



Big Salmon Creek Watershed

Area	Hydrologic Units	Calwater Subbasins ---	(Planning Watersheds)
8,499 Acres 3,439 Hectares 13 Square Miles	18010108 4th Field HUC	1113400005	Big Salmon Creek (8499 Acres)
<hr/>			
Location	1113 4th Field Calwater		
Mendocino County			

Species Potential	Miles of Streams with Species Present
Northern California Steelhead North-Central Coastal Diversity Stratum - Potentially Independent Population	<u>Steelhead</u> 12 NOAA Fisheries, Critical Habitat Redesignation, 2005
Central California Coast Coho Lost Coast-Navarro Point Diversity Stratum - Dependent Population	<u>Coho</u> 9 CDFG, Coho Distribution, May 2007
California Coastal Chinook Central Coastal Diversity Stratum - Dependent Independent Population	<u>Chinook</u> 0 NOAA Fisheries, Critical Habitat Redesignation, 2005

Critical Habitat	Miles of Stream
Northern California Steelhead	12 Miles of Stream
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)
California Coastal Chinook	0 Miles of Stream

Miles of Waterway ^A	Miles	Number of Dams ^C
Naturally Occurring Waterways		0
Intermittent Stream	13	
Perennial Stream	15	

^CPassage Assessment Database, Pacific States Marine Fisheries Commission, 2005

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

USGS Gaging Stations ^B	Number of Barriers ^C
	8
	0 Dams
	7 Diversions (Unknown Barrier Status)
	1 Natural Barrier (Chutes, Falls, Log Jams, etc.)
	^C Passage Assessment Database, Pacific States Marine Fisheries Commission, 2006

Average Annual Precipitation ^E	Average Annual Precipitation Range ^E
44.8"	40 - 55"

^ECalifornia Mean Annual Precipitation Zones, 1900-1960, CA Department of Forestry, 1990



Roads^A	(US Census Bureau (TIGER))	Miles
Roads in Watershed		
Primary Road / Highway		0
Secondary and connecting road, state highways		0
Local, neighborhood, and rural road, city street, unseparated		31
Vehicular trail, 4WD		4
Driveway or service road		2
Total Miles		

Road Density	(US Census Bureau (TIGER))	
Miles of Roads per SqMi of Watershed		2.9
Miles of Roads per SqMi of 100m Riparian Buffer*		2.2

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

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

Roads^{A1}	(Timber Harvest Plans)	Miles
Roads in Watershed		
Abandoned Seasonal		2
Bridge		
Existing Permanent (rocked)		11
Existing Seasonal		77
Existing Temporary & 4WD		
Proposed Permanent (rocked)		
Proposed Seasonal		2
Proposed Temporary & 4WD		0
Reconstructed Seasonal		
Secondary Road (2-3 lanes)		5

Road Density	(Timber Harvest Plans)	
Miles of Roads per SqMi of Watershed		7.3
Miles of Roads per SqMi of 100m Riparian Buffer*		6.1

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

^{A1}California Department of Forestry, Timber Harvest Plans for Albion Watershed, 2006

Slope^D	Acres	Percent of watershed
Lands of 0-2 percent slope	515	6%
Lands of 2-4 percent slope	778	9%
Lands of 4-10 percent slope	1,095	13%
Lands of 10-15 percent slope	603	7%
Lands of 15-30 percent slope	1,603	19%
Lands of 30-60 percent slope	3,061	36%
Lands of 60-100 percent slope	831	10%
Lands of > 100 percent slope	11	0%

Elevation Range	3 - 1214 ft.	1 - 370 m
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^DSlope derived from USGS 10 meter Digital Elevation Models (DEM's)



Vegetation^G	Acres	Percent of watershed
Annual grassland	576	7%
Barren	5	0%
Conifer Forest		
Closed Cone-Pine-Cypress	544	6%
Montane Hardwood-Conifer	25	0%
Redwood	6,034	71%
Hardwood Forest		
Montane Hardwood	334	4%
Montane Riparian	161	2%
Shrub	803	9%

^GMulti-source Land Cover Data (2002 v2), CA Department of Forestry, 2002. 100 meter Grid

Erodability of Watershed^F	Acres	Percent of watershed
All of watershed is ranked as 5	8,499	100%

^FDepartment of Conservation, Division of Mines and Geology; minimum mapping unit: approx. 8000 acres
Watersheds were rated based on slope, precipitation, and lithologic susceptibility to failure. Total erosion potential is based on a combination of the landslide potential, debris slide potential, and the surface erosion potential. Rating 0-10 [0 = Low slide potential, 10 = High slide potential]

Land Ownership^H	Acres	Percent of watershed
Private	8,594	100%

^HManagement Landscape, CA Department of Forestry, 2002

Area Under a Timber Harvest Plan^A past 10 years	Area Under a Timber Harvest Plan^A past 20 years
1,701 20% of watershed	4,094 49% of watershed

^ACalifornia Department of Forestry, Timber Harvest Plans for Albion Watershed, 2006

Population^I	Housing^I
Total Population within the watershed -- 473 People	Total Housing Units within the watershed -- 271 Houses
	Housing Density
	0 to Less than 1 Housing Unit / 160 Acres 32%
	1 Unit / 160 Acres to 1 Unit / 20 Acres 35%
	1 Unit / 20 Acres to 1 Unit / 5 Acres 32%
	1 Unit / 5 Acres to 2 Units / Acre 1%
	2 Units / Acres to Greater than or Equal to 5 Units / Acre

