

Summary of Sonoma County Policies Relating to Anadromous Fish Habitat Conservation

Excerpted from the study: Effects of County Land Use Policies and Management Practices on Anadromous Salmonids and Their Habitat

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A list of activities considered to have potential impacts on fish and fish habitat was developed through the work of the FishNet County Planning Teams and the FishNet 4C Program Director. These activities are either conducted by county departments directly, or are regulated by the county with a county agency serving as the Lead Agency under the California Environmental Quality Act (CEQA). The identified activities were then categorized by the potential impacts they may have on anadromous salmonids and their habitat. This categorization is based upon Spence et. al. (1996). (See TABLE-1)

TABLE-1, Impact Categories for Identified Activities

Potential Impact to Anadromous Salmonids	County or County Regulated Activity
A. Streamflow Quantity Modifications	Road surfacing (impervious surfaces)
	Domestic water use
	Storm drainage
	Retention basins/overflow channels
	Road watering
B. Riparian Clearing	Floodplain clearing
	Channel clearing
	Levee construction
	Channel construction
	Site clearing
	Roadside brushing
C. Sedimentation	Grading/excavation/filling
	Culvert installation
	Bridge construction
	Emergency grading
	Culvert clearance/repair
	Bridge repair
	Road regrading/resurfacing
	Channel clearing
	Levee repair
	Landslide removal
D. Instream Habitat Modification (physical)	Erosion control and channel armoring
	Channel clearing
	Retention basins/overflow channels
	Channel structure installation

Potential Impact to Anadromous Salmonids	County or County Regulated Activity
E. Water Quality Impairment (thermal, biological or chemical)	Site clearing
	Channel structure installation
	Channel clearing
	Floodplain clearing
	Herbicide spraying
	Storm drainage
	Waste water discharge
	Domestic animals
F. Migration Barriers	Channel structure installation
	Retention basins/overflow channels
	Channel construction
	Culvert installation

This list of activities and impacts was the basis for the policy analysis. All Sonoma County general plan elements and ordinances which regulate these activities were analyzed (See TABLE-2). Policies which help avoid or mitigate impacts were identified, as were areas in which formal policies were missing. The specific policies along with relevant sections are presented in a series of tables at the end of this document. Highlights of the review are discussed below, by area of impact.

TABE-2: General Plan Elements and Ordinances Reviewed

County	General Plan Elements	Ordinances
Sonoma	Land use element	Adopted and Modified Codes- Erosion Control Amendments, Chapter 7
	Housing element	Flood damage prevention, Chapter 7
	Open space element	Storm water quality, Chapter 11
	Agricultural resources element	Watercourse Protection ordinance 1108
	Resources conservation element	Anti Roiling ordinance, Chapter 23, 3836R
	Public safety element	Zoning ordinance, Chapter 26
	Circulation and transit element	Vineyard erosion and sediment control, Chapter 30
	Air transportation element	
	Public facilities and services element	
	Noise element	

DISCUSSION

Sonoma implements most of its general plan policies by means of its zoning ordinance and through adopted and modified county codes. The most consistent and strict policies for salmonid habitat protection are found in Sonoma County's Coastal Zone. To comply with California's Coastal Protection Act, all county governments in California have adopted Coastal Plans and Coastal Zoning Ordinances, which require fairly comprehensive protections for salmonid habitat. There has been no similar state requirement for salmonid habitat conservation beyond the Coastal Zone.

There are however, a number of policies in place in the remainder of Sonoma County that serve to protect fish habitat, even if that is not their specific intention. These policies are put in place to protect wildlife habitat in general, to reserve riparian corridors from development, to prevent erosion and sedimentation, and to regulate stream channel modification.

A. Wildlife Habitat

Fish habitat in Sonoma County is protected by the same means as other sensitive wildlife habitat, through analysis during the CEQA environmental review process. Habitat protection goals and methods are articulated in the county's Open Space and Resource Conservation Elements and implemented through the county's zoning ordinance.

