Watershed Characterization

June 2008

NMFS-SWR-HCD

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)
Location	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 **Coho**	Coho
Santa Cruz Mountains Diversity Stratum	19
- Independent Population	CDFG, Coho Distribution, May 2007
Central California Coast **Steelhead**	Steelhead
Santa Cruz Mountains Diversity Stratum	58
- Independent Population	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)

Miles of Waterway[A]	Miles
Naturally Occurring Waterways	
Canal / Ditch	3
Intermittent Stream	89
Perennial Stream	90
Artificial Path	3

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

Number of **Dams**[C]
25
5 - Impassable
13 - Partially and/or Temporally Impassable
5 - Unknown passage status
2 - Not a Barrier

[C]Passage Assessment Database, Pacific States Marine Fisheries Commission, 2006

USGS **Gaging Stations**[B]
Butano Creek near Pescadero, CA
USGS11162540
Pescadero Creek near Pescadero, CA
USGS11162500
Pescadero Creek tributary
USGS11162470

[B]US Environmental Protection Agnecy BASINS Project, 2001

Number of **Barriers**[C]
103
25 Dams (5 Impassable)
34 Non-structural (Falls) (16 Impassable)
42 Road Crossings (7 Impassable)

[C]Passage Assessment Database, Pacific States Marine Fisheries Commission, 2006

EPA Total Maximum Daily Load Classification (**TMDL**)[I]

Sediment / Siltation

Sources: Nonpoint source — Medium Priority

[I]State Water Resources Control Board, 2003

Approriated Waterways[J]

Pescadero Creek is a Fully Appropriated Stream

[J]California State Water Resources Control Board, 1998.

Average Annual **Precipitation**[E]	Average Annual **Precipitation Range**[E]
37.3 inches	22.5 - 55"

[E]California Mean Annual Precipitation Zones, 1900-1960, CA Department of Forestry, 1990

Roads[A]	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

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

Slope[D]	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

[D]Slope derived from USGS 10 meter Digital Elevation Models (DEM's)

Vegetation[G]	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%

[G]Multi-source Land Cover Data (2002 v2), CA Department of Forestry, 2002. 100 meter Grid

Erodability of Watershed[F]	Acres	Percent of watershed
Total Rating = 7	52087	100%

[F]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**]

Land Ownership[H]	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%

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

Area Under a **Timber Harvest Plan**[A] past **10** years		Area Under a **Timber Harvest Plan**[A] past **13** years	
5,589 Acres	11% of watershed	6,849 Acres	13% of watershed

[A]California Department of Foresty, Timber Harvest Plans for Region 1, 2006 (1994-2006)

Population[I]

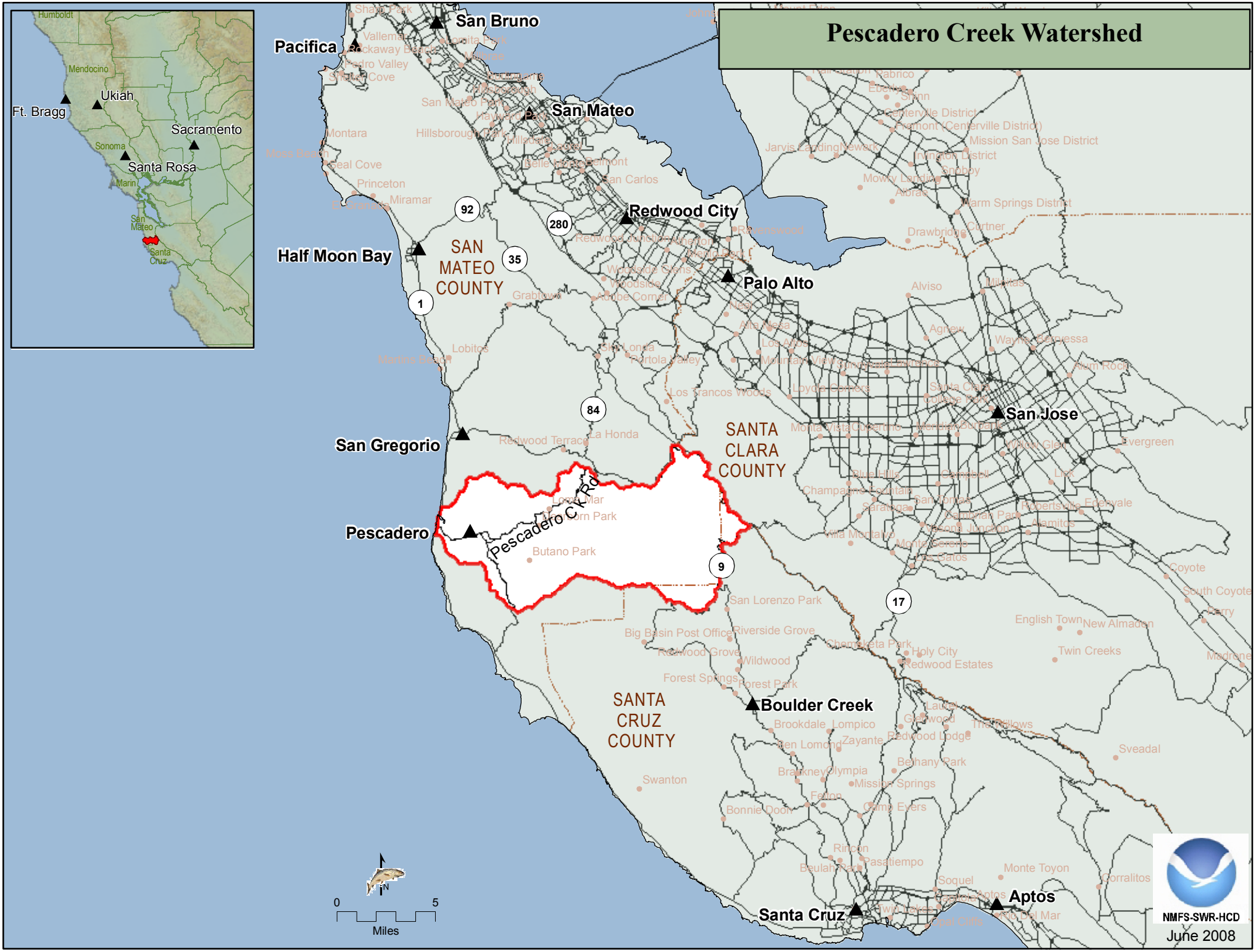
Total Population within
The watershed -- 2,056 People

Housing[I]

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%

[I]Census 2000 Block Data (Migrated), CA Department of Forestry, 2003


Pescadero Creek Watershed
Humboldt
Mendocino
Ukiah
Ft. Bragg
Sacramento
Sonoma
Santa Rosa
Marin
San Mateo
Santa Cruz
San Bruno
Pacifica
San Mateo
Redwood City
Half Moon Bay
SAN MATEO COUNTY
Palo Alto
San Jose
San Gregorio
SANTA CLARA COUNTY
Pescadero
Pescadero C K Rd
Butano Park
SANTA CRUZ COUNTY
Boulder Creek
Santa Cruz
Aptos
92
280
35
1
84
9
17
0
5
Miles
N
NMFS-SWR-HCD
June 2008