^ICensus 2000 Block Data (Migrated), CA Department of Forestry, 2003



Big Salmon Creek Watershed



Fort Bragg

Caspar

Mendocino

Little River

Albion

Eik

Manchester

Comptche

Philo

Boonville

Willits

Redwood Valley

Calpella

Ukiah

Potter Valley

Hopland

Ft. Bragg-Sherwood Rd

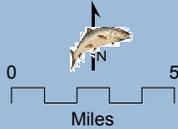
Mt View Rd

20

101

128

1

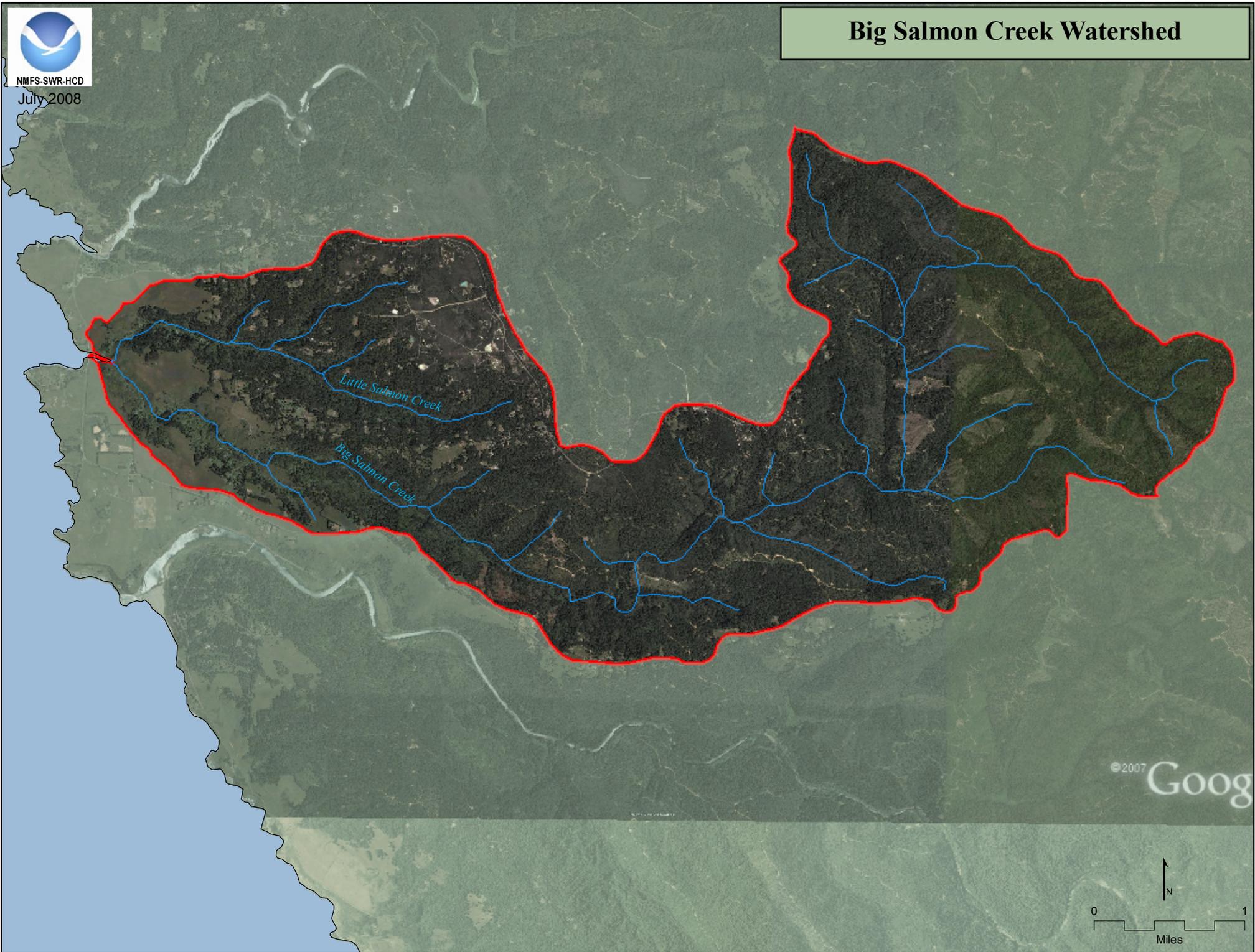


NMFS-SWR-HCD
July 2008

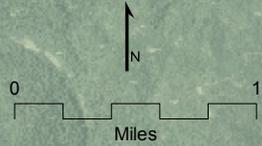


NMFS-SWR-HCD
July 2008

Big Salmon Creek Watershed



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NMFS-SWR-HCD
July 2008

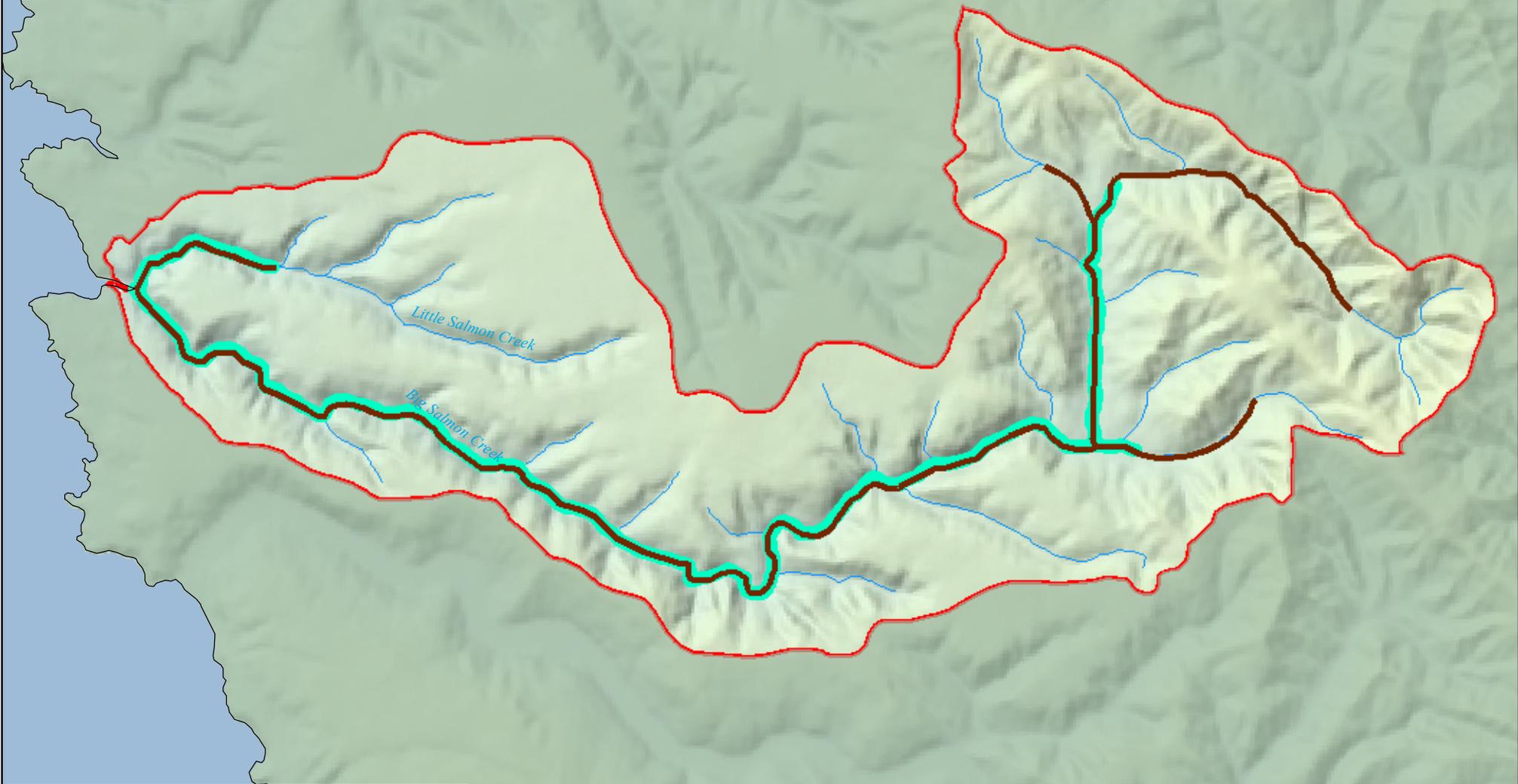
Big Salmon Creek Watershed CalWater Planning Watersheds





NMFS-SWR-HCD
July 2008

Big Salmon Creek Watershed Fish Distribution and Critical Habitat

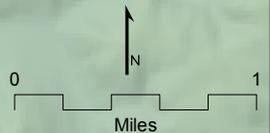


 NC Steelhead Distribution and Critical Habitat
National Marine Fisheries Service, August 2005. 1:100,000.

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

 1:24,000 Streams
USGS National Hydrography Dataset, 2004. 1:24,000

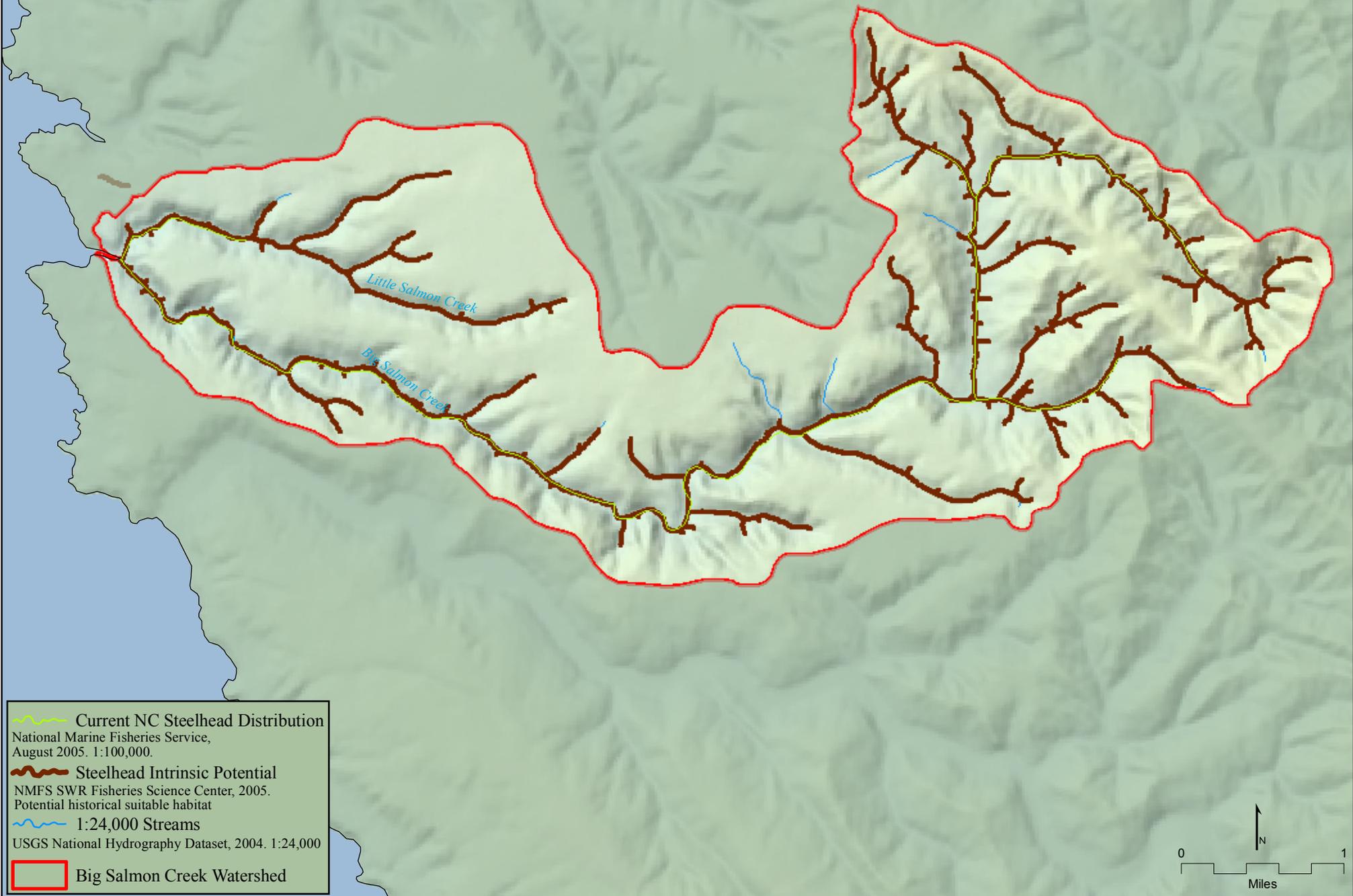
 Big Salmon Creek Watershed





NMFS-SWR-HCD
July 2008

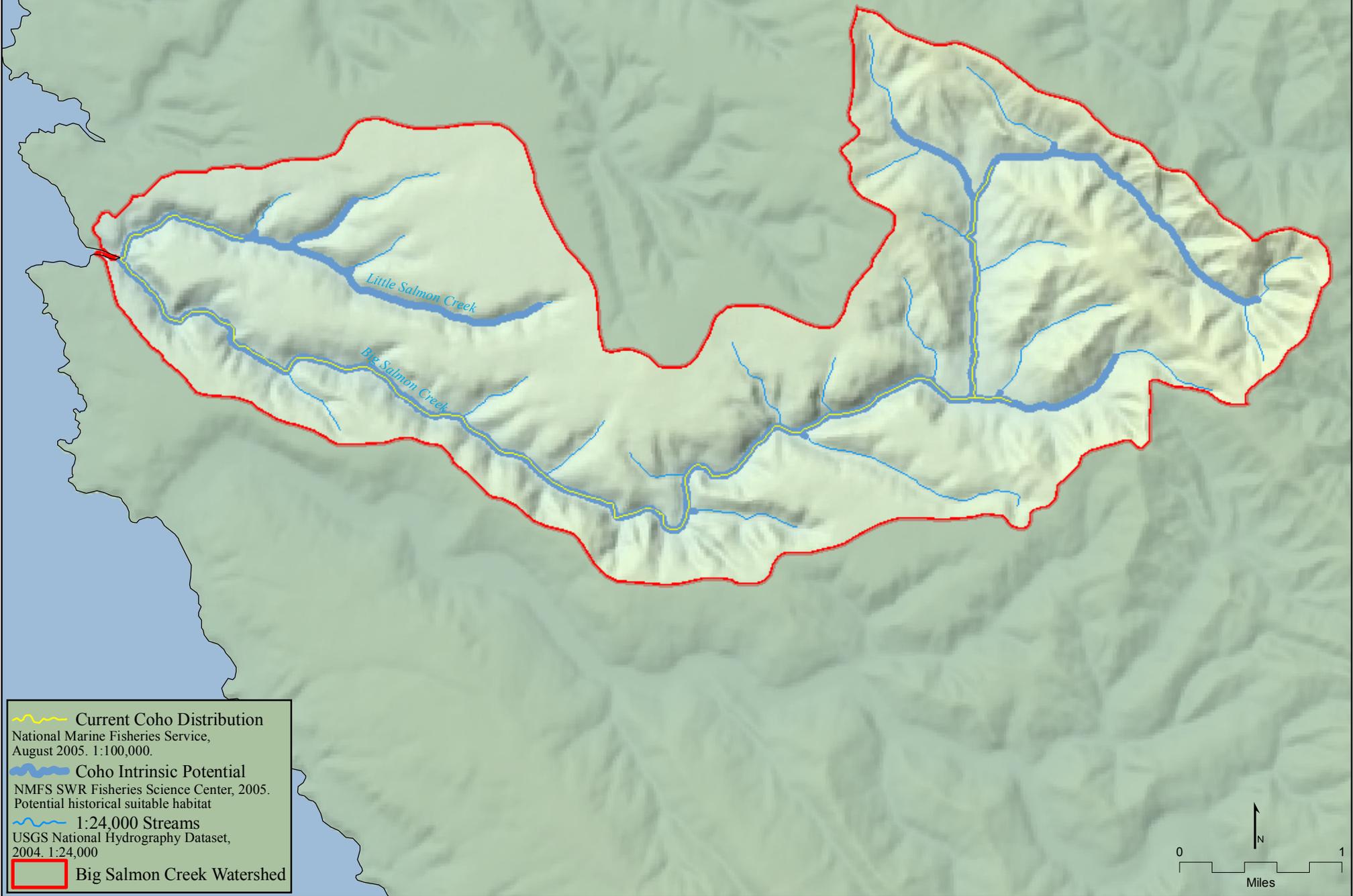
Big Salmon Creek Watershed Steelhead Current vs. Historical





