M E M O R A N D U M

TO: **Marin County Planning Commission**

FROM: **Kristin Drumm**

DATE: **December 13, 2021**

RE: **Development Code Amendments for the Stream Conservation Area (SCA) Ordinance for the San Geronimo Valley**

SUMMARY

On November 8, 20201, your Commission held a public noticed workshop on the proposed Development Code Amendments for the Stream Conservation Area (SCA) Ordinance for the San Geronimo Valley. At the workshop your Commission heard testimony from 16 speakers and requested staff provide information regarding various topics, including: rationale behind the SCA ordinance; analysis of parcels within the SCA; Accessory Dwelling Units; enforcement; implications of Senate Bill 9 (SB-9); standards for applying the SCA ordinance exceptions; mitigation bank/offsite mitigation program; rezoning properties for the proposed SGV (San Geronimo Valley) combining district; performance measures; and pyrophytic vegetation. In addition, staff proposes a modification to Section 22.30.045.D.2 in the San Geronimo Community Standards regarding additions to existing permitted structures.

DISCUSSION

1. FSEIR Rational on the SCA Ordinance

   Your Commission requested information describing the science and rational behind the proposed SCA ordinance. The 2007 CWP Final Supplemental EIR with a Focus on Cumulative Impacts on Salmonids in the San Geronimo Valley (FSEIR) provides information on the project and its background, environmental setting, and analysis of cumulative impacts on salmonids in the San Geronimo Valley resulting from the adoption and implementation of the Marin CWP with respect to the San Geronimo Valley and future buildout in the watershed (Proposed Project), followed by mitigation measures.

   The FSEIR is supported by relevant policy documents, science, historical facts, and information from published scientific literature and unpublished scientific reports, including:

   - 2007 Marin Countywide Plan
   - 2007 Marin Countywide Plan Final Environmental Impact Report
   - Geographic Information Systems spatial data, Department of Public Works (2005 – 2016)
   - San Geronimo Valley Salmon Enhancement Plan Existing Conditions Report, Stillwater Sciences (2009)

- San Geronimo Valley Salmon Enhancement Plan: A Guidance Document, Prunuske Chatham Inc. and Stillwater Sciences (2010)
- Final Recovery Plan for Central California Coast coho salmon Evolutionary Significant Unit, National Marine Fisheries Services (2012)
- Public Draft Multispecies Recovery Plan, Volume IV, Central California Coast steelhead, NMFS, (2015)
- Lagunitas Creek watershed fine sediment reduction and habitat enhancement plan, San Francisco Bay Regional Water Quality Control Board (2014)
- Adult salmonid monitoring/spawner survey reports, Marin Municipal Water District (2009 – 10 through 2015 – 16 spawning seasons)

The FSEIR concludes two potential significant cumulative impacts, and one less than-than-significant impact would occur because of possible future development of the CWP goals, policies and implementing programs on anadromous salmonids and their habitat in the San Geronimo Valley. Further, implementation of the respective identified mitigation measures will reduce the new potentially significant cumulative impacts to a less-than-significant level. The cumulative impacts and respective mitigations are summarized as follows: .

- **Impact 5.1. Reduced Survival of Fry and Juvenile Salmonid Life Stages Due to Reduced Winter Rearing Habitat Quality.** This impact was determined to be potentially significant due to alterations in hydrodynamic processes resulting from projected increases in total impervious area (TIA) and other urbanization effects under full buildout of all parcels in the watershed, the" Proposed Project", which would make a cumulatively considerable contribution to increased winter storm flow magnitude and frequency, in turn causing additional habitat simplification and further compromising the ability of rearing coho salmon to find adequate refuge during high flows. Implementation of Mitigation Measures 5.1-1 and 5.1-2 would reduce this impact to a less-than-significant level.

  Mitigation Measure 5.1-1: Expanded Stream Conservation Area (SCA) Ordinance. The County shall adopt an Expanded SCA Ordinance consistent with Goal BIO-4 and associated Implementing Programs under the Proposed Project.

  Mitigation Measure 5.1-2: Require Biotechnical Techniques and Salmonid Habitat Enhancement Elements for All Bank Stabilization Projects. Marin County shall require that biotechnical techniques and salmonid habitat enhancement elements be included for all permitted bank stabilization projects.

- **Impact 5.2. Reduced Salmonid Spawning Success Due to Elevated Sediment Delivery and Increased High Flow Frequency and Magnitude.** This impact was determined to be potentially significant due to alterations in hydrodynamic processes resulting from projected increases in TIA and other urbanization effects under the Proposed Project, which would increase winter storm flow magnitude and frequency, and inputs of development-related fine sediment to stream channels. These conditions would further increase the risk of streambed and redd scour, thus making a cumulatively considerable contribution to the existing adverse impacts on coho salmon and steelhead spawning success. Implementation of Mitigation Measures 5.1-1 and 5.2-1 would reduce this impact to a less-than-significant level.

  Mitigation Measure 5.1-1: Expanded Stream Conservation Area (SCA) Ordinance (see above).

  Mitigation Measure 5.2-1: Control and Reduce Production and Delivery of Fine Sediment to Streams. The County shall adopt changes to existing stormwater, Low

Impact Development (LID), erosion and sediment control requirements within the San Geronimo watershed and outside of the SCA.

- **Potential Impact 5.3. Reduced Salmonid Summer Rearing Success Due to Degraded Habitat Conditions Including Reduced Habitat Complexity, Reduced Streamflow, and Increased Water Temperature.** This impact was determined to be less than significant because potential reductions in stream habitat quality and riparian function related to full buildout in the watershed would be relatively minor and likely too small to substantially or measurably reduce the ability of juvenile salmonids to rear and grow during the summer rearing period. The potential for impacts on salmonid summer rearing success due to development-related reductions in summer baseflows could not be determined due to lack of available data on the potential hydrologic and biologic effects of groundwater pumping and surface water diversions in San Geronimo Valley. While the Proposed Project is not capable of fully avoiding or eliminating impacts to water quality, sediment delivery, and instream habitat complexity associated with future development, it is unlikely that any such impacts would make a considerable contribution to the existing cumulative impacts on coho salmon and steelhead summer rearing success. Although Potential Impact 5.3 is less than significant, the County has nonetheless elected to pursue a voluntary mitigation measure consistent with its commitment to avoiding or minimizing impacts to the maximum extent practicable.

  Voluntary Mitigation Measure 5.3-1: Groundwater Study. The County shall undertake a voluntary study to determine whether existing and future groundwater pumping, surface water diversions, altered watershed hydrology, and other effects related to development (e.g., septic systems, landscape irrigation) are or would be likely to adversely impact summer baseflow in the San Geronimo Creek.

2. SCA Parcel Analysis

Several commenters requested updated information on the number of parcels that would be entirely encumbered by the SCA, as a result of the new countywide stream network that was recently developed as part of the County's participation in the One Tam mapping project. The FSEIR provides data on the number of existing and proposed improved parcels in Table 2-13: *Number of Improved Parcels by Subbasin or Mainstream Reach and Location Relative to the SCA for San Geronimo Valley*, as summarized below:

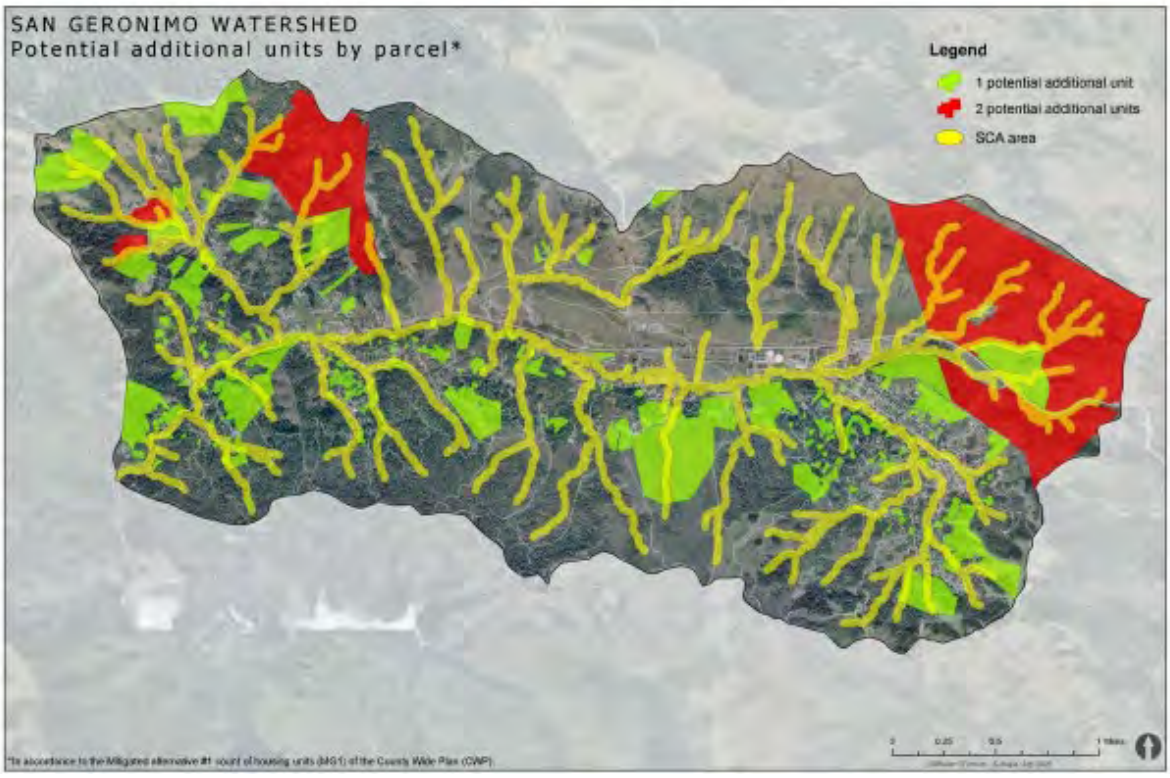
Number of Improved Parcels for the San Geronimo Valley			
Improved Parcels	Existing Conditions	Proposed Project (Theoretical Future Buildout)	Difference
Completely within SCA	93	118	25 (27%)
Partially within SCA	648	767	119 (18%)
Outside SCA	674	847	173 (26%)
Total	1,415	1,732	

Source: FSEIR, Table 2-13, p. 2-42

According to the table, the estimated number of improved parcels entirely within the SCA would increase from 93 to 118, and from 648 to 767 for improved parcels partially within the SCA, for a total increase of 141 additional parcels at buildout. Theoretical buildout is a projection of development which could occur if vacant land were fully developed according to

zoning. In some cases, theoretical buildout may be greater than the development that would realistically occur due to environmental constraints that are likely to reduce the number of buildable parcels, such as inadequate percolation for on-site septic systems, lack of access via paved roads, and steep topography necessitating engineered foundation designs.

The FSEIR also analyzed parcel size. In this regard, the FSEIR concludes that there are "relatively few parcels small enough (less than 0.5 acres) to lack significant flexibility in development placement located completely in the SCA."[1] Further, the FSEIR states that "the majority of small parcels would be located partially within the SCA, such that development within the SCA itself could be avoided, or could be located outside the SCA"[2]. Accordingly, "very few parcels (greater than 0.5 acres) would be located completely within the SCA, since the SCA itself only extends 100 feet from the top of bank side of the stream."[3] A map showing the locations of potential units by parcel is shown below (see also attachment x):



Source: FSEIR, Figure 2-7

While an updated analysis would be informative, such analysis is not essential, nor would it result in a change to the SCA ordinance framework or approach. Providing this information would require a parcel-by-parcel analysis of lot attributes and consideration of assumptions regarding future development potential. This work is not addressed in the scope of the Board approved work program. Nevertheless, staff could consider work to map and analyze the SCA as part of a future work program to refine the CWP riparian protection policies and develop a comprehensive SCA Ordinance for the remainder of Marin's unincorporated areas. The scope

[1] FSEIR, p. 2-39
[2] IBID
[3] IBID

of this work program would undergo public comment and review and would be considered by the Board of Supervisors.

3. Accessory Dwelling Units

   Public feedback included a request to clarify the permit process for Accessory Dwelling Units (ADUs) proposed in the SCA. State law mandates local jurisdictions cannot prohibit and must ministerially approve an ADU that does not exceed a floor area of 800 square feet, a height of 16 feet above grade, and has a minimum rear and side yard setbacks of four feet. This is considered a Category 1 ADU. Of the four categories of ADUs in unincorporated Marin County, only Category 1 ADUs are not required to be located outside of any sensitive habitat areas, including the SCA. Details can be found in Development Code section 22.32.120 (Residential ADUs) and Chapter 22.56 (Residential ADU Permits).

   Lots in the San Geronimo Valley are served by onsite wastewater treatment systems, or septic systems. The Marin County Department of Environmental Health Services (EHS) regulates septic systems pursuant to Title 18 (Sewers) of the Development Code pertaining to the construction, alteration, repair, or replacement of septic systems. These regulations tie the gross floor area of a residence to the septic system size, which means a proposed ADU on a lot with a septic system would require EHS review, but not Planning review, since improvements not exceeding 18 inches above grade, such as a septic system, do not require a land use permit regardless of zoning. However, alternative sewage disposal systems, such as a "mound" system, are subject to additionally requirements and may require discretionary review. While the proposed SCA Ordinance would require discretionary review for an activity that would require vegetation removal, soil exposure, increase surface runoff or lot coverage, or alter the bed, bank, or channel of a stream, it would also exempt the repair or replacement of septic systems that incorporate applicable Marin County Stormwater Pollution Prevention Program (MCSTOPPP) minimum erosion control, sediment control, and good housekeeping best management practices. Regardless, the recently enacted State laws related to ADUs preempt local legislation.

4. Standards to Apply Exceptions to Full Compliance with SCA Provisions

   Public feedback indicated the proposed ordinance lacks standards regarding how staff would apply the exceptions to full compliance with all SCA ordinance standards, including parcels located entirely within the SCA. All development applications are reviewed in conformance with the SCA policies and proposed ordinance standards. In compliance with CWP Policy BIO-4.1 and FSEIR, the proposed amendments include Section 22.30.045.E of the San Geronimo Valley Community Standards as follows:

   > Exceptions to full compliance with all stream conservation area criteria and standards may be allowed only if the following are true:
   >
   > 1. A lot falls entirely within the stream conservation area; or
   > 2. Development on a parcel entirely outside the stream conservation area either is infeasible or would have greater impacts on water quality, wildlife habitat, other sensitive biologic resources, or other environmental constraints than development inside the stream conservation area.

   Staff concurs additional guidance could be provided in the resource materials that accompany the ordinance and which are a work in progress. Staff will work to update relevant documents and report back at the Board of Supervisors hearing tentatively scheduled for March 2022.

5. Enforcement

The SCA Ordinance does not change the status or enforcement of illegal structures. While existing structures that were not subject to land use permits prior to the SCA Ordinance, such as sheds, would be considered legal non-conforming, structures that were illegally constructed will not benefit from the exemptions of the SCA Ordinance. Enforcement is carried out through CDA's Code Compliance program, which ensures compliance with the County's laws and regulations for zoning, construction, and environmental health, and is complaint based.

With respect to illegal structures, the ordinance will create a better-defined path to obtain a permit for a structure within the SCA. Any permit for an illegal structure would be evaluated against the standards of the Development Code that are in effect at the time the permit application is received. With regards to illegal construction, when it is discovered that a builder has performed construction without first obtaining the required permits, no construction permits will be issued for development on the property unless those permits are to resolve the violation. In addition, staff will report the builder to the State licensing board.

Comments have suggested the County implement a point-of-sale inspection program to verify that any modifications or improvements to structures on a property are in conformance with the proposed ordinance and were constructed with permits. The Board approved work program does not currently include the development of such a program. Any such program would undergo public input and require approval by the Board of Supervisors.

6. Implications of Senate Bill 9 Implementation

Senate Bill 9 (SB-9) was signed by Governor Newsom on September 16, 2021 and becomes effective January 1, 2022. This bill requires ministerial approval of a housing development of no more than two units in a single-family zone (duplex), the subdivision of a parcel zoned for residential use into two parcels (lot split), or both, if certain requirements are met. The County may apply objective subdivision and design standards that do not conflict with the bill's objective to address an overall shortage of affordable housing, which the State has declared is a "matter of statewide concern."

The CDA's customer service team is currently in the process of evaluating the implications of this and other new laws. SB-9 will apply to parcels located within the boundaries of an urbanized area or urban cluster, as designated by the Unites States Census Bureau. Based on the 2010 Census – Urbanized Area Reference Map for the San Francisco – Oakland Urbanized Area (Figure 1). It appears Woodacre is the only San Geronimo Valley community located within the defined Urbanized Area boundary. The communities of San Geronimo, Forest Knolls, and Lagunitas are excluded, which means SB-9 would not apply. Nevertheless, staff will confirm this finding and report back at the Board of Supervisors hearing tentatively scheduled for March 2022.

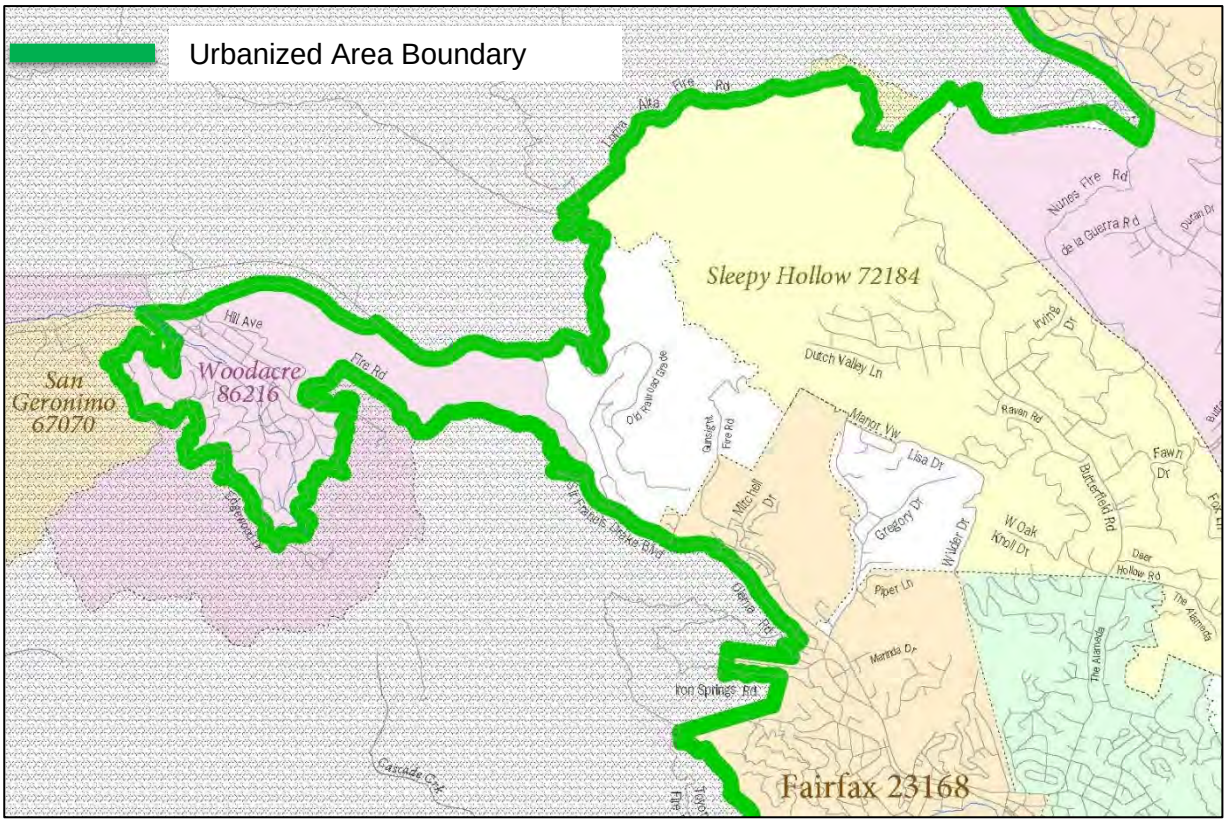


Figure 1: Excerpt of the 2010 Census Urbanized Area Reference Map for the San Francisco - Oakland Urbanized Area

7. Mitigation Bank/Offsite Mitigation Program

Your Commission requested clarification regarding the ordinance approach for offsite mitigation in the absence of an established mitigation bank program. CWP Policy BIO-2.2 prioritizes modifying new development to avoid impacts on sensitive resources or to adequately mitigate impacts on-site, or off-site replacement at a higher ratio. In addition, Mitigation Measure 5.1-1, Provisions 4 and 5, require on-site mitigation for riparian vegetation and habitat restoration, as well as measures to avoid or minimize surface runoff and sediment erosion, respectively. However, if on-site mitigation is not feasible, off-site replacement of riparian vegetation at a 3:1 ratio would be allowed in a functionally equivalent riparian area of San Geronimo Creek or its major tributaries within reaches accessible to anadromous salmonids. Similarly, off-site retrofit to address surface runoff and sediment erosion would be required to occur on existing impaired sites at a 2:1 ratio for total runoff area in a functionally equivalent riparian area of San Geronimo Creek or its major tributaries within reaches accessible to anadromous salmonids. If functionally equivalent off-site mitigation opportunities cannot be identified within these locations, then opportunities can be selected elsewhere in San Geronimo Valley and/or in the downstream Lagunitas Creek watershed using existing site-specific sediment source assessments (e.g. San Geronimo Valley Non-County Maintained Roads Erosion Assessment and Implementation).

