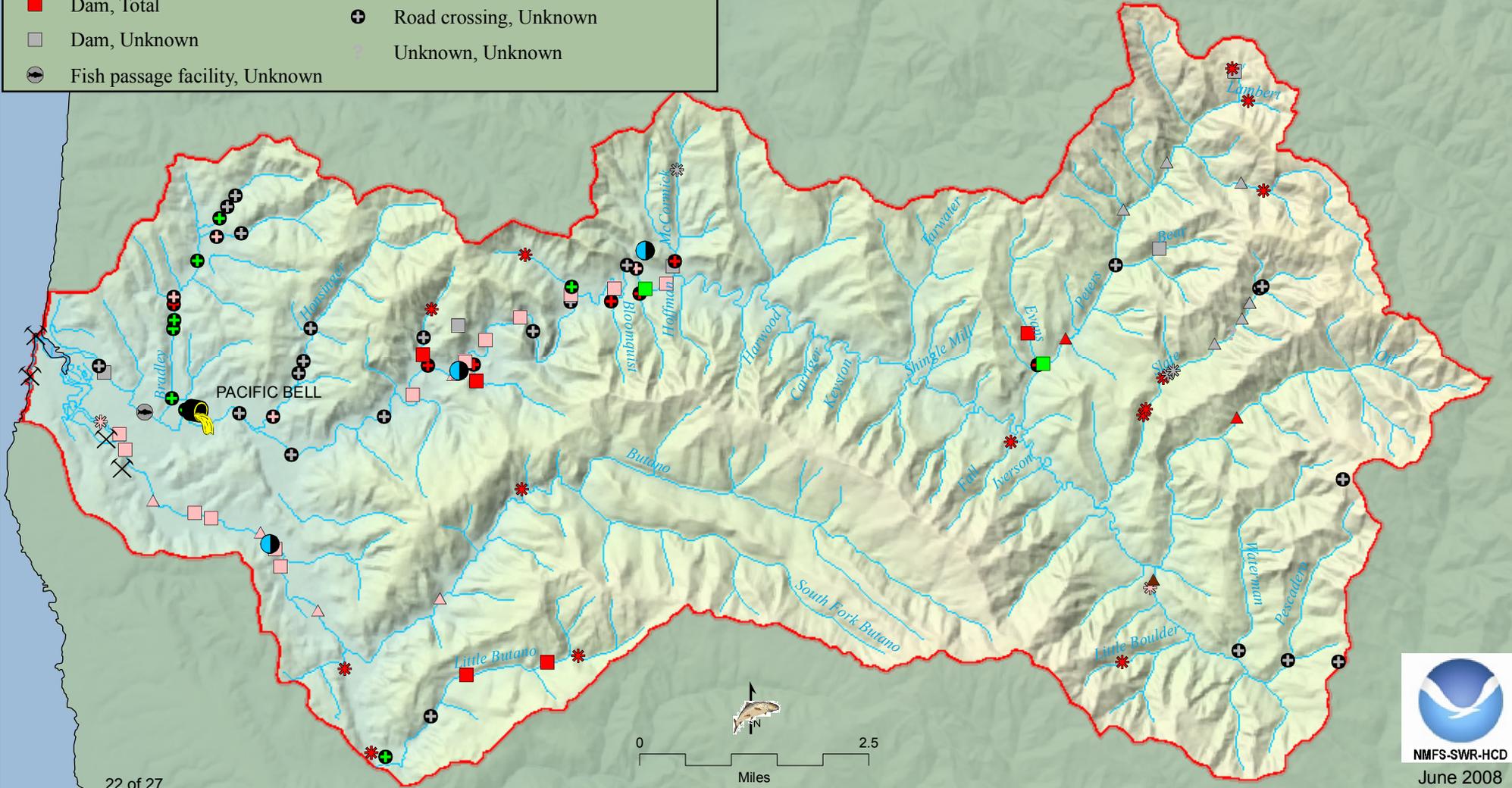
**Pescadero Creek Watershed  
Flood Zone**





# Pescadero Creek Watershed Barriers and Industrial Discharge

 Gage Station	 Log jam, Partial and/or Temporal
BASINS, USEPA. 2001.	 Log jam, Temporal and Total
 Hazardous & Solid Waste Site	 Log jam, Total
BASINS, USEPA. 2001.	 Log jam, Unknown
 mines	 Non-structural, Temporal
BASINS, USEPA. 2001.	 Non-structural, Total
<b>Barrier Type, Barrier Status</b>	 Non-structural, Unknown
CA Fish Passage Assessment, PSMFC, 2008	 Road crossing, Not a barrier
 Dam, Not a barrier	 Road crossing, Partial
 Dam, Partial and/or Temporal	 Road crossing, Total
 Dam, Total	 Road crossing, Unknown
 Dam, Unknown	 Unknown, Unknown
 Fish passage facility, Unknown	