NMFS-SWR-HCD
July 2008

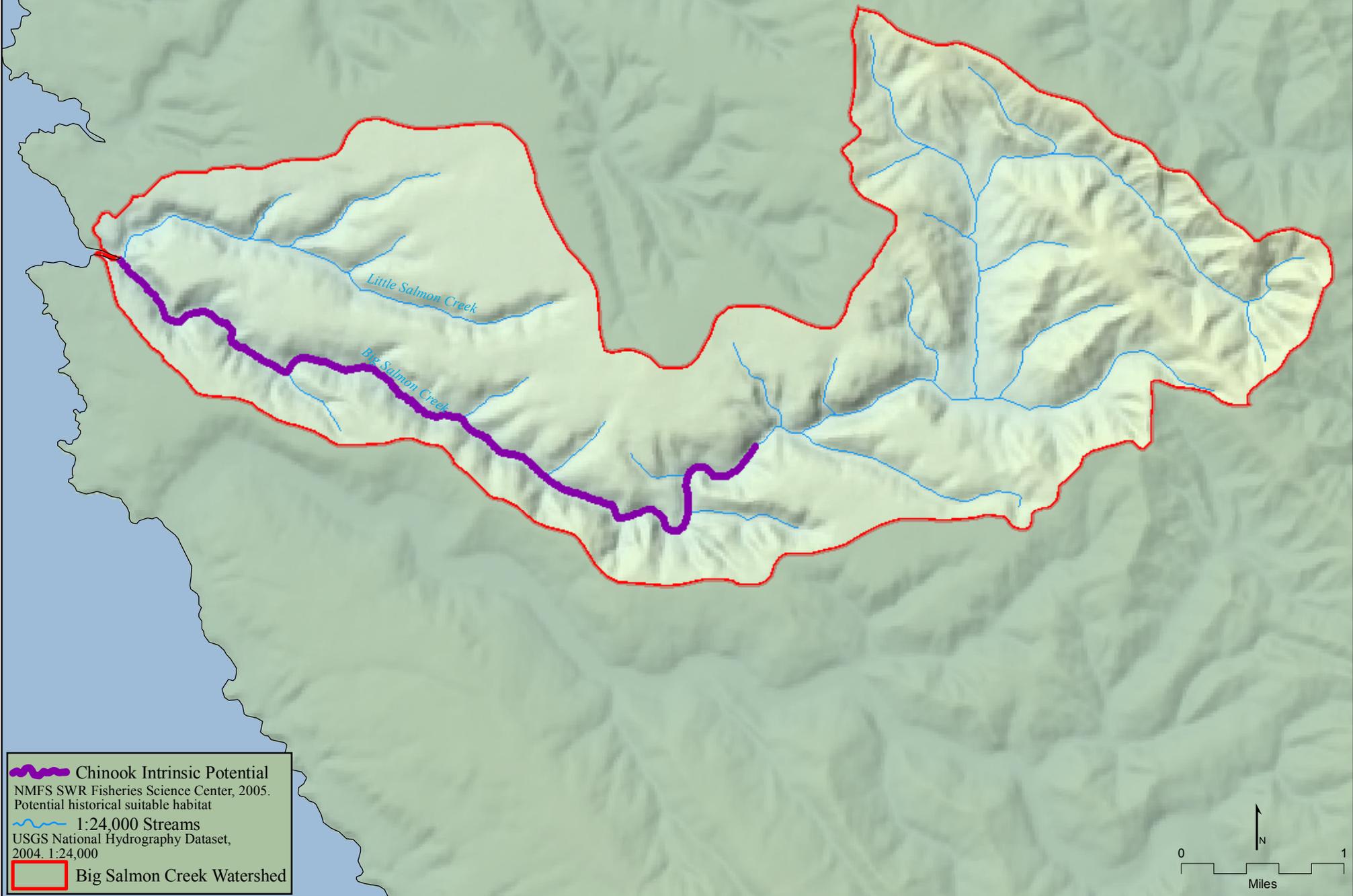
Big Salmon Creek Watershed Coho Current vs. Historical





NMFS-SWR-HCD
July 2008

Big Salmon Creek Watershed Chinook Current vs. Historical



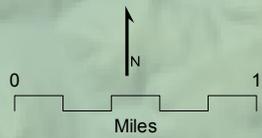
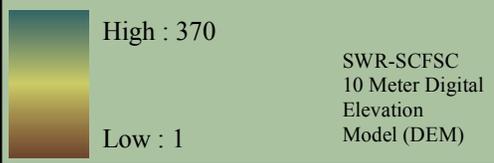


NMFS-SWR-HCD
July 2008

Big Salmon Creek Watershed Elevation



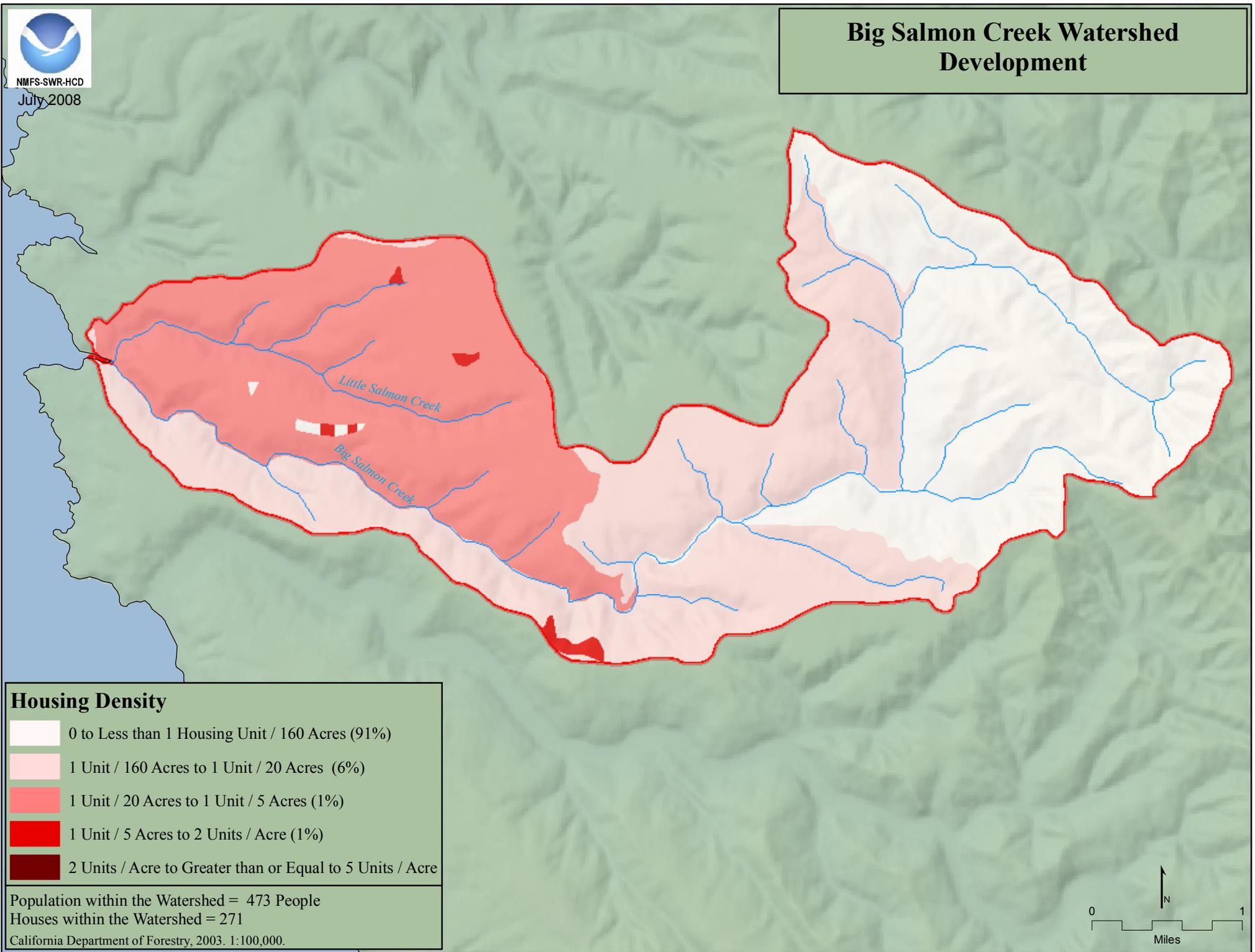
Big Salmon Creek Elevation (Meters)