The Board approved scope of work does not address the development of a mitigation bank program. The details of such a program would be developed as part of a separate public process and would be adopted by the Board of Supervisors. In the meantime, the specifics for each off-site mitigation opportunity would be addressed on a project-by-project basis.

8. Rezoning Properties for the Proposed SGV (San Geronimo Valley) Combining District

Your Commission and public feedback requested clarification regarding the County's approach to rezoning lots within the San Geronimo Valley with the proposed SGV (San Geronimo Valley) combining district. Development Code Section 22.06.020 (Zoning Districts Established) establishes the -B (Minimum Lot Size) and -BFC (Bayfront Conservation) combining districts. The combining district is a supplementary zoning designation that is applied to a property with a primary residential, commercial, or agricultural zoning district to highlight areas where important site, neighborhood, or area characteristics require particular attention in project planning. In this case, the FSEIR not only mandates specific provisions that would be unique to properties ***within*** the SCA, but would also apply stricter stormwater, erosion and sediment control, and Low Impact Development (LID) requirements to properties ***outside*** the SCA. These requirements would be exclusive to the San Geronimo Valley. The proposed rezoning for the new SGV combining district would provide the mechanism to comply with these mandates, including the provision to enact consistent permit and site assessment requirements for development in both planned and conventional zoning districts within the SCA.

Similar combining districts have been established for the communities of Lucas Valley, Sleepy Hollow, and Tamalpais Valley, while the -BFC combining district consists of tidelands, diked bay marshland, and shoreline subzones. Table 1 shows existing zoning and proposed zoning with the SGV combining district. This rezoning is consistent with the CWP.

Table 1
Existing and Proposed Zoning for the San Geronimo Valley

Existing Zoning	Zoning Description	Proposed Zoning with SGV Combining District
OA	Open Area	SGV-OA
ARP-20	Agriculture, Residential Planned	SGV-ARP-20
ARP-10	Agriculture, Residential Planned	SGV-ARP-10
ARP-7.5	Agriculture, Residential Planned	SGV-ARP-7.5
ARP-2	Agriculture, Residential Planned	SGV-ARP-2
ARP-1	Agriculture, Residential Planned	SGV-ARP-1
RSP-0.05	Residential, Single Family Planned	SGV-RSP-0.05
RSP-0.09	Residential, Single Family Planned	SGV-RSP-0.09
RSP-0.1	Residential, Single Family Planned	SGV-RSP-0.1
RSP-0.47	Residential, Single Family Planned	SGV-RSP-0.47
RSP-0.5	Residential, Single Family Planned	SGV-RSP-0.5
RSP-0.625	Residential, Single Family Planned	SGV-RSP-0.625
RSP-1	Residential, Single Family Planned	SGV-RSP-1
PF-RSP-0.1	Public Facility, Residential, Single Family Planned	SGV-PF-RSP-0.1
RA-B4	Residential, Single Family	SGV-RA-B4
R1-B4	Residential, Single Family	SGV-R1-B4
R1-B3	Residential, Single Family	SGV-R1-B3
R1-B2	Residential, Single Family	SGV-R1-B2
R1-B4	Residential, Single Family	SGV-R1-B4
RCR	Resort and Commercial Recreation	SGV-RCR
VCR	Village Commercial/Residential	SGV-VCR

CP	Commercial, Planned	SGV-CP
H1	Limited Roadside Business	SGV-H1

9. Performance Measures

Comments have suggested the ordinance include performance measures to monitor progress and evaluate the overall ordinance objective to improve fish populations. While the proposed ordinance lacks specific performance measures, the FSEIR Mitigation Measure 5.1-1 requires the County to complete the ordinance within five years of FSEIR certification and provide biannual progress reports to the Board of Supervisors. While details of the report's required contents are not provided, it may be reasonable for the report to address information such as: the number of Site Plan Review applications approved, conditionally approved or denied; project type(s); appeals; enforcement actions; amount of impervious area created or replaced; and amount of riparian vegetation that remains intact. Other information could include counts of adult salmonids within the San Geronimo Valley. Various resource agencies and nonprofit groups annually conduct fish counts intended to document the spawning run of Coho Salmon while also collect data on steelhead, Chinook Salmon, and other species. In addition, information on stream, habitat, fisheries, floodplain, and other restoration projects within the watershed, when available, could also be provided.

10. Pyrophytic Vegetation

The proposed ordinance would exempt the removal or trimming of pyrophytic, combustible live trees and vegetation from Site Plan Review. Comments requested the ordinance include a list of pyrophytic vegetation for clarity. Examples of flammable trees include tanoak, California Bay laurel and Douglas fir species, as well as eucalyptus. Flammable vegetation includes acacia, broom, and pampas grass. Firesafe Marin (www.firesafemarin.org) provides a helpful reference list of fire-resistant plants common to Marin County and pictures of fire hazardous plants. Other resources include the "fire smart landscaping" page of the Marin chapter of the California Native Plant Society for a list of native plants to replace plants considered fire-hazardous, and "how to choose plants" page of the UC Marin Master Gardeners website. Numerous other resources are also available. Staff will work to compile information to include in the ordinance resource materials and will report back at the Board of Supervisors hearing tentatively scheduled for March 2022.

11. Additions up to 500 Square Feet

Staff proposes to modify Section 22.30.045.D.2 regarding limitations of allowable land uses within the SGV combining district pertaining to additions to existing structures, as follows (see Attachment 2):

> Floor area A~~a~~dditions to existing permitted structures that do not increase the footprint within the Stream Conservation Area by more than a cumulative total of 500 square feet ~~of building area~~ and that does not increase the existing horizontal encroachment into the Stream Conservation Area. The 500 square feet of cumulative floor area shall be calculated following the effective date of ~~the Development Code Amendments for the SCA Ordinance~~ this section (, 2022).

This change would allow floor area rather than building area additions, which is consistent with CWP Program BIO-4.q. Program BIO-4.a calls for an expanded SCA ordinance that could, for example, allow additions that do not exceed 500 square feet of total floor area. Floor area, as defined, includes the sum of the gross area of all floors in all buildings on a site, measured from the exterior faces of the exterior walls, including enclosed understory, basement, and attic space that can be easily converted to living area. Unenclosed horizontal

surfaces, such as balconies, decks, porches, and terraces are excluded. Building area is the sum of the floor area of all floors in all buildings on a site and includes garages, carports, storage buildings, and other detached or attached accessory structures, such as decks. Consequently, new garages, carports, storage buildings, and decks would not be allowed.

Commissioners requested staff clarify that any proposed addition would need to conform with the existing development standards of the underlying zoning district, including setbacks, height, and floor area ratio. The proposal to rezoning for the SGV combining district would not change those development standards. A Variance would be required for any adjustment to those standards.

RECOMMENDATION

Staff recommends the Planning Commission review the administrative record, conduct a public hearing, and adopt a resolution (Attachment 1) recommending that the Board of Supervisors adopt amendments to Marin County Code Title 22 (Development Code) for the Stream Conservation Area for the San Geronimo Valley (Attachment 2).

ATTACHMENTS:

1. Recommended Resolution

    Exhibit A: Proposed Development Code Amendments for the Expanded Stream Conservation Area Ordinance for the San Geronimo Valley, November 2021

    Exhibit B: San Geronimo Valley Existing Zoning

    Exhibit C: San Geronimo Valley Proposed Zoning – SGV Combining District

2. Final SEIR, Figure 2-7: Map of San Geronimo Watershed Showing the Distribution of Unimproved Parcels with Potential for Development of One or Two Additional Units Under the Marin CWP (2007).

3. Correspondence:

    - Email from Linda Gomez, dated 11/6/2021
    - Email from Fred Bretz, dated 11/6/2021
    - Email from Fred Bretz, dated 11/6/2021
    - Email from Donell Peters, dated 11/6/2021
    - Email from Niz Brown, dated 11/7/2021
    - Letter from Anonymous, dated 11/8/2021
    - Letter from Judy Schriebman, Sierra Club, dated 11/8/2021
    - Letter from the San Geronimo Valley Stewards, dated 11/9/2021
    - Email from Charlotte AB Troy, dated 11/9/2021
    - Email from Fred and Jean Berensmeier, dated 11/11/2021
    - Email from the San Geronimo Valley Stewards, dated 11/13/2021
    - Email from the San Geronimo Valley Stewards, dated 11/19/2021
    - Email from the San Geronimo Valley Stewards, dated 11/19/2021
    - Letter from the Marin Audubon Society, dated 11/22/2021
    - Email from Gerald Toriumi, dated 12/1/2021
    - Letter from Anonymous, undated

MARIN COUNTY PLANNING COMMISSION

RESOLUTION NO. _____

A RESOLUTION RECOMMENDING THAT THE BOARD OF SUPERVISORS ADOPT AMENDMENTS TO MARIN COUNTY CODE TITLE 22 (DEVELOPMENT CODE) FOR THE STREAM CONSERVATION AREA FOR THE SAN GERONIMO VALLEY

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SECTION I: FINDINGS

1. **WHEREAS**, the Marin County Community Development Agency proposes a set of amendments to the Marin County Development Code Title 22 (Development Code), which establishes zoning and subdivision regulations that govern the development and use of private and public land, buildings, and structures located within the unincorporated areas of Marin County. The proposed amendments (Exhibit A) would modify Title 22 (Development Code) for the stream conservation area for the San Geronimo Valley by: (1) establishing a new SGV combining district in Section 22.14.050, Table 2-11, B-Combining District Development Standards, to apply uniform standards for all zoning districts within the San Geronimo Valley; amending the text of Section 22.06.050 (Exemptions from Land Use Permit Requirements) regarding exemptions for various activities, uses of land, and other improvements; establishing new development standards in Section 22.30.045 (San Geronimo Valley Community Standards) for development located in the stream conservation area within the San Geronimo Valley; amending Chapter 22.52 (Site Plan Review) to require Site Plan Review for new development located within the stream conservation area; and incorporating select technical terms and phrases from the Countywide Plan in Chapter 22.130 (Definitions). The proposed amendments are applicable to all perennial and intermittent streams, and ephemeral streams that either: a) supports riparian vegetation for a length of 100 feet or more; and/or b) supports special-status species and/or sensitive natural community type regardless of the extent of riparian vegetation associated with the stream.

2. **WHEREAS,** the Marin County Community Development Agency proposes to rezone all lots within the boundaries of the San Geronimo Valley for the new SGV (San Geronimo Valley) combining district, as shown on Exhibits B and C, San Geronimo Valley Existing and Proposed Zoning, to establish consistent permit and site assessment requirements in planned and conventional zoning districts within the stream conservation area in the San Geronimo Valley.

3. **WHEREAS**, the Development Code implements the goals, policies and programs of the Marin Countywide Plan (CWP) which are necessary to protect the public health, safety, and welfare of residents and businesses in the unincorporated areas of Marin County.

4. **WHEREAS**, the 2007 Marin Countywide Plan ("CWP") establishes goals, policies and implementing programs for riparian protection. Pursuant to Goal BIO-4 Riparian Conservation, the CWP designates Stream Conservation Areas along perennial, intermittent, and ephemeral streams. Development setbacks are established from all streams based upon the location of the top of stream bank or presence of riparian vegetation. The policies of the CWP aim to promote natural stream channel function, control exotic vegetation, protect riparian vegetation, promote riparian protection, maintain channel stability and minimize runoff.

5. **WHEREAS**, the CWP provides that development applications shall not be permitted if a project adversely alters hydraulic capacity; causes a net loss in habitat acreage, value or function; or degrades water quality. Hydraulic capacity refers to the rate and timing of stream flows produced by rainfall and is a measure of the efficiency of draining an area that is affected by the level of imperviousness. Habitat function means the chemical, physical and biological processes that allow an ecosystem to exist and maintain its integrity (e.g., food, water, shelter, migration corridors, spawning, nesting or breeding sites; shade, and nutrients). Habitat value means the aspects of habitat valued by society but not necessary for the existence and function of the ecological unit (e.g., aesthetic, recreational, flood control, groundwater recharge). Water quality refers to the chemical, physical and biological characteristics of water within a stream which can be measured by indicators such as pH, temperature, suspended solids, dissolved solids, color, concentration of pollutants, and the prevalence of certain bacteria or insects.

6. **WHEREAS**, the proposed amendments to the Development Code will implement Program BIO-4.a (Adopt Expanded SCA Ordinance) of the Countywide Plan and will further the implementation of Programs BIO-4.d (Establish Functional Criteria for Land Uses in SCAs), BIO-4.e (Identify Proposals Within SCAs), BIO-4.f (Identify Potential Impacts to Riparian Systems), BIO-4.g (Require Site Assessment), BIO-4.h (Comply with SCA Criteria and Standards), BIO-4.i (Replace Vegetation in SCAs) and BIO-4.q (Develop Standards Promoting Use of Permeable Materials).

7. **WHEREAS**, the proposed amendments to the Development Code establish the purpose, applicability, standards, permit procedures and findings necessary to implement the policies of the CWP relating to riparian protection.

8. **WHEREAS**, the proposed amendments to the Development Code are exempt from the requirements of CEQA, pursuant to Sections 15307 and 15308, Classes 7 and 8 of the State CEQA Guidelines because the proposed amendments set the regulatory framework for permitting in accordance with the CWP and are intended to strengthen and ensure consistent application of standards for the maintenance, restoration, enhancement, and protection of natural resources and the environment.

9. **WHEREAS**, on November 8, 2021 and December 13, 2021, the Marin County Planning Commission held a duly noticed public workshop and hearing, respectively, to take public testimony and consider the proposed Development Code amendments to establish the stream conservation area for the San Geronimo Valley.

SECTION II: ACTION

NOW THEREFORE, BE IT RESOLVED that the Marin County Planning Commission recommends that the Board of Supervisors adopt amendments to the Marin County Code Title 22 (Development Code) to establish the stream conservation area for the San Geronimo Valley.

SECTION VI: VOTE

PASSED AND ADOPTED at a regular meeting of the Planning Commission of the County of Marin held on this 13th day of December, 2021 by the following vote:

AYES: COMMISSIONERS

NOES:

ABSENT:

CHRISTINA DESSER, CHAIR
MARIN COUNTY PLANNING COMMISSION

Attest:

ANA HILDA MOSHER
Planning Commission Recording Secretary

Exhibit A

Proposed Development Code Amendments for the Expanded Stream Conservation Area for the San Geronimo Valley

November 2021

[This draft includes annotations.]

[Revisions since the October 2021 draft are shown in yellow highlights.]

22.06.050 – Exemptions from Land Use Permit Requirements

The following activities, uses of land, and other improvements, are permitted in all zoning districts and do not require a land use permit; however, other permits may be required in compliance with Subsection G., below.

A. Sitework. The installation of irrigation lines, decks, platforms, on-site paths, driveways, and other improvements that do not increase lot coverage, and are not over 18 inches above grade. Improvements located within a Stream Conservation Area in the San Geronimo Valley combining district are not exempt. Improvements that are necessary to meet accessibility requirements, regardless of whether they are subject to building or grading permits, are also exempt in all zoning districts.

[This change implements Mitigation Measure 5.1-1, Provision 1 which mandates expanding the types of improvements that require discretionary review to include any activity, use of land, or other improvement that proposes: a) grading or would otherwise expose soil; b) increase lot coverage or surface runoff; c) removal of vegetation or woody riparian vegetation; or d) an alteration to the bed, bank, or channel of any stream located within the SCA in the San Geronimo Valley."]

B. Governmental activities. Official activities and development of the County, the Marin Emergency Radio Authority, the State or an agency of the State, or the Federal Government on land owned or leased by a governmental agency are exempt from discretionary permits except Coastal Permits.

C. Interior remodeling. Interior alterations that do not:

1. Result in an increase in the gross floor area within the structure;
2. Change the permitted use; and
3. Change the exterior appearance of the structure.

D. Repairs and maintenance. Ordinary repairs and maintenance of an existing improvement, provided that the repairs and maintenance work do not:

1. Result in any change of the approved land use of the site or improvement; and
2. Expand or enlarge the improvement.

E. Play structures. Typical play structures and play equipment that are not required to have building or grading permits by Title 19 or Title 23 of the County Code and do not exceed 15 feet in height. Play structures located within a Stream Conservation Area in the San Geronimo Valley combining district are not exempt.

[This change implements Mitigation Measure 5.1-1, Provision 1]

F. **Accessory Dwelling Units.** Accessory Dwelling Units that comply with Development Code Section 22.32.120.A (Residential Accessory Dwelling Units) and the tables in this article entitled Allowed Uses and Permit Requirements.

G. **Utilities.** Public utility facilities shall be exempt from land use permit requirements of this Development Code only to the extent provided by Government Code Section 53091, and the California Public Utilities Code.

H. **Solar Energy Systems.** Solar energy systems that do not exceed the height limit of the governing zoning district for structures or the roof height of a building by more than two feet, whichever is less restrictive. Solar energy systems within a Stream Conservation Area within the San Geronimo Valley are not exempt, unless the exemption is required by State law.

[This change implements Mitigation Measure 5.1-1, Provision 1]
[See Government Code 65850.5(a) regarding solar energy systems]

I. **Electronic Vehicle Charging Stations.** Electronic Vehicle Charging Stations are exempt from the land use permit requirements of this Development Code. Electronic Vehicle Charging Stations within a Stream Conservation Area within the San Geronimo Valley are not exempt, unless the exemption is required by State law.

[This change implements Mitigation Measure 5.1-1, Provision 1]
[See Government Code 65850.7(4)(b) regarding Electric Vehicle Charging Stations]

J. **Other permits may still be required.** A permitted land use that is exempt from a land use permit or has been granted a land use permit may still be required to obtain Building Permits or other permits before the use is constructed or otherwise established and put into operation. Nothing in this Article shall eliminate the need to obtain any other permits or approvals required by:

1. Other provisions of this Development Code, including any subdivision approval required by Article VI (Subdivisions);

2. Other provisions of the County Code, including but not limited to Building Permits, Grading Permits, or other construction permits if they are required by Title 19, or a business license if required by Title 5; or

3. Any other permit required by a regional, State or Federal agency.

4. All necessary permits shall be obtained before starting work or establishing new uses.

22.14.050 – Minimum Lot Size "-B" Combining District

A. Purpose. The Minimum Lot Size "-B" combining district is intended to establish lot area, setback, height, and floor area ratio (FAR) requirements for new development that are different from those normally applied by the primary zoning district applicable to a site; and to configure new development on existing lots, where desirable because of specific characteristics of the area.

B. Development standards. Where the B combining district is applied, the minimum lot area, setback, height, and floor area ratio standards in Table 2-11 (B Combining District Development Standards) shall be required, instead of those that are normally required by the primary zoning district. The maximum residential density for proposed subdivisions for that portion or portions of properties with sensitive habitat or within the Ridge and Upland Greenbelt or the Baylands Corridor, and properties that lack public water or sewer systems, shall be calculated at the lowest end of the density range as established by the governing Countywide Plan Land Use Designation. This restriction does not apply to lots governed by the Countywide Plan's PD_AERA (Planned Designation – Agricultural and Environmental Reserve Area) land use designation and to lots in the Baylands Corridor that are two acres or less in size that were legally created prior to January 1, 2007. Densities higher than the lowest end of the applicable density range may be considered on a case-by-case basis for new housing units affordable to very low and low income households that are capable of providing adequate water and sanitary services, as long as the development complies with the California Environmental Quality Act and all other applicable policies in the Countywide Plan including, but not limited to, those governing environmental protection.

TABLE 2-11
B COMBINING DISTRICT DEVELOPMENT STANDARDS

<table>
<tr><th rowspan="2">Zoning District</th><th rowspan="2">Minimum Lot Area (1)</th><th colspan="3">Minimum Setback Requirements (2)</th><th colspan="2">Height Limit (3)</th><th rowspan="2">Maximum FAR (4, 5)</th></tr>
<tr><th>Front</th><th>Sides</th><th>Rear</th><th>Primary</th><th>Accessory</th></tr>
<tr><td>B1</td><td>6,000 sq.ft.</td><td rowspan="2">25 ft.</td><td>5 ft., 10 ft. on street side</td><td rowspan="4">20% of lot depth to 25 ft. max.</td><td rowspan="6">30 ft.</td><td rowspan="6">16 ft.</td><td rowspan="6">0.30</td></tr>
<tr><td>B2</td><td>10,000 sq.ft.</td><td>10 ft.</td></tr>
<tr><td>B3</td><td>20,000 sq.ft.</td><td rowspan="3">30 ft.</td><td>15 ft.</td></tr>
<tr><td>B4</td><td>1 acre</td><td>20 ft.</td></tr>
<tr><td>B5</td><td>2 acres</td><td rowspan="2">20 ft., 30 ft. on street side</td><td rowspan="2">30 ft.</td></tr>
<tr><td>B6</td><td>3 acres</td></tr>
<tr><td>BD</td><td colspan="7">See Section 22.30.050 (Sleepy Hollow Community Standards)</td></tr>
<tr><td>BLV</td><td colspan="7">See Section 22.30.040 (Lucas Valley Community Standards)</td></tr>
<tr><td><u>SGV</u></td><td colspan="7"><u>See Section 22.30.045 (San Geronimo Valley Community Standards)</u></td></tr>
</table>

[The creation of the SGV combining district implements Mitigation Measure 5.1-1, Provision 2 mandating "consistent permit and site assessment requirements in planned and conventional zoning districts."]

Notes:

(1) Minimum lot area shown applies except where Section 22.82.050 (Hillside Subdivision Design) establishes a different standard.

(2) See Section 22.20.090 (Setback Requirements and Exceptions) for setback measurement, allowed projections into setbacks, and exceptions to required setbacks.

