January 2010

NMFS-SWR-HCD

# *San Leandro Creek Watershed*

| Area | Hydrologic Units | Calwater Subbasins --- | (Planning Watersheds) |
|---|---|---|---|
| 31,304 Acres | 18050004 | 2204200101 | Kaiser Creek (12919 Acres) |
| 12,262 Hectares | 4th Field **HUC** | 2204200102 | San Leandro Creek (3653 Acres) |
| 49 Square Miles | | 2204200103 | Moraga Valley (6392 Acres) |
| | 220420 | 2204200300 | Lake Chabot (5118 Acres) |
| **Location** | 4th Field **Calwater** | 2204200400 | Oaakland (3156 Acres) |
| Alameda County | | | |
| Contra Costa County | | | |

| Species Potential | Miles of Streams with Species Present |
|---|---|
| Central California Coast **Steelhead** | Steelhead |
| Interior San Francisco Bay Diversity Stratum | 5 |
| - Independent Population | NOAA Fisheries, Critical Habitat Redesignation, 2005 |
| Central California Coast **Coho** | Coho |
| San Francisco Bay Diversity Stratum | 0 |
| - Dependent Population | CDFG, Coho Distribution, May 2007 |

## Critical Habitat

| | |
|---|---|
| Central California Coast Steelhead | 0 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) |

| Miles of Waterway[A] | Miles | Number of Dams[C] |
|---|---|---|
| Naturally Occurring Waterways | | 4 |
| Intermittent Stream | 46 | 2 - Impassable |
| Perennial Stream | 30 | 1 - Not a Barrier |
| Connector/Canal/Ditch | 4 | 1 - Partial Barriers |
| Artificial Path | 18 | |

[C]Passage Assessment Database,
Pacific States Marine Fisheries Commission, 2005

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

| USGS Gaging Stations[B] | Number of Barriers[C] |
|---|---|
| None | 8 |
| | 4 Dams |
| | 3 Diversions (Unknown Barrier Status) |
| | 1 Fish Passage Facility |

[C]Passage Assessment Database,
Pacific States Marine Fisheries Commission, 2008

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

Pesticides

Sources: Urban Runoff / storm Sewers

[I]State Water Resources Control Board, 2003

| **Approriated** Waterways[J] |
|---|
| San Leandro Creek is Fully appropriated (1/1 to 12/31) |

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

| Average Annual **Precipitation**[E] | Average Annual **Precipitation Range**[E] |
|---|---|
| 25.2" | 18 - 27.5" |

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

| **Roads**[A] | Miles |
|---|---|
| Roads in Watershed | |
| Primary Road / Highway | 4 |
| Secondary and connecting road, state highways | 4 |
| Local, neighborhood, and rural road, city street, unseparated | 235 |
| Vehicular trail, 4WD | 1 |
| Driveway or service road | 4 |
| Total Miles | 247 |

| **Road Density** | |
|---|---|
| Miles of Roads per SqMi of Watershed | 5.0 |
| Miles of Roads per SqMi of 100m Riparian Buffer* | 4.4 |

*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 | 3,367 | 11% |
| Lands of 2-4 percent slope | 1,415 | 5% |
| Lands of 4-10 percent slope | 2,264 | 7% |
| Lands of 10-15 percent slope | 2,063 | 7% |
| Lands of 15-30 percent slope | 8,133 | 26% |
| Lands of 30-60 percent slope | 12,901 | 41% |
| Lands of 60-100 percent slope | 1,159 | 4% |
| Lands of >100 percent slope | 3 | 0% |
| **Elevation Range** | 0 - 2031 ft. | 0 - 619 m |

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

| **Vegetation**[G] | Acres | Percent of watershed |
|---|---|---|
| Agriculture | 106 | 0% |
| Annual grassland | 3,954 | 13% |
| Conifer Forest | | |
| Redwood | 922 | 3% |
| Unknown Conifer | 554 | 2% |
| Hardwood Forest | | |
| Montane Hardwood | 346 | 1% |
| Hardwood Woodland | | |
| Coastal Oak Woodland | 3,536 | 11% |
| Eucalyptus | 200 | 1% |
| Valley Foothill Riparian | 10 | 0% |
| Shrub | 10,576 | 34% |
| Urban | 9,919 | 32% |
| Water | 1,152 | 4% |
| Wetland | 22 | 0% |

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

| Land Ownership[H] | Acres | Percent of watershed |
|---|---|---|
| Private | 24,700 | 79% |
| State (Parks & Recreation) | 6,604 | 21% |

[H]Management Landscape, CA Department of Forestry, 2002

| Population[I] | Housing[I] | |
|---|---|---|
| Total Population within the watershed -- 64,815 People | Total Housing Units within the watershed -- 25,037 Houses | |
| | Housing Density | |
| | 0 to Less than 1 Housing Unit / 160 Acres (xx%) | 64% |
| | 1 Unit / 160 Acres to 1 Unit / 20 Acres (x%) | 5% |
| | 1 Unit / 20 Acres to 1 Unit / 5 Acres (xx%) | 2% |
| | 1 Unit / 5 Acres to 2 Units / Acre (xx%) | 17% |
| | 2 Units / Acres to Greater than or Equal to 5 Units / Acre (x%) | 12% |