NMFS-SWR-HCD
July 2008

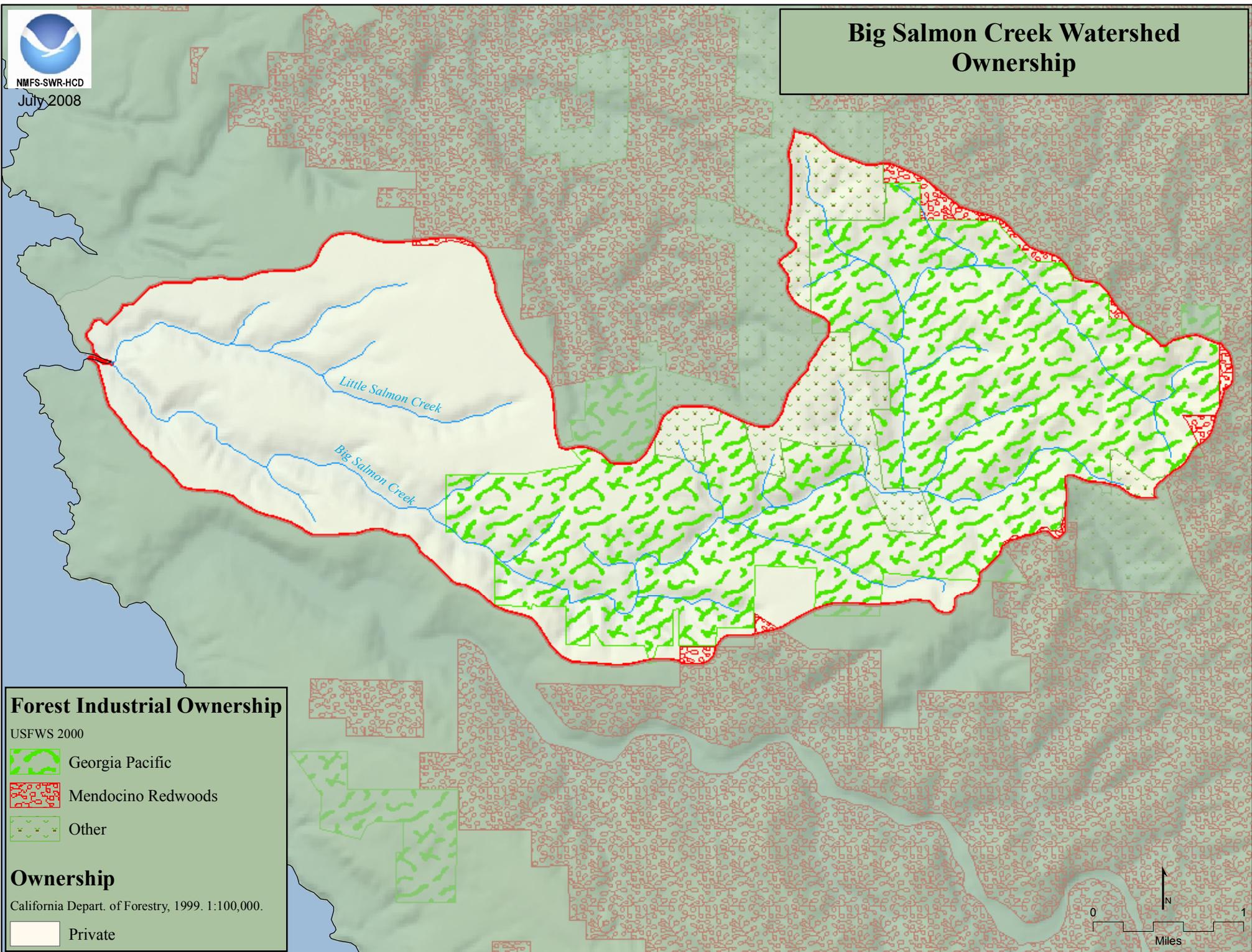
Big Salmon Creek Watershed Development





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July 2008

Big Salmon Creek Watershed Ownership



Forest Industrial Ownership

USFWS 2000

 Georgia Pacific

 Mendocino Redwoods

 Other

Ownership

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

 Private



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July 2008

Big Salmon Creek Watershed Road Density

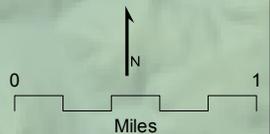


 Road

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

Road Density (Miles of Road per Square Mile of Watershed)

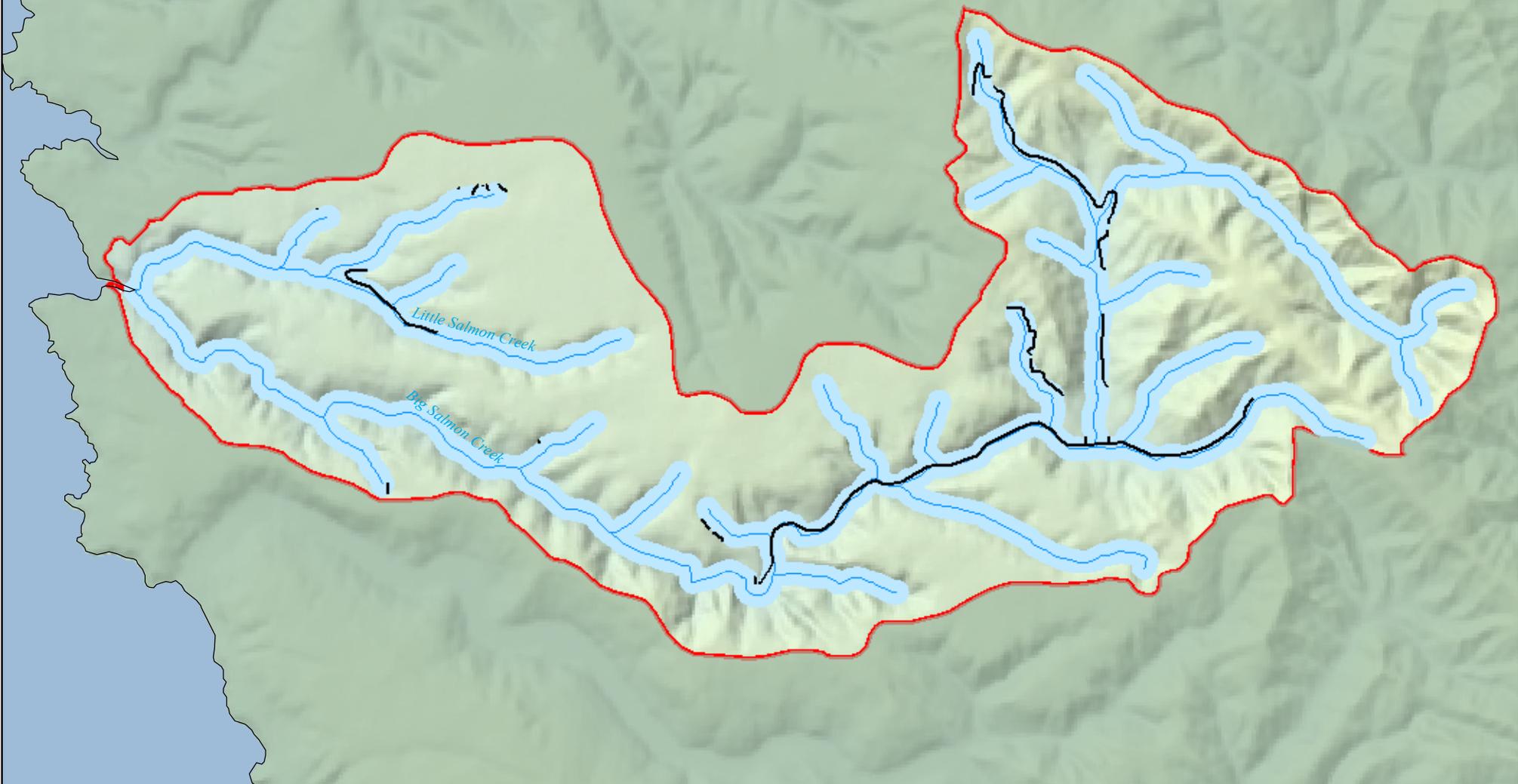
 Watershed Density 2.9 Miles / Square Mile





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Big Salmon Creek Watershed Road Density in the Riparian Corridor

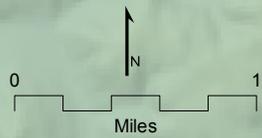


 Road Segments within the 200 meter Riparian Corridor
U.S. Census Bureau - Tiger 2000, 2002. 1:24,000