(3) See Section 22.20.060 (Height Measurement and Height Limit Exceptions) for height measurement and exceptions. Single-family dwellings over 30 feet in height require Design Review approval in compliance with Chapter 22.42 (Design Review), and single-family dwellings over 35 feet in height require Design Review and Variance approval in compliance with Chapters 22.42 (Design Review) and 22.54 (Variances).

(4) Single-family dwellings that contain over 3,500 square feet of floor area require Design Review approval in compliance with Chapter 22.42 (Design Review).

(5) The maximum non-residential and non-agricultural floor area for that portion or portions of properties with sensitive habitat or within the Ridge and Upland Greenbelt or the Baylands Corridor, and properties that lack public water or sewer systems, shall be calculated at the lowest end of the floor area ratio range as established by the governing Countywide Plan Land Use Designation. The floor area ratio restrictions do not apply to additions to non-residential and non-agricultural structures not exceeding 500 square feet. This restriction does not apply to lots governed by the Countywide Plan's PD-AERA (Planned Designation – Agricultural and Environmental Reserve Area) land use designation and to lots in the Baylands Corridor that are two acres or less in size that were legally created prior to January 1, 2007. Densities higher than the lowest end of the applicable density range may be considered on a case-by-case basis for new housing units affordable to very low and low income households that are capable of providing adequate water and sanitary services.

Chapter 22.30 – Standards for Specific Communities

Sections:

22.30.045 – San Geronimo Valley Community Standards

A. **Applicability.** The standards of this Section apply to development and land uses within the area identified as San Geronimo Valley in the Countywide Plan (San Geronimo Valley Land Use Policy Map 7.10.0) and the governing SGV (San Geronimo Valley) combining district.

[The San Geronimo Valley Community Standards implement the new SGV combining district created in 22.14.050 Table 2-11, B Combining District Development Standards. The SGV combining district implements FSEIR Mitigation Measure 5.1-1, Provision 2.]

B. **General Stream Conservation Area Standards**. The standards of this Section apply to development and land uses within Stream Conservation Areas in the governing SGV (San Geronimo Valley) combining district.

C. **Site Assessment.** A Site Assessment is required when development is proposed in the Stream Conservation Area or when full compliance with subsection D below would not be met.

[Source: CWP BIO-4.1 and CWP Program BIO-4.g.]

[See Exhibit D: Site Assessment Requirements for Development Located in the Stream Conservation Area in the San Geronimo Valley.]

D. **Limitations on Uses.** Allowable land uses subject to the SGV combining district and located within the Stream Conservation Area shall be limited to the following;

1. Maintenance and repair of existing permitted structures;

2. Floor area ~~A~~additions to existing permitted structures that do not increase the footprint within the Stream Conservation Area by more than a cumulative total of 500 square feet ~~of building area~~ and that does not increase the existing horizontal encroachment into the Stream Conservation Area. The 500 square feet of cumulative floor area shall be calculated following the effective date of ~~the Development Code Amendments for the SCA Ordinance~~ this section (, 2022).

[Source: CWP Program BIO-4.a.]

[Section 24.04.560 – Drainage setbacks - requires a minimum 20-foot setback from the top of bank, or 20 feet plus twice the channel depth measured from the toe of the near embankment, whichever is greater, from any creek, channel or

other major waterway. This regulation is governed by the Department of Public Works.]

3. Projects to improve fish and wildlife habitat;

4. Driveway, road and utility crossings, if no other location is feasible;

5. Water-monitoring installations;

6. Passive recreation that does not significantly disturb native species.

   [Passive recreation is defined as a type of recreation that does not require the use of organized play areas. Examples may include wildlife observation, swimming, and kayaking. See 22.130 for definition.]

7. Necessary water supply and flood control projects that minimize impacts to stream function and to fish and wildlife habitat;

8. Agricultural uses that do not result in any of the following:

   a) The removal of woody riparian vegetation;

   b) The installation of fencing within the Stream Conservation Area that prevents wildlife access to the riparian habitat within the Stream Conservation Area;

   c) Animal confinement within the Stream Conservation Area; and

   d) A substantial increase in sedimentation.

   Land uses and improvements not listed above are prohibited, unless such improvements and land use meet the criteria for an exception in subsection E, below.
   [Source: CWP BIO-4.1]

E. **Exceptions.** Exceptions to full compliance with all Stream Conservation Area criteria and standards may be allowed only if the following is true:

1. A lot falls entirely within the Stream Conservation Area; or

2. Development on the parcel entirely outside the Stream Conservation Area either is infeasible or would have greater impacts on water quality, wildlife habitat, other sensitive biological resources, or other environmental constraints than development within the Stream Conservation Area.

[Marin County Code Section 22.130 defines "feasible" as "that which is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors."]
[Source: CWP Policy BIO-4.1]

F . **Standard Management Practices**. Development in the Stream Conservation Area subject to the SGV combining district shall incorporate appropriate Standard Management Practices identified in the Site Assessment, unless site specific measures identified through environmental review would result in equal or greater environmental benefits,
[Source: MM 5.1-1, Provision 4]

[See Standard Management Practices definition in 22.130.]

[Refer to Exhibit E: Draft Standard Management Practices for Development Located in the Stream Conservation Area in the San Geronimo Valley.]

Chapter 22.52 – Site Plan Review

Sections:

22.52.010 – Purpose of Chapter

This Chapter provides procedures for Site Plan Review consisting of a review of site plans for the arrangement and design of physical improvements in order to implement the goals of the Countywide Plan and is intended to ensure that:

A. Sound and creative design principles are used by applicants in designing proposed projects, which will result in high quality site planning;

B. The natural heritage and beauty of the County will be preserved and adverse physical effects which might otherwise result from unplanned or inappropriate development, design, or placement are minimized or eliminated.

22.52.020 – Applicability

The provisions of this Chapter apply under any of the following circumstances:

A. Proposed development would increase the lot coverage above 75 percent on a single family residential lot.

B. Site Plan Review was required by a Master Plan, Design Review Waiver, or as a mitigation measure for a previous planning permit approval.

C. The construction of any new driveway that exceeds a length of 250 feet in the A2, C1, H1, RA, RR, RE, R1, R2, and VCR zoning districts.

D. All development and improvements on lots accessed by paper streets, without regard to the size of the lots or the applicable zoning district.

E. In those instances where a vacant legal lot of record in the Countywide Plan's City-Centered, Baylands, or Inland Rural Corridor is proposed for development, except for those activities, uses of land, and other improvements subject to the SGV combining district in subsection F below, any proposed development within the Countywide Plan's Stream Conservation Area that adjoins a mapped anadromous fish stream and tributary shall be subject to Site Plan Review as provided by this chapter if the lot is zoned A, A-2, RA, H1, O-A, RR, RE, R1, R2, C-1, A-P, or VCR, including all combining zoning districts. Development includes all physical improvements, including buildings, structures, parking

and loading areas, driveways, retaining walls, fences, and trash enclosures. The determination of the applicability of this requirement shall be based on the streams and tributaries shown on the map entitled "Marin County Anadromous Fish Streams and Tributaries," which is maintained and periodically updated by the Community Development Agency.

F. In those instances where an activity, use of land, or other improvement would: a) entail grading or otherwise expose soil; b) increase lot coverage or surface runoff; c) remove vegetation or woody riparian vegetation; or d) alter the bed, bank, or channel of any stream within the Countywide Plan's Stream Conservation Area in the SGV combining district, [*Source: Derived from MM 5.1-1, Provision 1]*

G. Any development seaward of the mean higher high tide and any increase of lot coverage within a tidelands area.

22.52.030 – Site Plan Review Exemptions

The following types of development are exempt from Site Plan Review:

A. Development outside of the SGV combining district that is subject to Design Review or Variance requirements.

B. Floating homes.

C. Accessory Dwelling Units that meet the applicable standards set forth in Section 22.32.120.A (category 1), B (category 2), and C (category 3).

[Note: Accessory Dwelling Units must meet the drainage setbacks established per Section 24.04.560.]

C. Signs.

D. The following types of development subject to the SGV combining district:

1. Removal of dead, invasive, or exotic vegetation, including leaf litter, except for woody debris located below the stream top of bank. *[Source: MM 5.1-1, Exemption 1]*

2. Removal or trimming of pyrophytic combustible live trees and/or vegetation consistent with Title 16 – Provision 16.16.040, including tanoak, California bay laurel, and Douglas fir tree species. *[Source: MM 5.1-1, Exemption 2]*

3. Planting of non-pyrophytic native vegetation. *[Source: MM 5.1-1, Exemption 3]*

4. Voluntary creek restoration projects consistent with and authorized under the Marin Resource Conservation District's Permit Coordination Program. *[Source: MM 5.1-1, Exemption 5]*

5. Repair and maintenance, including the replacement, of existing degraded septic systems that incorporate Marin County Stormwater Pollution Prevention Program (MCSTOPPP) minimum erosion and sediment controls and best management practices. *[Source: MM 5.1-1, Exemption 4]*

6. Subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use.

7. Development that is permitted pursuant to Chapter 11.08 (Watercourse Division or Obstruction).

   [Chapter 11.08 pertains to Creek Permit requirements.]

22.52.040 – Application Filing, Processing, and Review

A. **Filing.** An application for a Site Plan Review shall be submitted, filed, and processed in compliance with and in the manner described in Chapter 22.40 (Application Filing and Processing, Fees).

Site Plan Review application forms are available online and at the Agency's public service counter.

B. **Site Plan Review Procedures**. The Director shall approve, conditionally approve, or deny all Site Plan Review applications in compliance with Section 22.42.060 (Decision and Findings), except as otherwise provide in Subsections D and E, below.

C. **Zoning Administrator review.** When the Site Plan Review application is associated with a permit application that requires a public hearing, the Site Plan Review action may be taken by the Zoning Administrator.

D. **Referral to Commission.** When the Director finds that significant policy issues are raised by the proposed project, the Director may refer the Site Plan ~~Design~~ Review application to the Planning Commission for a final action.
[Technical change to refer to Site Plan Review, not Design Review.]

E. **Notice of action and/or hearing date.** Administrative decisions and public hearings on a proposed Site Plan Review application shall be noticed in compliance with Chapter 22.118 (Notices, Public Hearings, and Administrative Actions).

22.52.050 – Decision and Findings

The Review Authority may only approve or conditionally approve an application if all of the following findings are made:

B. The development would be consistent with all the site development criteria established in the Discretionary Development Standards.

C. The development would be consistent with any applicable site development criteria for specific land uses provided in Section 22.30.045, Chapter 22.32 and special purpose combining districts provided in Chapter 22.14 of this Development Code.

D. The development would employ best management practices for drainage and storm water management.

E. The development would hold ground disturbance to a minimum and every reasonable effort would be made to retain the natural features of the area, such as skyline and ridge tops, rolling land forms, knolls, significant native vegetation, trees, rock outcroppings, shorelines, streambeds and watercourses.

F. If substantial ground disturbance is entailed in the development, the site would be adequately landscaped with existing or proposed vegetation at project completion.

G. Development within a Stream Conservation Area in the SGV combining district would not:

1. Adversely alter hydraulic capacity;
2. Result in a net loss in habitat acreage, value or function; and/or
3. Degrade water quality.

[Source: CWP BIO-4.2]

Chapter 22.130 – Definitions

Sections:

22.130.010 – Purpose of Chapter

This Chapter provides definitions of terms and phrases used in this Development Code that are technical or specialized, or that may not reflect common usage.

22.130.020 – Applicability

If any of the definitions in this Chapter conflict with definitions in other chapters of the Marin County Code, these definitions shall prevail for the purposes of this Development Code. If a word used in this Development Code is not defined in this Chapter, or other Titles of the County Code, the most common dictionary definition is presumed to be correct.

22.130.030 – Definitions of Specialized Terms and Phrases

[Source: All proposed definitions are from the Marin Countywide Plan Glossary]

A. Definitions, "A."

Anadromous Fish. Species of fish that mature in the ocean and migrate into streams to spawn.

B. Definitions, "B."

Bankfull. Indicates the height (or stage) of a stream that just fills the stream channel.

R. Definitions, "R."

Recreation, Passive. A type of recreation that does not require the use of organized play areas.

Riparian. Associated with or dependent upon a river, stream, or other water body.

Riparian Habitat. Areas of riparian vegetation that are characterized by plant species that occur along and adjacent to fresh water courses, including perennial and intermittent streams, lakes, springs, and other bodies of fresh water. Riparian habitats include transitional zones between land and water and are distinguished by characteristic woody trees and shrubs, a variety of important ecological functions, and generally high wildlife habitat values.

Riparian Vegetation. Vegetation associated with a watercourse and relying on the higher level of water provided by the watercourse. Riparian vegetation can include trees, shrubs, and/or herbaceous plants. *Woody riparian vegetation* includes plants that have tough, fibrous stems and branches covered with bark and composed largely of cellulose and lignin.

Herbaceous riparian vegetation includes grasses, sedges, rushes and forbs – broad-leaved plants that lack a woody skeleton.

S. Definitions, "S."

Site Assessment. An analysis of the environmental setting of developed or undeveloped land, including but not limited to sensitive wildlife habitats and sensitive resources, such as baylands, wetlands, stream and riparian systems, and special-status species and species of concern. A site assessment may also include findings regarding potential environmental effects resulting from a development application, and recommendations for measures that may avoid or minimize such effects.

Stream. A natural or once natural flowing open drainage channel with an established bed and bank. These consist of perennial, intermittent, and ephemeral streams, including open waterways that have been restored, modified, or channelized, but do not include ditches, culverts, or other above- or below ground conduits constructed specifically for storm drainage function. Perennial and intermittent streams, shown as solid or dashed blue lines (or purple lines) on the most recent appropriate USGS data, and ephemeral streams as defined below, are subject to Stream Conservation Area protection policies. See "Stream Conservation Area (SCA)."

Standard Management Practices. Method or techniques maintained by the Community Development Agency for the protection of hydrologic processes, stream and riparian habitat, and water to avoid or minimize impacts to salmonids within the Stream Conservation Area within the San Geronimo Valley.

Stream, Ephemeral. A watercourse that carries only surface runoff and flows during and immediately after periods of precipitation.

Stream, Intermittent. A watercourse that is temporally intermittent or seasonal and that flows during the wet season, continues to flow after the period of precipitation, and ceases surface flow during at least part of the dry season. Intermittent streams are typically shown as a dashed blue line on USGA data.

Stream, Perennial. A watercourse that flows throughout the year (except for infrequent or extended periods of drought), although surface water flow may be temporarily discontinuous in some reaches of the channel, such as between pools. (Perennial streams can be spatially intermittent but flow all year.)

Stream Conservation Area. An area designated by the Marin Countywide Plan along all natural watercourses shown as a solid or dashed blue line on the most recent appropriate USGS topographic quadrangle map, or along all watercourses supporting riparian vegetation for a length of 100 feet or more, and/or supports special-status species and/or a sensitive natural community type, such as native grasslands, regardless of the extent of riparian vegetation associated with the stream. See Marin Countywide Plan policy BIO-4.1.

[The following language was moved from 22.30.045 – San Geronimo Valley Community Standards.]
The Stream Conservation Area is a buffer established to protect the active channel, water quality and flood control functions, and associated fish and wildlife habitat values along streams.

The Stream Conservation Area encompasses any jurisdictional wetland or unvegetated other waters within the stream channel, together with the adjacent uplands, and supersedes buffer standards defined for Wetland Conservation Areas.

The Stream Conservation Area consists of the watercourse itself between the tops of the banks and a strip of land extending laterally outward from the top of both banks that is the width greater of either:

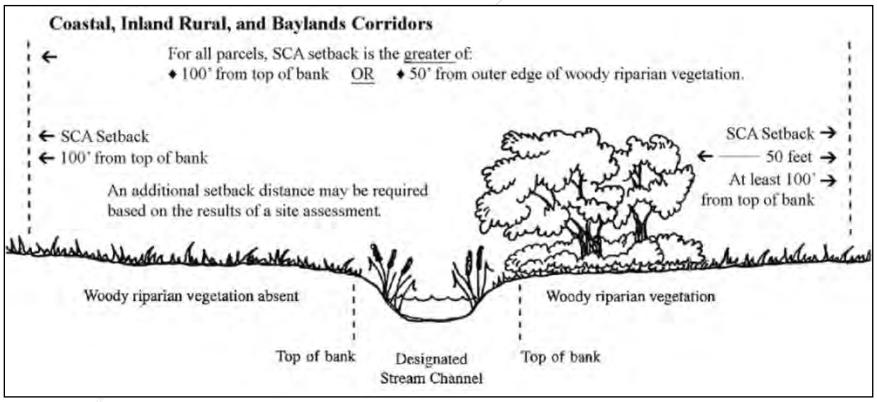
(a) 50 feet landward from the outer edge of woody riparian vegetation associated with the stream; or
(b) 100 feet landward from the top of bank.

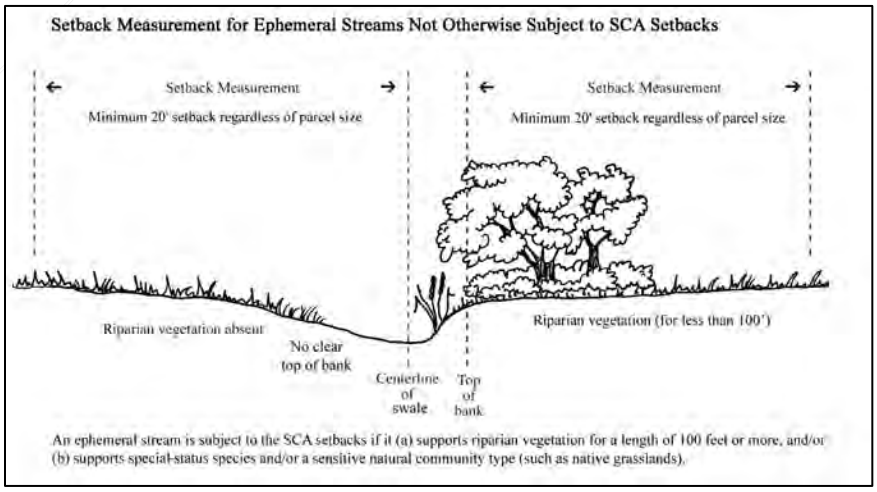
An additional buffer may be required based on the results of a site assessment to protect riparian habitat.

For ephemeral streams, the Stream Conservation Area applies only if: (a) the stream supports riparian vegetation for a length of 100 feet or more, and/or (b) supports special-status species and/or sensitive natural community type, such as native grasslands, regardless of the extent of riparian vegetation associated with the stream, A minimum 20-foot buffer should be required for those ephemeral streams that do not meet these criteria.

[Section 24.04.560 – Drainage setbacks - requires a minimum 20-foot setback from the top of bank, or 20 feet plus twice the channel depth measured from the toe of the near embankment, whichever is greater, from any creek, channel or other major waterway. This regulation is governed by the Department of Public Works.]

[Source: CWP BIO-4.1]





T. Definitions, "T."

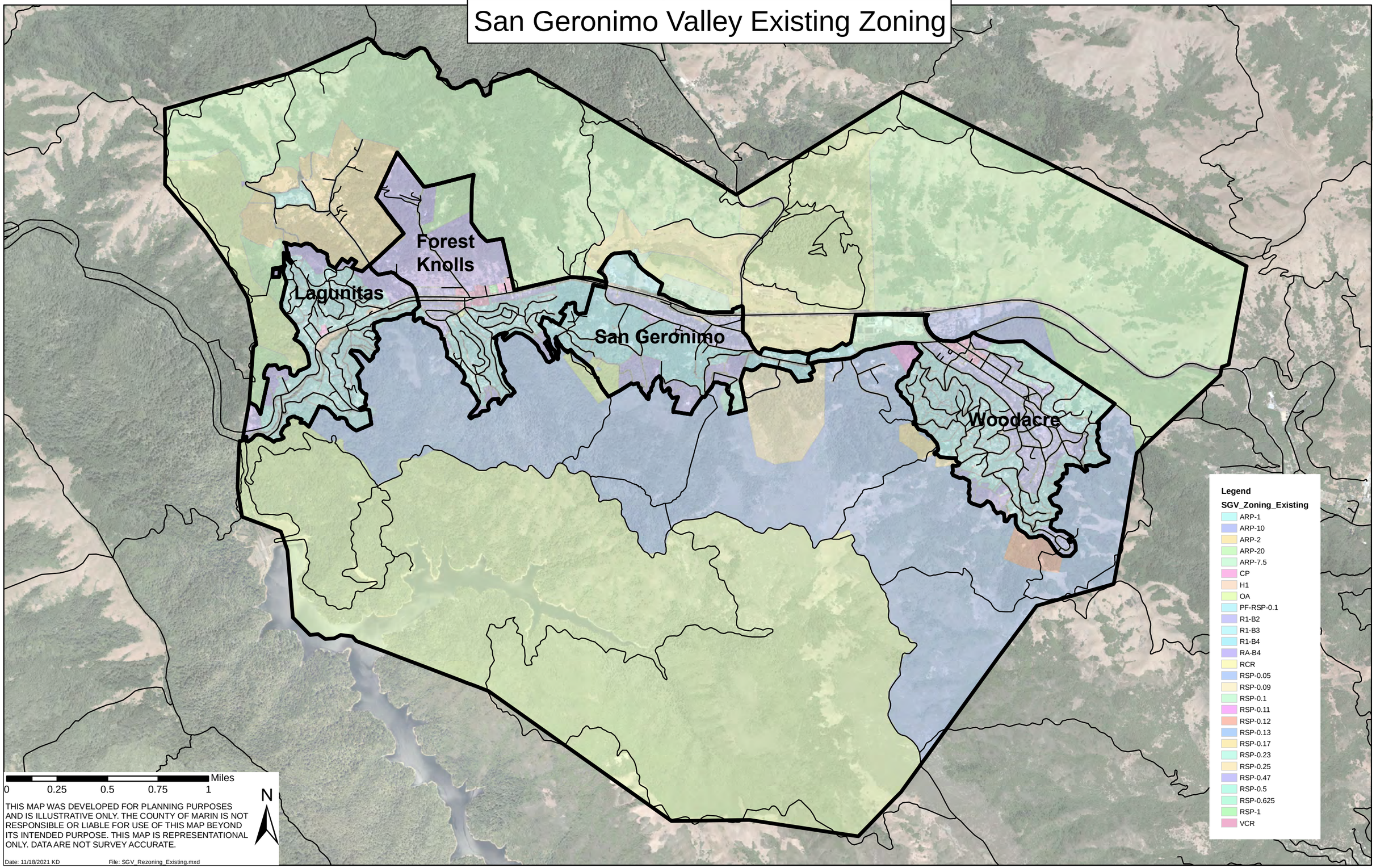
Top of Bank. The elevation at which flow spills out of a stream channel and onto the floodplain.