Pescadero Creek Watershed

SAN MATEO COUNTY

Loma Mar

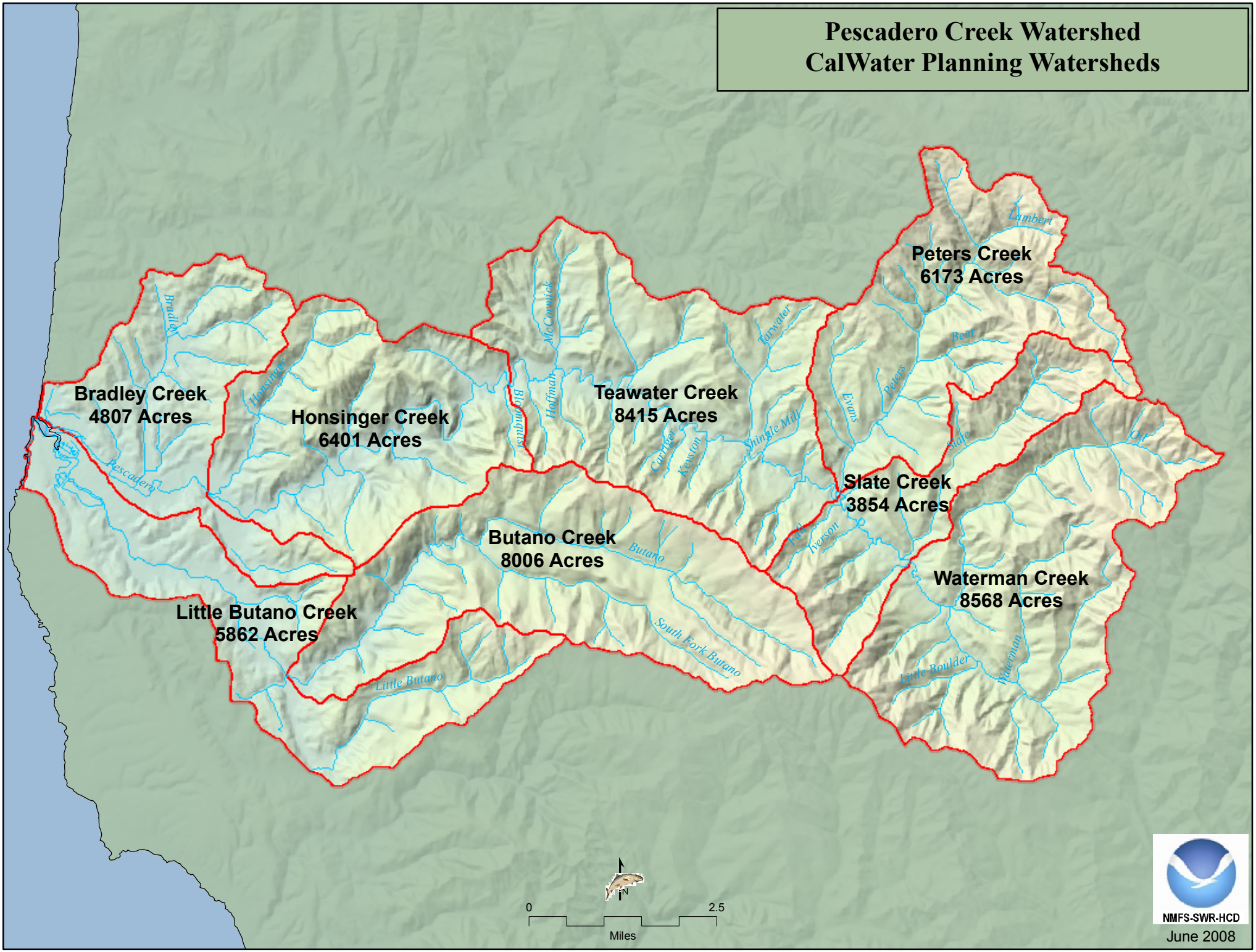
Pescadero

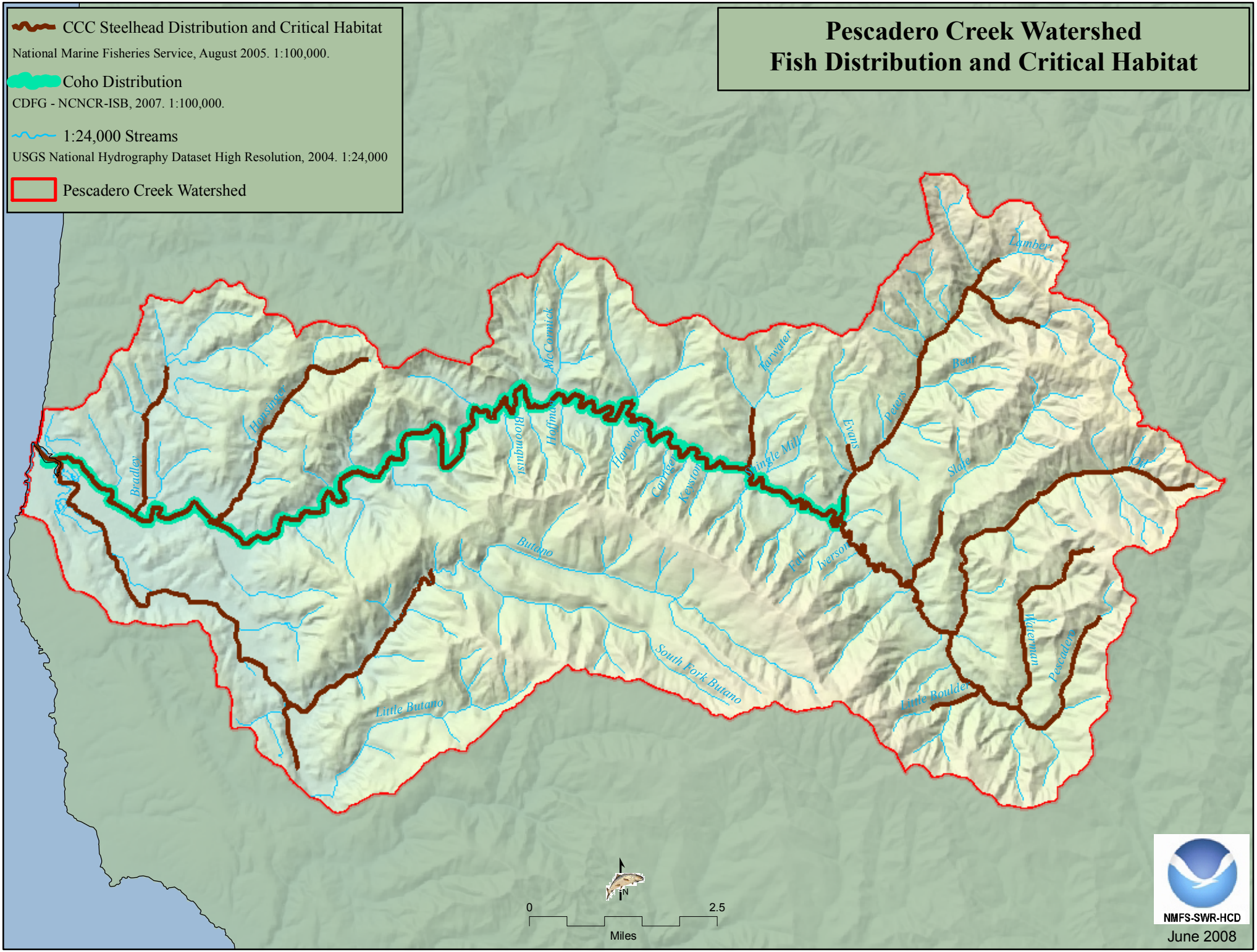
0 2.5
Miles

SANTA CRUZ COUNTY

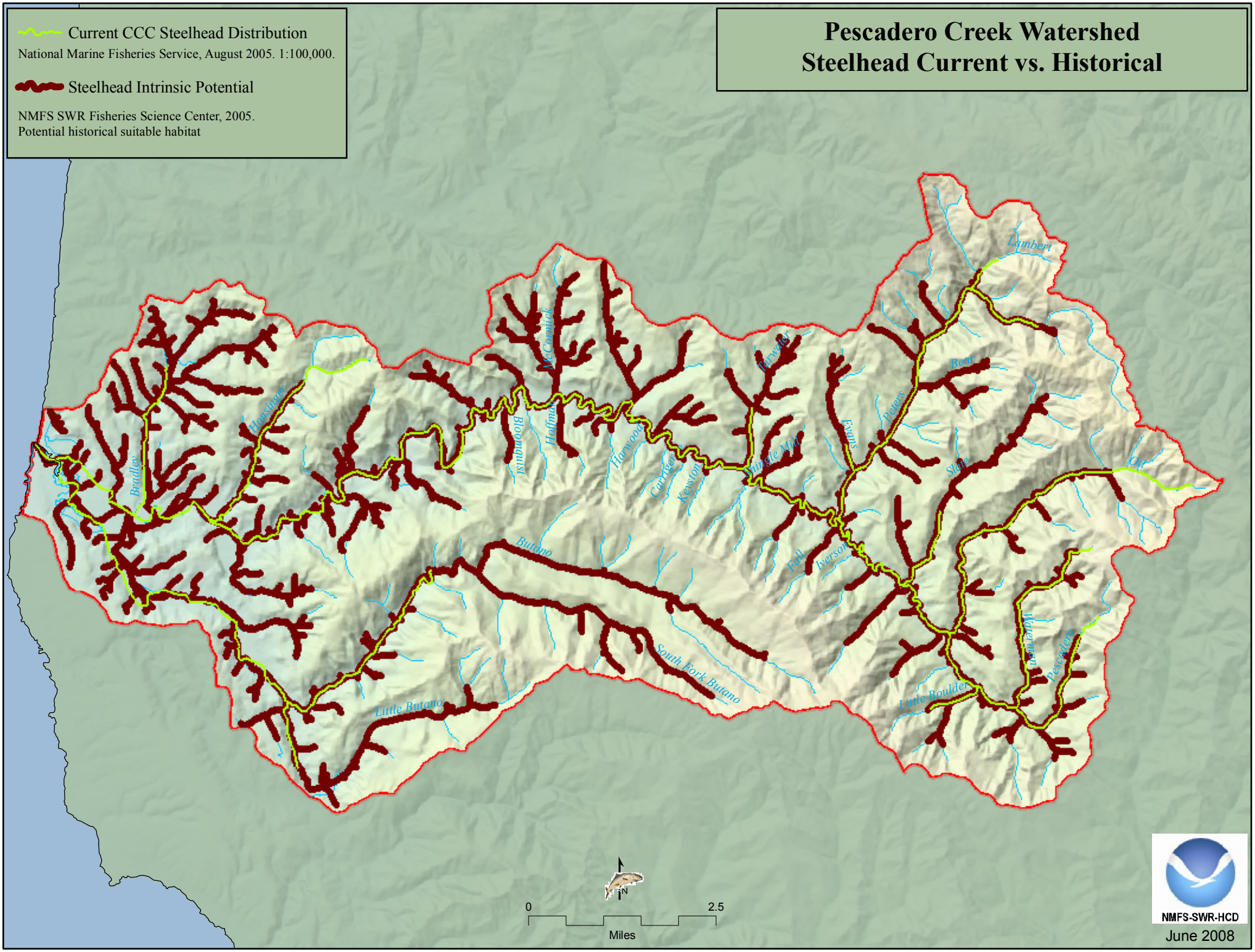
NMFS-SWR-HCD

June 2008


Pescadero Creek Watershed
CalWater Planning Watersheds
Bradley Creek
4807 Acres
Honsinger Creek
6401 Acres
Teawater Creek
8415 Acres
Peters Creek
6173 Acres
Slate Creek
3854 Acres
Butano Creek
8006 Acres
Waterman Creek
8568 Acres
Little Butano Creek
5862 Acres
Bradley
Honsinger
Pescadero
Bloomquist
McCormick
Hoffman
Carriger
Keyston
Tarwater
Shingle Mill
Lambert
Bear
Peters
Evans
Slate
Ort
Tyerson
Butano
South Fork Butano
Little Butano
Little Boulder
Waterman
0
2.5
Miles
N
NMFS-SWR-HCD
June 2008