 1:24,000 Streams
USGS National Hydrography Dataset, 2004. 1:24,000

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

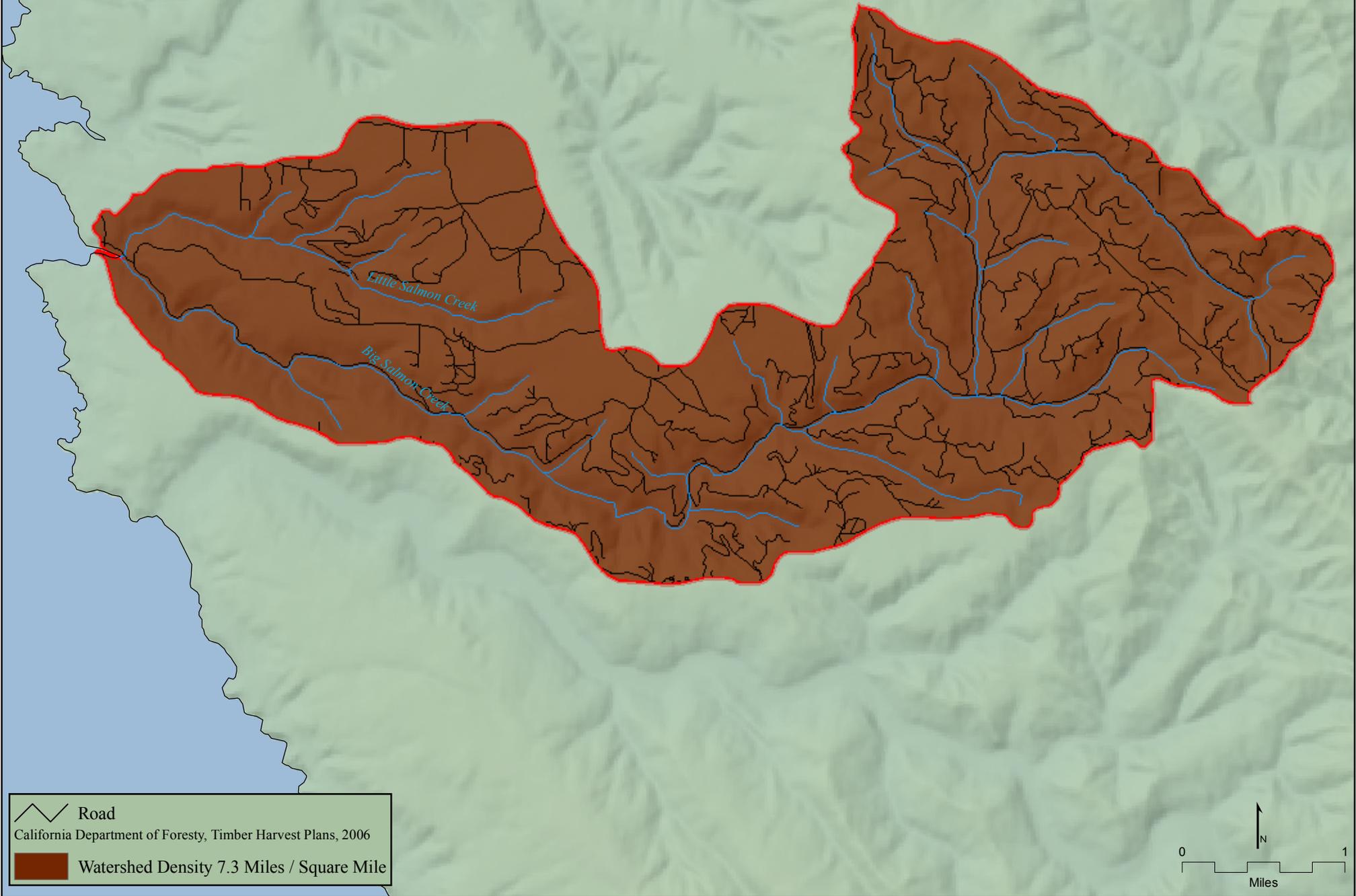
Overall Riparian Corridor Density = 2.2 Miles / SqMi of Corridor





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July 2008

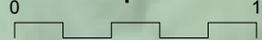
Big Salmon Creek Watershed Road Density per Timber Harvest Plan Roads



 Road
California Department of Forestry, Timber Harvest Plans, 2006

 Watershed Density 7.3 Miles / Square Mile

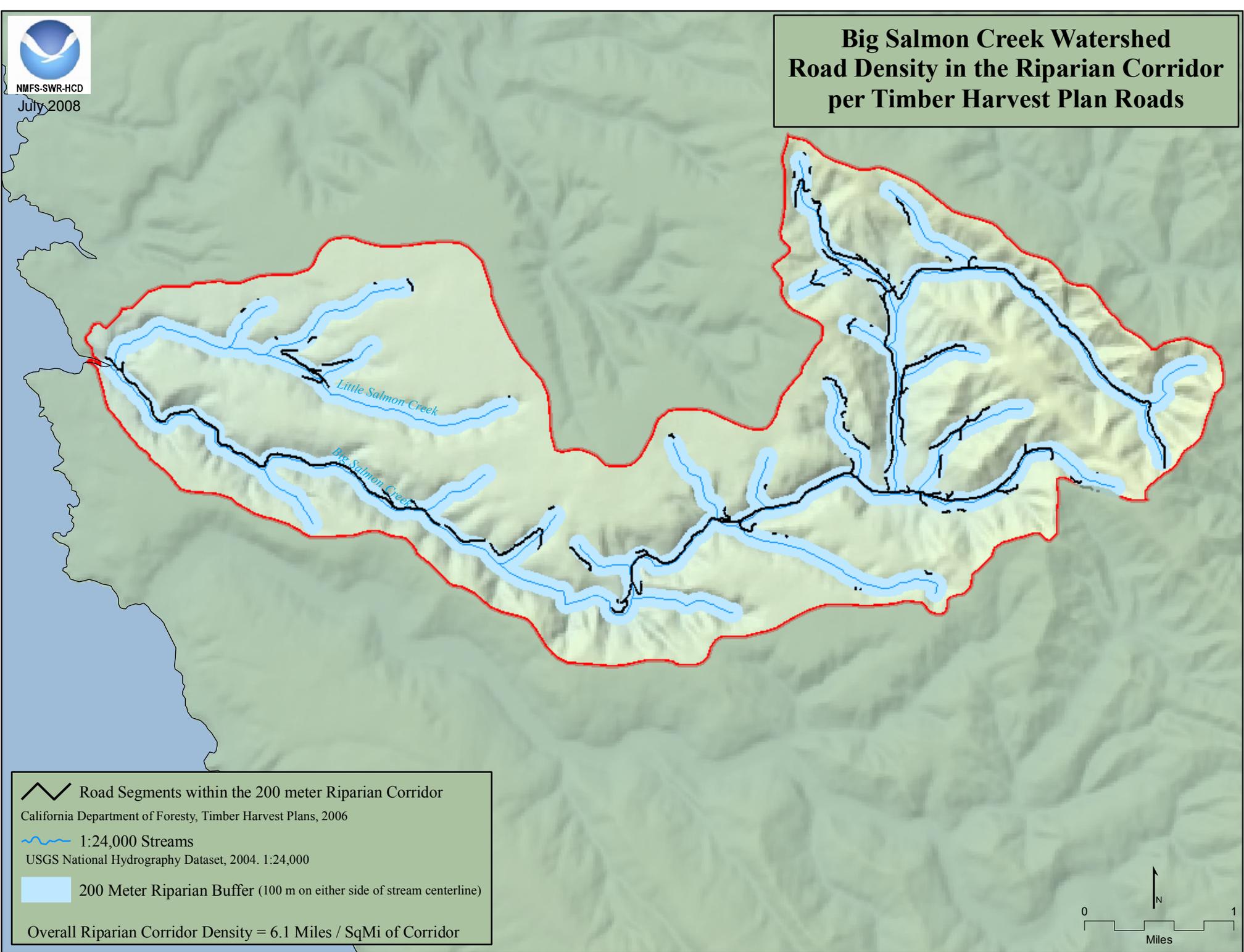
 N

 0 1
Miles



NMFS-SWR-HCD
July 2008

Big Salmon Creek Watershed Road Density in the Riparian Corridor per Timber Harvest Plan Roads



 Road Segments within the 200 meter Riparian Corridor

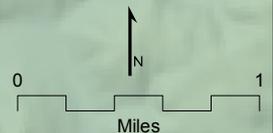
California Department of Forestry, Timber Harvest Plans, 2006

 1:24,000 Streams

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

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

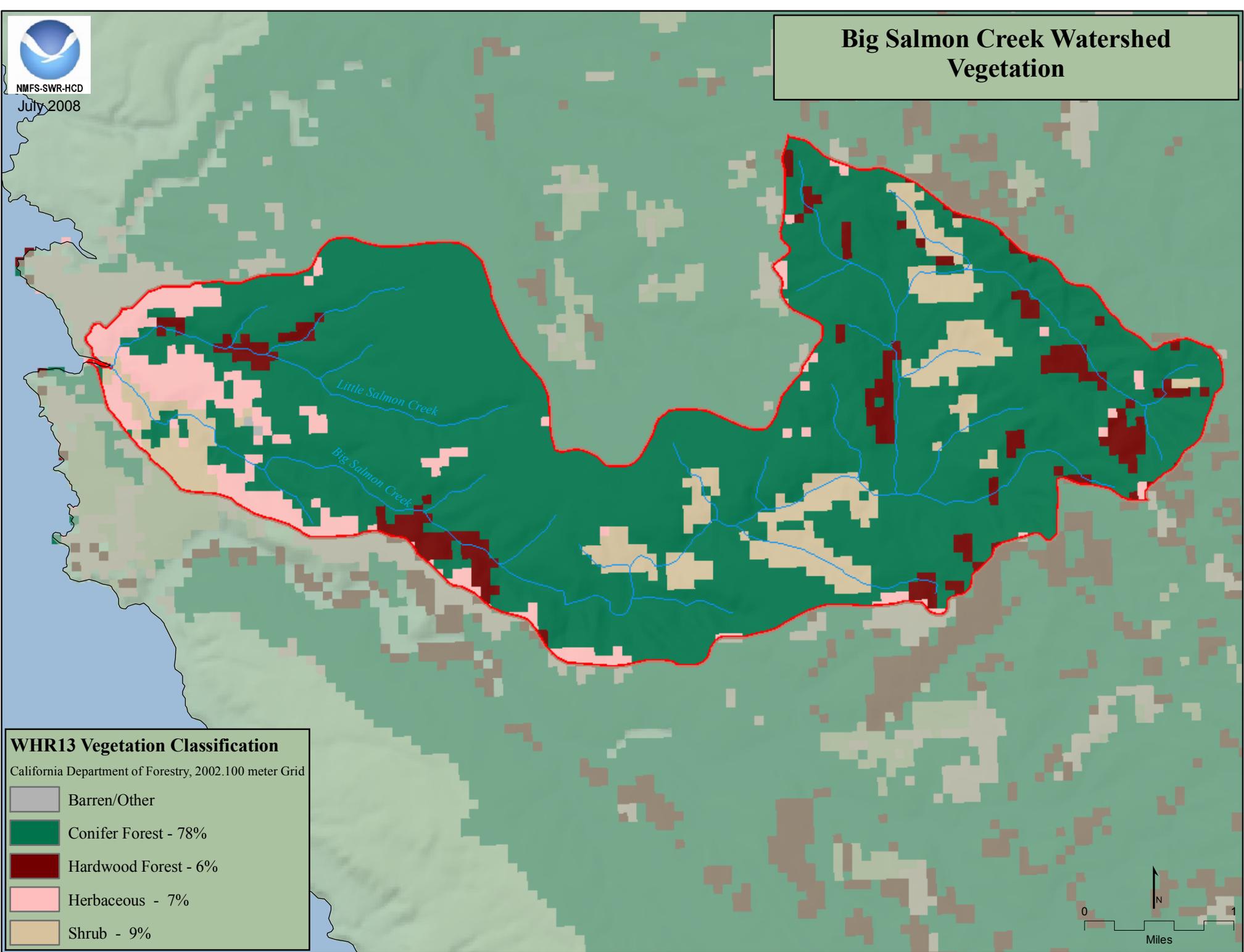
Overall Riparian Corridor Density = 6.1 Miles / SqMi of Corridor