W. Definitions, "W."

Wetland, Jurisdictional. An area that meets the criteria established by the U.S. Army Corps of Engineers (Corps or COE) for Wetlands (a set forth in their Wetlands Delineation Manual). Such areas come under the jurisdiction of the Corps of Engineers for permitting certain actions such as dredge and fill permitting.

EXHIBIT B

San Geronimo Valley Existing Zoning

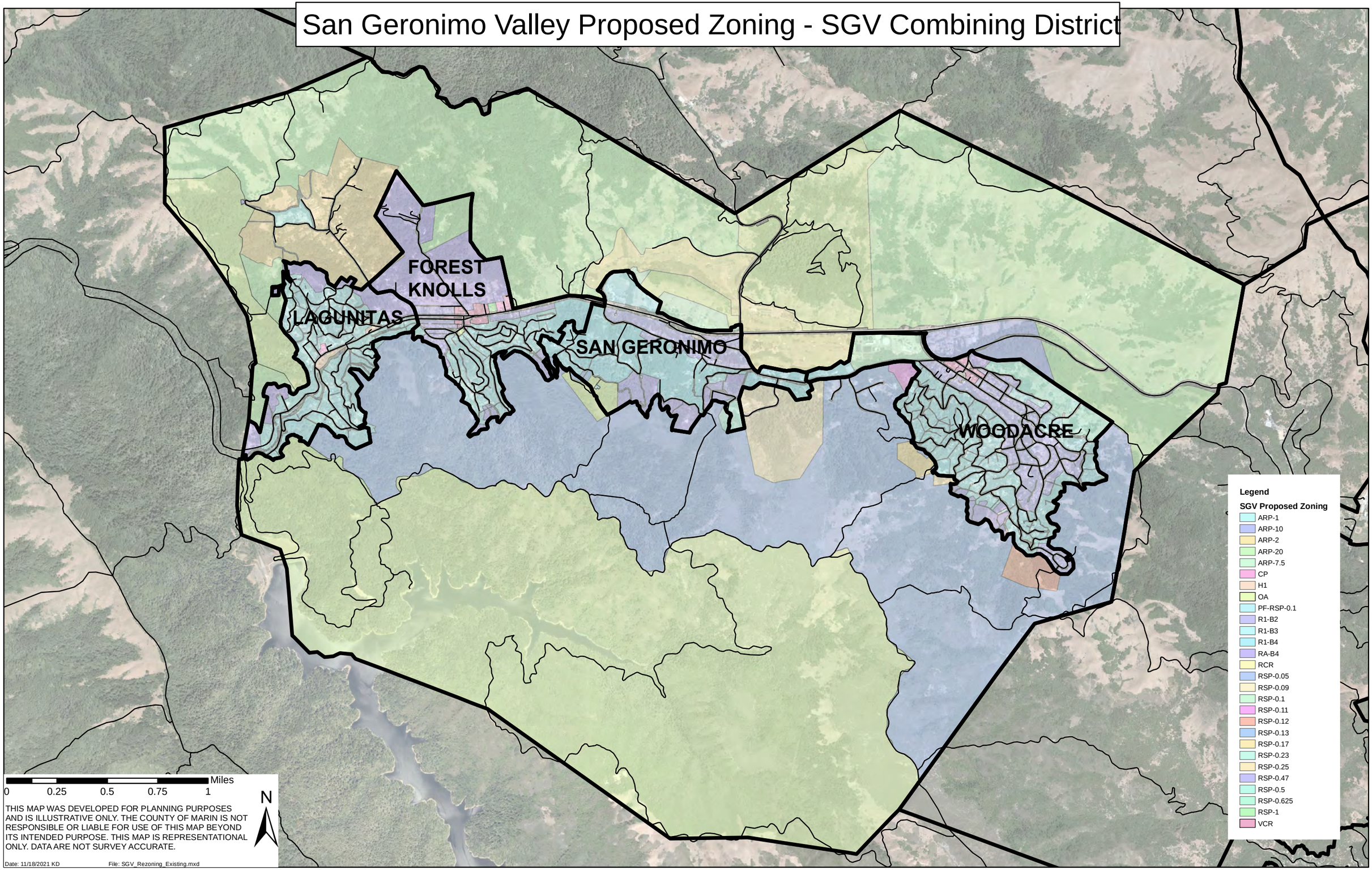


THIS MAP WAS DEVELOPED FOR PLANNING PURPOSES AND IS ILLUSTRATIVE ONLY. THE COUNTY OF MARIN IS NOT RESPONSIBLE OR LIABLE FOR USE OF THIS MAP BEYOND ITS INTENDED PURPOSE. THIS MAP IS REPRESENTATIONAL ONLY. DATA ARE NOT SURVEY ACCURATE.

Date: 11/18/2021 KD File: SGV_Rezoning_Existing.mxd

EXHIBIT C

San Geronimo Valley Proposed Zoning - SGV Combining District



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Date: 11/18/2021 KD File: SGV_Rezoning_Existing.mxd

Mosher, Ana Hilda

From: linda gomez <liniegomez@gmail.com>
Sent: Saturday, November 6, 2021 10:10 AM
To: PlanningCommission
Subject: Reason for discrimination

Please explain why the marin county planning commission has chosen to discriminate against the homeowners who live in San Geronimo valley. I personally find it irresponsible and poorly thought out along with being biased against those including myself who have chosen to make the "peaceful" valley our home

My goodness I thought more well educated folks were in a position to make intelligent decisions

Guess I was wrong

Linda Gomez

Sent from my iPhone

Mosher, Ana Hilda

From: FRED BRETZ <fbretz@comcast.net>
Sent: Saturday, November 6, 2021 10:36 AM
To: PlanningCommission
Subject: Spawn conflict of interest
Attachments: spawn assets jpg darker.jpg; salmon count.pdf; spawn income tax year end .jpg

This letter is to protest the manipulation of San Geronimo creek by organizations that can reap financial rewards by bringing suit and obtaining funds for studies that do not result in greater quantity of coho salmon but in fact financially reward the organizations. Most people who live along the creek are pro the salmon and have seen how ineffective these outside groups are.

** PUBLIC DISCLOSURE COPY **

Return of Organization Exempt From Income Tax

Form **990**

Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except private foundations)

▶ Do not enter social security numbers on this form as it may be made public.

▶ Go to www.irs.gov/Form990 for instructions and the latest information.

Department of the Treasury
Internal Revenue Service

OMB No. 1545-0047

2018

Open to Public Inspection

A For the 2018 calendar year, or tax year beginning JUL 1, 2018 and ending JUN 30, 2019

B Check if applicable:
- ☐ Address change
- ☐ Name change
- ☐ Initial return
- ☐ Final return/ terminated
- ☐ Amended return
- ☐ Application pending

C Name of organization
TURTLE ISLAND RESTORATION NETWORK

Doing business as

Number and street (or P.O. box if mail is not delivered to street address) Room/suite
PO BOX 370

City or town, state or province, country, and ZIP or foreign postal code
FOREST KNOLLS, CA 94933

F Name and address of principal officer: TODD STEINER
SAME AS C ABOVE

D Employer identification number
91-1818080

E Telephone number
(415) 663-8590

G Gross receipts $ 3,177,892.

H(a) Is this a group return for subordinates? ☐ Yes ☒ No

H(b) Are all subordinates included? ☐ Yes ☐ No
If "No," attach a list. (see instructions)

H(c) Group exemption number ▶

I Tax-exempt status: ☒ 501(c)(3) ☐ 501(c) ( ) ◀ (insert no.) ☐ 4947(a)(1) or ☐ 527

J Website: ▶ WWW.SEATURTLES.ORG

K Form of organization: ☒ Corporation ☐ Trust ☐ Association ☐ Other ▶

L Year of formation: 1997 M State of legal domicile: CA

Part I Summary

Activities & Governance

1 Briefly describe the organization's mission or most significant activities: TURTLE ISLAND RESTORATION NETWORK IS A LEADING ADVOCATE FOR THE WORLD'S OCEANS AND MARINE

2 Check this box ▶ ☐ if the organization discontinued its operations or disposed of more than 25% of its net assets.

3	Number of voting members of the governing body (Part VI, line 1a)	3	7
4	Number of independent voting members of the governing body (Part VI, line 1b)	4	6
5	Total number of individuals employed in calendar year 2018 (Part V, line 2a)	5	16
6	Total number of volunteers (estimate if necessary)	6	800
7a	Total unrelated business revenue from Part VIII, column (C), line 12	7a	0.
b	Net unrelated business taxable income from Form 990-T, line 38	7b	0.

Revenue

		Prior Year	Current Year
8	Contributions and grants (Part VIII, line 1h)	1,437,108.	1,558,056.
9	Program service revenue (Part VIII, line 2g)	257,702.	1,601,028.
10	Investment income (Part VIII, column (A), lines 3, 4, and 7d)	5,193.	14,946.
11	Other revenue (Part VIII, column (A), lines 5, 6d, 8c, 9c, 10c, and 11e)	2,056.	-2,339.
12	Total revenue - add lines 8 through 11 (must equal Part VIII, column (A), line 12)	1,702,059.	3,171,691.

Expenses

13	Grants and similar amounts paid (Part IX, column (A), lines 1-3)	13,967.	0.
14	Benefits paid to or for members (Part IX, column (A), line 4)	0.	0.
15	Salaries, other compensation, employee benefits (Part IX, column (A), lines 5-10)	780,881.	675,194.
16a	Professional fundraising fees (Part IX, column (A), line 11e)	0.	0.
b	Total fundraising expenses (Part IX, column (D), line 25) ▶ 157,309.		
17	Other expenses (Part IX, column (A), lines 11a-11d, 11f-24e)	764,026.	2,130,836.
18	Total expenses. Add lines 13-17 (must equal Part IX, column (A), line 25)	1,558,874.	2,806,030.
19	Revenue less expenses. Subtract line 18 from line 12	143,185.	365,661.

Net Assets or Fund Balances

		Beginning of Current Year	End of Year
20	Total assets (Part X, line 16)	3,306,247.	3,603,144.
21	Total liabilities (Part X, line 26)	520,559.	437,929.
22	Net assets or fund balances. Subtract line 21 from line 20	2,785,688.	3,165,215.

Part II Signature Block

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than officer) is based on all information of which preparer has any knowledge.

Sign Here

▶ Signature of officer — Date

▶ TODD STEINER, EXECUTIVE DIRECTOR
Type or print name and title

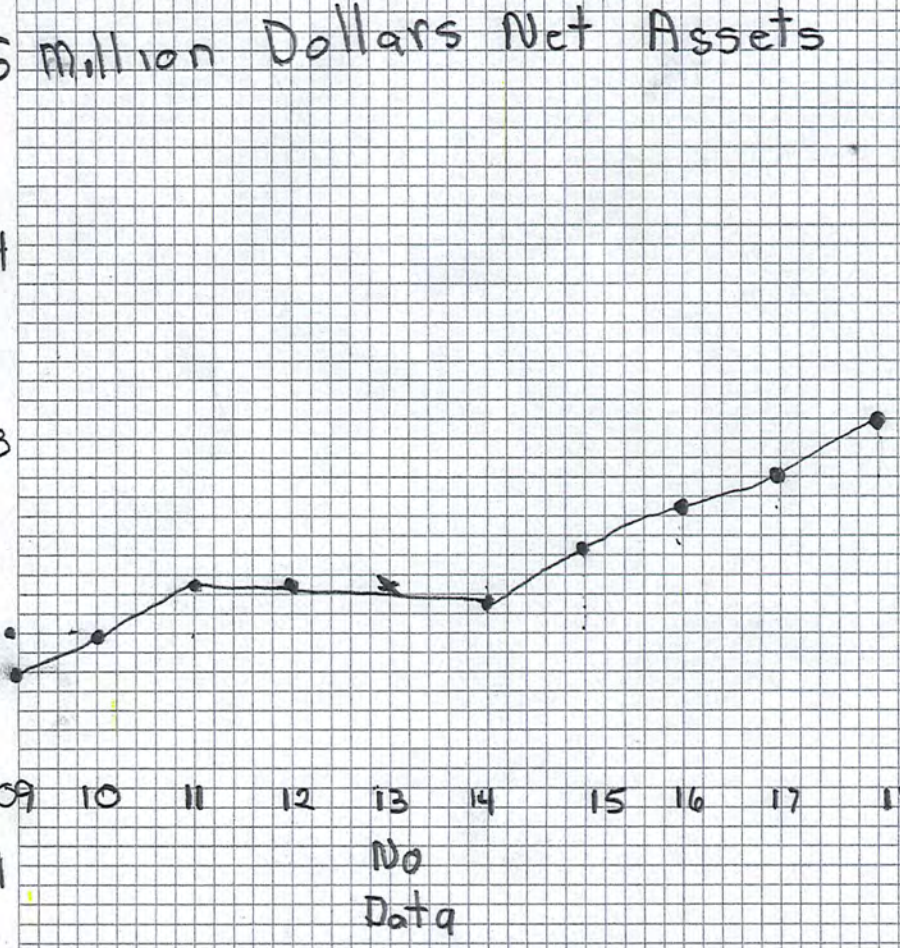
Paid Preparer Use Only

Print/Type preparer's name: MICHAEL LUMSDEN	Preparer's signature: MICHAEL LUMSDEN	Date: 07/15/20	Check ☐ if self-employed	PTIN: P01262236
Firm's name ▶ MOSS ADAMS LLP			Firm's EIN ▶ 91-0189318	
Firm's address ▶ 101 SECOND STREET SUITE 900 SAN FRANCISCO, CA 94105			Phone no. 415-956-1500	

May the IRS discuss this return with the preparer shown above? (see instructions) ☒ Yes ☐ No

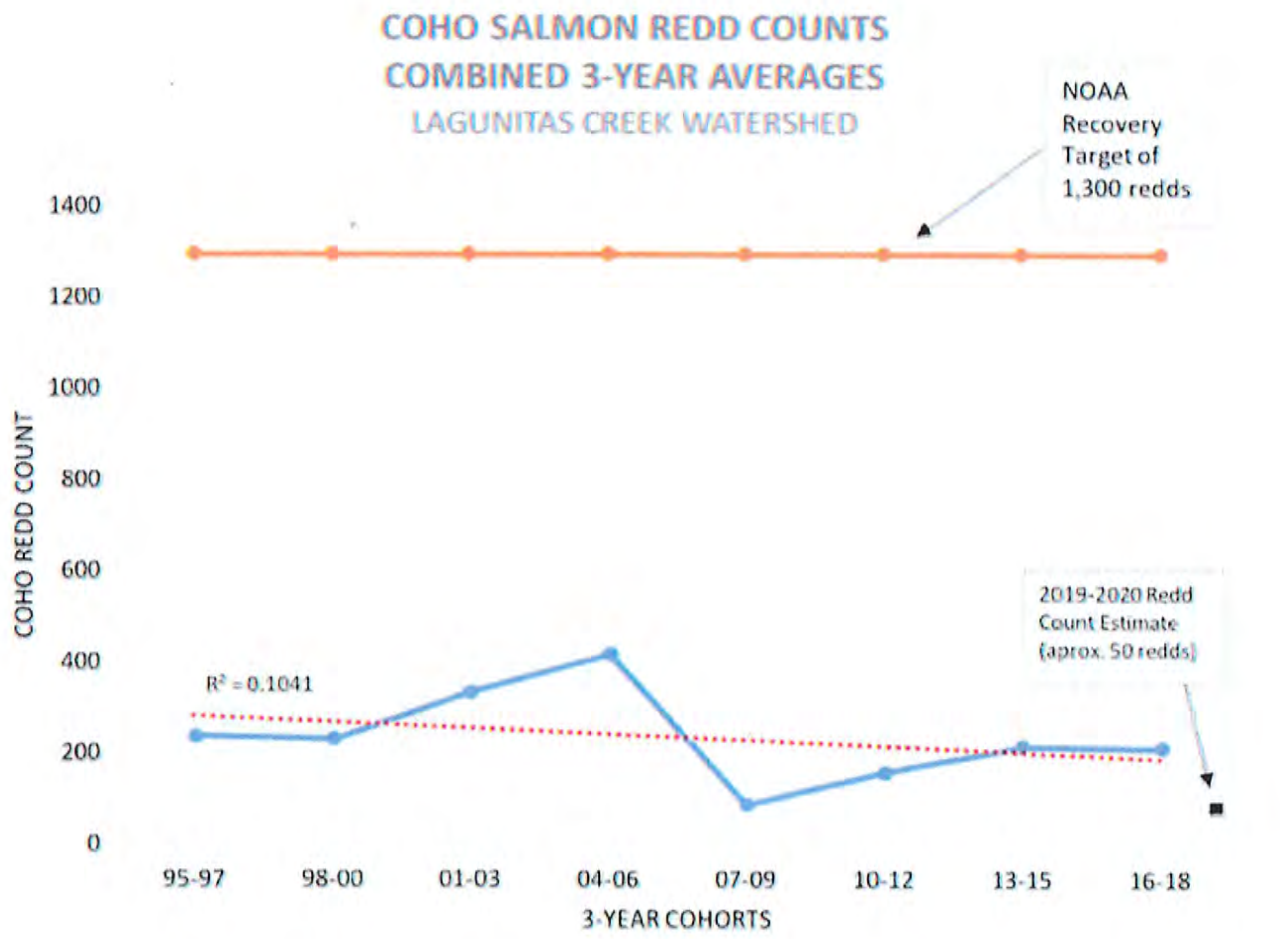
SEE SCHEDULE O FOR ORGANIZATION MISSION STATEMENT CONTINUATION

Turtle Island Restoration Network (Spawn)



TURTLE ISLAND RESTORATION NETWORK

ADVOCACY 30 YEARS VIGILANCE



Mosher, Ana Hilda

From: FRED BRETZ <fbretz@comcast.net>
Sent: Saturday, November 6, 2021 10:55 AM
To: PlanningCommission
Subject: spawn conflict of interest 2

Spawn can make money by receiving grants from various government agencies for restorations on San Geronimo valley parcels.By having greater restrictions placed on these parcels they lose market value and are more easily obtainable by spawn.By being a non profit they have lessened property taxes and decrease their holding cost. Spawn cannot have both a restoration business and at the same time manipulate the value of local real estate it is at minimum unethical.

Mosher, Ana Hilda

From: Donell Peters <donell.peters@comcast.net>
Sent: Saturday, November 6, 2021 5:21 PM
To: PlanningCommission
Subject: Comments on Stream Conservation Ordinance

SPAWN is blaming valley residents for their failures to re-populate fish.
SPAWN fails to address outside influences, beyond the valleys control; global warming, pollution, & commercial fishing are examples. As fewer fish return to spawn yearly, the ocean habitat needs more attention, if species survival is the issue.
Litigation is Spawn's business model. Their comments on the ordinance are unrealistic and impossible to achieve, so they will continue to sue, and get more donations.

I am a homeowner who lives on the creek. Fire safety is the #1 concern right now due to global warming. The ordinance has to be in alignment with the Marin Wildfire recommendations.
Making us responsible for extra expenses that have no proven result is punitive. It's very clear that ocean conditions are the reason the salmon have declined.

Mosher, Ana Hilda

From: niz@niz.com
Sent: Sunday, November 7, 2021 6:41 PM
To: PlanningCommission
Subject: Facts for you to consider.
Attachments: Lagunitas Adult Salmonid Monitoring 2021.pdf

The importance of Lagunitas Creek for the survival of the coho salmon in California is exaggerated.
There are other creeks that are important and and the species is plentiful enough further north such that coho won't be extinct.
Someone decided this was an evolutionary significant unit of coho.. who, why??
Those people who make their living supporting the importance of this creek do so because their livelihood depends on it.
The San Geronimo Valley is only 9%.- Nine percent of the Lagunitas watershed.... The report cited below stated "the 2020-2021 season was the second year in a row spawning was concentrated in the main stem of Lagunitas Creek" Yet this is the only portion of the watershed that is affected by this ordinance. (See map on Page 13 of the report)
According to the report "Adult Salmonid Monitoring in the Lagunitas Creek Watershed 2020-2021" by Eric Ettlinger et.al, on page 6 "in 2019 an estimated 11,653 smolts emigrated from the Lagunitas Watershed which was the third highest estimate on record and survival in the ocean was 3% returning to spawn". This tells me the watershed is doing well and that the problem is in the ocean not in our creeks. No amount of draconian stopping of development in the San Geronimo Valley will improve the marine survival.
Because of two years of drought there were only 3 redds in the San Geronimo tributaries for the last two years. (see page 12 of the report) And early surveys revealed no juveniles in the creeks in the valley.(Lagunitas TAC meeting last Friday) So they may already be extinct.
What is the county budget for the county participation in this ordinance.?
There are a letters asking for more restrictions. 39 people chimed in but only 6 are real stakeholders. The remainder live outside the valley and are not affected by this ordinance.. It is just a knee jerk conservationist response.