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

# San Leandro Creek Watershed

# San Leandro Creek Watershed

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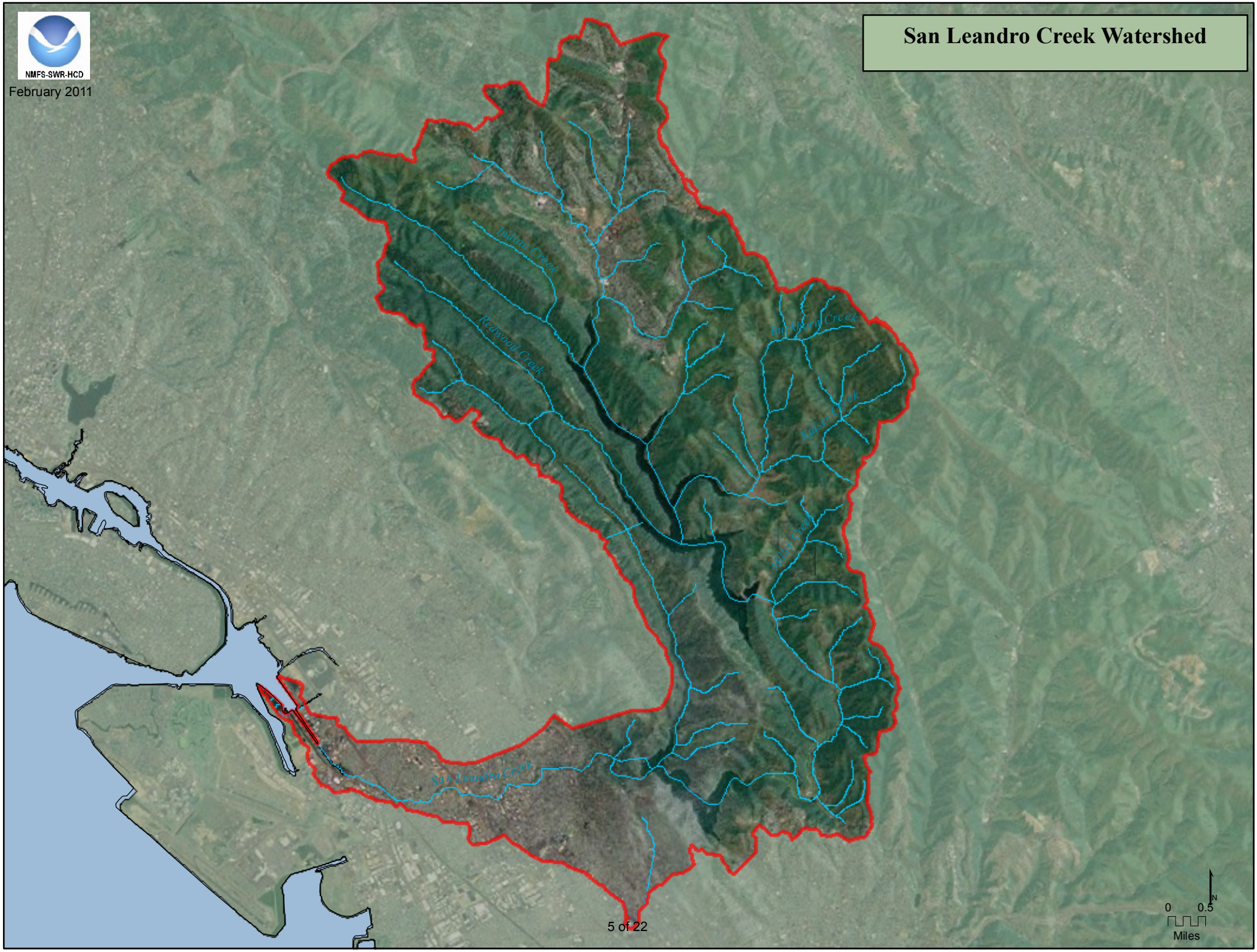
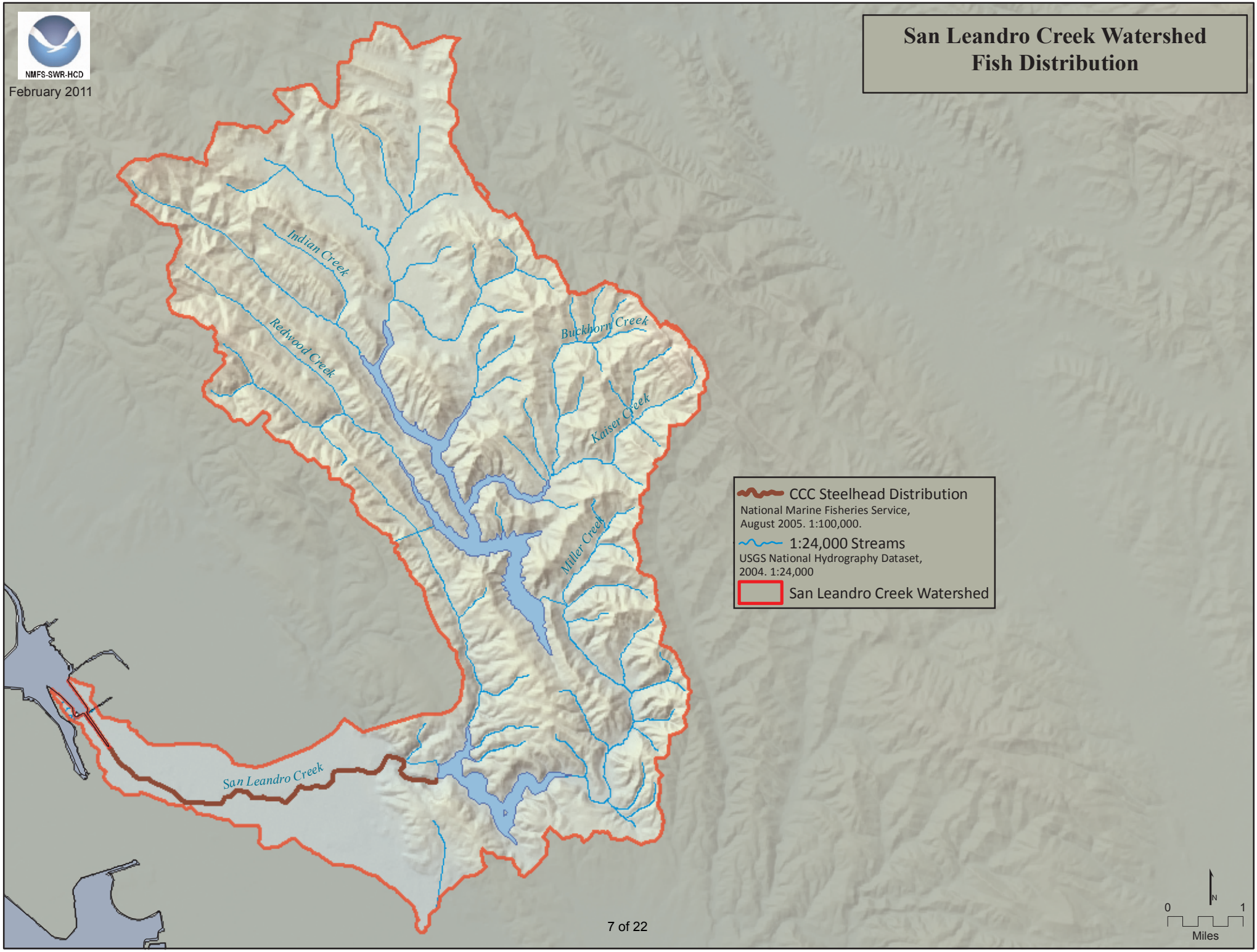
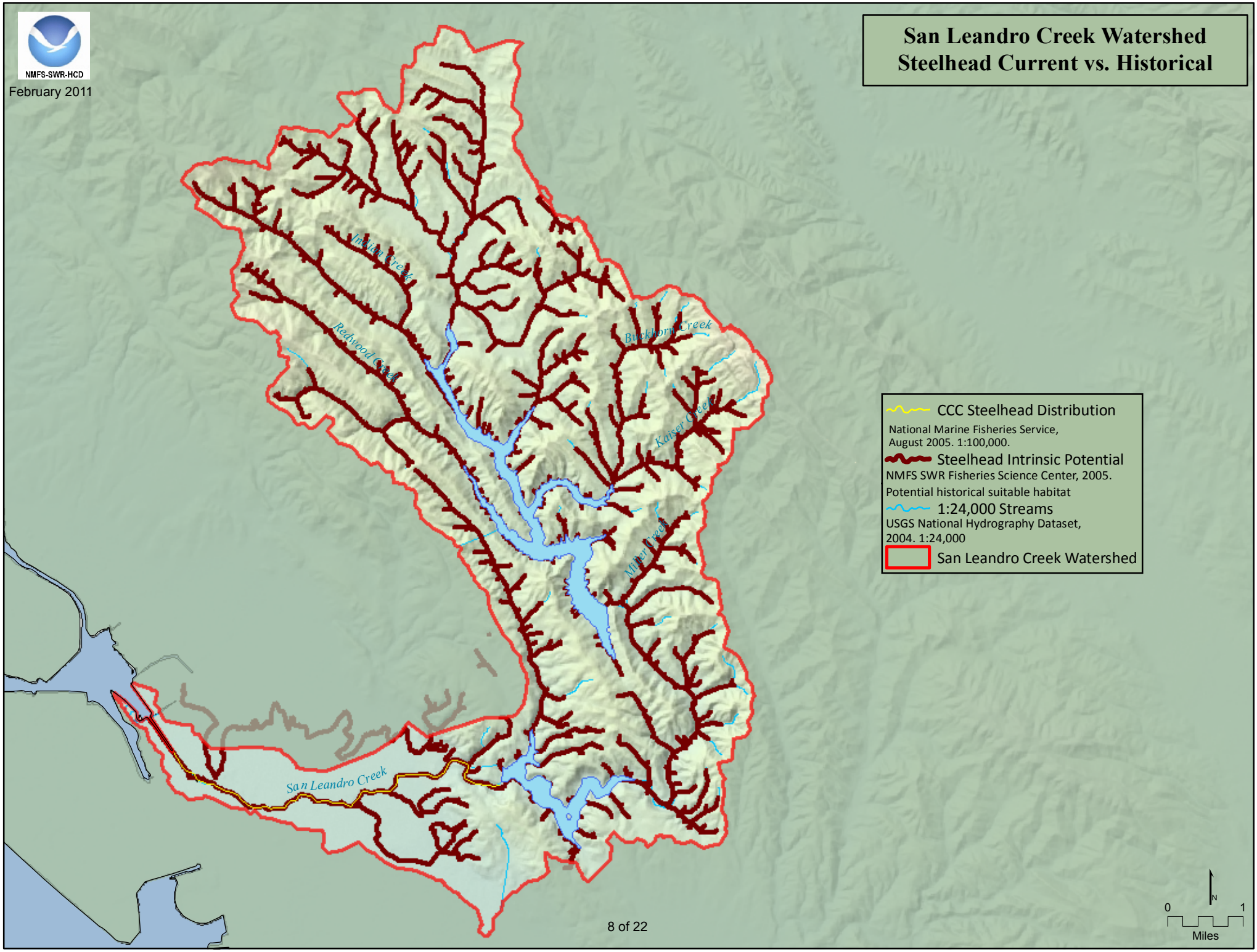
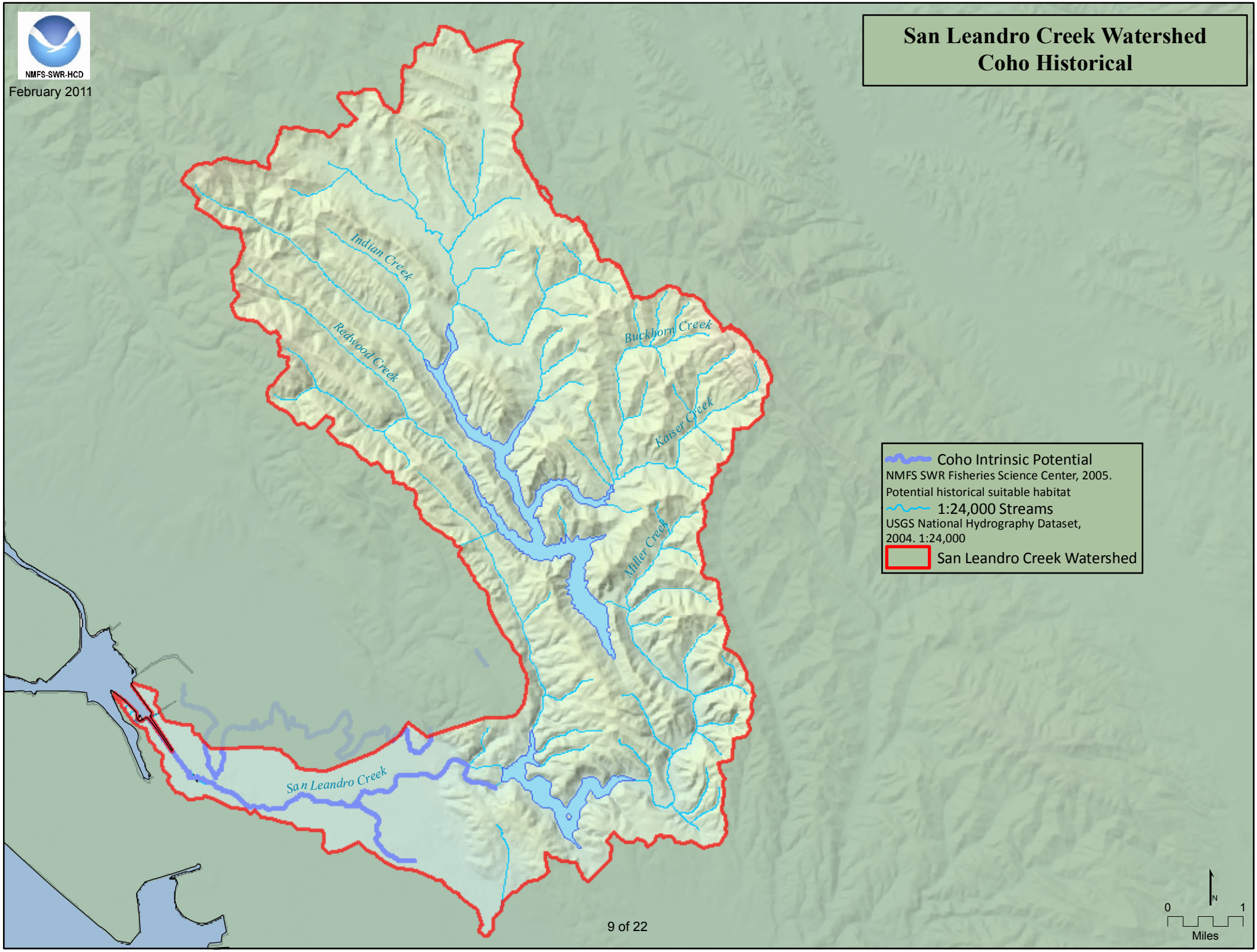