NMFS-SWR-HCD
July 2008

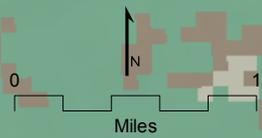
Big Salmon Creek Watershed Vegetation



WHR13 Vegetation Classification

California Department of Forestry, 2002.100 meter Grid

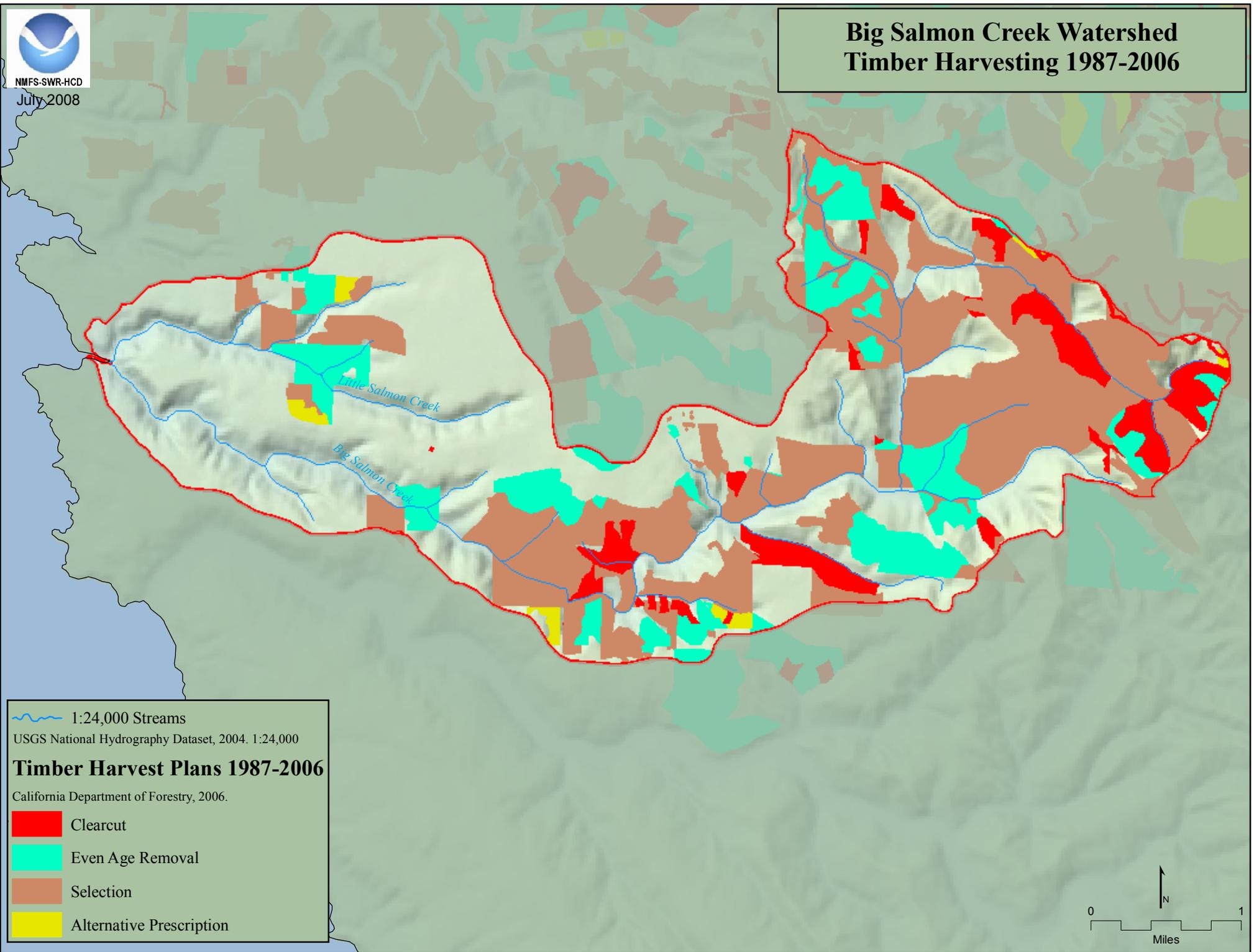
-  Barren/Other
-  Conifer Forest - 78%
-  Hardwood Forest - 6%
-  Herbaceous - 7%
-  Shrub - 9%





NMFS-SWR-HCD
July 2008

Big Salmon Creek Watershed Timber Harvesting 1987-2006

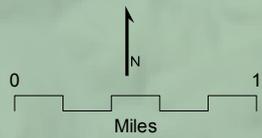


 1:24,000 Streams
USGS National Hydrography Dataset, 2004. 1:24,000

Timber Harvest Plans 1987-2006

California Department of Forestry, 2006.

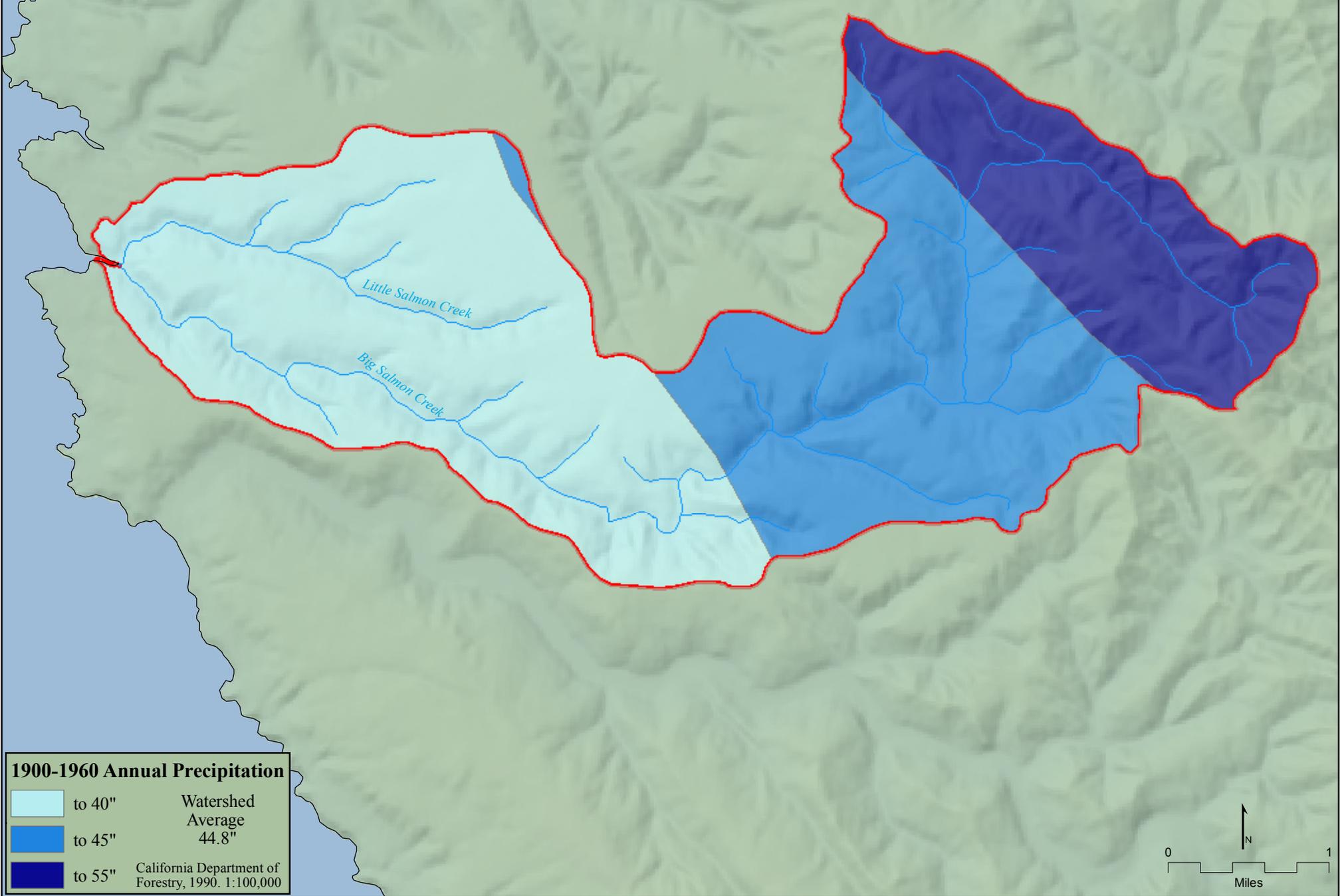
-  Clearcut
-  Even Age Removal
-  Selection
-  Alternative Prescription