Niz Brown - resident of Woodacre since 1963.

ADULT SALMONID MONITORING

IN THE LAGUNITAS CREEK WATERSHED 2020-2021

Eric Ettlinger, Aquatic Ecologist, Marin Municipal Water District
Annabelle Howe, Watershed Stewards Program Member
Jaclyn Sherman, Watershed Stewards Program Member

In collaboration with the National Park Service, Point Reyes National Seashore and the Salmon Protection and Watershed Network (SPAWN)

September 2021

MARIN WATER

NATIONAL PARK SERVICE

SPAWN

Contact Information:

Address: Marin Water, 220 Nellen Avenue, Corte Madera, CA 94925
Phone: (415) 945-1193
Email: eettlinger@marinwater.org

Acknowledgements

Marin Water would like to thank the National Park Service, California State Parks, and the private landowners in the watershed for granting us access onto their properties to conduct this monitoring.

Cover photo: Steelhead Trout in Lagunitas Creek (Sherry Lavars, Marin IJ)

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TABLES AND FIGURES

EXECUTIVE SUMMARY

Adult salmonid surveys were conducted by staff and volunteers of Marin Water, the Watershed Stewards Program (WSP), National Park Service (NPS), Salmon Protection and Watershed Network (SPAWN), and the California Department of Fish and Wildlife (CDFW). Surveys were conducted on the main stem of Lagunitas Creek and four tributaries: San Geronimo Creek, Devil's Gulch, Cheda Creek, and Olema Creek. These annual surveys are intended to document the spawning run of Coho Salmon (*Oncorhynchus kisutch*), while also collecting data on steelhead (*O. mykiss*), Chinook or "king" Salmon (*O. tshawytscha*), Chum Salmon (*O. keta*), and Pink Salmon (*O. gorbuscha*). The first survey of the season was conducted by Marin Water on October 6, 2020 and surveys ended on March 22, 2021.

This year, 173 Coho Salmon redds and 343 live Coho Salmon were observed in the Lagunitas Creek Watershed. The official coho escapement estimate was 346, based on a conservative assumption of two spawners per redd. The run was 73% of the average observed since 1997 and an increase of 57% over the spawning run three years earlier. Coho spawning was distributed as follows: 83% in Lagunitas Creek, 8% in San Geronimo Creek and its tributaries, 7% in Olema Creek, and 2% in Devil's Gulch.

The steelhead run was somewhat below the ten-year average with 145 redds and 49 live fish observed. The steelhead escapement was 290 adults, based on an assumption of two spawners per redd. Marin Water and WSP surveyors in Lagunitas Creek observed 44 live Chinook Salmon and 19 Chinook Salmon redds. This season, no live Pink Salmon or Chum Salmon were sighted, and surveyors saw no evidence of redds for either species.

INTRODUCTION

Salmonids of the Lagunitas Creek Watershed

Two species of salmonids are found in the Lagunitas Creek Watershed year-round: Coho Salmon (*Oncorhynchus kisutch*) and steelhead (*O. mykiss*). Adult Chinook or "king" Salmon (*O. tshawytscha*) are observed spawning in most years, while Chum Salmon (*O. keta*) are observed in a minority of years. In 2017 Pink Salmon (*O. gorbuscha*) became the fifth salmonid species to be documented in Lagunitas Creek.

Coho Salmon and steelhead populations in the watershed have fluctuated widely since 1970 and are significantly reduced from anecdotal reports of large historic populations. Throughout California, populations of native fish species, including coho and steelhead, have been steadily declining. Human-caused factors for this decline include habitat alterations such as water diversions, road building, timber harvest, urbanization, flood control structures and practices, and climate change (NMFS 2012). This decline resulted in the listing of Coho Salmon in the

Central California Coast Evolutionarily Significant Unit (ESU) as "endangered" under federal and California Endangered Species Acts. Steelhead are listed as federally "threatened." Coho Salmon and steelhead are anadromous fishes, rearing at least partially in freshwater, migrating to the ocean as smolts, spending their adult life in the ocean, and then migrating back into freshwater streams to spawn. Most Coho Salmon from California streams spend approximately 18 months in freshwater (including incubation) and 18 months in the ocean, returning to spawn in their natal stream in their third year, after which they die (Shapalov and Taft 1954, Moyle 2002). They can be grouped into three-year classes, defined as the current generation of spawners, the parent generation that spawned three years earlier, as well as previous generations. Spawning years with relatively poor reproductive success can result in poor spawning runs three years later. While the majority of coho return as three-year-old fish, some males, called jacks, spend less than a year in the ocean before becoming sexually mature and returning to their natal stream to spawn at two years of age (Sandercock 1991). Spawning coho begin to arrive near the mouth of Lagunitas Creek in early fall to begin acclimation to freshwater before migrating upstream (Bratovich and Kelley 1988). The spawning period is generally from mid-November to late-January, but adult coho have been observed from late-October to late-February. The life history of steelhead is more flexible than that of Coho Salmon. Steelhead generally spend one to three years in freshwater and one or two years in the ocean before returning to spawn, although the most common life history pattern is to spend two years in fresh water and one year in the ocean (Shapalov and Taft 1954). Unlike coho, steelhead can return to the ocean after spawning and spawn multiple times. This flexibility means that steelhead do not show strong year class patterns in their spawning runs. Steelhead are generally first observed in Lagunitas Creek in late December or early January and continue spawning through April or even into May. Coho Salmon and steelhead usually spawn at the heads of riffles with gravel substrate (Moyle 2002). Females may excavate small test pits in the gravel substrate before deciding on a site to lay their eggs. Once decided, the female will dig a larger pit (called a "redd") where she deposits her eggs. Often more than one adult male will fertilize the eggs by releasing milt before the female covers the eggs with additional gravel (Moyle 2002). Following spawning, female coho may guard the redd for up to four weeks before dying, while steelhead attempt to return to the ocean.

Location and Organizations

Lagunitas Creek originates on the north slope of Mount Tamalpais and flows in a northwesterly direction for 40 km to Tomales Bay (Figure 1). The lower 19 km is accessible to anadromous salmonids. San Geronimo Creek, Devil's Gulch, Nicasio Creek, and Olema Creek are the major tributaries to Lagunitas Creek. Devil's Gulch, which flows through National Park and State Park land before entering Lagunitas Creek, is the smallest of these tributaries but provides important spawning and rearing habitat for Coho Salmon and steelhead. Other tributaries to Lagunitas

Creek include Cheda Creek, which supports Coho Salmon spawning, and McIsaac Creek, where Coho Salmon have not been seen in many years. The tributaries to San Geronimo Creek that provide spawning habitat include Arroyo, Evans, Larsen, Montezuma and Woodacre Creeks. Fifty-two percent of the land within the Lagunitas Creek watershed is publicly owned by Marin Water, the National Park Service, California Department of Parks and Recreation, and Marin County Parks.

Marin Water is a public agency that withdraws water from the Lagunitas Creek basin in order to provide water to residents of central and southern Marin County. Marin Water operates four reservoirs on the mainstem of Lagunitas Creek and a fifth reservoir on Nicasio Creek. Water is released from Kent Lake to ensure year-round minimum stream flows in Lagunitas Creek (Table 1). In addition, Marin Water releases periodic "upstream migration flows," which are intended to facilitate passage of anadromous fish through shallow areas in the creek, and are required on November 15, December 1, January 1, and February 1 in the absence of a natural storm event preceding those dates.

Table 1. Flow requirements on Lagunitas Creek at S.P. Taylor State Park.

Time Period	Normal Year Flow (cfs)	Dry Year Flow (cfs)
November 1/15* - December 31	20	20
January 1 - March 15	25	20
March 16 - March 31	20	20
April 1 - April 30	16	14
May 1 - June 15	12	10
June 16 - November 1/15*	8	6

* The minimum flow of 20 cubic feet per second (cfs) in November is to begin following the first storm that produces a "trigger" flow of 25 cfs at the USGS gage at S.P. Taylor State Park. In the absence of a storm causing a "trigger" flow, the 20-cfs requirement becomes effective on November 15 of each year.

Marin Water fisheries staff conduct surveys on Lagunitas Creek, San Geronimo Creek, and Devil's Gulch. Surveys on Olema Creek and Cheda Creek are conducted by NPS staff working for Point Reyes National Seashore and the Inventory and Monitoring Program. AmeriCorps members working for The Watershed Stewards Program (WSP) assist NPS and Marin Water staff with their survey work. SPAWN staff and volunteers conduct spawner surveys in five tributaries to San Geronimo Creek, as well as the headwater section of San Geronimo Creek upstream of Woodacre Creek.

METHODS

Marin Water fisheries staff and WSP members walked sections of creek once per week between October 6, 2020 and March 22, 2021. Lagunitas Creek was divided into four sections for weekly surveys (Figure 1): Tocaloma Bridge to Swimming Hole (3.4 km), Swimming Hole to Irving Bridge (3.2 km), Irving Bridge to Shafter Bridge (2.2 km), and Shafter Bridge to Peters Dam (0.8 km). The section of Lagunitas Creek from Tocaloma Bridge downstream to the confluence of Nicasio Creek was surveyed once. In Devil's Gulch, Marin Water biologists surveyed from the mouth to a bedrock cascade approximately three km upstream, which is impassable to coho. We also surveyed a 400 m fork of Devil's Gulch near the upstream end of our survey reach. San Geronimo Creek was walked in two sections: from its confluence with Lagunitas Creek to Meadow Way Bridge (3.8 km) and from Meadow Way Bridge to the confluence of Woodacre Creek (3.4 km). Each stream section was surveyed from the downstream end to the upstream end, apart from the section of Lagunitas Creek downstream of Tocaloma, which was surveyed in a downstream direction using float tubes for the deep sections.

Surveyors recorded observations of redds, live adult salmonids, salmonid carcasses, and test (i.e. incomplete) redds. Live fish were recorded as male, female, jack, or unknown. Their behavior, condition (color, wear marks, pronounced kype, etc.), and their location in relation to landmarks such as tributaries or bridges were noted. All observed spawning activity was also recorded. Marin Water surveyors collected otoliths from carcasses for subsequent life history analyses and tissue samples for genetic analyses by UC Berkeley and the National Marine Fisheries Service (NMFS), respectively. We attempted to determine if female salmonids had spawned by inspecting for retained eggs. Other information recorded during each survey included survey start and stop times, weather conditions, and qualitative observations of stream flow, and water clarity. We intended to collect heads from hatchery origin Chinook salmon, in order to retrieve coded-wire tags, although no carcasses with clipped adipose fins were found.

Redds were classified as having been constructed by one of the salmonid species or recorded as "unknown." Redds were considered to have been conclusively built by one of these species when an identified fish was observed on the redd, or when only one species was present in the creek (e.g., steelhead after January). When fish were not present, redds were classified based on their dimensions, shape, depth, substrate, location, and relative abundance of salmonid species at the time of the survey. When coho were present in the creek, large redds with wide and shallow pits were classified as coho redds. Smaller redds with deep pits and sharp margins were generally classified as steelhead redds after the first live steelhead were observed. Unoccupied redds observed at a time when multiple salmonid species were in the creek and

not displaying clearly diagnostic characteristics were classified as "unknown." Redd classification was evaluated at the end of the season by reviewing field notes for unoccupied redds and by comparing redd dimensions of occupied and unoccupied redds.

Marin Water surveyors assigned a unique number to each redd and marked its location in the field by hanging colored tape (red this year) on adjacent vegetation. Redds were marked this way so no redd would be double counted during subsequent surveys and so any additional redds near that site could be distinguished. Flagging was labeled with the date, the redd number, redd dimensions, and the position of the redd with respect to the channel (i.e. mid-channel, left- or right-bank, etc.). The flag was hung in line with the upstream end of the redd pit, so further enlargement of the redd would be conspicuous during subsequent surveys. If it was determined that a female made a small "test" pit and not a redd, the site was recorded as a "test redd" and flagged with yellow flagging. We also mapped each redd with a hand-held GPS. We measured the maximum length and width of all redds unless fish were actively constructing the redd or displaying spawning behavior. To avoid disturbing fish we hung yellow flagging, in addition to the colored flagging, next to occupied redds as a reminder to measure the redd later when no fish were present. We attempted to identify when redds appeared to have been built on or overlapping older redds. High levels of such "superimposition" can indicate a shortage of adequate spawning habitat. Superimposition can kill eggs deposited in the first redd through physical shock, exposure, displacement into less favorable incubation conditions, or predation (Burgner 1991).

We had no way of positively determining if we were recounting the same fish during subsequent surveys or missing fish during the intervals between surveys. Most surveys on each section were conducted between five and eight days apart. In addition, an attempt was made to quantify double-counted fish after the survey season had ended. Observations of fish on redds over multiple surveys were subtracted from the total, as were schools of fish observed holding in the same pool over multiple surveys. Even with these efforts, we acknowledge that some fish were almost certainly counted multiple times. For this reason, adult escapement was estimated based on a conservative assumption of two spawners per redd. The marine survival rate for Coho Salmon was calculated as the escapement estimate divided by the previous year's coho smolt emigration estimate (e.g., 2020-21 escapement / 2019 smolt emigration).

RESULTS

A total of 173 Coho Salmon redds and 343 live Coho Salmon were observed during spawner surveys in the Lagunitas Creek Watershed (Table 2). The redd count was 27% below average, but 57% higher than the count three years ago (Figure 2). The minimum escapement was 346, based on the assumption of two spawners per redd. Approximately 83% of coho spawning this

year occurred in mainstem Lagunitas Creek, 8% occurred in San Geronimo Creek, 7% in Olema Creek, and 2% in Devil's Gulch. No spawning was documented in Cheda Creek.

Steelhead redds were 16% below the ten-year average (Figure 3). A total of 145 steelhead redds were observed, equivalent to an escapement of 290 steelhead, while 49 live steelhead were observed by surveyors. Of the steelhead redds observed, 54% were in Lagunitas Creek, 26% in Olema Creek, 17% in the San Geronimo Creek watershed, and 3% in Devil's Gulch.

Chinook Salmon were also documented in Lagunitas Creek this season. Surveyors documented 44 live Chinook Salmon and 19 Chinook Salmon redds (Table 4). Marin Water surveyors could not determine the origin of 13 redds (5% of Marin Water redds).

Marin Water surveyors found eight Coho Salmon carcasses and two steelhead carcasses. Operculum samples were harvested from six of the Coho Salmon carcasses and otolith samples were harvested from five carcasses.

DISCUSSION

The 2020-21 Coho Salmon spawning run was below average but an improvement in the year class. In 2019, an estimated 11,653 Coho Salmon smolts emigrated from the Lagunitas Creek watershed, which was the third highest estimate on record. Apparent marine survival was below average, with only 3% of smolts returning to spawn.

Redds this year exhibited a high rate of superimposition. Of the 158 Coho Salmon redds observed by Marin Water surveyors, 27 (22%) showed some level of superimposition by later redds. This tends to occur when stream flows remain stable for extended periods and suitable spawning conditions are limited. The 2020-2021 season was the second year in a row when spawning was concentrated in the mainstem of Lagunitas Creek due to significantly lower than average rainfall. There were very few rain events that raised flows enough to allow adults to migrate into tributaries, and redd counts in the smaller tributaries were among the lowest on record (Table 7). On a positive note, this year's unusually dry winter likely resulted in high egg-to-fry survival rates and will hopefully result in a large juvenile coho population.

Counts of steelhead redds and live steelhead were also slightly below average. It is possible that some adult steelhead did not return to spawn this year due to low winter and spring stream flows. Surveys were halted on March 22, 2021 when Marin Water staff began smolt trapping for the 2021 season, and it is possible that significant steelhead spawning occurred after this date.

A moderate number of Chinook Salmon were sighted between the third week of November and the first week of January. No Pink or Chum Salmon were observed in Lagunitas Creek (Figure 5), and none of the 13 unoccupied redds in Lagunitas Creek bore distinctive signs of either species (i.e., size, location, or appearance).

Of the 382 redds observed, 173 were never associated with a live fish. Smaller redds that were observed at the end of the season could be attributed to steelhead. All other unoccupied redds were classified by their measurements, appearance, and time of year. Steelhead redds tend to be narrower than the redds of other species, and 87 redds were classified as being built by steelhead based on being less than two meters wide. Coho Salmon redds tend to have sprawling, shallow pits and are often described as looking "sloppy." Appearance and relative abundance of spawners were used to classify 64 unoccupied redds as being built by Coho Salmon. Chinook Salmon redds are often wide and deep, although smaller individuals build smaller redds. Nine redds were classified as being built by Chinook Salmon based on width and qualitative observations of depth. Of the remaining unoccupied redds, 13 lacked diagnostic features and were left unclassified.

REFERENCES

Bratovich, P.M. and D.W. Kelley. 1988. Investigations of salmon and steelhead in Lagunitas Creek, Marin County, California. Report prepared for Marin Municipal Water District.

Burgner, R.L. 1991. Life History of Sockeye Salmon. p.22 in: C. Groot and L. Margolis (eds.) Pacific salmon life histories. University of British Columbia Press, Vancouver.

Moyle, P.B. 2002. Inland fishes of California. University of California Press., Berkeley, CA. 502pp.

National Marine Fisheries Service (NMFS). 2012. Recovery Plan for the Evolutionary Significant Unit of Central California Coast Coho Salmon.

Sandercock, F.K. 1991. Life History of Coho Salmon. in C. Groot, and L. Margolis (eds.). Pacific salmon life histories. University of British Columbia Press, Vancouver.

Shapovalov, L. and A.C. Taft. 1954. The life histories of the steelhead (*Salmo gairdneri gairdneri*) and silver salmon (*Oncorhynchus kisutch*) with special references to Waddell Creek, California, and recommendations regarding their management. Calif. Fish and Game Bulletin 98. 303pp. + apps.

Table 2. Observations of Coho Salmon in the Lagunitas Creek Watershed, Spawning Season 2020-21

SURVEY DATE	COHO SALMON IN LAGUNITAS CREEK															TOTAL		
	Nicasio Creek-Tocaloma			Tocaloma-Swimming Hole			Swimming Hole-Irving			Irving-Shafter Bridge			Shafter Bridge-Peters Dam					
	Live Coho	Carcasses	Redds	Live Coho	Carcasses	Redds	Live Coho	Carcasses	Redds	Live Coho	Carcasses	Redds	Live Coho	Carcasses	Redds	Live Coho	Carcasses	Redds
6-Oct-20	-	-	-	0	0	0	-	-	-	-	-	-	-	-	-	0	0	0
23-Oct-20	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
6-Nov-20	-	-	-	0	0	0	-	-	-	-	-	-	-	-	-	0	0	0
12-Nov-21	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
20-Nov-20	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-	0	0	0
24-Nov-20	-	-	-	-	-	-	-	-	-	1	0	0	0	0	0	1	0	0
1-Dec-20	-	-	-	0	0	2	-	-	-	-	-	-	-	-	-	0	0	2
9-Dec-20	-	-	-	0	0	1	-	-	-	-	-	-	-	-	-	0	0	1
14-Dec-20	-	-	-	17	0	6	-	-	-	-	-	-	-	-	-	17	0	6
15-Dec-20	-	-	-	-	-	-	29	0	8	-	-	-	-	-	-	29	0	8
21-Dec-20	-	-	-	-	-	-	-	-	-	23	2	14	13	0	8	36	2	22
22-Dec-20	-	-	-	14	0	16	-	-	-	-	-	-	-	-	-	14	0	16
23-Dec-20	-	-	-	-	-	-	40	0	15	-	-	-	-	-	-	40	0	15
29-Dec-20	-	-	-	-	-	-	19	0	3	8	1	3	7	0	3	34	1	9
5-Jan-21	-	-	-	31	0	12	24	1	4	-	-	-	-	-	-	55	1	16
7-Jan-21	-	-	-	-	-	-	-	-	-	31	0	11	14	0	6	45	0	17
13-Jan-21	-	-	-	35	1	6	-	-	-	-	-	-	-	-	-	35	1	6
14-Jan-21	-	-	-	-	-	-	24	1	8	-	-	-	-	-	-	24	1	8
15-Jan-21	-	-	-	-	-	-	-	-	-	1	0	5	1	0	0	2	0	5
20-Jan-21	-	-	-	15	1	4	-	-	-	-	-	-	-	-	-	15	1	4
21-Jan-21	-	-	-	-	-	-	-	-	-	3	0	1	0	0	0	3	0	1
22-Jan-21	-	-	-	-	-	-	4	0	1	-	-	-	-	-	-	4	0	1
26-Jan-21	-	-	-	12	0	2	3	0	2	0	0	0	0	0	0	15	0	4
5-Feb-21	-	-	-	-	-	-	-	-	-	1	0	2	0	0	0	1	0	2
10-Feb-21	-	-	-	-	-	-	0	0	1	-	-	-	-	-	-	0	0	1
11-Feb-21	-	-	-	0	0	0	-	-	-	-	-	-	-	-	-	0	0	0
17-Feb-21	-	-	-	0	0	0	-	-	-	-	-	-	-	-	-	0	0	0
18-Feb-21	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
24-Feb-21	-	-	-	0	0	0	-	-	-	-	-	-	-	-	-	0	0	0
25-Feb-21	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-	0	0	0
26-Feb-21	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
3-Mar-21	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
4-Mar-21	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-	0	0	0
11-Mar-21	-	-	-	0	0	0	0	0	0	-	-	-	-	-	-	0	0	0
12-Mar-21	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
17-Mar-21	-	-	-	0	0	0	0	0	0	-	-	-	-	-	-	0	0	0
22-Mar-21	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
SUBTOTAL	**0**	**0**	**0**	**124**	**2**	**49**	**143**	**2**	**42**	**68**	**3**	**36**	**35**	**0**	**17**	**370**	**7**	**144**
Corrected*	**0**			**109**			**138**			**54**			**33**			**334**		

SURVEY DATE	COHO SALMON IN SAN GERONIMO CREEK									COHO SALMON IN DEVIL'S GULCH			COHO SALMON IN OLEMA CREEK[2]			TOTAL		
	Mouth-Meadow Way			Meadow Way-Woodacre Cr.			Tributaries[1]											
	Live Coho	Carcasses	Redds	Live Coho	Carcasses	Redds	Live Coho	Carcasses	Redds	Live Coho	Carcasses	Redds	Live Coho	Carcasses	Redds	Live Coho	Carcasses	Redds
5-Jan-21	-	-	-	2	0	7	-	-	-	-	-	-	-	-	-	2	0	7
10-Jan-21	-	-	-	-	-	-	-	-	-	-	-	-	1	2	5	1	2	5
12-Jan-21	0	1	3	-	-	-	-	-	-	-	-	-	-	-	-	0	1	3
24-Jan-21	-	-	-	-	-	-	-	-	-	-	-	-	0	0	1	0	0	1
31-Jan-21	-	-	-	-	-	-	-	-	-	-	-	-	6	5	6	6	5	6
3-Feb-21	-	-	-	-	-	-	0	0	1	-	-	-	-	-	-	0	0	1
4-Feb-21	-	-	-	-	-	-	-	-	-	0	0	3	-	-	-	0	0	3
11-Feb-21	0	0	1	-	-	-	-	-	-	-	-	-	-	-	-	0	0	1
13-Feb-21	-	-	-	-	-	-	-	-	-	-	-	-	0	1	0	0	1	0
16-Feb-21	-	-	-	-	-	-	0	0	2	-	-	-	-	-	-	0	0	2
SUBTOTAL	**0**	**1**	**4**	**2**	**0**	**7**	**0**	**0**	**3**	**0**	**0**	**3**	**7**	**8**	**12**	**9**	**9**	**29**
Corrected*	**0**			**2**			**0**			**0**			**7**			**9**		

Notes:

(-) Indicates that the spawner survey did not cover the area on that date.