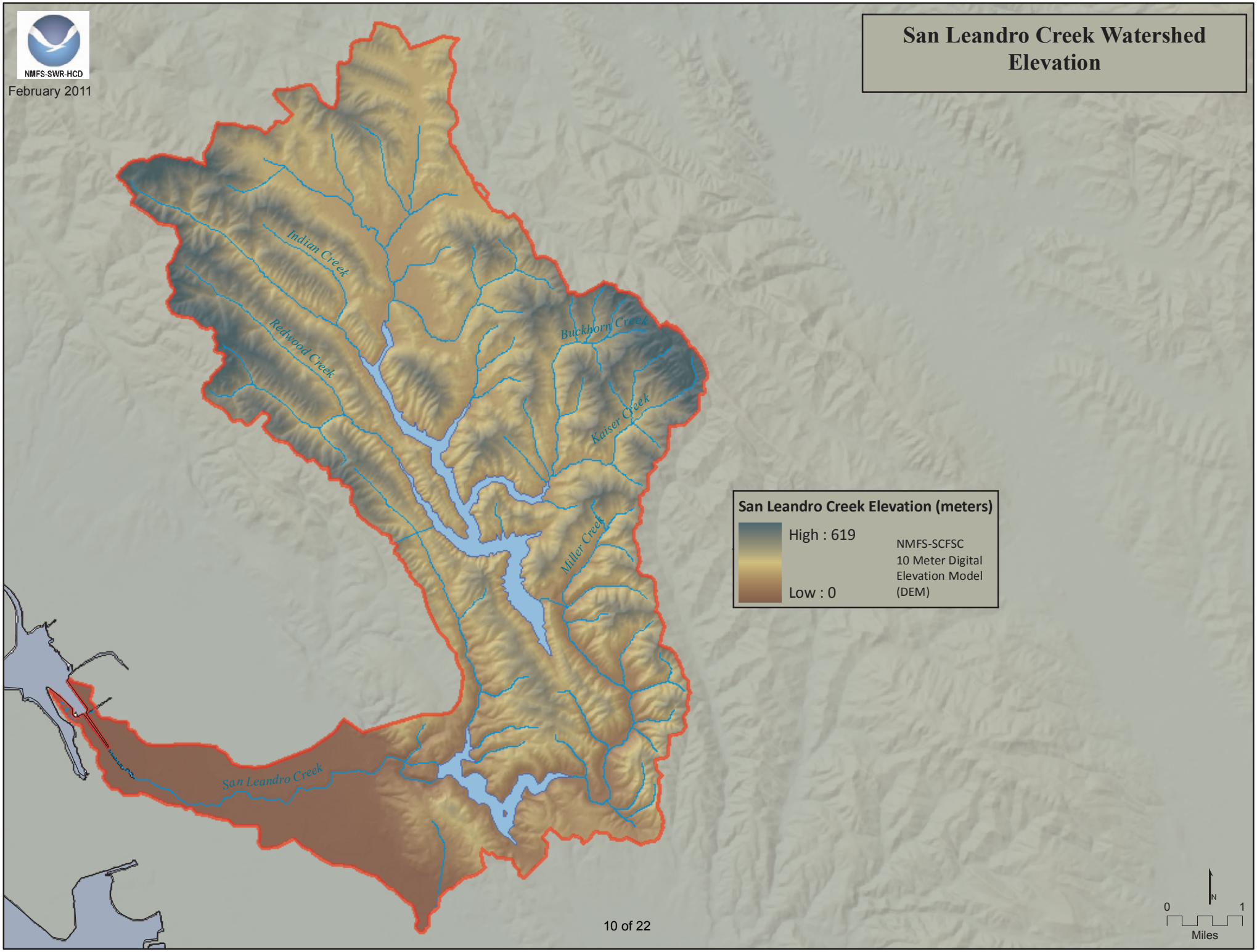
# San Leandro Creek Watershed
# CalWater Planning Watersheds