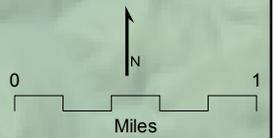
NMFS-SWR-HCD
July 2008

Big Salmon Creek Watershed Precipitation



1900-1960 Annual Precipitation

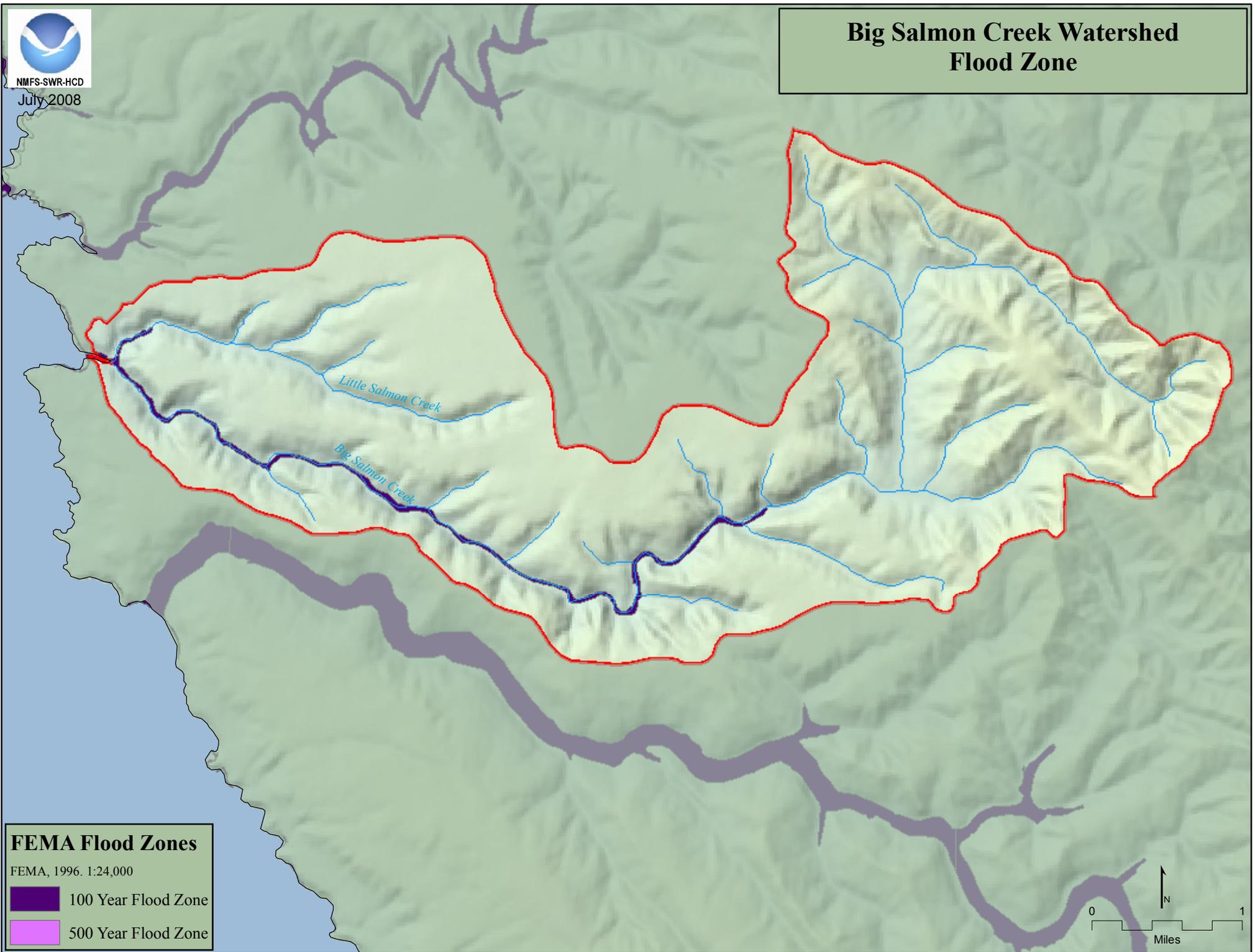
	to 40"	Watershed Average 44.8"
	to 45"	
	to 55"	California Department of Forestry, 1990. 1:100,000





NMFS-SWR-HCD
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Big Salmon Creek Watershed Flood Zone



FEMA Flood Zones

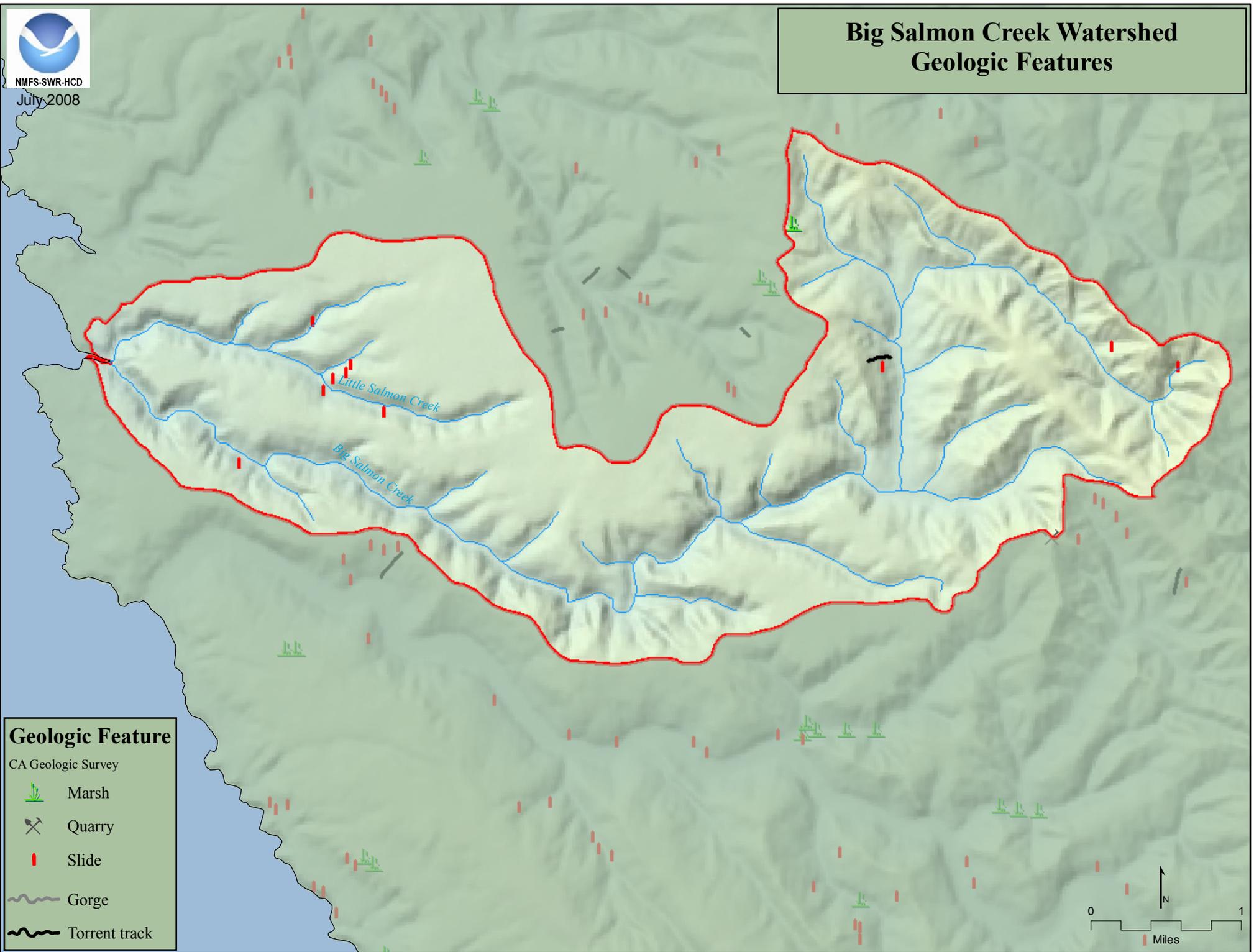
FEMA, 1996. 1:24,000

-  100 Year Flood Zone
-  500 Year Flood Zone



NMFS-SWR-HCD
July 2008

Big Salmon Creek Watershed Geologic Features



Geologic Feature

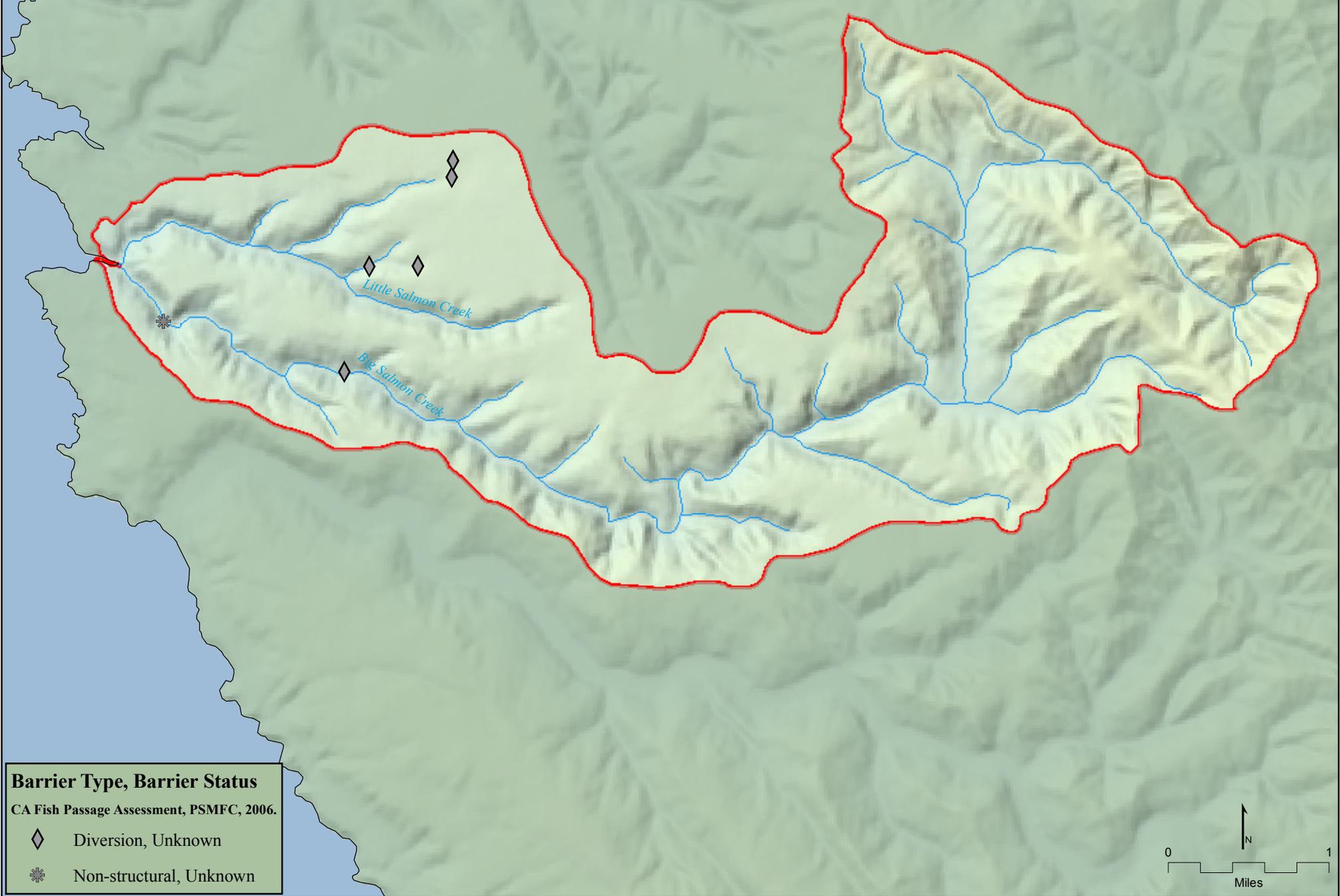
CA Geologic Survey

-  Marsh
-  Quarry
-  Slide
-  Gorge
-  Torrent track



NMFS-SWR-HCD
July 2008

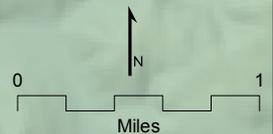
Big Salmon Creek Watershed Barriers



Barrier Type, Barrier Status

CA Fish Passage Assessment, PSMFC, 2006.