* Corrected coho observations compensate for coho that were presumably double counted.

[1] Data provided by the Salmon Protection and Watershed Network (SPAWN).

[2] Data provided by the National Park Service.

COHO SALMON IN OTHER TRIBUTARIES			
CHEDA CREEK[4]	0	0	0

COHO TOTAL	**343**	**16**	**173**

Table 3. Observations of Steelhead in the Lagunitas Creek Watershed, Spawner Season 2020-21

SURVEY DATE	STEELHEAD IN LAGUNITAS CREEK															TOTAL		
	Nicasio Creek-Tocaloma			Tocaloma-Swimming Hole			Swimming Hole-Irving			Irving-Shafter Bridge			Shafter Bridge-Peters Dam					
	Steelhead	Carcasses	Redds	Steelhead	Carcasses	Redds	Steelhead	Carcasses	Redds	Steelhead	Carcasses	Redds	Steelhead	Carcasses	Redds	Steelhead	Carcasses	Redds
29-Dec-21	-	-	-	-	-	-	-	-	-	0	0	1	0	0	0	0	0	1
5-Jan-21	-	-	-	0	0	3	-	-	-	-	-	-	-	-	-	0	0	3
7-Jan-21	-	-	-	-	-	-	-	-	-	0	0	3	-	-	-	0	0	3
13-Jan-21	-	-	-	0	0	3	-	-	-	-	-	-	-	-	-	0	0	3
14-Jan-21	-	-	-	-	-	-	0	0	2	-	-	-	-	-	-	0	0	2
15-Jan-21	-	-	-	-	-	-	-	-	-	0	0	3	0	0	0	0	0	3
20-Jan-21	-	-	-	0	0	2	-	-	-	-	-	-	-	-	-	0	0	2
21-Jan-21	-	-	-	-	-	-	-	-	-	0	0	1	0	0	0	0	0	1
26-Jan-21	-	-	-	-	-	-	0	0	1	0	0	1	-	-	-	0	0	2
5-Feb-21	-	-	-	-	-	-	-	-	-	5	0	3	0	0	0	5	0	3
10-Feb-21	-	-	-	-	-	-	0	0	2	-	-	-	-	-	-	0	0	2
11-Feb-21	-	-	-	0	0	3	-	-	-	-	-	-	-	-	-	0	0	3
17-Feb-21	-	-	-	5	0	2	-	-	-	-	-	-	-	-	-	5	0	2
18-Feb-21	-	-	-	-	-	-	2	0	6	0	0	0	0	0	0	2	0	6
24-Feb-21	-	-	-	0	0	4	-	-	-	-	-	-	-	-	-	0	0	4
25-Feb-21	-	-	-	-	-	-	2	0	1	-	-	-	-	-	-	2	0	1
26-Feb-21	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
3-Mar-21	-	-	-	-	-	-	-	-	-	2	0	0	4	0	1	6	0	1
4-Mar-21	-	-	-	-	-	-	0	0	3	-	-	-	-	-	-	0	0	3
11-Mar-21	-	-	-	3	0	8	0	0	3	-	-	-	-	-	-	3	0	11
12-Mar-21	-	-	-	-	-	-	-	-	-	1	0	2	0	0	0	1	0	2
17-Mar-21	-	-	-	2	1	10	9	0	6	-	-	-	-	-	-	11	1	16
22-Mar-21	-	-	-	-	-	-	-	-	-	2	0	5	0	0	0	2	0	5
SUBTOTAL	0	0	0	10	1	35	13	0	24	10	0	19	4	0	1	37	1	79
Corrected*	0			10			13			10			4			37		

SURVEY DATE	STEELHEAD IN SAN GERONIMO CREEK									STEELHEAD IN DEVIL'S GULCH			STEELHEAD IN OLEMA CREEK[2]			TOTAL		
	Mouth-Meadow Way			Meadow Way-Woodacre Cr.			Tributaries[1]											
	Steelhead	Carcasses	Redds	Steelhead	Carcasses	Redds	Steelhead	Carcasses	Redds	Steelhead	Carcasses	Redds	Steelhead	Carcasses	Redds	Steelhead	Carcasses	Redds
5-Jan-21	-	-	-	0	1	6	-	-	-	-	-	-	-	-	-	0	1	6
10-Jan-21	-	-	-	-	-	-	-	-	-	-	-	-	0	0	1	0	0	1
31-Jan-21	-	-	-	-	-	-	-	-	-	-	-	-	7	1	14	7	1	14
3-Feb-21	-	-	-	-	-	-	2	0	6	-	-	-	-	-	-	2	0	6
4-Feb-21	-	-	-	-	-	-	-	-	-	0	0	4	-	-	-	0	0	4
11-Feb-21	0	0	7	-	-	-	-	-	-	-	-	-	-	-	-	0	0	7
13-Feb-21	-	-	-	-	-	-	-	-	-	-	-	-	0	3	13	0	3	13
16-Feb-21	-	-	-	-	-	-	0	0	2	-	-	-	-	-	-	0	0	2
17-Feb-21	-	-	-	-	-	-	0	0	3	-	-	-	-	-	-	0	0	3
21-Mar-21	-	-	-	-	-	-	-	-	-	-	-	-	3	3	10	3	3	10
SUBTOTAL	0	0	7	0	1	6	2	0	11	0	0	4	10	7	38	12	8	66
Corrected*	0			0			2			0			10			12		

STEELHEAD IN OTHER TRIBUTARIES			
CHEDA CREEK	0	0	0

STEELHEAD TOTAL	49	9	145

Notes:

(-) Indicates that the spawner survey did not cover the area on that date.

* Corrected coho observations compensate for coho that were presumably double counted.

[1] Data provided by the Salmon Protection and Watershed Network (SPAWN).

[2] Data provided by the National Park Service.

[3] Incidental observation.

Table 4. Observations of Chinook Salmon in the Lagunitas Creek Watershed, Spawner Season 2020-21

SURVEY DATE	CHINOOK IN LAGUNITAS CREEK															TOTAL		
	Nicasio Creek-Tocaloma			Tocaloma-Swimming Hole			Swimming Hole-Irving			Irving-Shafter Bridge			Shafter Bridge-Peters Dam					
	Chinook	Carcasses	Redds	Chinook	Carcasses	Redds	Chinook	Carcasses	Redds	Chinook	Carcasses	Redds	Chinook	Carcasses	Redds	Chinook	Carcasses	Redds
20-Nov-20	-	-	-	-	-	-	5	0	1	-	-	-	-	-	-	5	0	1
23-Nov-20	-	-	-	0	0	0	-	-	-	-	-	-	-	-	-	0	0	0
24-Nov-20	-	-	-	-	-	-	-	-	-	8	0	4	0	0	2	8	0	6
1-Dec-20	-	-	-	0	0	1	-	-	-	-	-	-	-	-	-	0	0	1
4-Dec-20	-	-	-	-	-	-	8	0	4	-	-	-	-	-	-	8	0	4
9-Dec-20	-	-	-	5	0	2	-	-	-	-	-	-	-	-	-	5	0	2
10-Dec-20	-	-	-	-	-	-	8	0	1	-	-	-	-	-	-	8	0	1
14-Dec-20	-	-	-	0	0	1	-	-	-	-	-	-	-	-	-	0	0	1
15-Dec-20	-	-	-	-	-	-	1	0	0	-	-	-	-	-	-	1	0	0
21-Dec-20	-	-	-	-	-	-	-	-	-	2	0	2	1	0	0	3	0	2
29-Dec-20	-	-	-	-	-	-	4	0	0	1	0	0	0	0	0	5	0	0
5-Jan-21	-	-	-	0	0	0	1	0	1	-	-	-	-	-	-	1	0	1
7-Jan-21	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
SUBTOTAL	**0**	**0**	**0**	**5**	**0**	**4**	**27**	**0**	**7**	**11**	**0**	**6**	**1**	**0**	**2**	**44**	**0**	**19**
Corrected*	**0**			**5**			**27**			**11**			**1**			**44**		

CHINOOK TOTAL	44	0	19

Table 5. Coho Salmon Redds in the Lagunitas Creek Watershed

Year	Lagunitas Creek	San Geronimo Creek	San Geronimo Tributaries	Devil's Gulch	Cheda and Nicasio Creeks	Olema Creek	Total
1982-83	65	47	No Data	27	No Data	No Data	139
1995-96	70	6	No Data	10	No Data	No Data	86
1996-97	98	115	No Data	41	No Data	No Data	254
1997-98	80	107	14	52	No Data	134	387
1998-99	92	46	14	32	0	23	207
1999-00	139	58	3	3	0	10	213
2000-01	119	56	18	11	0	80	284
2001-02	79	102	43	59	3	59	345
2002-03	71	39	22	24	2	20	178
2003-04	124	139	66	48	6	109	492
2004-05	120	140	118	112	6	138	634
2005-06	53	48	54	33	2	9	199
2006-07	128	117	26	55	12	95	433
2007-08	87	46	9	6	1	33	182
2008-09	25	1	0	0	0	0	26
2009-10	42	7	0	2	0	14	65
2010-11	32	40	2	6	0	21	101
2011-12	94	19	3	10	4	7	137
2012-13	108	59	4	44	2	29	246
2013-14	172	7	3	5	1	32	220
2014-15	79	30	7	20	4	6	146
2015-16	91	68	28	31	8	66	292
2016-17	49	49	29	31	0	12	170
2017-18	72	13	6	11	1	7	110
2018-19	118	80	39	60	9	63	369
2019-20	33	22	3	3	0	2	63
2020-21	144	11	3	3	0	12	173
Mean	**90**	**54**	**21**	**28**	**3**	**41**	**236**

Coho year class

Notes: Olema Creek & Cheda Creek data are provided by the National Park Service.
San Geronimo tributaries: Arroyo Creek, Larsen Creek, Evans Canyon, Woodacre Creek, and San Geronimo Creek above Woodacre Creek; data provided by SPAWN.

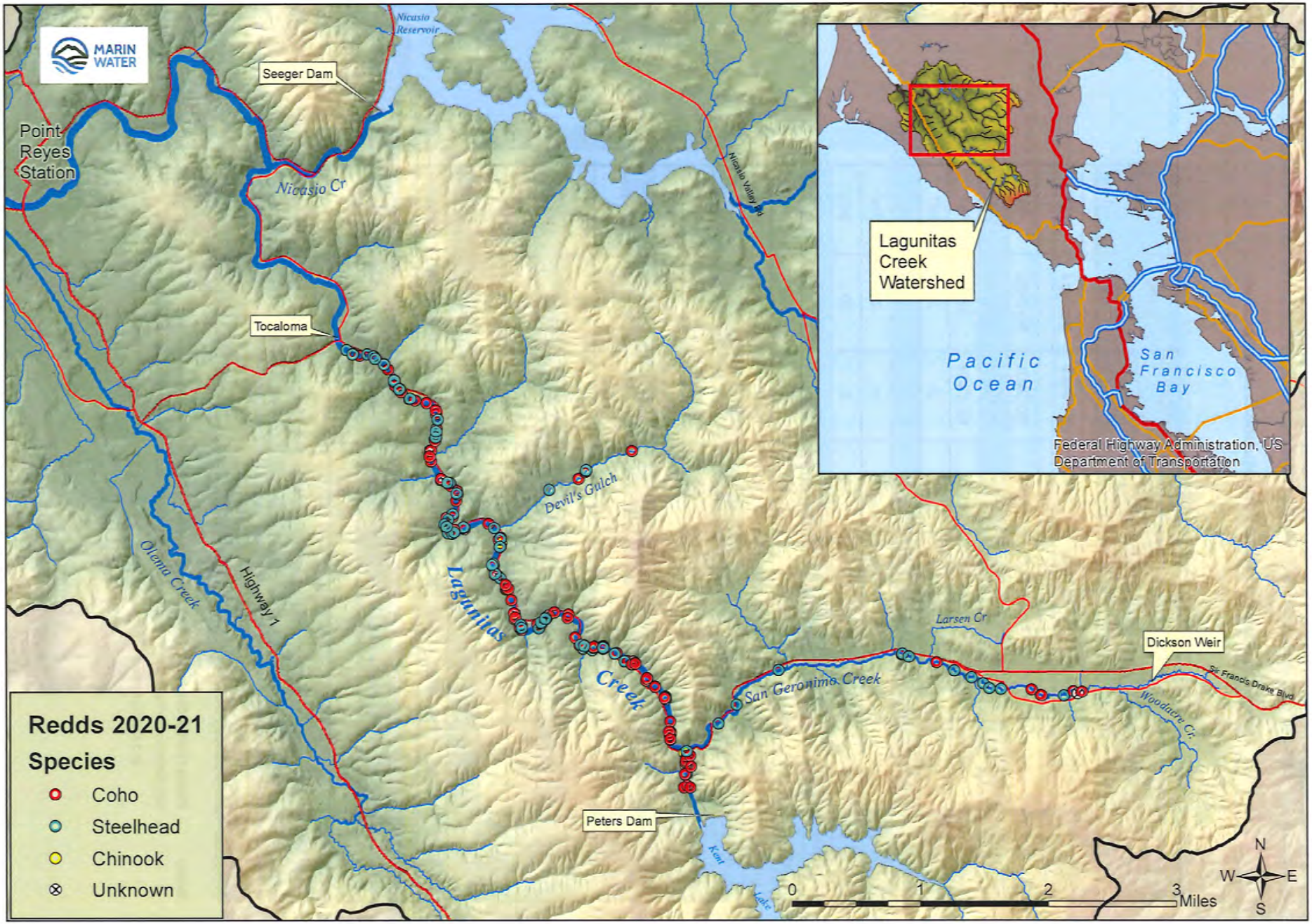

Figure 1. Salmonid Redds in the Lagunitas Creek Watershed, 2020-21

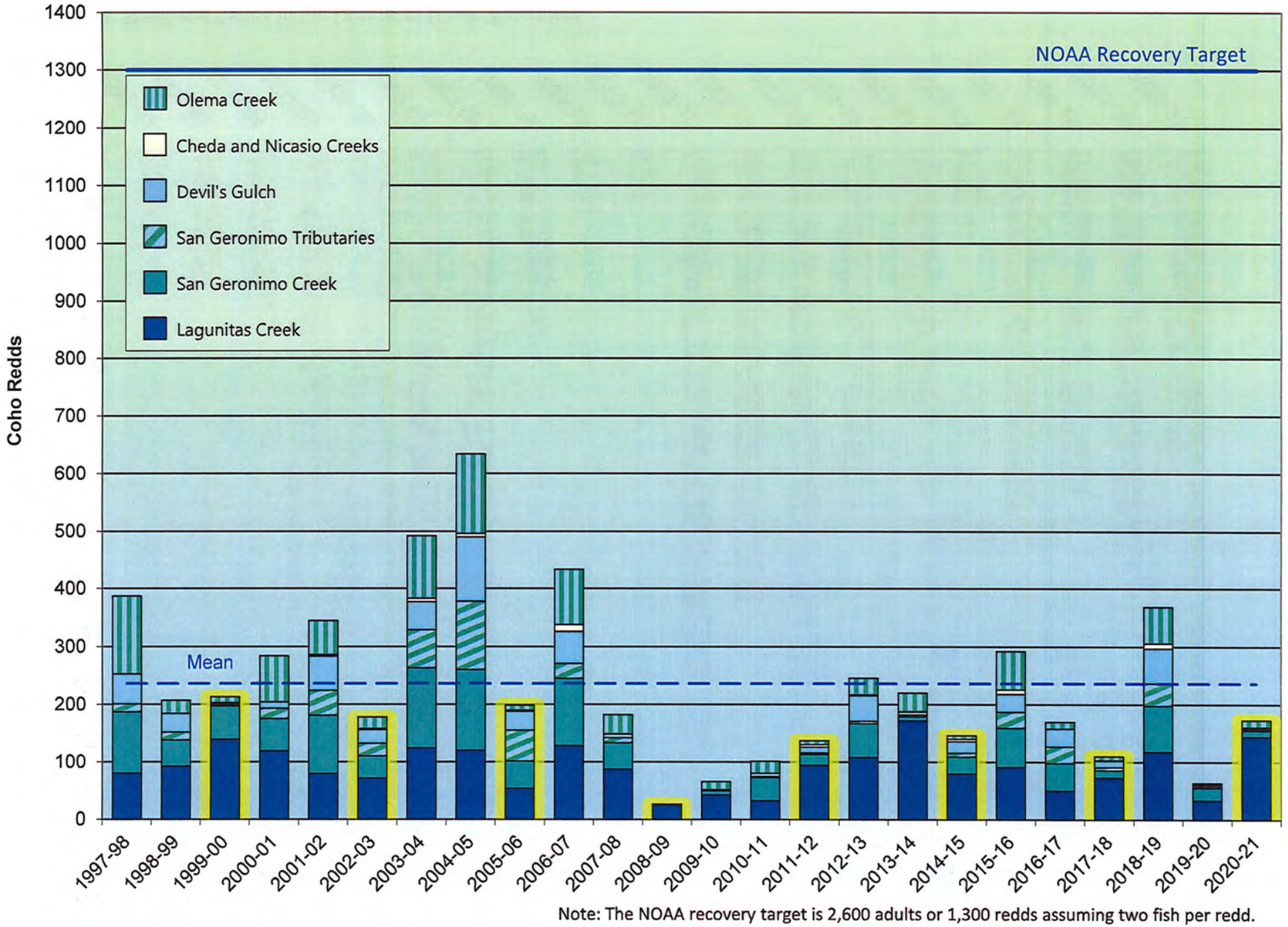

Figure 2. Coho Salmon Redds in the Lagunitas Creek Watershed (the current year class is highlighted).