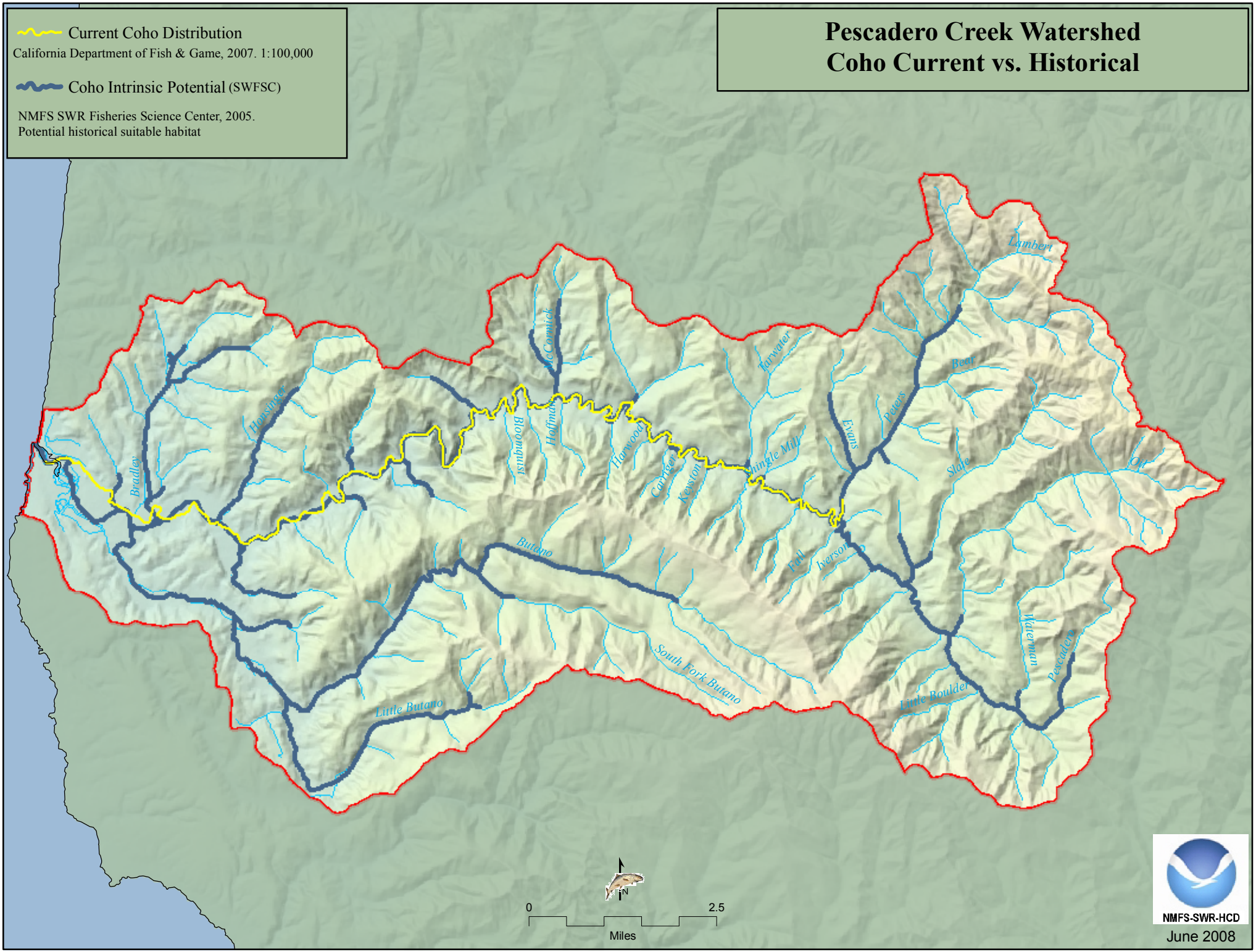
Pescadero Creek Watershed
Fish Distribution and Critical Habitat
CCC Steelhead Distribution and Critical Habitat
National Marine Fisheries Service, August 2005. 1:100,000.
Coho Distribution
CDFG - NCNCR-ISB, 2007. 1:100,000.
1:24,000 Streams
USGS National Hydrography Dataset High Resolution, 2004. 1:24,000
Pescadero Creek Watershed
Lambert
Bear
Peters
Evans
Tarwater
Slate
Oil
McCormick
Hoffman
Bloomquist
Harwood
Carriger
Keyston
Shingle Mill
Honsinger
Bradley
Butano
Fall
Iverson
South Fork Butano
Little Butano
Little Boulder
Waterman
Pescadero
N
0
2.5
Miles
NMFS-SWR-HCD
June 2008


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
Lambert
Bear
Peters
Evans
Slate
Oil
Tarwater
Shingle Mill
Keyston
Carriger
Harwood
Hoffman
McCormick
Bloomquist
Honsinger
Bradley
Butano
Fall
Iverson
South Fork Butano
Little Butano
Little Boulder
Waterman
Pescadero
N
0
2.5
Miles
NMFS-SWR-HCD
June 2008

Pescadero Creek Watershed
Coho Current vs. Historical

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



NMFS-SWR-HCD

June 2008

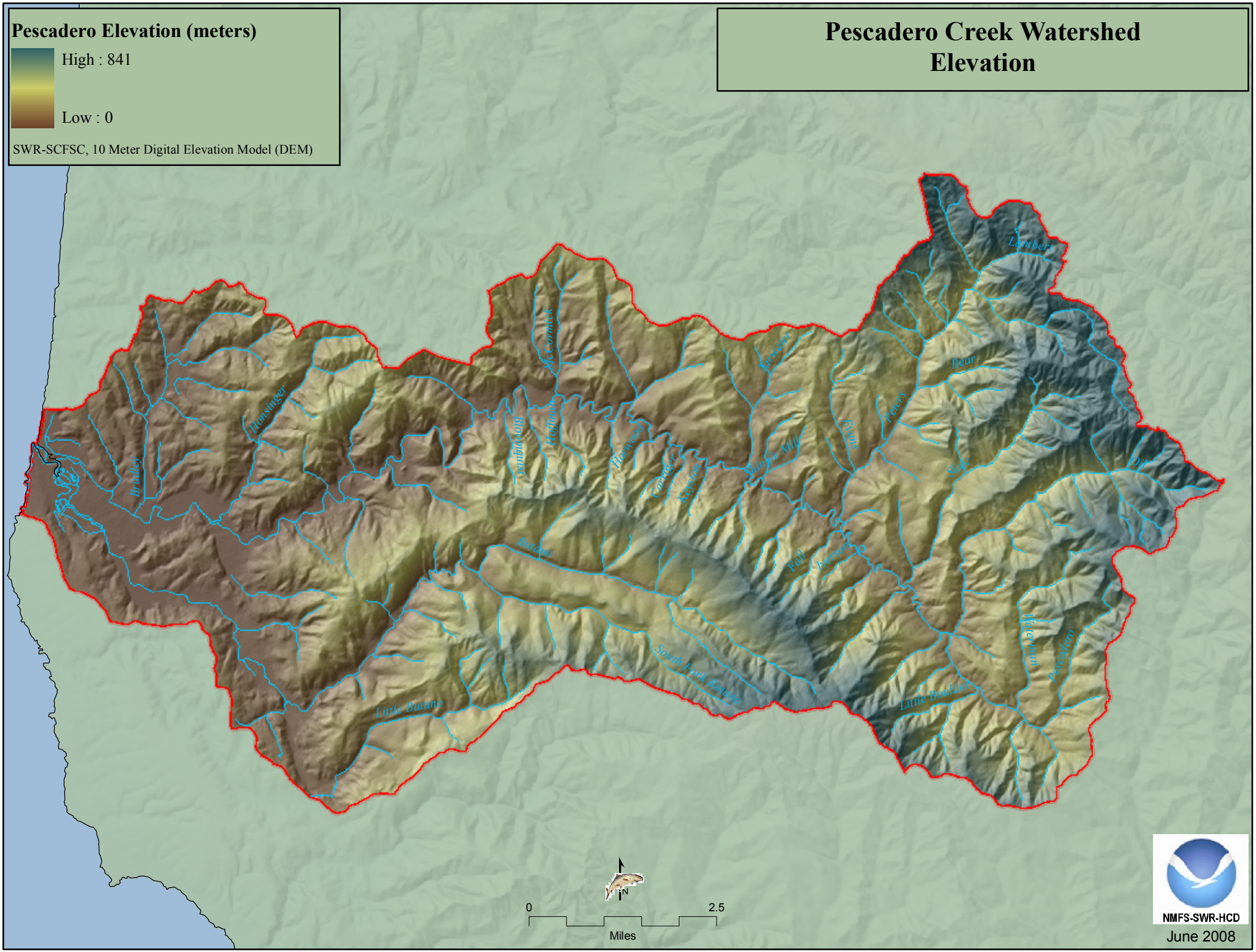
Pescadero Creek Watershed Elevation

Pescadero Elevation (meters)