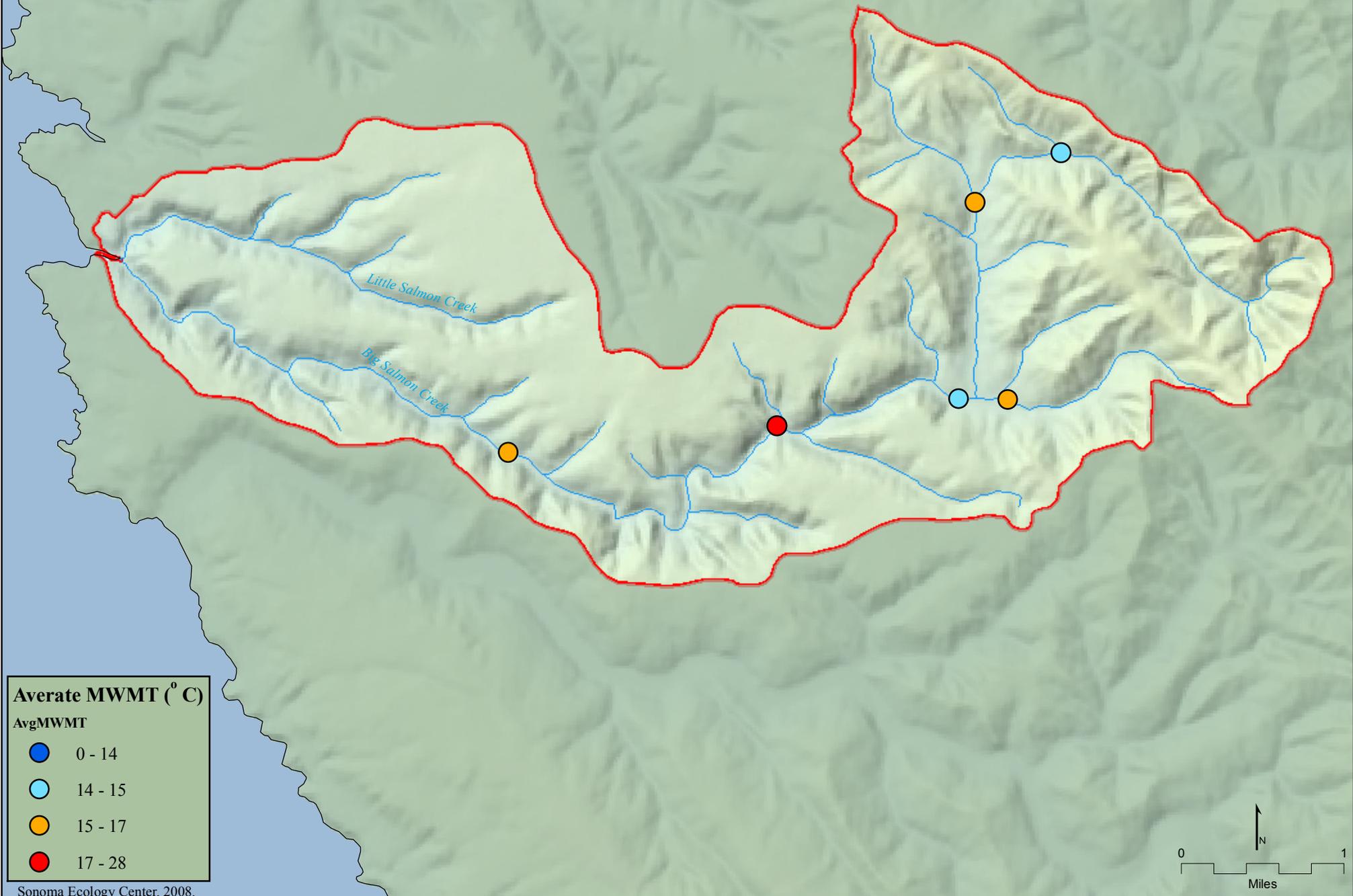
- ◇ Diversion, Unknown
- ✱ Non-structural, Unknown





NMFS-SWR-HCD
July 2008

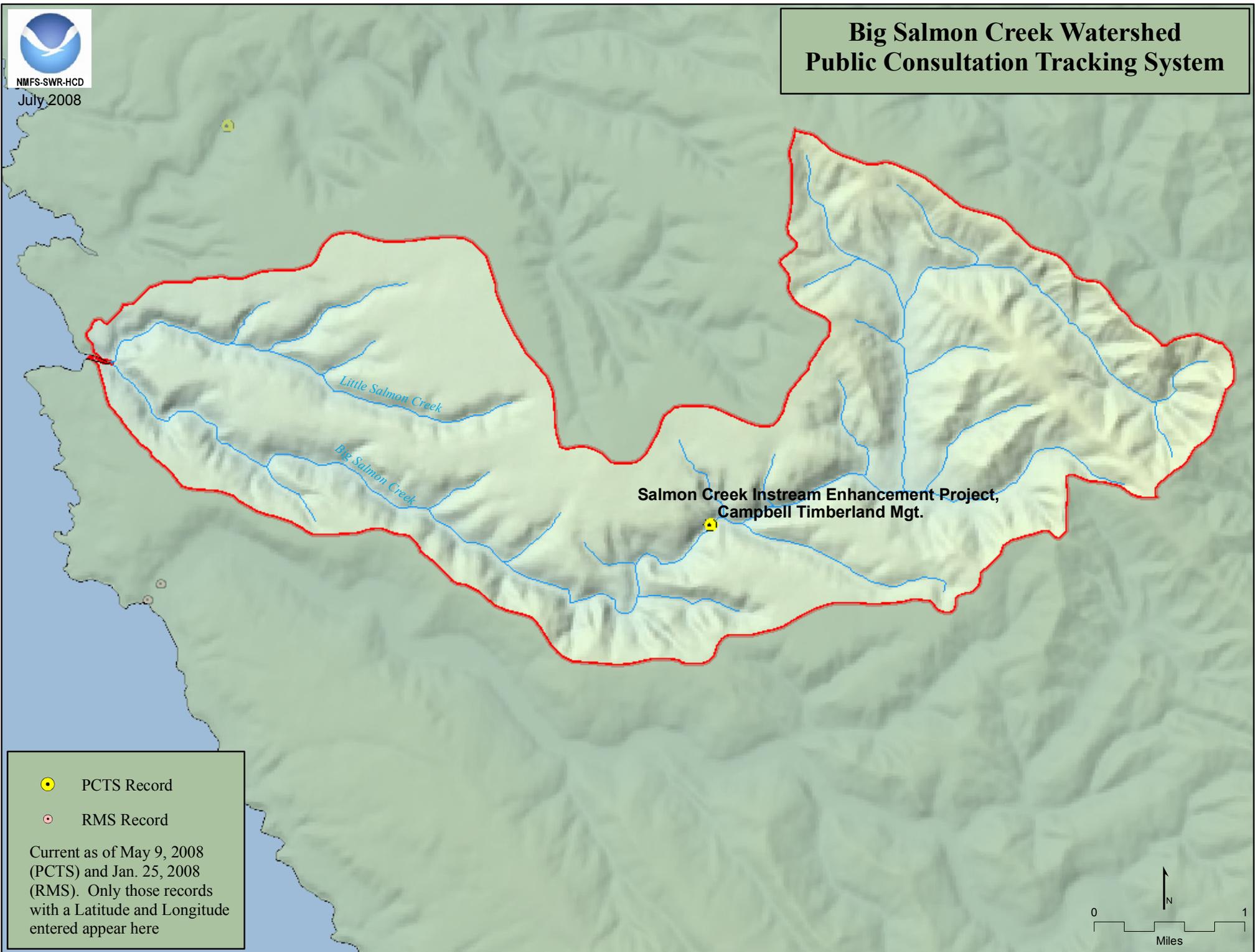
Big Salmon Creek Watershed In-stream Temperature





NMFS-SWR-HCD
July 2008

Big Salmon 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/>

NC_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>

CC_Chinook_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

CC_Chinook_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>

NC_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

1801 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_september2006
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)

R1_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

roads

vector digital data

Timber Harvest Plans

California Department of Forestry and Fire Protection

1:24,000

2006

TGRR00

vector digital data

Roads

United States Census Bureau

1:100000

2000

<http://www.census.gov/geo/www/tiger/>

Elevation

Dem_1_utm_f

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

Highly Erodible Watersheds

vector digital data

Department of Conservation, Division of Mines and Geology

Minimum Mapping Unit: Approximately 8000

Acres (20,000 Hectares)

1994

<http://gis.ca.gov/catalog/BrowseRecord.epl?id=380>

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

Google Maps

remote-sensing image

raster digital data

2008

Historic Suitable Habitat (Coho, Chinook, 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

Temperature

MWMT_20080117_selected_watersheds

Vector digital data
Sonoma Ecology Center
2008

Geologic Features

Geopoint
vector digital data
Department of Conservation, Division of Mines and
Geology
Minimum Mapping Unit: Approximately 8000
Acres (20,000 Hectares)
1994

Gorge
vector digital data
Department of Conservation, Division of Mines and
Geology
Minimum Mapping Unit: Approximately 8000
Acres (20,000 Hectares)
1994

Records Management System (RMS)

Public Consultation Tracking System (PCTS)

National Marine Fisheries Service
Oracle Databases
2008