February 2011


NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Fish Distribution
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
CCC Steelhead Distribution
National Marine Fisheries Service,
August 2005. 1:100,000.
1:24,000 Streams
USGS National Hydrography Dataset,
2004. 1:24,000
San Leandro Creek Watershed
0
1
Miles
N


NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Steelhead Current vs. Historical
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
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
1:24,000 Streams
USGS National Hydrography Dataset, 2004. 1:24,000
San Leandro Creek Watershed
N
0
1
Miles

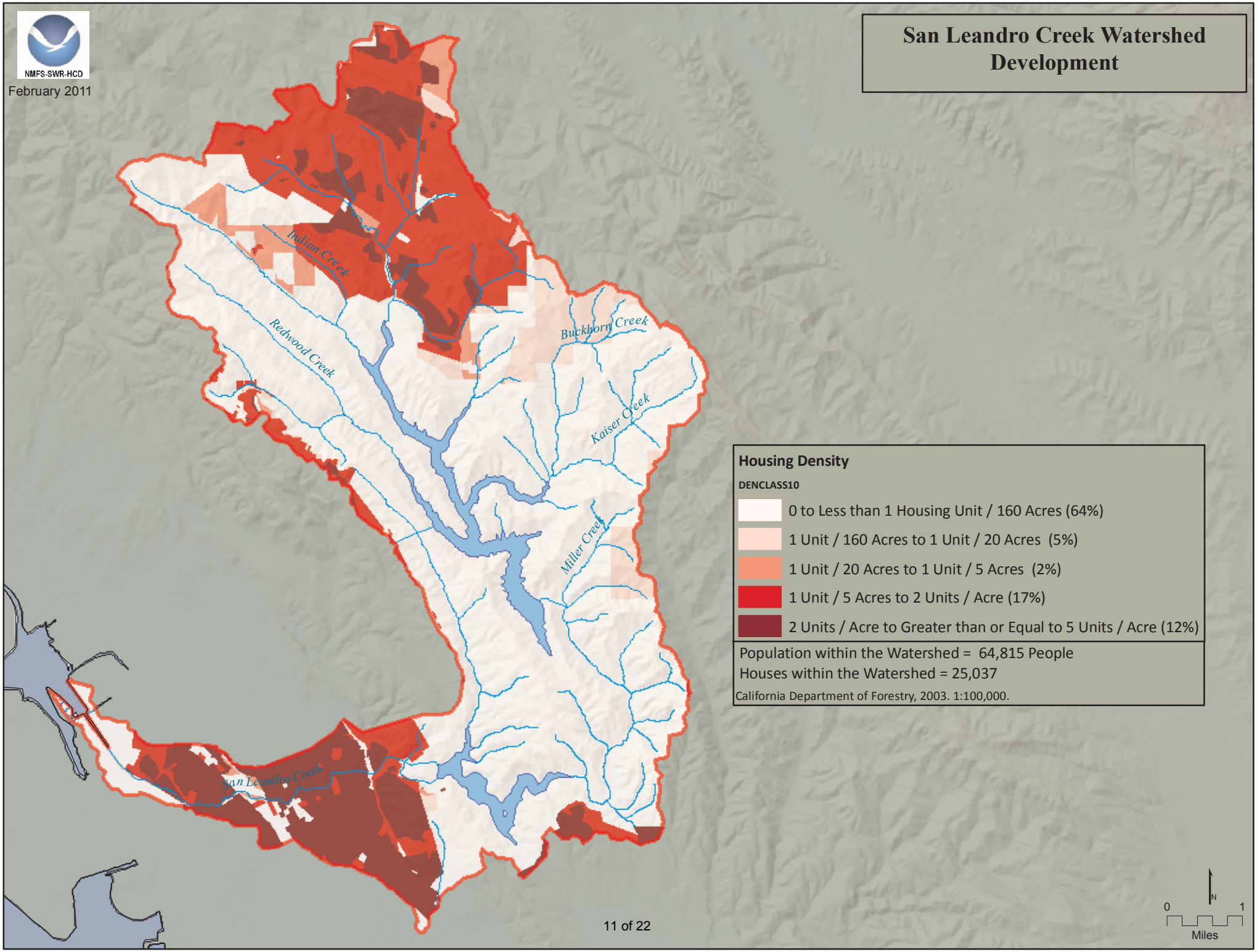

NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Coho Historical
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
Coho Intrinsic Potential
NMFS SWR Fisheries Science Center, 2005.
Potential historical suitable habitat
1:24,000 Streams
USGS National Hydrography Dataset,
2004. 1:24,000
San Leandro Creek Watershed
N
0
1
Miles