High : 841

Low : 0

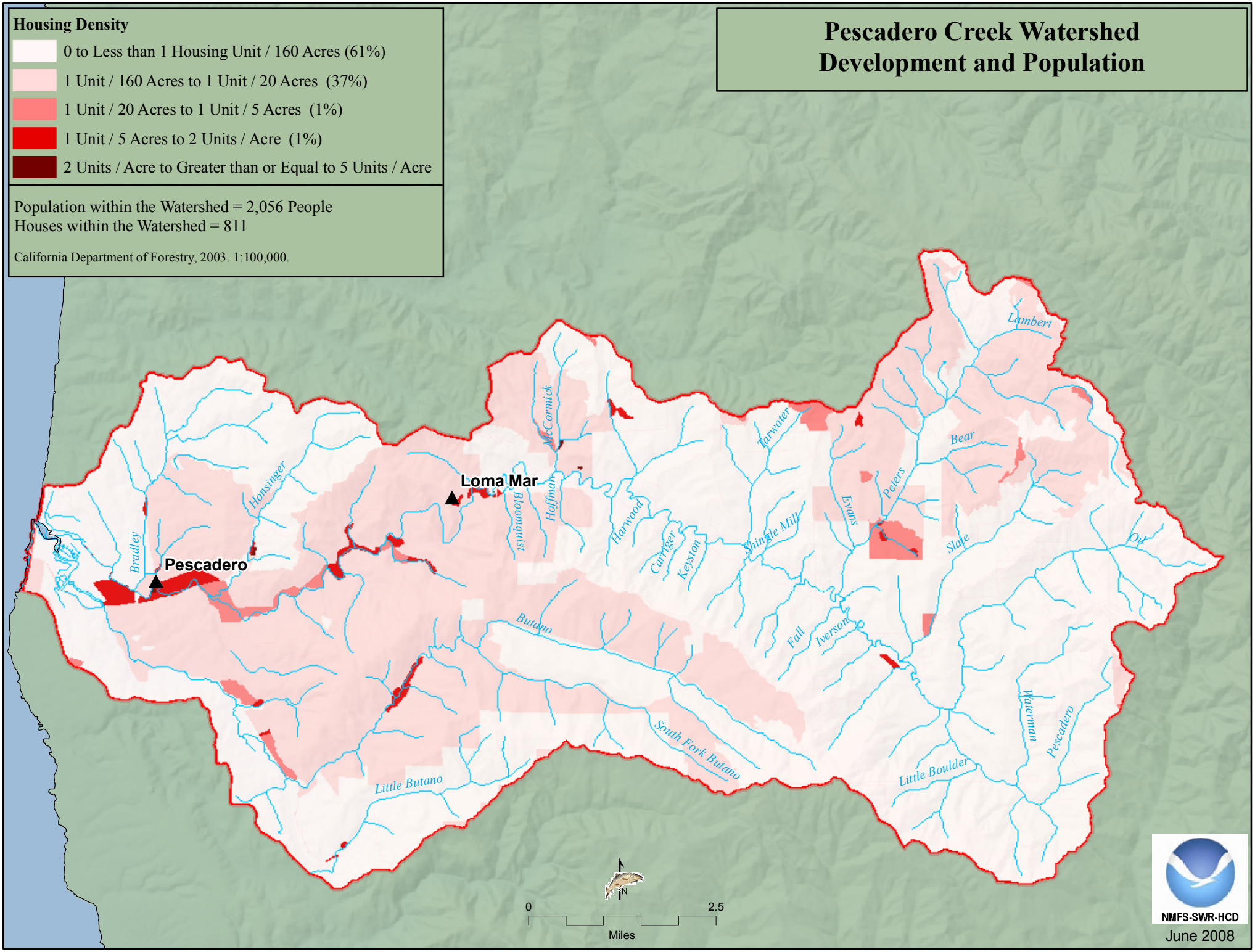
SWR-SCFSC, 10 Meter Digital Elevation Model (DEM)