# Pescadero Creek Watershed In-stream Temperature

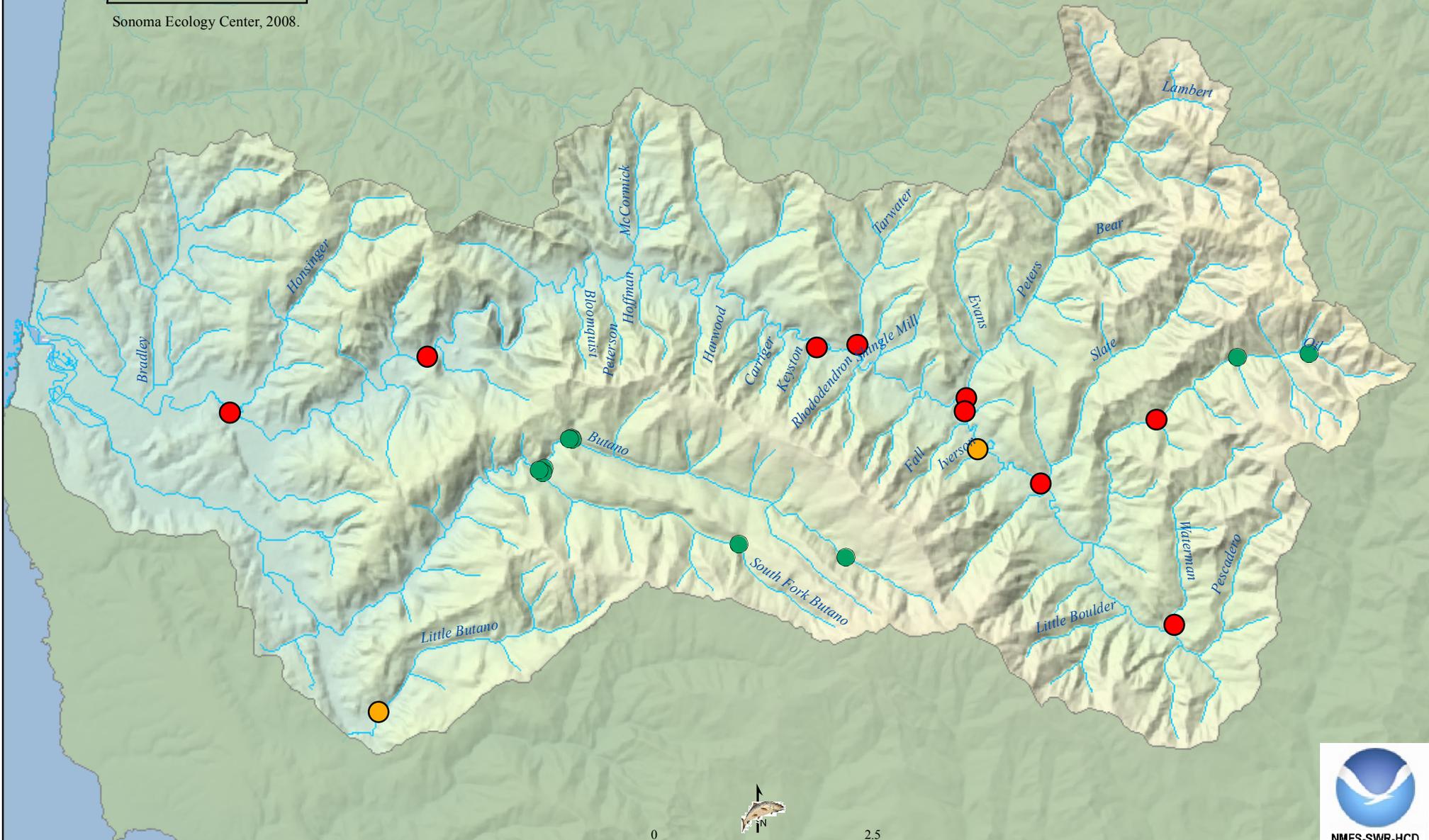
## Average MWMT (° C)