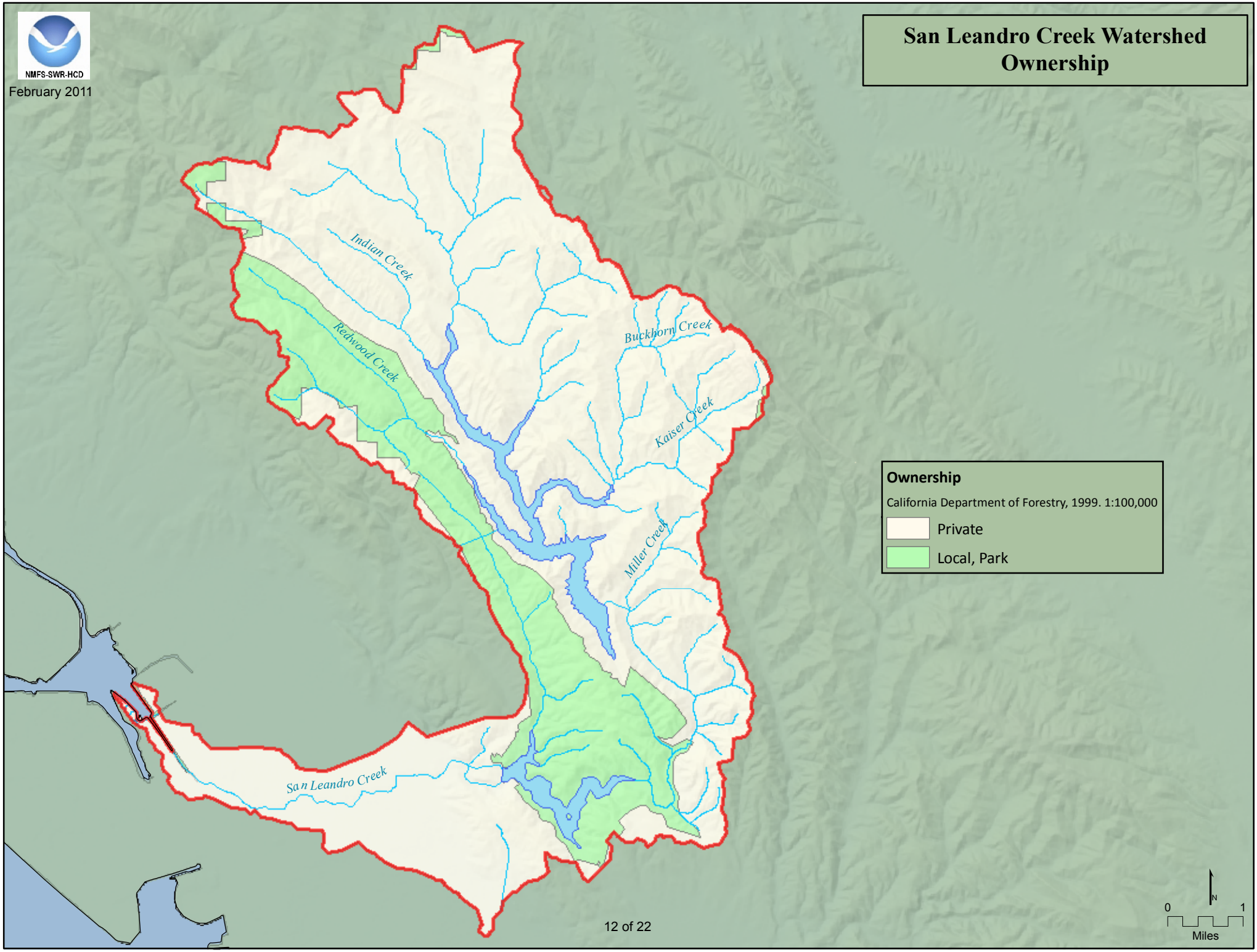

NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Elevation
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
San Leandro Creek Elevation (meters)
High : 619
Low : 0
NMFS-SCFSC
10 Meter Digital
Elevation Model
(DEM)
N
0
1
Miles