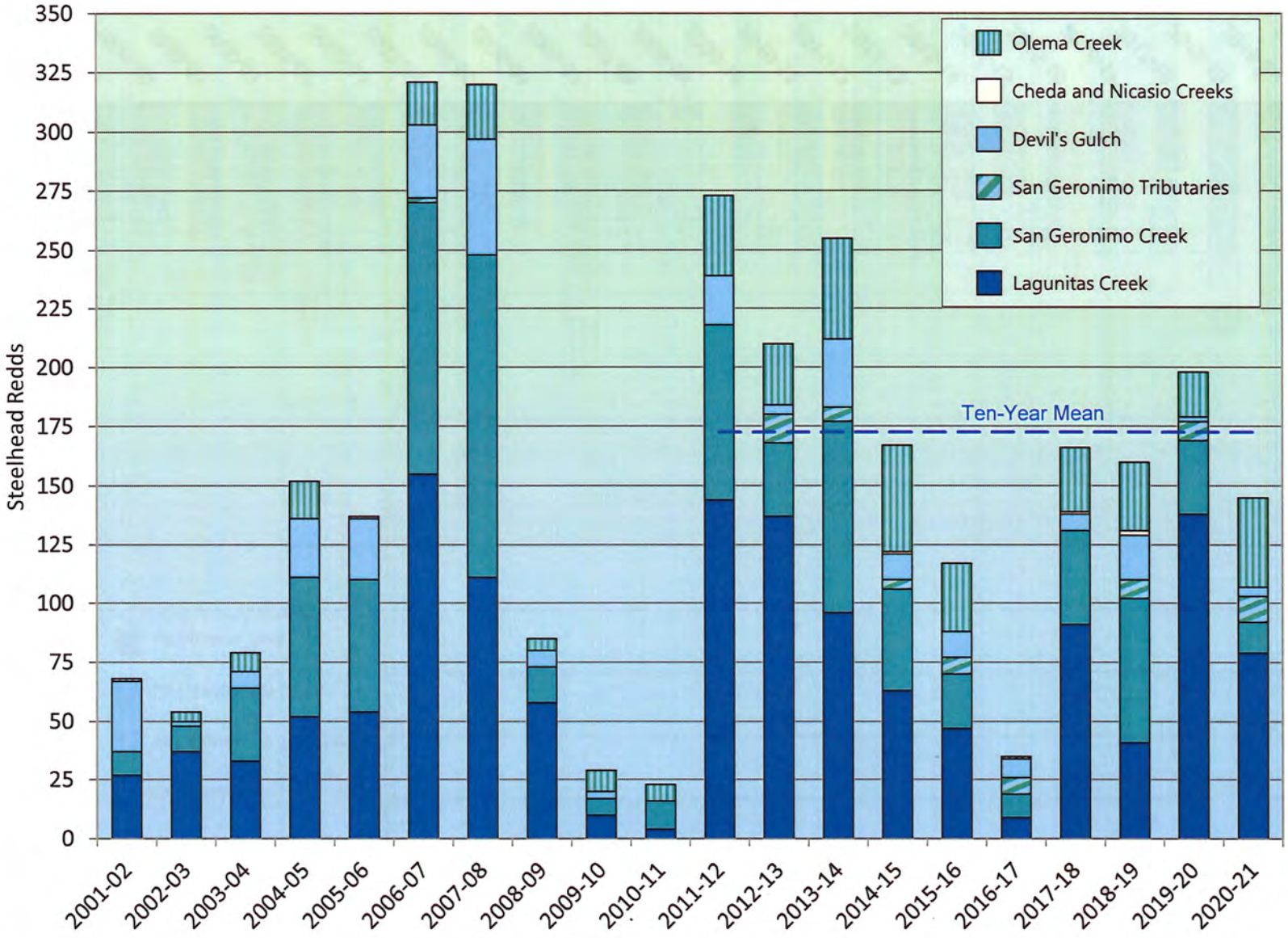

Figure 3. Steelhead Redds in the Lagunitas Creek Watershed.

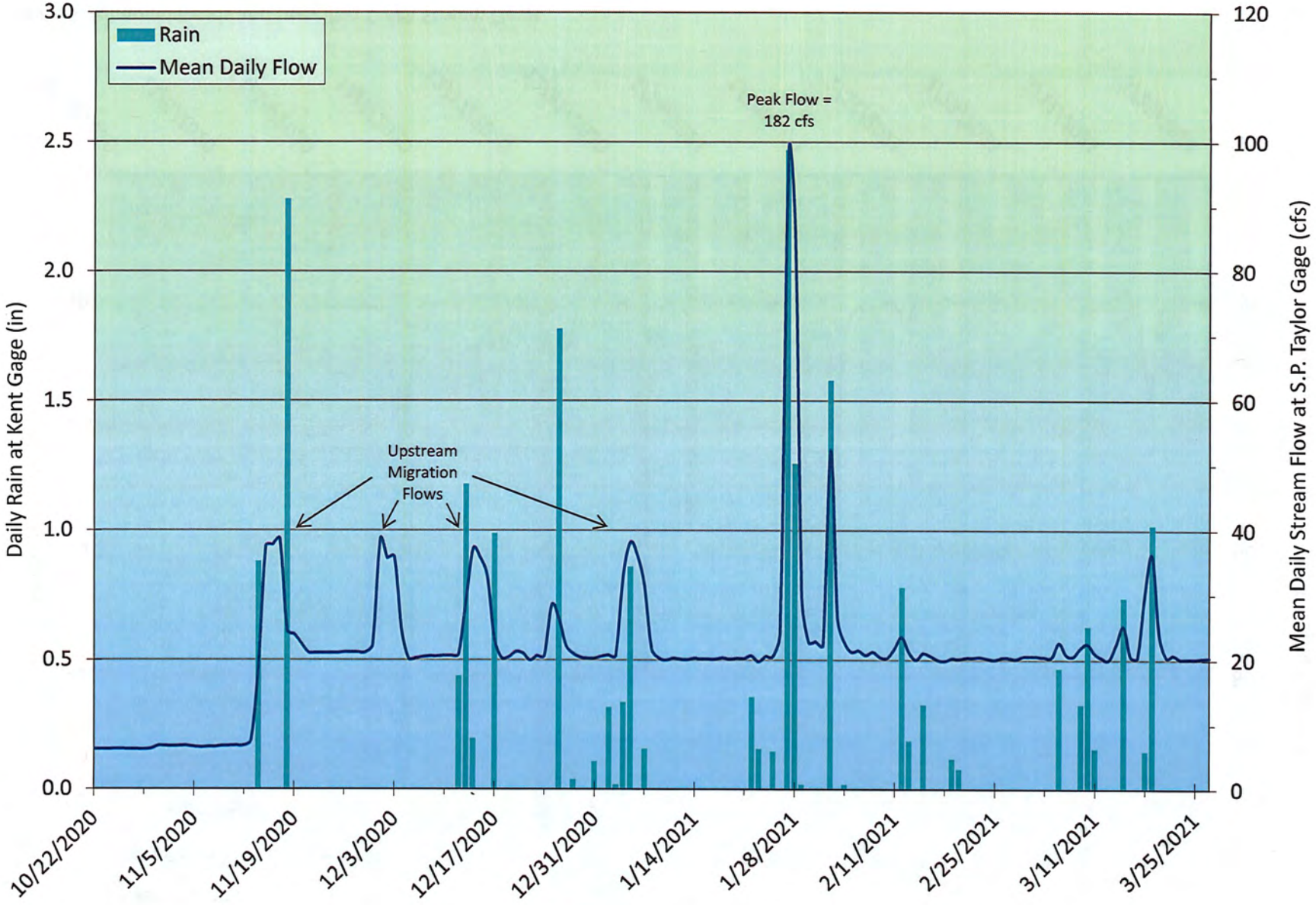

Figure 4. Rain and Lagunitas Creek Stream Flow

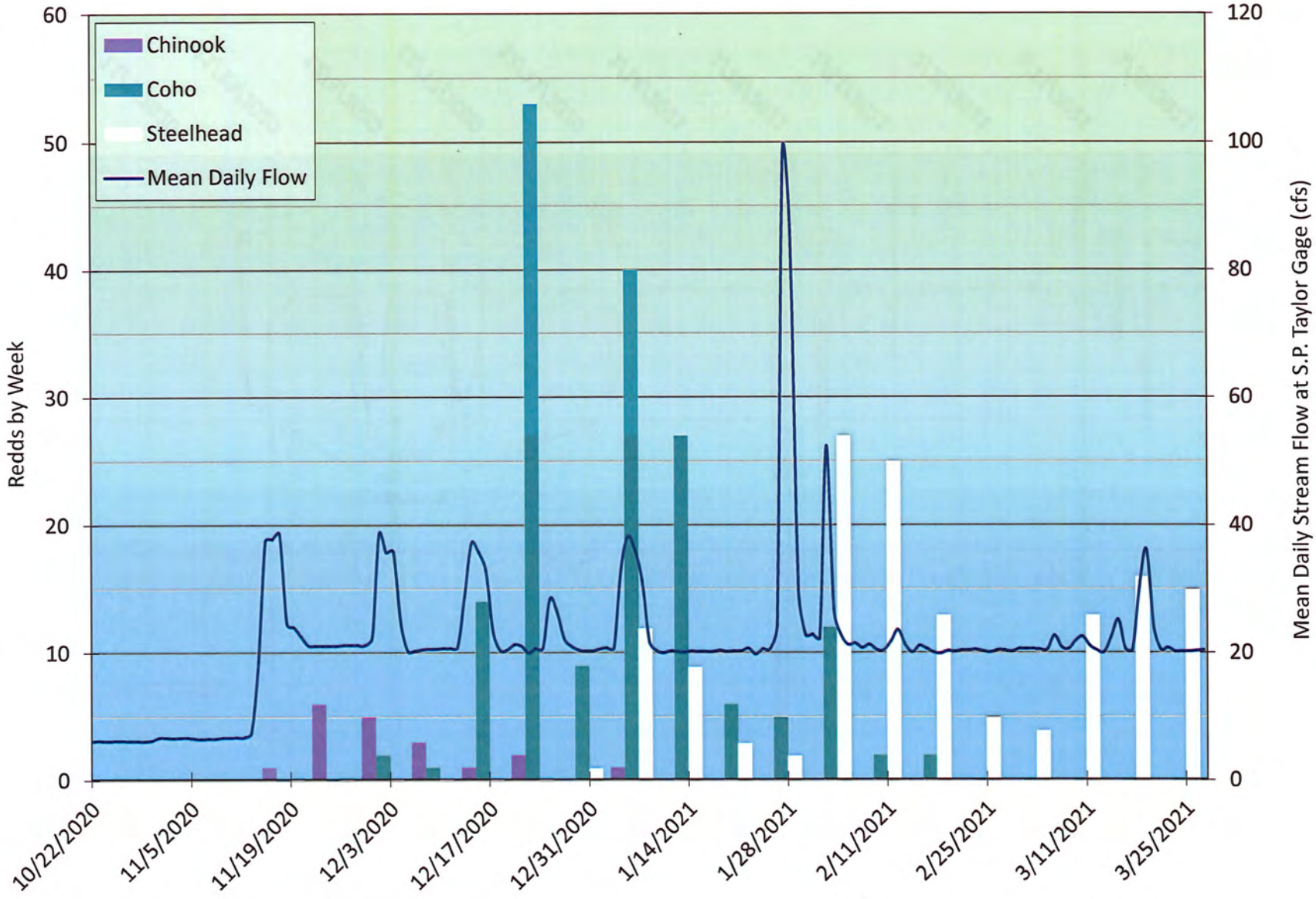

Figure 5. Salmonid Redds and Lagunitas Creek Stream Flows

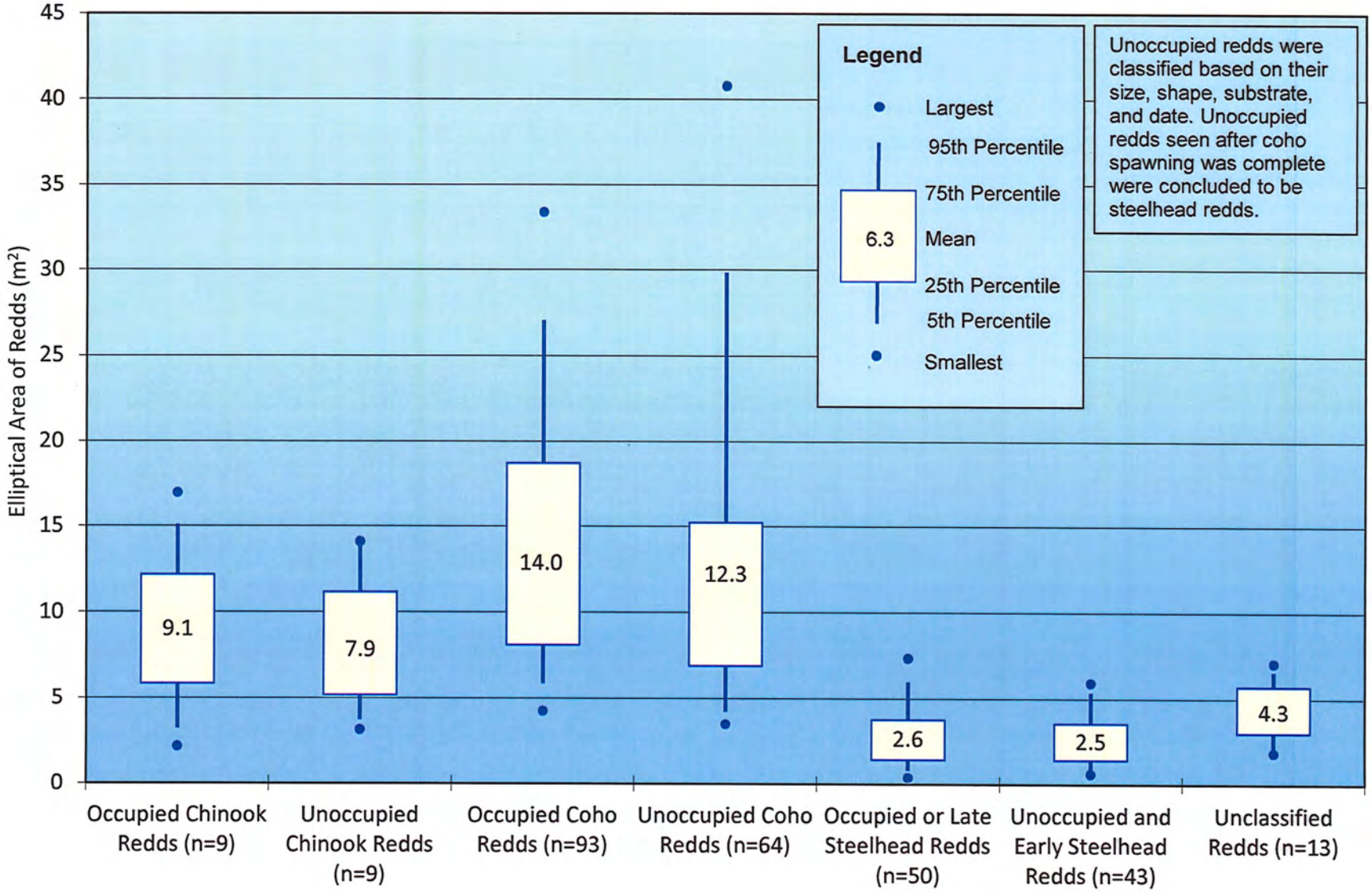

Figure 6. Redd Areas by Species in Lagunitas and San Geronimo Creeks, Spawning Season 2020-2021.

Community Development Agency,
3501 Civic Center Drive, Suite 308
San Rafael, CA 94903

Re: Stream Conservation Ordinance
Subject: Top of Stream Bank Ambiguous and Impractical

1. Setback measurements are simple and straight-forward with the online *MarinMap* Analysis Line (ruler) tool when measuring from the *center* of any stream, which is clearly displayed on the MarinMap.

http://www.marinmap.org/Html5Viewer/Index.html?viewer=mmdataviewer

However, measurements from the "top of the stream bank" are vague and impractical, on MarinMap or physically on site. Where the terrain gradually slopes down to a stream over long distances (e.g. 10 to 80 feet), or the worst-case high water mark is 4 to 10 feet below any overflow area, the setback should be measured from the center of the stream. Because the ambiguity of the "top of the stream bank" renders setback measurements impractical, setback measurement from the center of stream should be used in all cases.

2. A 100 foot SCA setback has been asserted from a perennial stream. A 20 foot setback is asserted for an ephemeral stream. Recognizing the relative significance, the setback from an intermittent stream should be changed to less than 50 feet.

Ephemeral and intermittent streams are less problematic than perennial streams. Expansion of SCA setbacks for riparian vegetation should apply only to perennial streams, not ephemeral and intermittent streams.

3. Is the SCO goal to restore significantly more fish habitat? San Geronimo Valley streams support fish because the streams are in better shape than the rest of Marin. To restore more fish habitat, the SCO must apply to our entire county, not just the small portion with streams that already support fish habitat.

Compare SGValley real estate values to those of Southeastern Marin. Is it fair or financial discrimination to target homes near the cleanest streams, while allowing the wealthy parts of Marin County to continue to pollute their streams? Will you fairly apply the SCO to the entire county without discriminating against poorer areas?

If limited to the residents of San Geronimo Valley, the County must be responsible for all costs to residents, including all improvement and development costs which are above those for other parts of Marin County.

Judy Schriebman, Sierra Club
Comments to Planning Commission meeting on SCA, Nov. 8, 2021

Thanks to Kristin Drumm on attempting to tackle this complex issue and for the thoughtful questions offered by the members of the Planning Commission. The Marin Group Sierra Club supports the strongest possible SCA possible and supports the comments of SPAWN that you have received.

We need to have streams managed with a "watershed approach" rather than individual project by project, which is not a good environmental approach for the creek or wildlife. We would urge staff to do a comprehensive plan on a "reach by reach" basis as some properties should have NO additional impervious building while others possibly could.

What about unpermitted work that is later found? Are we taking photos of current areas so that development in future is measured against current status? What is the plan for enforcement if breaches are found? If there is even an appearance of unfairness or squishiness in the code, people are liable to ignore the rules.

As written, much of the ordinance appears discretionary, which is dangerous for anyone in the county attempting to protect the wildlife and water values from litigious or frustrated homeowners. Any definition that is not clear, or not easily understandable, is harder to enforce and harder for the average person to understand. **Exemptions should be the exception, not the rule.** We have to protect our flowing waters in every form, including ephemeral and intermittent streams that are essential for groundwater infiltration and stream flows.

While there is currently a politically sensitive housing crisis driving a lot of development, there is also a serious and very, very real extinction crisis happening that requires us to act very differently than we have in the past, or we will lose the very foundations needed for our own survival. Habitat destruction from imperious overdevelopment remains the major problem, recognized by the county, leading to salmon extinction from these impacts to the watershed. The city and county also do have an ability to do certain limitations on ADUs but these must be put into code before Jan. 2022. We urge the county to have stronger support for the conservation values of the SCA.

From:	Peggy Creeks
To:	Mosher, Ana Hilda; Drumm, Kristin; Liebster, Jack; Levenson, Michelle
Subject:	Planning Commission Agendas Nov 9 & Dec. 13: How Many Homes and Vacant Parcels Are Within the San Geronimo SCA?
Date:	Tuesday, November 9, 2021 4:46:53 PM

From: San Geronimo Valley Stewards
Peggy Sheneman, Woodacre resident

Thank you for the very constructive workshop Planning Commission Workshop November 9. We appreciated Kristin Drumm's excellent presentation, and the CDA staff responses to questions and comments. Planning Commissioners succinctly identified some complex issues.

> There are now at least FOUR sources of information about the NUMBER, TYPES, AND LOCATIONS of parcels in San Geronimo Valley that may be within 100 feet of a stream. Three sources give differing estimates. The most recent source, the 2020 Lidar map, does not provide any estimate.

Several participants in the Workshop requested the County COUNT the numbers and identify the types of parcels fully or partially inside the Stream Conservation Area. Planning Commissioners, SG Valley Stewards, SPAWN, Stanford Law Clinic, and several public speakers all ask for the NUMBER, TYPES, and LOCATIONS of parcels within the SCA.

Without this information, it is not possible for the County to:
--estimate the cumulative environmental impacts of future development, or
--measure the effectiveness of the SCA Ordinance and publicly report results each year, or
--calculate the public and private costs of regulations and enforcement, or
--consider the social and economic effect on human housing.

> Many small existing houses were built decades ago on the flats of the Valley floor, close to creeks. The median home size is 1371 SF to 1821 SF, in the Valley flats near major streams. Source: Marin Community Development Agency Fall 2013 survey of homes for purpose of proposed community septic program.
>
> There may also be ephemeral water flows when it rains. Whether any specific ephemeral is a "stream" (with a bed and a bank), or whether the ephemeral is within the SCA (if it supports 100 feet of riparian vegetation or "special status species") may increase the number of parcels completely or partially within the SCA.

Counting and publicly disclosing the data on improved and vacant parcels within the SCA may allow the County to impose protective regulations for vacant SCA parcels (especially unimproved parcels totally within the SCA), which differ from the regulations tailored for allowed uses by homeowners on residential improved

parcels.

Estimates from four sources of data:

First data source: 2005 Existing Conditions reported in 2018 FSEIR
In the entire Valley, inside and outside of the SCA, they found 1,415 total improved parcels, containing 1,598 developed units.

However, these numbers were based on a 2005 report of Marin Community Development Agency. The FSEIR did not update for 13 subsequent years.

741 improved parcels are located completely or partially within the SCA. Source: pages 2-42 and 2-34 of July 2018 Final Supplemental Environmental Impact report, accepted by Marin Board of Supervisors July 2019.

General locations of improved parcels and dwelling units are described on FSEIR page 2-37.

FSEIR estimates 885 unimproved vacant parcels within the SCA could be developed in the future. page 2-42.

However, FSEIR seems to have over-estimated reasonably possible future development because it counted many "paper parcels" where development is not feasible. Parcels smaller than 3,000 square feet, or that have no access to roads, MMWD water service or electricity, will not contribute to cumulative impact. The old subdivisions from Lagunitas Land Company mapped many parcels as train passenger stops, walking paths, and common area pocket parks.

Second data source: 2010 SEP Report:

In the entire Valley, inside and outside the SCA, there are 1,372 privately owned improved parcels. Improvements include 1,236 single family homes (some with second units) and 135 multi-family residences.

These parcels are cross-referenced with the County Assessor's Tax Profile Database. Parcels in Nicasio and Fairfax are eliminated, and large non-residential parcels are removed (golf course, Spirit Rock, ranches).

834 improved privately owned parcels are within the SCA.
60% of Valley housing was impacted by the adoption of SEP and the 2009-2010 building moratorium.

Source: 2010 Salmon Enhancement Plan, Appendix D. The SEP report was prepared by Stillwater Sciences, the same consulting firm that worked on the 2018 FSEIR.

Third data source: 2013 blueline stream map
The County prepared and adopted a 2013 stream ordinance. (The 2013

ordinance did not take effect because of SPAWN's lawsuit.)
In preparation for the 2013 ordinance, Marin County commissioned a Lidar map of the SG Valley streams.
People have since relied on the 2013 "blueline" stream map to make improvements on their properties.
The County geophysicist estimated about 900 residential parcels would be within 100 feet of a blueline stream.