- 0 - 14
- 14 - 15
- 15 - 17
- 17 - 28

## Average MWAT (SWFSC)

- < 15.8

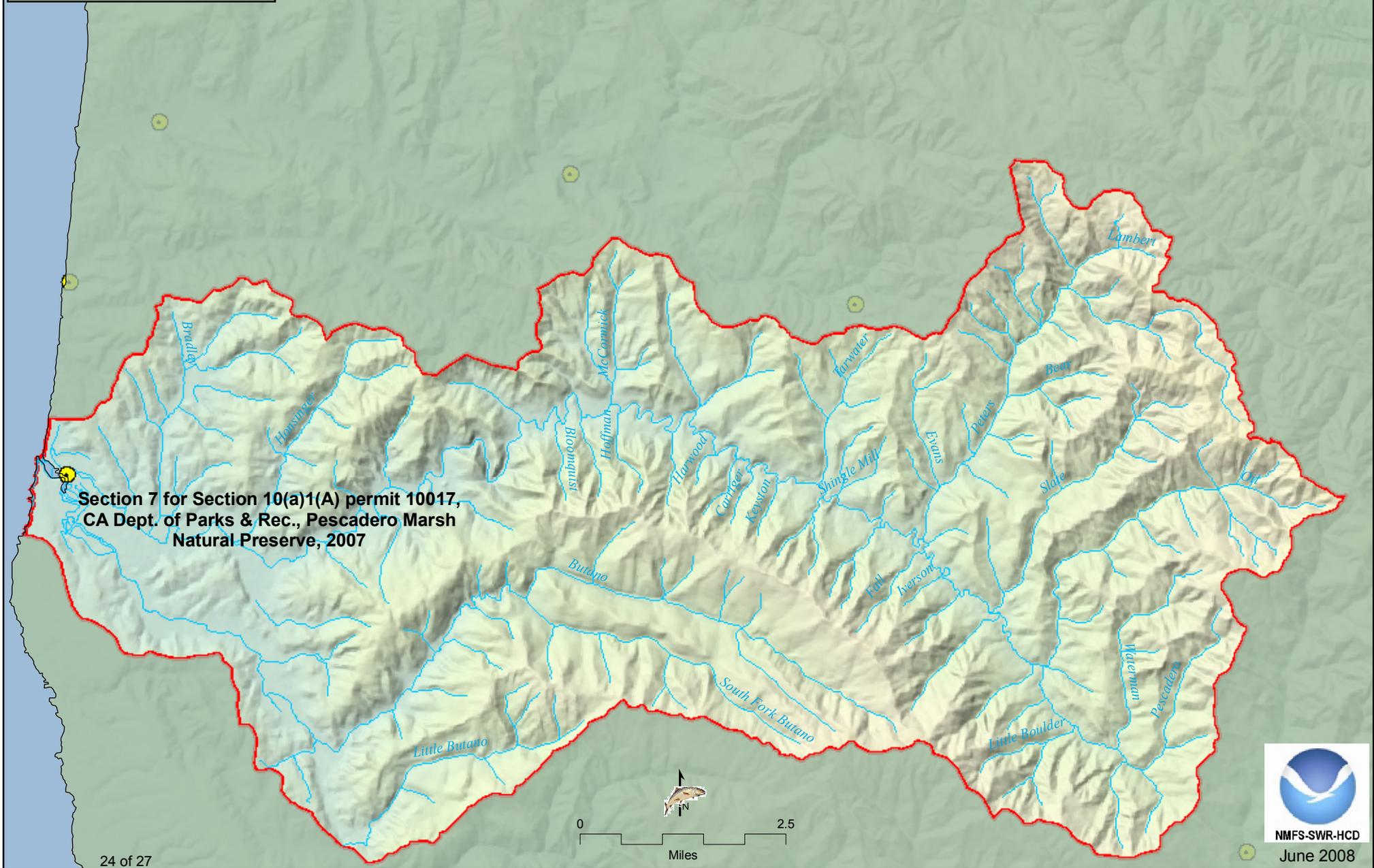
Sonoma Ecology Center, 2008.



 RMS / PCTS Record

Current as of May 9, 2008 (PCTS)  
and Jan. 25, 2008 (RMS).  
Only those records with a  
Latitude and Longitude  
entered appear here

# Pescadero Creek Watershed Public Consultation Tracking System



## References

### **Watersheds**

calwater\_ver2\_2  
vector digital data  
California Watersheds (CALWATER 2.2)  
California Department of Forestry and Fire  
Protection  
1:24,000  
1999  
<http://www.ca.nrcs.usda.gov/features/calwater/>

### **Distribution**

Coho\_Distribution  
vector digital data  
Eric Haney - CDFG - NCNCR-ISB  
1:100,000  
2006  
Draft  
<http://www.calfish.org/>

CCC\_Steelhead\_Distribution\_06\_2005  
vector digital data  
National Marine Fisheries Service (NOAA  
Fisheries)  
1:100,000  
August 2005  
<http://swr.nmfs.noaa.gov/salmon/layers/finalgis.htm>

### **Critical Habitat**

CCC\_Steelhead\_ch\_06\_2005  
vector digital data  
National Marine Fisheries Service (NOAA  
Fisheries)  
1:100,000  
August 2005  
<http://swr.nmfs.noaa.gov/salmon/layers/finalgis.htm>

### **Hydrology**

1806 NHD Flowline  
vector digital data  
National Hydrography Dataset High Resolution  
United States Geological Survey  
1:24,000  
2004