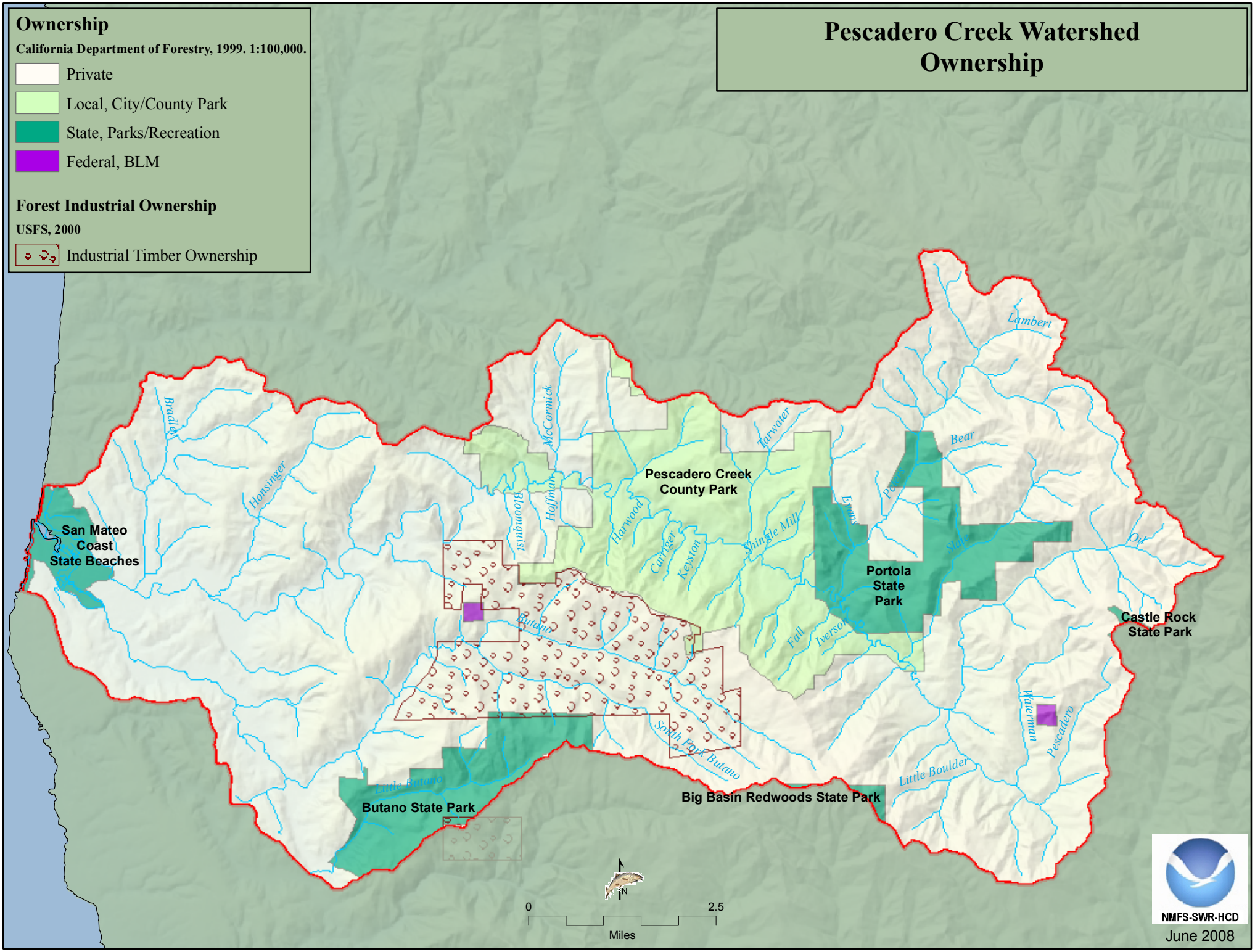


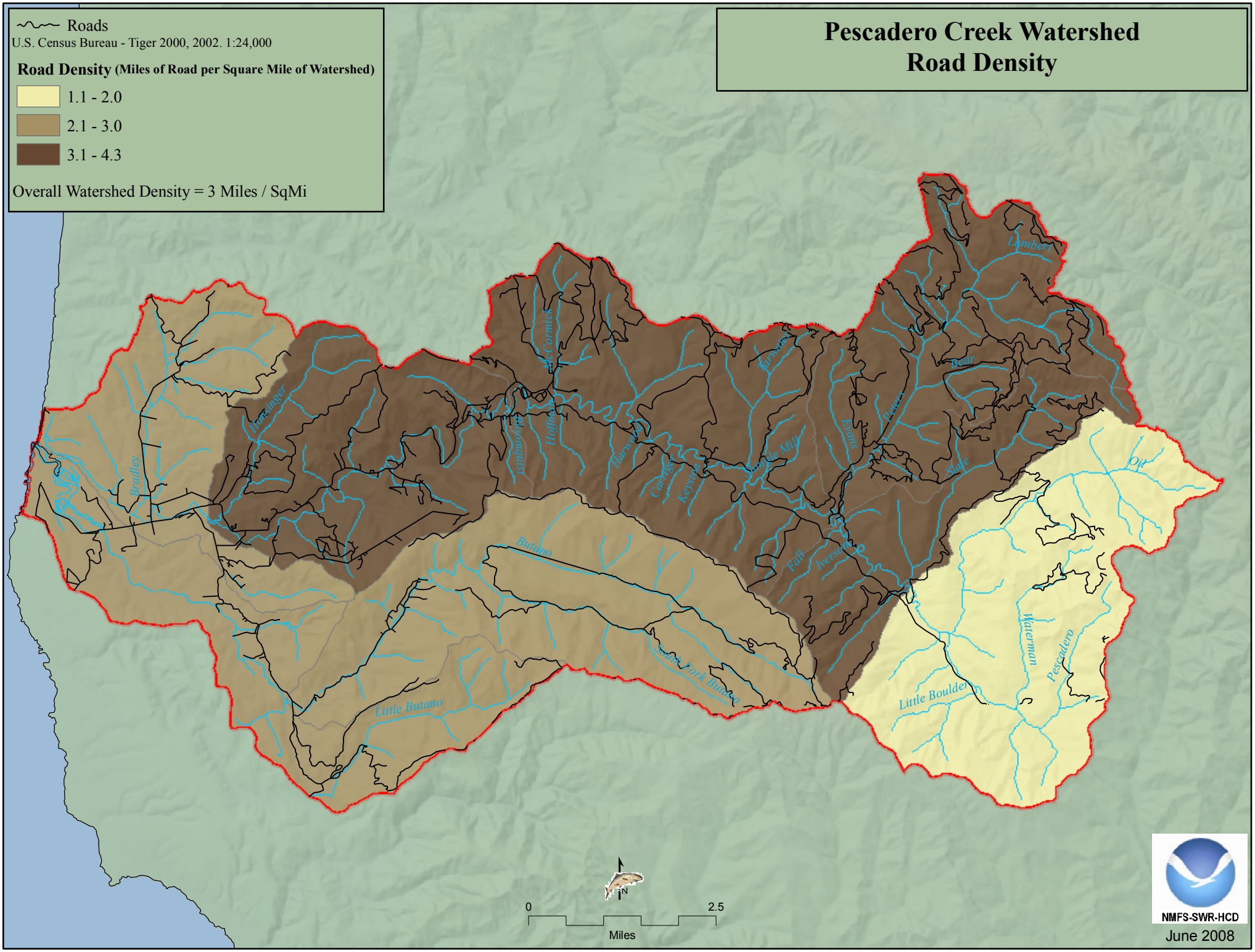
NMFS-SWR-HCD

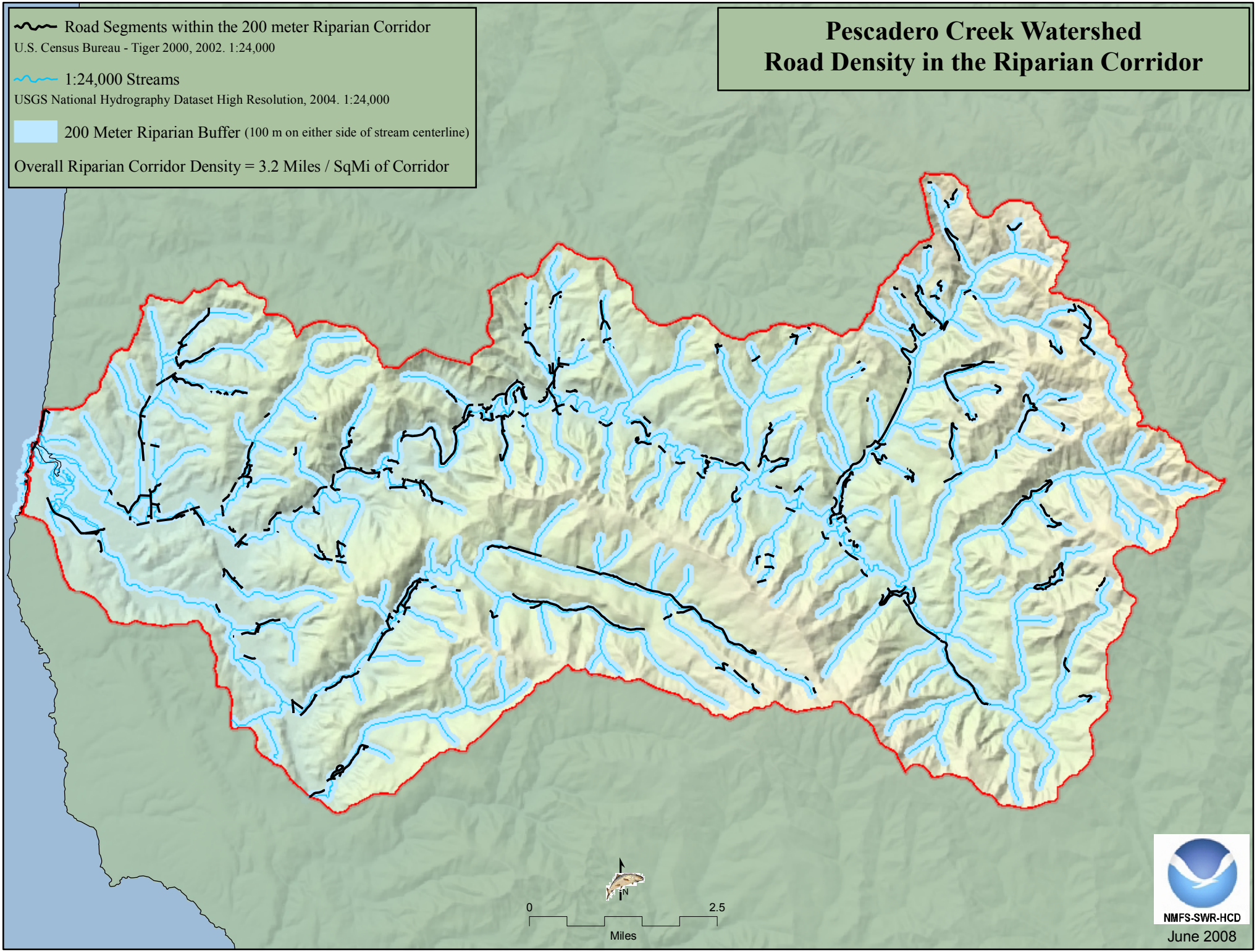
June 2008

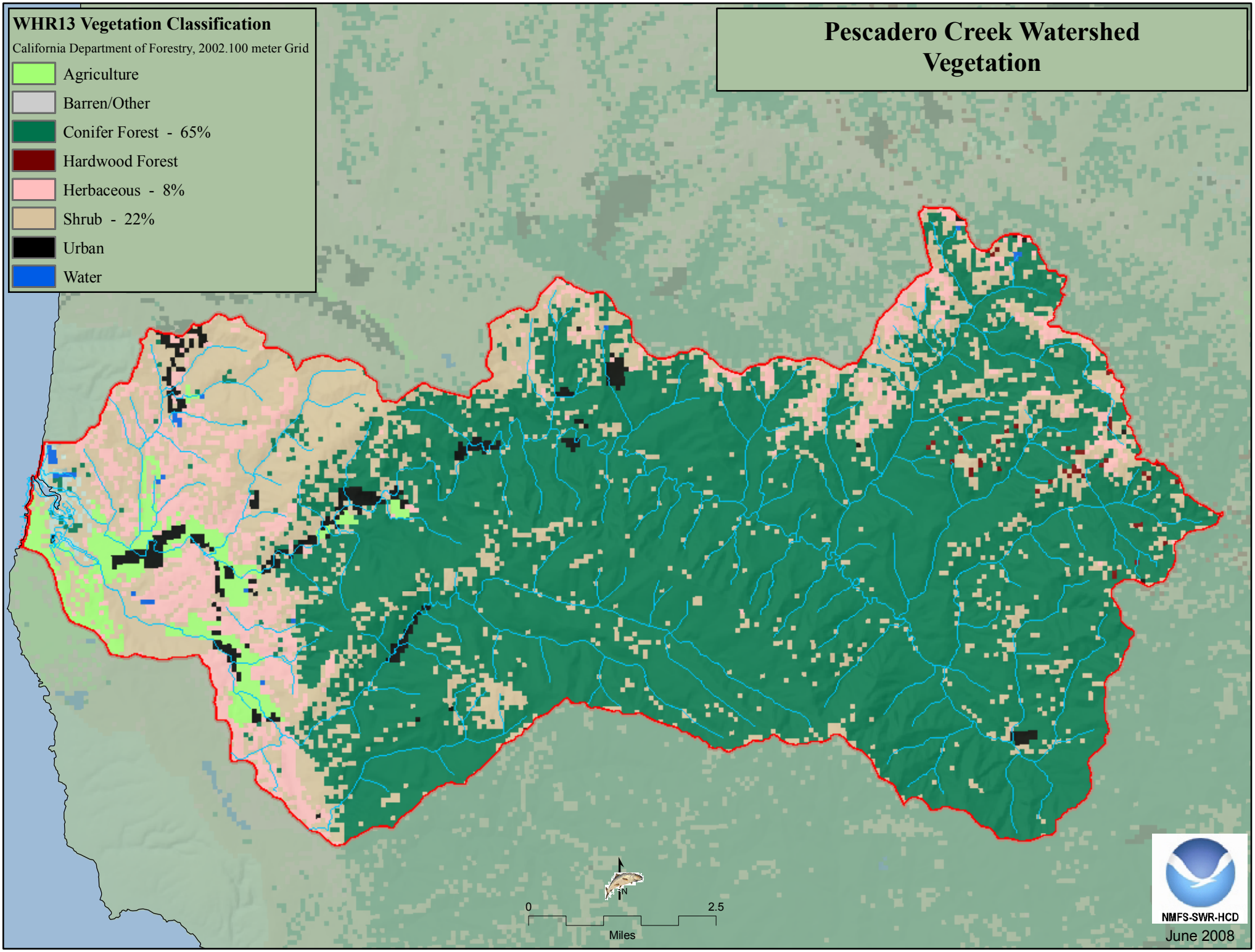
Pescadero Creek Watershed
Development and Population