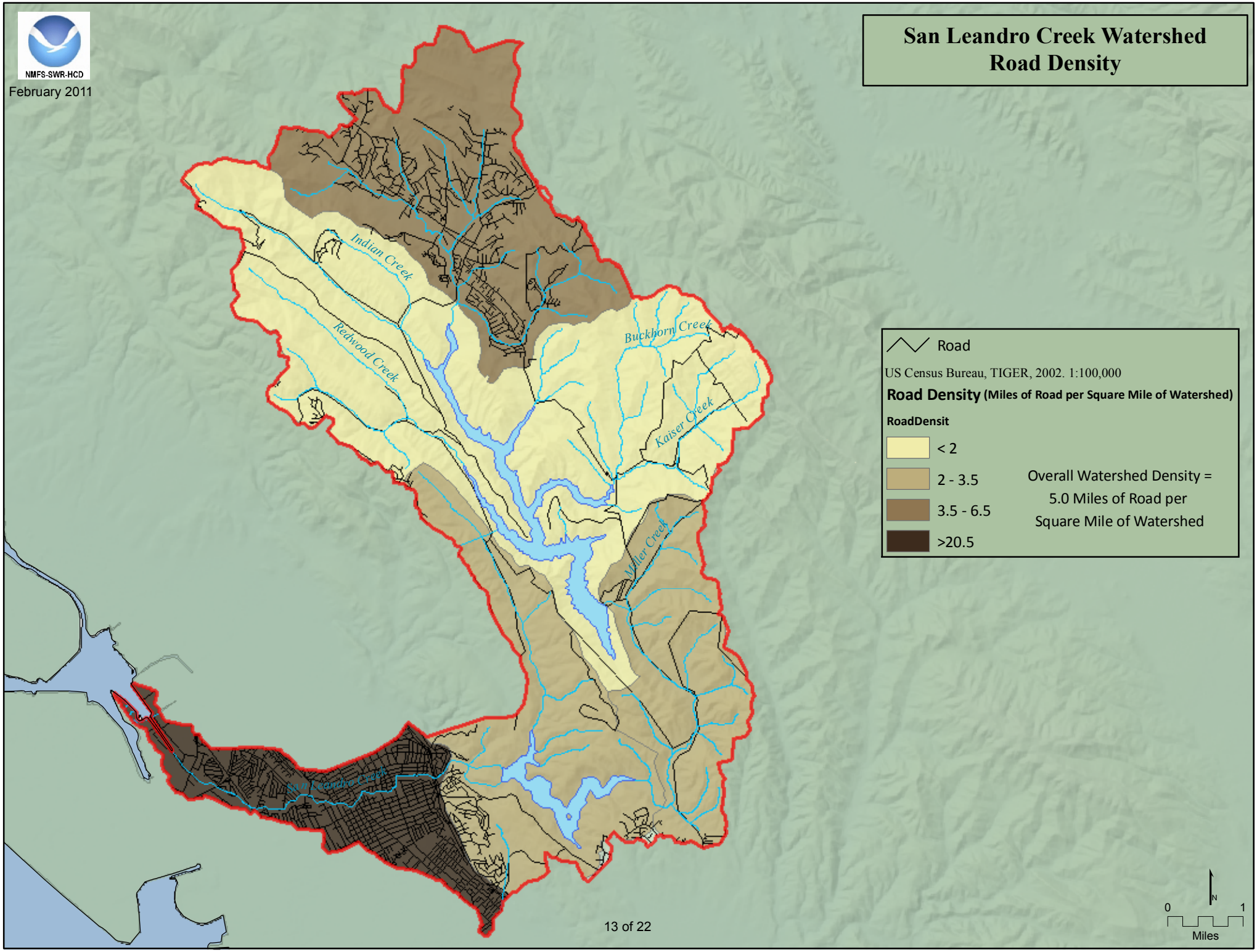
NMFS-SWR-HCD

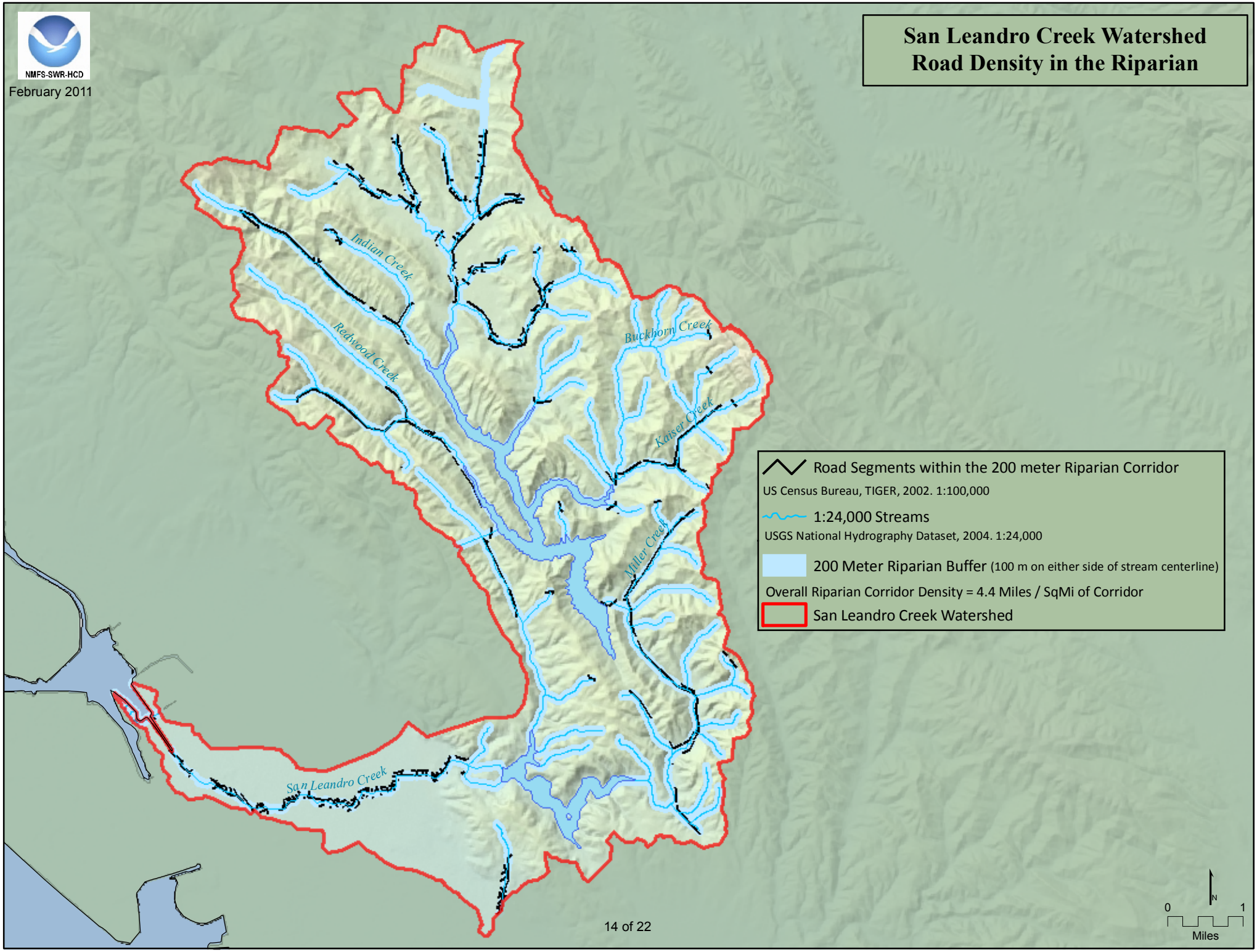
February 2011

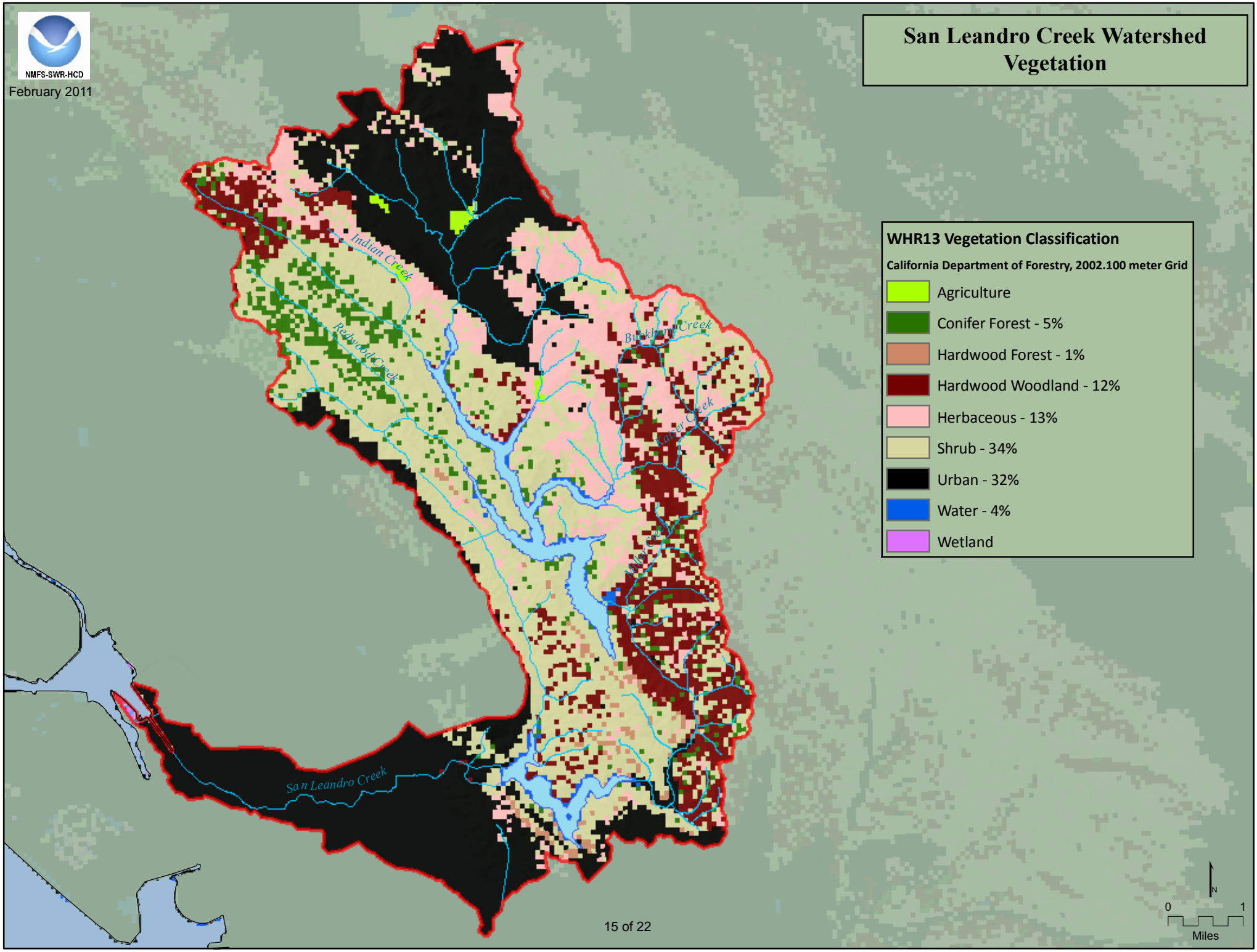
# San Leandro Creek Watershed Development