### **Dams**

Dams\_2005  
vector digital data

Goslin, M.,  
Santa Cruz Fishery Science Center  
National Marine Fisheries Service  
2005  
<http://swfsc.noaa.gov/>

### **Barriers and Diversions**

pad\_september2008  
vector digital data  
California Fish Passage Assessment Database  
Pacific States Marine Fisheries Commission  
September 2006  
<http://www.calfish.org/>

### **Gaging Stations**

gages  
vector digital data  
Better Assessment Science Integrating point and  
Nonpoint Sources (BASINS)  
United States Environmental Protection Agency  
2001  
<http://www.epa.gov/waterscience/basins/>

### **Total Maximum Daily Load (TMDL)**

R2\_rivers\_2002 303d  
vector digital data  
State Water Resources Control Board (SWRCB)  
California Environmental Protection Agency  
2002

### **Precipitation**

California Mean Annual Precipitation Zones, 1900-  
1960  
Vector digital data  
California Department of Forestry and Fire  
Protection 1990  
1:100,000  
<http://frap.cdf.ca.gov/data/frapgisdata/select.asp>

### **Roads**

TGRR00  
vector digital data  
Roads  
United States Census Bureau  
1:100000  
2000  
<http://www.census.gov/geo/www/tiger/>

### **Elevation**

Spln\_mos\_02  
10 Meter Digital Elevation Model (DEM)  
NOAA Fisheries, Santa Cruz Laboratory  
2003

### **Vegetation**

fveg02\_2  
raster digital data  
Multi-source Land Cover Data  
California Department of Forestry and Fire  
Protection  
100 meter Grid  
2002  
<http://frap.cdf.ca.gov/data/frapgisdata/select.asp>

### **Erodability**

Srp\_landslide  
Landslide Areas  
Vector digital data  
Circuit Rider Productions, Inc.  
2004

Srp\_82\_debrisfl\_Source  
Debris Flow Sources  
Vector digital data  
Circuit Rider Productions, Inc.  
2004

### **Land Ownership**

GOVTOWNA  
vector digital data  
California Department of Forestry Forest and  
Rangeland Resources Assessment Program  
Bureau of Land Management Surface Management  
1:100,000  
September 1999  
<http://old.casil.ucdavis.edu/casil/gis.ca.gov/teale/govtowna/>

### **Timber Harvesting**

thp\_(year)  
Annual Timber Harvest Plans  
vector digital data  
California Department of Forestry and Fire  
Protection  
Santa Rosa, CA  
1983-2001

### **Developed Area and Population**

Census 2000 Block Data (Migrated)  
vector digital data

California and the Department of Forestry and Fire  
Protection, FRAP  
2003  
1:100,000  
<http://frap.cdf.ca.gov/data/frapgisdata/select.asp>

### **Imagery**

naip\_1-1\_2n\_s\_ca081\_2004\_1 (San Mateo)  
remote-sensing image  
raster digital data  
National Agriculture Imagery Program (NAIP)  
USDA-FSA Aerial Photography Field Office  
Salt Lake City, Utah  
2006  
<http://datagateway.nrcs.usda.gov/GatewayHome.html>

### **Historic Suitable Habitat (Coho, Steelhead)**

Intrinsic Potential Model  
vector digital data  
NOAA Fisheries  
Santa Cruz Laboratory, Santa Cruz, CA  
2005  
<http://swfsc.noaa.gov/>

### **Forest Industrial Ownership**

nwca\_own  
vector digital data  
United States Fish and Wildlife Service  
Arcata, CA  
2000

### **Toxins**

Hazardous\_&\_solid\_waste\_sites  
Better Assessment Science Integrating point and  
Nonpoint Sources (BASINS)  
vector digital data  
United States Environmental Protection Agency  
2001  
<http://www.epa.gov/waterscience/basins/>

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vector digital data  
Better Assessment Science Integrating point and  
Nonpoint Sources (BASINS)  
United States Environmental Protection Agency  
2001  
<http://www.epa.gov/waterscience/basins/>

### **Temperature**

MWMT\_20080117\_selected\_watersheds  
Vector digital data  
Sonoma Ecology Center  
2008

MWAT\_20080117\_selected\_watersheds  
Vector digital data  
Sonoma Ecology Center  
2008

**Records Management System (RMS)**  
**Public Consultation Tracking System (PCTS)**

National Marine Fisheries Service  
Oracle Databases  
2008

**Fully Appropriated Streams**

Declaration of Fully Appropriated Stream Systems  
State Water Resources Control Board  
State of California  
November 19, 1998  
<http://www.waterrights.ca.gov/html/faslist.htm>

**Flood Zones**

FEMA Flood Insurance Maps 1996  
Vector digital data  
Federal Emergency Management Agency  
Q3 Flood Data Program  
1996  
<http://www.fema.gov/>