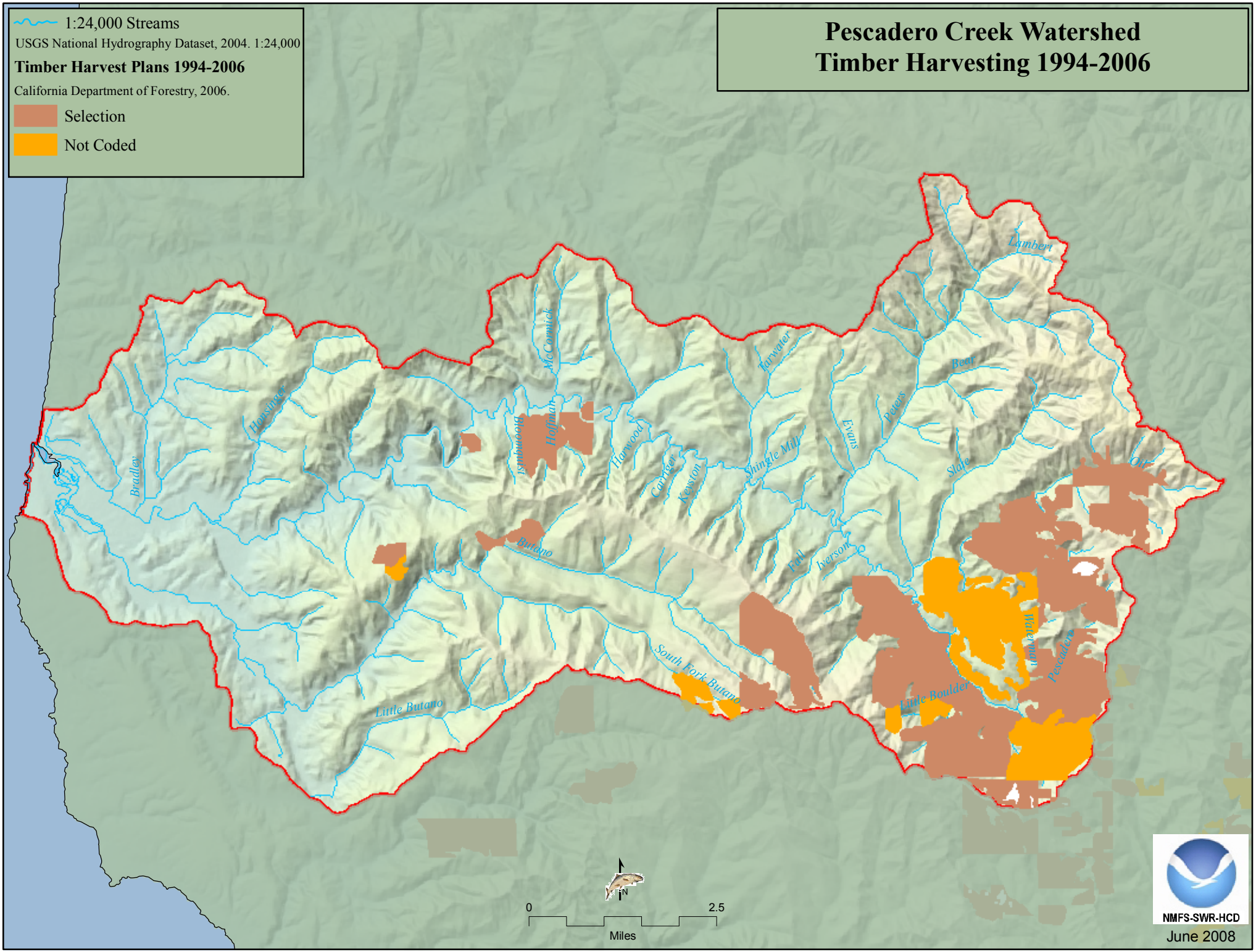



Pescadero Creek Watershed
Ownership
Ownership
California Department of Forestry, 1999. 1:100,000.
Private
Local, City/County Park
State, Parks/Recreation
Federal, BLM
Forest Industrial Ownership
USFS, 2000
Industrial Timber Ownership
San Mateo Coast State Beaches
Pescadero Creek County Park
Portola State Park
Castle Rock State Park
Butano State Park
Big Basin Redwoods State Park
Bradley
Honsinger
McCormick
Bloomquist
Hoffman
Harwood
Carriger
Keyston
Tarwater
Shingle Mill
Evans
Pelletts
Bear
Lambert
Slate
Oil
Fall
Iverson
Butano
South Fork Butano
Little Butano
Little Boulder
Waterman
Pescadero
0
2.5
Miles
N
NMFS-SWR-HCD
June 2008


Pescadero Creek Watershed
Road Density
Roads
U.S. Census Bureau - Tiger 2000, 2002. 1:24,000
Road Density (Miles of Road per Square Mile of Watershed)
1.1 - 2.0
2.1 - 3.0
3.1 - 4.3
Overall Watershed Density = 3 Miles / SqMi
Lambert
Bear
Peter
Evans
Slate
Oil
Waterman
Pescadero
Little Boulder
Fall
Iverson
Butano
South Fork Butano
Little Butano
Bradley
Honsinger
McCormick
Hoffman
Harwood
Carriger
Keystone
Little Mill
Farwell
0
2.5
Miles
N
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
N
0
2.5
Miles
NMFS-SWR-HCD
June 2008


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
N
0
2.5
Miles
NMFS-SWR-HCD
June 2008



Pescadero Creek Watershed
Timber Harvesting 1994-2006
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
Lambert
Bear
Peters
Evans
Tarwater
Shingle Mill
Slate
Oil
Iverson
Fall
Keyston
Carriger
Harwood
Hoffman
McCormick
Bloomquist
Honsinger
Bradley
Butano
South Fork Butano
Little Butano
Little Boulder
Waterman
Pescadero
0
2.5
Miles
N
NMFS-SWR-HCD
June 2008