Fourth potential data source: 2020 Lidar Stream map.

We are told the new Lidar techniques make the 2020 stream map more detailed and accurate than the 2013 blueline stream map.

However, there is no summary or count of the NUMBER, TYPES, or LOCATIONS of parcels located within the SCA.
Source: www.Marinmap.org "Main map view" "Hydrology"

SGVStewards respectfully request:

A. Because the 2020 Lidar map determines what we can do with our properties, it needs to include the exact dimensions of the 100-foot SCA on each parcel. Now, the map merely shows a dark blue line (perennial stream), light blue line (intermittent stream), or hatched line (ephemeral) running up and down every hillside and wandering across the boundaries of various parcels.

B. Cross index each parcel within the SCA with the Marin County Assessor's map, and label each parcel as "improved" or "vacant". The 2020 Lidar map allows search for parcels by APN numbers. Please tell us the numbers of:
--improved parcels fully within the SCA,
--improved parcels partially within the SCA,
--vacant unimproved parcels fully within the SCA, and
--vacant unimproved parcels partially within the SCA.

C. Summarize locations of improved parcels inside SCA and unimproved vacant parcels inside the SCA, using same general creek reaches described on pages 2-37 and 2-42 of FSEIR.

From:	Charlotte Anne Burger Troy
To:	Drumm, Kristin
Subject:	Comments on the SCA Ordinance
Date:	Tuesday, November 9, 2021 11:21:57 AM

Thank you for this opportunity.

Please consider the following comments with regards to the proposed SCA Ordinance:

- The current SCA does nothing to address one of the main issue affecting the health of water in the SGV, which is leaking septic systems (which is clearly not a part of the scope of the SCA - but is intimately connected to the health of the waterways in the SGV). The County of Marin should be making strides to move homes in the Valley onto municipal sewage.

Thanks for your work on this, believe me, as a former planner I know it is not easy.

All the best,

Charlotte AB Troy

--
Charlotte A. B. Troy
(857) 544-6542
burger.charlotte@gmail.com

From:	FRED AND JEAN BERENSMEIER
To:	Drumm, Kristin
Cc:	Liebster, Jack
Subject:	SCA - Comments to Planning Commission
Date:	Thursday, November 11, 2021 11:54:35 PM

Hello Ms. Drumm,
I was on the phone waiting to be allowed to read my 3 min comments for the Planning Commission regarding the SCA. It never happened. I learned later that I was to click on *9 not #9 in order to connect. My excuse is that I'm 89 and make dumb mistakes on some of the simplest things related to some technology.

I have included my comments below. I understand that you will be returning to the Planning Commission again before going to the Board of Supervisors. If that is so, maybe I could read my comments then -- now that I know how to do it correctly. Please advise.

Jack Liebster can vouch for me - he knows me well. BTW - I think I heard Jack's name mentioned as being part of your team. His knowledge, experience and "smarts" gained over many years would be invaluable.
Thanks,
Jean Berensmeier

Nov. 8, 2021
To: Marin County Planning Commission
From : Jean Berensmeier
Re: SCA Draft Proposal

My name is Jean Berensmeier. My family moved to Lagunitas after discovering the Valley in 1953. In 1972, I jumped into politics and helped Gary Giacomini in his successful bid for Supervisor which assured passage of the Marin CountyWide Plan and the creation of Community Plans. I founded the SGV Community Center, the SGV Planning Group and Wilderness Way. I served 20 years on the County Parks and Open Space Commission helping acquire 4 Open Space Preserves totaling 2600 acres in San Geronimo Valley. I am a retired professor of Physical Education.

I'm 89 now and still believe . . .
- We must be the voice for nature.
- Man and nature need each other. When we hurt one we hurt the other and nature always bats last.
- Much needs to be done. This ordinance is one step toward halting the environmental destruction we have allowed to happen.
- Because humans are amazingly adaptable and nature is astonishingly resilient we have a little time to do "the right thing." Our children and their families will suffer if we fail.

Your job is to protect this gift, a miracle of creation, and use your wisdom to

recommend the best plan to the BOS. This is not a gift to possess or to exploit. It is a gift for us to enjoy today and to hold in trust for countless generations that will follow.

Lucky homeowners who live on the creek enjoy this gift but with it comes responsibilities to protect the creek, the fish and their habitat with set back limits, brush and soil removal rules so they can safely return to their natal streams to spawn.

Regarding the Draft proposal:
Thank you for your efforts to date.
1. More work needs to be done to effectively mitigate adverse impacts and eliminate inappropriate exceptions and exemptions that allow inappropriate development.
2. It needs to be science oriented. Say so. Science will provide the info needed for adequate setbacks, protection of banks and native plants.
3. Recommend adequate staff for monitoring and annual reports.
4. It attempts to provide creekside homeowners some of the benefits a non creekside owner enjoys. This is very difficult to do because they are different properties with different characteristics and needs.
5. Building vertical is a key tool to protecting soil and plants while providing homeowners extra space.
6. Exempting ADU's from building standards on creekside properties is unconscionable. The BOS should challenge this State requirement as it would be harmful to salmonids.

Thank you for allowing me time to express my views.

From:	Peggy Creeks
To:	PlanningCommission; Liebster, Jack; Drumm, Kristin; Levenson, Michelle; Rodoni, Dennis; Kutter, Rhonda
Subject:	Planning Commission Agendas 11-8-21 & 12-13-21: Stream Ordinance LINK to MMWD Fish Counts
Date:	Saturday, November 13, 2021 11:40:09 AM

Planning Commissioners on Nov. 8 asked for science supporting stream regulations. County participation in the Lagunitas Creek TAC (Technical Advisory Committee) was mentioned by Kristin Drumm.

San Geronimo Valley Stewards is also a member of the Lagunitas Creek TAC. We respectfully recommend Planning Commissioners and CDA staff read this year's annual fish count published by Marin Municipal Water District. For the past 30 years MMWD and other agencies have surveyed the creeks during the October to March migration and spawning season. MMWD fish counts are a major information source for Lagunitas TAC.

Here is the LINK for the fish count report dated Sept 2021, covering the season October 2020 to March 2021.

Lagunitas Adult Salmonid Monitoring 2021.pdf (marinwater.org)

Go to www.marinwater.org
Search bar type in "Adult salmonid monitoring"
Find File 2021 pdf.
18 pages, many color charts and graphs.

Each annual fish count covers Lagunitas Creeks, major tributaries including San Geronimo Creek, and streams flowing into San Geronimo Creek. Page 2-3. The Lagunitas Creek Watershed is part of the larger Tomales Bay Watershed. Page 13.

52% of the land in Lagunitas Watershed is owned by government agencies. These landowners would not be governed by the proposed Stream Area Conservation Ordinance. San Geronimo Valley is a geographic "bowl" surrounded on all sides by MMWD, Marin County Open Space, state parks, Trust for Public Land, and a few large ranches. Pages 3, 13. San Geronimo Creek is the furthest inland of the streams studied.

Most of the spawning and rearing activity occurs in the parkland and open space east of San Geronimo Valley. Of salmon redds (nests) counted this year, 24 steelhead redds (out of 145 total) and 14 coho redds (out of 173 total) were located near the four small human villages of San Geronimo Valley. The rest were all east of SGV in parkland, open space, or ranches. See page 13 for color map. See also Pages 9, 10, 12.

Low rainfall the past two years is the main reason for low spawning activity in San Geronimo Creek. Fish stay in the high water flows near the main stem of Lagunitas Creek. Page 6.

The importance of the amount and timing of rainfall is demonstrated in past years' fish counts. See pages 12, 14, 15. If the rains arrive too late in February, spawning activity is low because fish wait outside Tomales Bay until they sense fresh water flow. If a very large storm arrives after they have laid eggs, the redds can be washed out.

Coho Salmon have a 3-year life cycle of eggs laid in fresh water redds, fry reared in fresh water, and smolts leaving fresh water for the ocean. Smolts mature in the ocean and return to fresh water for spawning. The parent generation of this year's class were eggs laid October 2017 - March 2018. This year's fry will mature and may return October 2023 - March 2024.

Ocean conditions and predators challenge salmon survival. 11,653 smolts migrated out the mouth of Tomales Bay in 2019, but only 3% (three percent) returned to our creeks in 2020-2021 as mature adults. Page 6.

It is not reasonable to expect that severe and costly regulation of 800 family homes in San Geronimo Valley will somehow overcome the natural constraints of ocean conditions and low rainfall.

We request the county produce annual public reports: Home site assessments applied for, approved, or denied; taxpayer cost for the proposed stream program; and the actual measurable effect on fish.

From: Peggy Creeks <peggycreeks@comcast.net>
Sent: Friday, November 19, 2021 12:52 PM
To: PlanningCommission <PlanningCommission@marincounty.org>; Rodoni, Dennis <DRodoni@marincounty.org>; Kutter, Rhonda <RKutter@marincounty.org>; Jeremy Tejirian <JTejirian@co.marin.ca.us>; Case, Brian <BCase@marincounty.org>
Cc: AffordableHousingAssoc <info@sgvaha.org>; Krauss, Kit <kitkrauss@yahoo.com>; Sadowsky, Suzanne <suzannesadowsky@comcast.net>; Joe Walsh <josephFWalsh@hotmail.com>
Subject: Planning Commission Agendas 11-8-21 & 12-13-21--ADU's in the SCA, Stream Ordinance Confusion

From: San Geronimo Valley Stewards
Peggy Sheneman

To: Marin County Planning Commission
Jeremy Terjerian, Kristin Drumm, Jack Liebster of Community Development Agency Brian Case, Deputy County Counsel

During the November 8, 2021 Workshop, we listened to the discussion about whether and what Categories of ADU's might be allowed within the Stream Conservation Area. We understand Commissioner Dickenson's caution that septic issues are significant obstacles to ADU's and affordable housing generally in the San Geronimo Valley.
Even so, the important purpose of the stream ordinance is to end litigation, not cause more litigation with unclear language and opaque rules.

Homeowners on Nov. 8 requested clear explanation of the rules:
What size and type of ADU can they build within the SCA?
Is the ADU subject to Site Assessment? (Site Assessment is a discretionary decision, under Exhibit C page 4.)
Is the ADU required to obtain approval of Site Plan Review? (Site Plan Review is discretionary under section 22.52.040.)
New Development Code Amendments to 22.32.120 A. state that Category 1 ADU's do not require discretionary review.
Question: Did we hear correctly on Nov 8 that up to 800 square feet of ADU could be built within the SCA? That would be a Category 1 ADU?
Question: If a Category 1 ADU can be built in the SCA, how should we read these four conflicting provisions of the draft SCAOrdinance? (We refer to the draft SCAO published 9-16-21.)

The first two sections seem to allow ADU's inside the SCA:

Section 22.06.050 page 1: The following activities and land uses are permitted and do not require a land use permit in all zoning districts.
Subsection F: ADU's that comply with Dev. Code sec. 22.32.120 A. (Category 1) and "the tables in this article entitled allowed uses and permit requirements." [What does this quoted language refer to? section 22.30.045 A. 3. page 7?]

Sec. 22.32.120 A. covers Category 1 ADU's. These can be entirely within an existing building, or can add up to 150 SF to an existing outbuilding, or can be entirely new construction up to 800 SF and 16 feet height. Category 1 also includes one, two or multiple ADU's added to multi--family development. SG Valley currently has about 135 multi-family residences.

Section 22.52.030 page 10: The following types of development are exempt from Site Plan Review:

C. Accessory Units in Sections 22.32.120 A. (Category 1),
B. (Category 2), and
C (Category 3).

So a 1,000 SF ADU could be built inside the SCA without Site Plan Review, if all other conditions are met?

The next two sections seem to prohibit any ADU of any Category size within the SCA:

Section 22.30.045 A. 2. page 7: A Site Assessment is required when development is proposed within the SCA.

Site Assessment is a discretionary decision. (Exhibit C page 4)

Can the qualified professional who does the Site Assessment deny approval of the Category 1 ADU?

If so, what is the consequence for the homeowner, since the ADU is exempt from Site Plan Review under section 22.52.030 page 10?

Section 22.30.045 A. 3. page 7: Allowable uses within the SCA shall be limited to the following . . [there is a list of uses, none of which are ADU's or the other uses permitted in all zoning districts under section 22.06.050 page 1]

Indeed, there is a completely extraneous overriding blanket prohibition at the end of section 22.30.045. A. 3 that reads:

"Land uses and improvements not listed above are prohibited . . ." unless they qualify for an exception under subsection 4 (parcels totally within the SCA, or when development in the SCA would be better for habitat.)

Should the homeowner conclude they cannot build an ADU smaller than 800 feet within the SCA, because it is not on the list of "allowed uses" of 22.30.045 A. 3.? All other uses permitted within all zoning districts are not "allowable uses" and are prohibited within the SCA?

Why is an ADU exempt from Site Plan review under section 22.32.030 page 10, if it "prohibited" under section 22.030.045 A.3?

Can the County please clean up this drafting glitch and clarify the rules on ADU's?

Marin Audubon Society

P.O. Box 599 | Mill Valley, CA 94942-0599 | marinaudubon.org

November 22, 2021

Kristen Drumm
Marin County Community Development Agency
kdrumm@marincounty.org

Dear Ms Drumm:

This is a follow up on the Workshop and Marin Audubon's comments to clarify our concerns and make sure we have conveyed them all. We missed a few concerns in our testimony and a few questions were raised at the Workshop.

Marin Audubon supports a 100 feet wide buffer zone as measured from the top of the bank and 50 foot wide from the landward edge of riparian vegetation. We understood this would be a no build area other than two exceptions: 1) if the entire property is in the SCA, and 2) up to a 500 square foot expansion of existing structure that would not extend further unto the SCA. At the Workshop other ordinances were mentioned as being applicable. Please list the other potentially applicable ordinances and policies.

We have the following recommendations/questions:

- The purpose statement should include a reference to natural resources and endangered and special status species.

- A comprehensive explanation of combining district and how it will be applied on San Geronimo Creek should be provided.

- The questions posed to be answered in the Environmental Assessment need to be clarified. How will the cumulative impacts of multiple small projects along this important creek be accounted for and mitigated for? The Assessment questions speak to significant impacts only. We are talking about assessment of trees and other vegetation on individual properties that are not large in size. At what point do "small" losses add up to become significant? Or the loss of how may native trees would be considered cumulatively significant along a stream with one of the largest endangered salmon and threatened steelhead populations in the state? This is further complicated by the proposed blanket approval to remove trees deemed to be "phyrophytic" which could lead to the loss of a substantial number of trees.

With input from wildlife agencies, the county should investigate what would constitute a significant tree loss. In addition, a record of the number of trees and other riparian vegetation removed should be kept in order to ensure the significant losses do not occur.

- How many parcels are entirely within the SCA ; what is their size range and average size? How many extend into the creek itself? Is the number of 100 parcels, as stated by an attendee at the workshop, as being in this category, accurate?

- Provide the list of pyrophytic plants that could be removed without permits. How was the determination made that tree species growing next to a creek, that would indicate they are well lubricated, are pyrophytic? We understand tan oak, bay laurel and Douglas fir have been identified as pyrophytic?

- Mitigation should be provided for loss of riparian and creek habitat. The ordinance should describe mitigation requirements for habitats that would be lost. We support removal of a mitigation bank as a possibility for mitigation.

Thank you for responding to our questions.

Sincerely,

Barbara Salzman, Co-chair
Conservation Committee

From:	GERALD TORIUMI
To:	PlanningCommission; Rodoni, Dennis; Lai, Thomas; Drumm, Kristin
Cc:	peggycreeks; Denis Poggio; Pickering, Koa; Steve Tognini; NizRealty Brown; Jim Barnes; Bruce McCurdy; Michela McCurdy
Subject:	Proposed SCA ordinance
Date:	Wednesday, December 1, 2021 11:14:37 AM

I recognize the SCA jurisdictional limits currently in place, but why is the SCA limited to just the SGV, and not the entire stream drainage to include Tocaloma? I'm probably getting ahead of the current issue, but it's always seemed hypocritical that SPAWN-Turtle Island Headquarters is constructed entirely within the stream bed, with total disregard to developing juvenile fish.

Kristen Drumm intimates that eventually, the adopted SCA ordinance will be applied to all of Marin county. I'm challenging the veracity of SPAWN, by example; the aforementioned headquarters site & Roy's Pools folly, which demonstrates their questionable lack of environmental aquatic expertise.

BOS & Planning Commissioners should evaluate the SPAWN's credentials, and question their creditably. By example SPAWN is a kettle calling the stove black; they are guilty of development directly within the San Geronimo Stream bed with building structures and a parking lot.

I also object to the proposed required permits and site inspections; specifically pertaining to normal house maintenance & roof repairs. Existing permitted structures should be allowed to be maintained in a timely manner. Condemnation through governmental regulation is not acceptable.

Thank you.....Gerald Toriumi

Community Planning for Stream Conservation

Climate Crisis exacerbated as SCO Prevents Home Net-Zero Energy[1]

Other than the dams in Marin, what are the most significant impacts on fish?

- Ocean temperature rise?
- Drought drying up streams?
- Loss of shade as trees burn in wildfires, resulting in stream temperature rise?
- Atmospheric rivers causing erosion of silt into streams? Does extreme high-speed flow during atmospheric rivers scour stream beds, removing fish habitat?
- How long will Marin continue to send scarce drinking water flowing over dams (e.g. Kent Lake) into streams as climate change droughts deepen?

As all of the above stream impacts are due to climate change, how does the Stream Conservation Ordinance (SCO) exacerbate the climate crisis? To stop causing climate change, homes must consume less than net-zero energy.[2] Blocked by mountains and distance from the heat-stabilizing bays and ocean, Winter temperatures in the lower elevations[3] of the San Geronimo Valley drop below freezing into the 20's F°. Fracking to produce propane and natural gas for heating homes, hot water heaters, and cooking, releases methane,[4]** which is over 80 times more potent that carbon dioxide (CO_2) in changing the climate.

Because traditional electric heat is ineffective, an electric heat pump is the only clean way to heat a home without causing climate change.[5] As gas-powered transportation is the

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[1] The climate emergency requires significantly lower than net-zero energy consumption, now to reduce intensity of extreme temperature, drought, wildfire and atmospheric rivers.

[2] Although the California net-zero energy law only applies to new construction, streams are impacted by climate change caused by all houses and buildings which are not lower than net-zero in energy consumption.

[3] Cold air sinks into valleys as warm air naturally rises to higher elevations. County regulations force development into lower elevations, wasting more energy for heat.

[4] While CO_2 remains in the atmosphere for hundreds of years, methane only persists for approximately a decade. The climate crisis leaves insufficient time for the gas industry to fix methane release over hundreds of millions of pieces of equipment. As noted in the short **TED talk** by Senior Climate Scientist Ilissa Ocko (Environmental Defense Fund), climate change can be most quickly slowed by significantly reducing methane release. https://www.ted.com/talks/ilissa_ocko_the_fastest_way_to_slow_climate_change_now

[5] The cheap alternative of burning firewood for warmth quickly releases CO_2, quickly changing climate. Carcinogenic volatile organic chemicals (VOCs), nitrogen oxides,

largest cause of climate change in Marin County, we must adopt all-electric cars which consume no gas. Sunlight through our windows naturally warms our homes, and solar radiation on rooftop photovoltaic panels can cleanly heat and power homes and charge the all-electric car battery. Yet **it is *impossible* for a home with an electric heat pump, electric water heater, electric oven / stove, and electric car charger to consume *net-zero energy* when *trees shade* the *photovoltaic panels* which produce clean energy**.

While people need cooling on hot sunny days, air conditioning from a heat pump is clean and effectively free when powered by solar energy, as there is abundant solar radiation when cooling is most needed, if not shaded. Solar heat gain through windows is most necessary in the Winter for net-zero energy consumption. For wildfire defensible space and for net-zero energy consumption to reduce the climate emergency, trees which shade rooftop solar panels must be trimmed, topped, cut or replaced.[6] While trees absorb CO_2, the impact of the climate emergency on streams, due to the need for **methane** releasing **propane** heat in **shade**, is far more significant than the impact of changing the carbon sequestration of a few trees in a portion of the SCA (Stream Conservation Area) in the southeastern[7] and southern sides of a home. Less dangerous than tall trees during wildfires, low plant replacements can sequester carbon[8] without preventing home net-zero energy. And carbon-sequestering trees can be planted in more appropriate areas.

In regulating community development, do the Marin CDA and Planning Commission use science, including the physics of climate change caused by heating, cooling, cooking and transportation, to conserve stream biology? The science of climate change requires that we reduce energy consumption to significantly below net-zero to reduce the probability of more extreme wildfires, deeper droughts, more intense atmospheric rivers, worse flooding, … to conserve streams for the fish.

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sulfur dioxide, and polycyclic organic matter released from burning firewood is trapped in the San Geronimo Valley surrounded by mountains.

[6] Because bay trees carry and spread the sudden oak death virus to kill the live oak trees (natural to the San Geronimo Valley), bay trees near live oak trees must be replaced with deciduous trees. Deciduous trees allow in sunlight to prevent freezing during the Winter. External window shades and awnings are effective in providing Summer shade to reduce the need for air conditioning.

[7] Typical nights are cold, requiring the southeastern solar heat gain from morning sun. Southern exposure is critical for mid-day Winter solar heat gain.

[8] Marin Carbon Project in West Marin has proven that certain native low plants sequester carbon deep in the ground, even when grazed.
https://www.marincarbonproject.org/marin-carbon-project-science