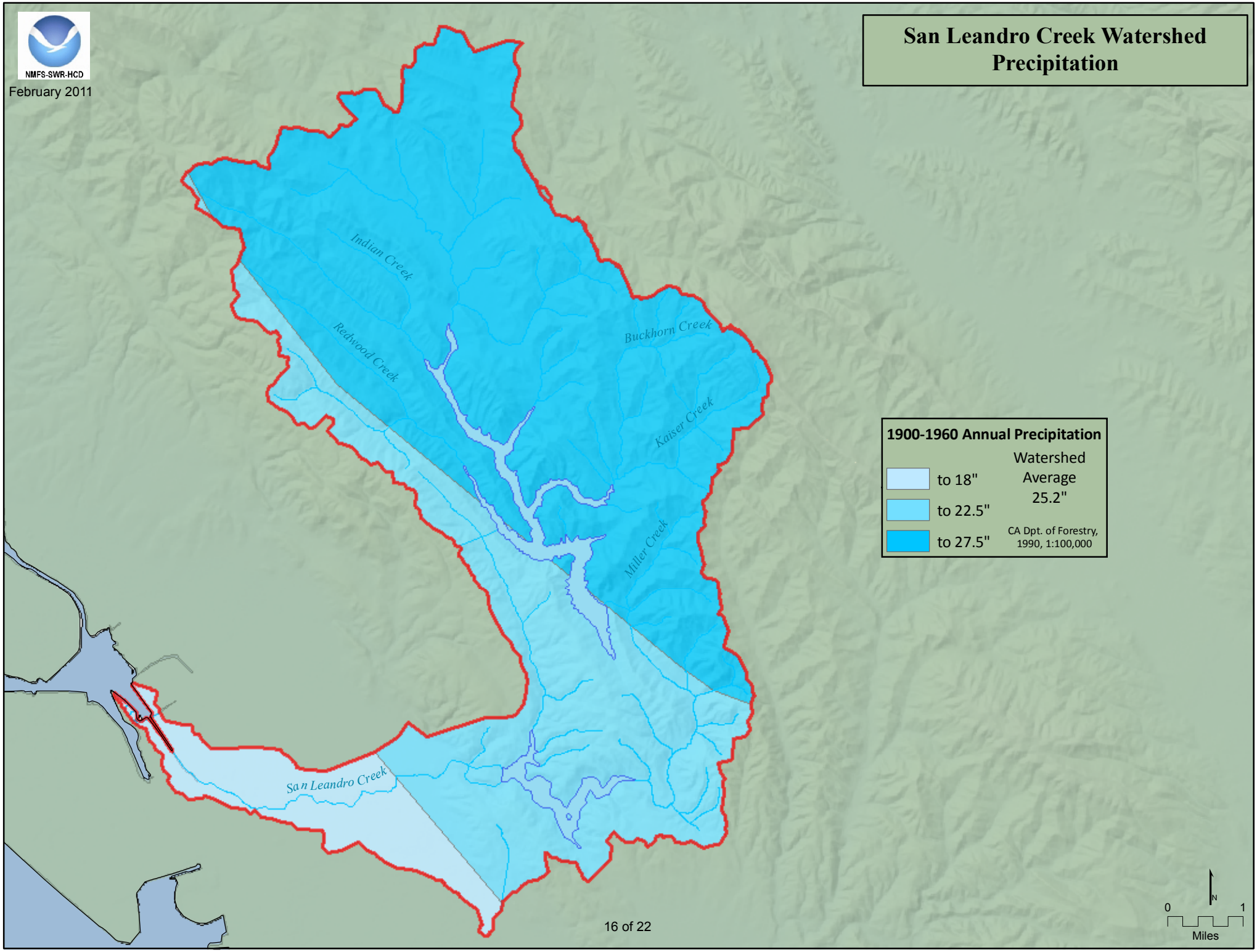


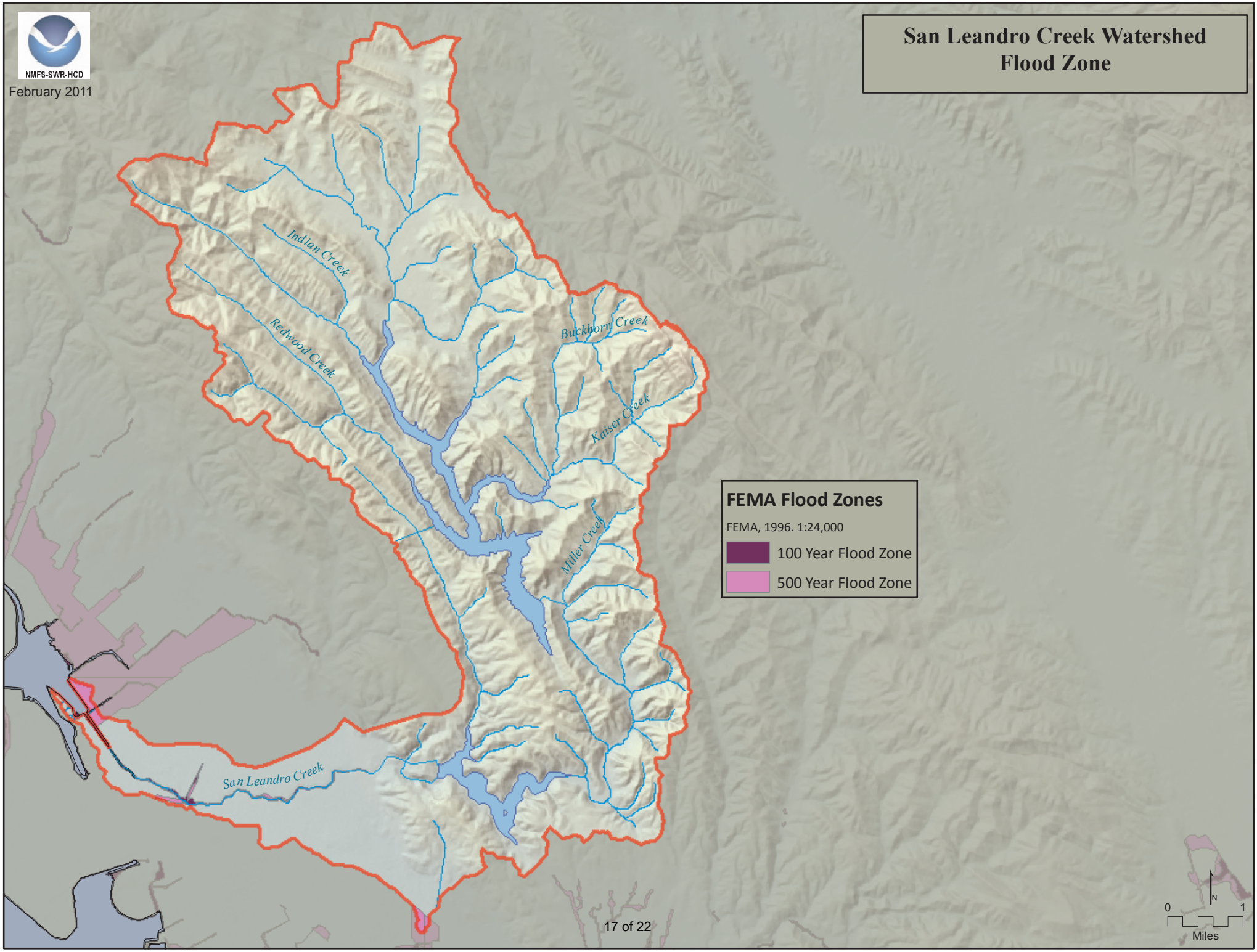

NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Ownership
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
Ownership
California Department of Forestry, 1999. 1:100,000
Private
Local, Park
0
1
Miles
N


NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Road Density
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
Road
US Census Bureau, TIGER, 2002. 1:100,000
Road Density (Miles of Road per Square Mile of Watershed)
RoadDensit
< 2
2 - 3.5
3.5 - 6.5
>20.5
Overall Watershed Density =
5.0 Miles of Road per
Square Mile of Watershed
N
0
1
Miles