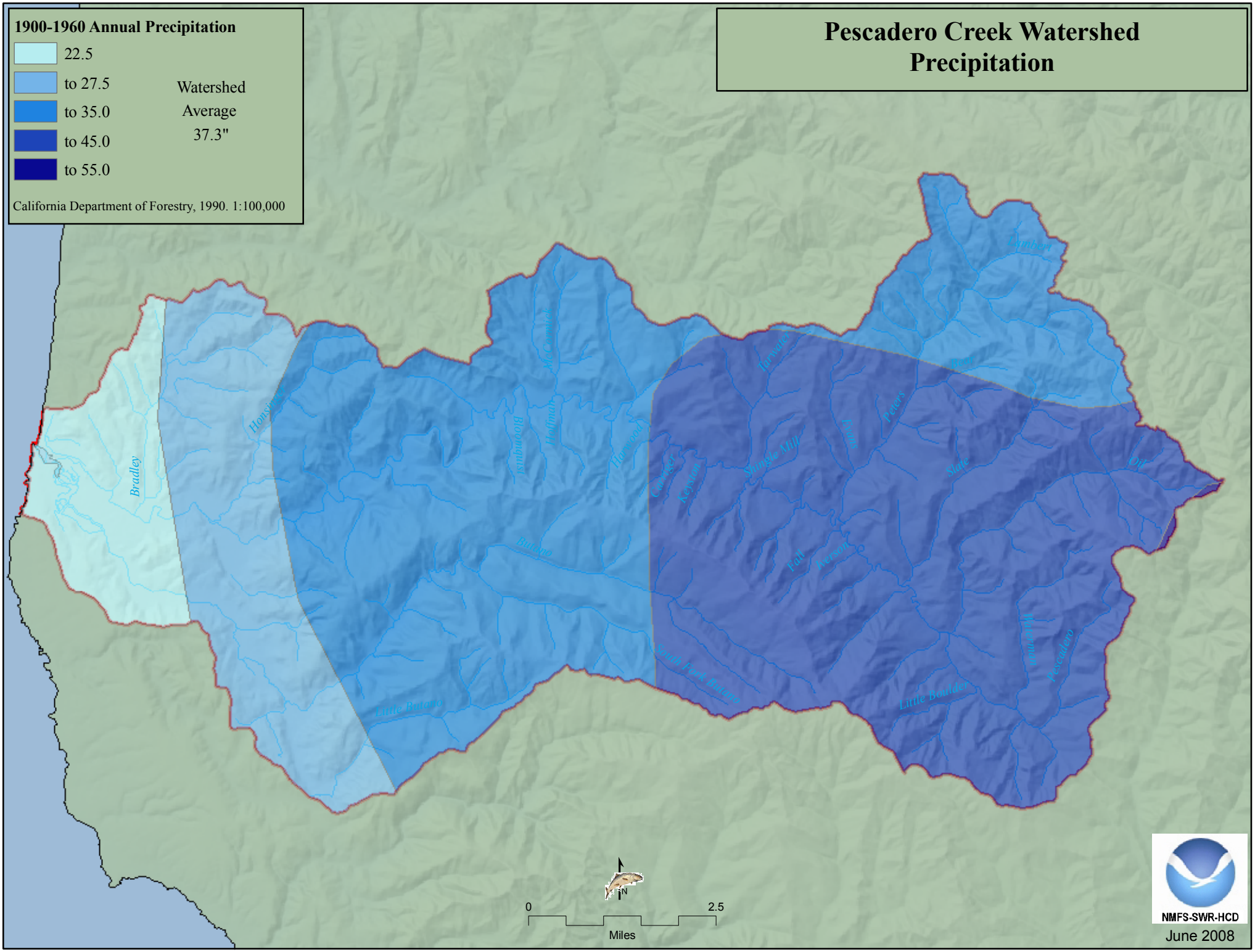
Pescadero Creek Watershed Precipitation

1900-1960 Annual Precipitation

- 22.5
- to 27.5
- to 35.0
- to 45.0
- to 55.0

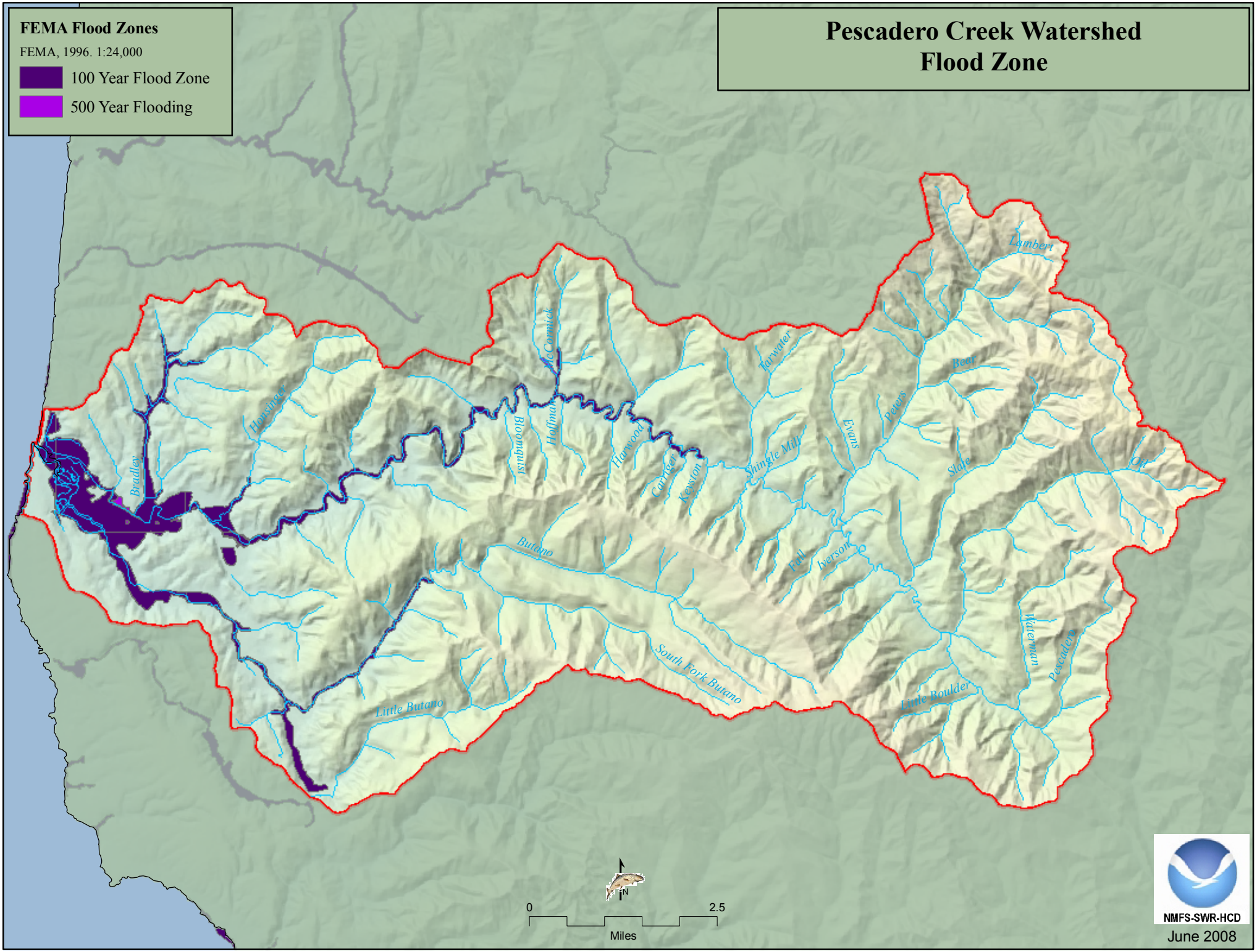
Watershed Average 37.3"