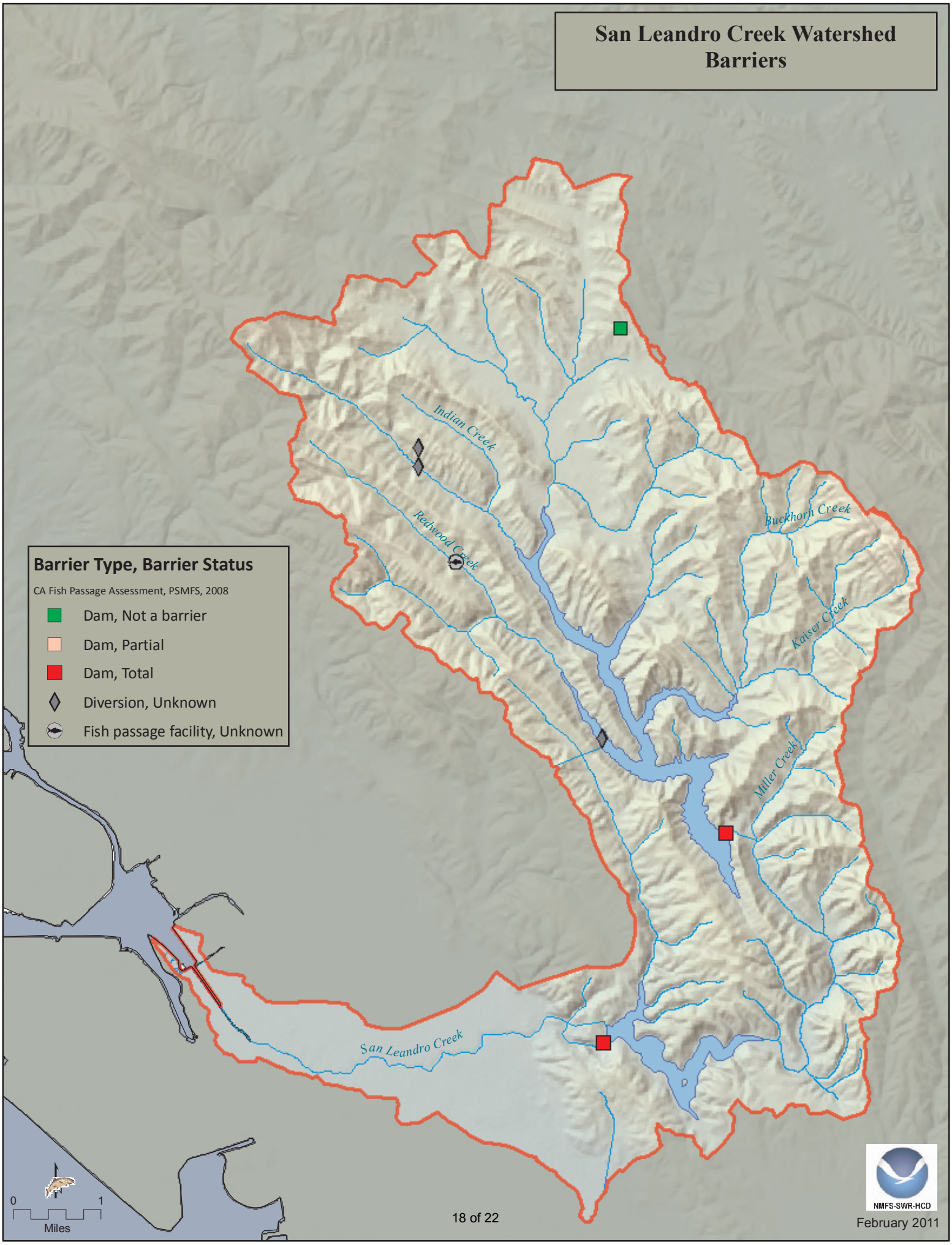

NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Road Density in the Riparian
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
Road Segments within the 200 meter Riparian Corridor
US Census Bureau, TIGER, 2002. 1:100,000
1:24,000 Streams
USGS National Hydrography Dataset, 2004. 1:24,000
200 Meter Riparian Buffer (100 m on either side of stream centerline)
Overall Riparian Corridor Density = 4.4 Miles / SqMi of Corridor
San Leandro Creek Watershed
N
0
1
Miles


NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Vegetation
WHR13 Vegetation Classification
California Department of Forestry, 2002.100 meter Grid
Agriculture
Conifer Forest - 5%
Hardwood Forest - 1%
Hardwood Woodland - 12%
Herbaceous - 13%
Shrub - 34%
Urban - 32%
Water - 4%
Wetland
Indian Creek
Redwood Creek
Buckeye Creek
Lower Creek
Upper Creek
San Leandro Creek
N
0
1
Miles


NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed Precipitation
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
1900-1960 Annual Precipitation
to 18"
to 22.5"
to 27.5"
Watershed Average 25.2"
CA Dpt. of Forestry, 1990, 1:100,000
N
0
1
Miles

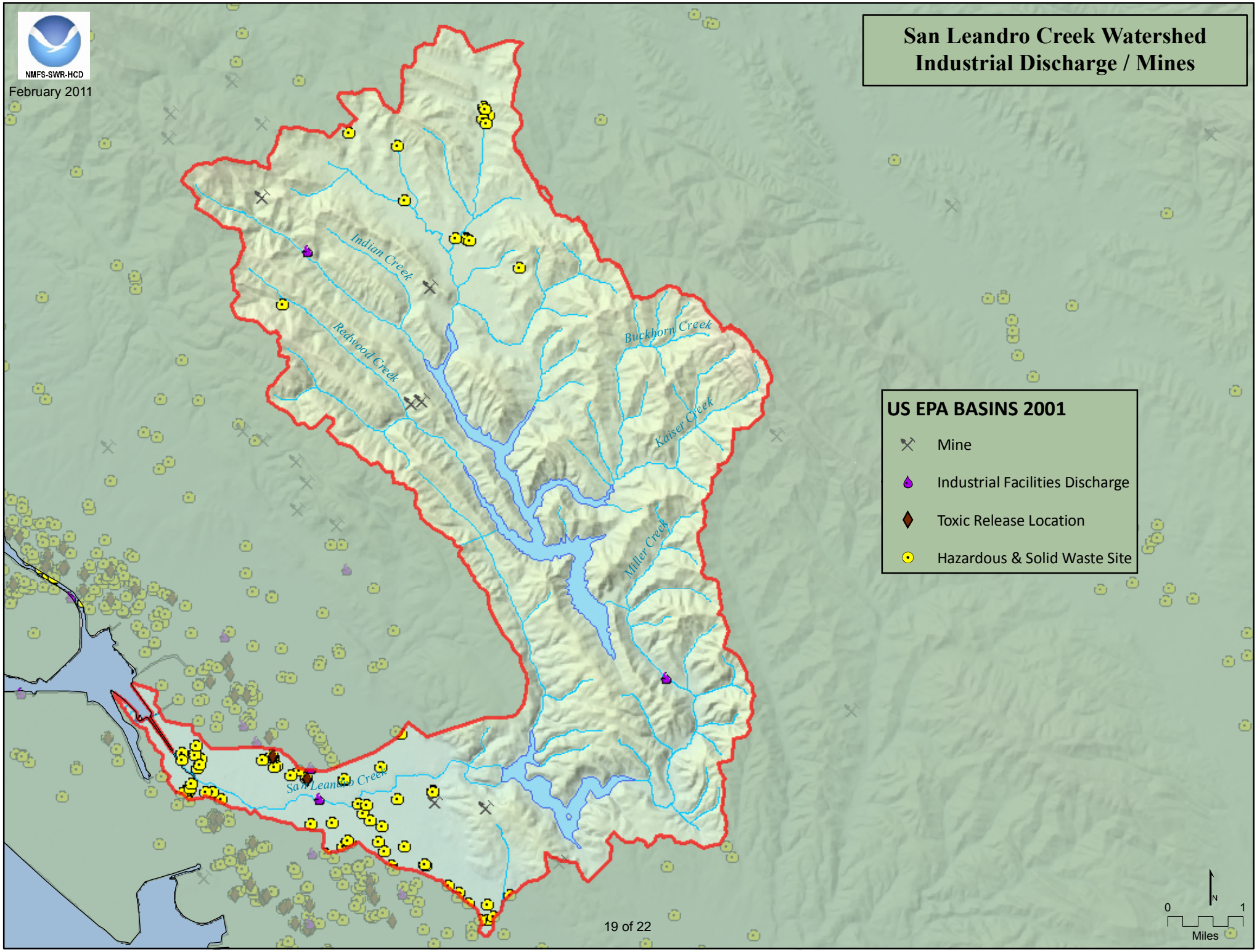

NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Flood Zone
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
FEMA Flood Zones
FEMA, 1996. 1:24,000
100 Year Flood Zone
500 Year Flood Zone
0
1
Miles
N

# San Leandro Creek Watershed Barriers






February 2011


NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Industrial Discharge / Mines
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
US EPA BASINS 2001
Mine
Industrial Facilities Discharge
Toxic Release Location
Hazardous & Solid Waste Site
0
1
Miles
N

NMFS-SWR-HCD
February 2011
San Leandro Creek Watershed
Public Consultation Tracking System
Indian Creek
Redwood Creek
Buckhorn Creek
Kaiser Creek
Miller Creek
San Leandro Creek
PCTS Record
Current as of September 24, 2009.
Only those records with a
Latitude and Longitude
entered appear here
0
1
Miles
N

## 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**
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

**Hydrology**
1805 NHD Flowline
vector digital data
National Hydrography Dataset High Resolution
United States Geological Survey
1:24,000
2004

**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**
USGS Streamgages
vector digital data
U.S. Geological Survey
Reston, Va
2006
http://water.usgs.gov/GIS/dsdl/USGS_Streamgages-NHD_Locations_Shape.zip

**Total Maximum Daily Load (TMDL)**
R1_rivers_2006 303d
vector digital data
State Water Resources Control Board (SWRCB)
California Environmental Protection Agency
2006

**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

**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/

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

**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/

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

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

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

**Records Management System (RMS)**
**Public Consultation Tracking System (PCTS)**
National Marine Fisheries Service
Oracle Databases
2009