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

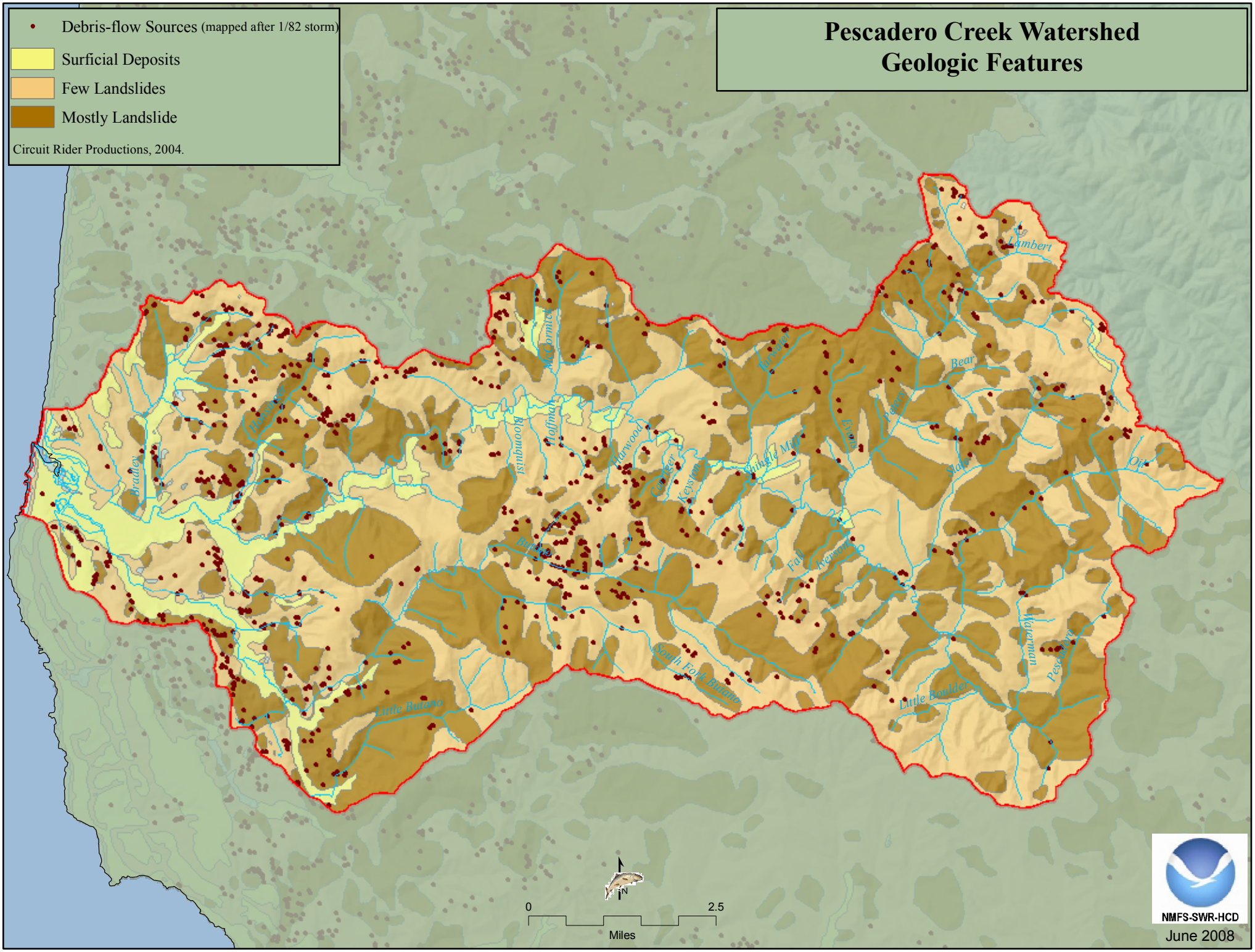


NMFS-SWR-HCD

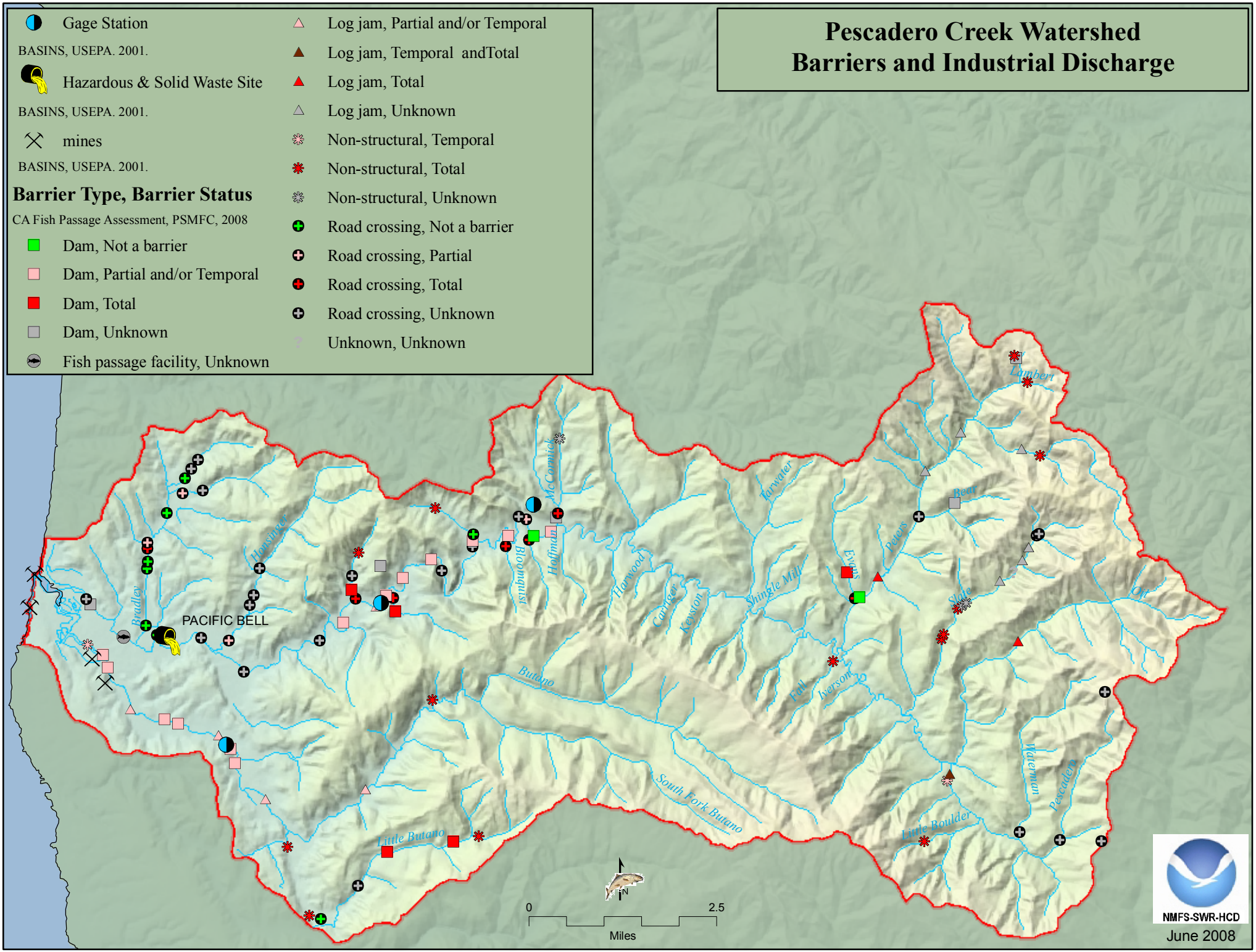
June 2008

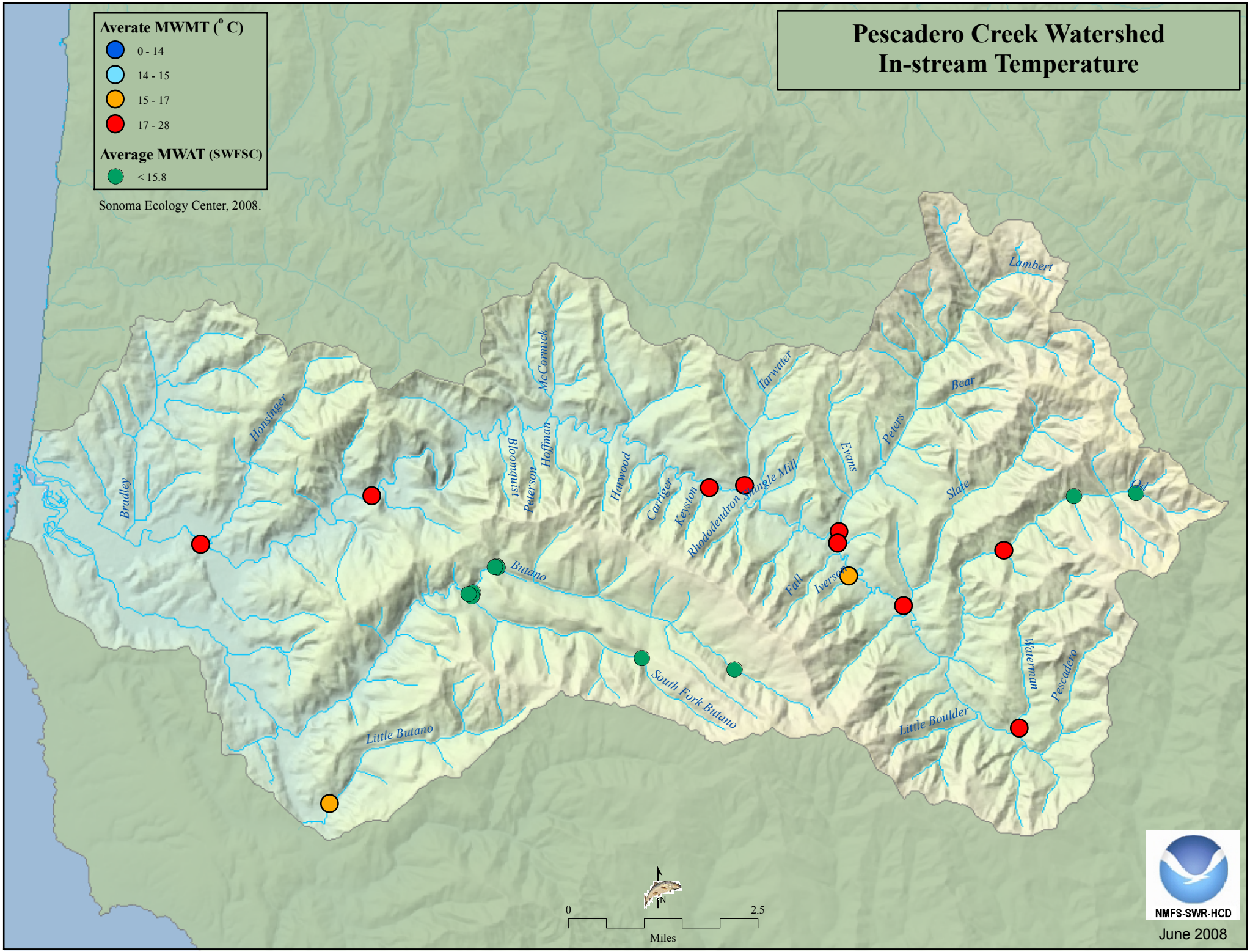


FEMA Flood Zones
FEMA, 1996. 1:24,000
100 Year Flood Zone
500 Year Flooding
Pescadero Creek Watershed
Flood Zone
Lambert
Bear
Tarwater
Peters
Evans
Shingle Mill
Slate
Oil
McCormick
Hoffman
Bloomquist
Harwood
Carriger
Keyston
Honsinger
Bradley
Butano
Fall
Iverson
South Fork Butano
Little Butano
Little Boulder
Waterman
Pescadero
0
2.5
Miles
N
NMFS-SWR-HCD
June 2008

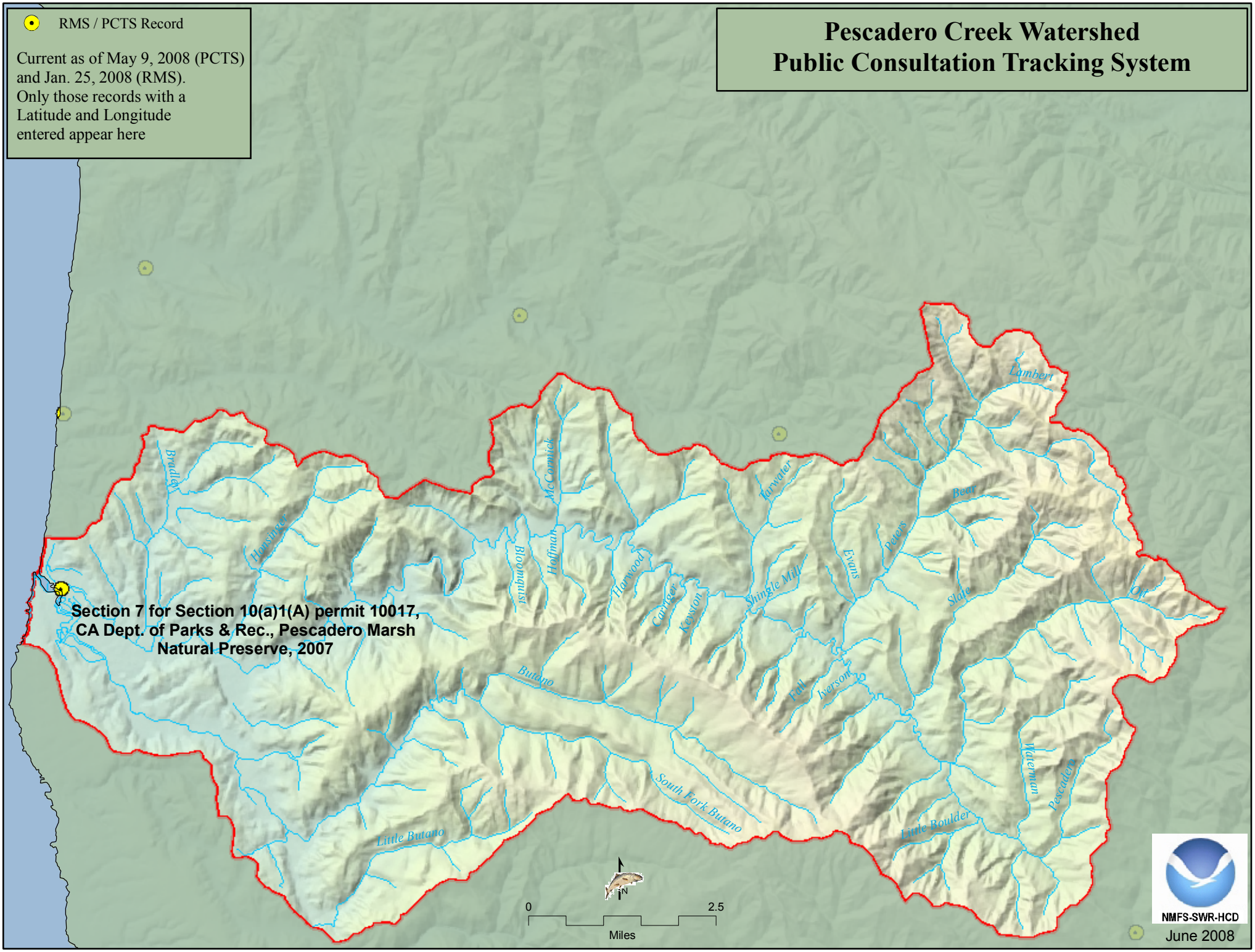

Pescadero Creek Watershed
Geologic Features
Debris-flow Sources (mapped after 1/82 storm)
Surficial Deposits
Few Landslides
Mostly Landslide
Circuit Rider Productions, 2004.
Lambert
Bear
Oil
Bradley
Bloomquist
Hoffman
McCormick
Harwood
Keystone
Shingle Mill
Fall
Iverson
Waterman
Pescadero
Little Boulder
South Fork Butano
Little Butano
0
2.5
Miles
N
NMFS-SWR-HCD
June 2008

Pescadero Creek Watershed
Barriers and Industrial Discharge





Pescadero Creek Watershed
In-stream Temperature
Averate MWMT (° C)
0 - 14
14 - 15
15 - 17
17 - 28
Average MWAT (SWFSC)
< 15.8
Sonoma Ecology Center, 2008.
Lambert
Bear
Peters
Evans
Tarwater
Slate
Oil
McCormick
Hoffman
Bloomquist
Peterson
Harwood
Carriger
Keyston
Rhododendron
Shingle Mill
Fall
Iverson
Honsinger
Bradley
Butano
South Fork Butano
Little Butano
Little Boulder
Waterman
Pescadero
0
2.5
Miles
N
NMFS-SWR-HCD
June 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
Section 7 for Section 10(a)1(A) permit 10017, CA Dept. of Parks & Rec., Pescadero Marsh Natural Preserve, 2007
Bradley
Hensinger
Bloomquist
McCormick
Hoffman
Harwood
Carriger
Kepson
Shingle Mill
Fairwater
Evans
Peters
Bear
Lambert
Slate
Ort
Butano
Fall
Iverson
South Fork Butano
Little Butano
Little Boulder
Waterman
Pescadero
N
0
2.5
Miles
NMFS-SWR-HCD
June 2008

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 Protection1990
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

Erodabilty
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
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