The basic approach in Sonoma County is to rezone areas that are considered critical habitat as Biotic Resource Districts (BRDs). (OS-4) The Open Space Element requires that building and development envelopes in BRDs avoid designated critical habitat areas, and may require setbacks. The planning director may require a biotic resource assessment to develop mitigation measures when a discretionary project could adversely impact a designated critical habitat area. All discretionary projects in BRDs are checked by county planners against a current fish habitat database to determine whether they are in proximity to designated critical habitat. Maintenance and updating of the data maps is required by the County's Resource Conservation Element (RC-6). Staff do field checks of mapped data for publicly sponsored projects only.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- The extent to which anadromous fish habitat or "critical habitat" (as defined by the county), has been incorporated into this system of protected areas was not reviewed.
- Sonoma County, as do all counties, allows buffer zone requirements to be modified if no feasible development alternative exists on the parcel.
- Critical habitat is only designated in BRDs and not the county as a whole.
- There is no specific Critical Habitats Ordinance to implement these provisions, although the zoning ordinance implements them in a comparable way, but only in BRD zones.
- The Resource Conservation Element (RC-8b) directs the County to consider establishing a fishery management plan in cooperation with agencies and interest groups, but no plan has been developed.

B. Streamflow Quantity Modification

Streamflow quantity can be affected through withdrawals of water for domestic use and through increases in accumulated run off from surfaces hardened by development. Counties do not directly regulate water withdrawals, but they are responsible for regulation of drainage from developments and most counties assume responsibility for permitting development based on conditions of the developer having received water rights from SWRCB. Most counties only require proof that there is enough water for human consumption, not for fish.

Instream Flow Withdrawals: Sonoma County, like other counties, acknowledges water supply as an issue in development and mandates water conservation and planning for the long-term water needs of county residents. However, only coastal zone policies require counties to determine and plan for instream flows adequate to protect fish habitat. All new development

proposals within the coastal zone must be evaluated to determine that the new water use will not adversely affect the natural supply to the environment including fish habitat.

Outside the Coastal Zone, Sonoma's Resource Conservation Element directs the county to design public and private projects to maintain instream flows. It also encourages construction of wastewater disposal systems designed to reclaim and reuse treated wastewater on agricultural crops.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Sonoma County does not require development projects to demonstrate that they will not reduce the availability of stream water for fish, except in the Coastal Zone.

Stormwater Retention: Development projects typically create hardened surfaces which change hydrologic regimes affecting the magnitude and timing of stream flow. Although many California counties have language within their general plans requiring runoff rates not be changed from pre-development levels, Sonoma County policies made no mention of avoidance of these impacts. The County does require design and construction of drainage facilities in unincorporated areas to be reviewed by the Sonoma County Permit and Resource Management Department.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- No policies prohibiting changes in runoff due to development were found for Sonoma County.
- No policies promoting the retention of stormwater from development were found for Sonoma County.

C. Riparian Vegetation

Sonoma County protects riparian vegetation in its Coastal Zone as is required by the State Coastal Zone Protection Act. In non-coastal areas, Sonoma establishes riparian buffers in its Biotic Resources Districts only.

Coastal Zone Riparian Buffers: Provisions for designating and protecting streamside areas are outlined in the County's coastal element and coastal zoning ordinance. New development within a defined riparian corridor is restricted with exceptions made for road maintenance and repair, placement of wells and utilities, and maintenance of existing flood control structures. New development, including single-family dwellings on existing lots, may occur within coastal streamside management areas with a discretionary permit when there is no feasible alternative site within the parcel. Applicants are required to provide a biological assessment of the project by a qualified biologist. New development must maintain the functional capacity of the habitat and developers may be required to replant riparian vegetation. Any development requires a Coastal Development Permit from the Coastal Commission.

Non-Coastal Riparian Buffers: Sonoma County's Open Space Element designates Streamside Conservation Areas (SCAs) in Biotic Resources Districts only (OS-5). Defined widths are 200 feet from the banks of the Russian River, 100 feet from streams in flat land, and 50 feet from streams in upland and urban areas. These buffers apply to perennial and intermittent streams, but

not ephemeral streams. The Biotic Resources District covers most blue line streams in the county; however, some streams considered important habitat by DFG are excluded from this zone.

Uses allowed within this buffer included permitted timber harvest operation; streamside maintenance; road, street and utility line crossings; permitted mining; permitted summer dams; grazing and agricultural operations; vegetation removal as part of an Integrated Pest Management program administered by the Agricultural Commissioner; and creekside bikeways, trails and parks.

Uses prohibited within SCAs include structures, roads, utility lines, and parking lots. However, the riparian buffer requirement may be waived if it renders a lot unbuildable and vegetation removal is minimized; no significant disturbance of riparian habitat occurs; or the proposed use involves only maintenance, restoration or minor expansion of an existing structure. A biotic resource assessment may be required before issuing a waiver. The Open Space Element also directs county staff to review Timber Harvest Plans adjacent to designated riparian corridors to ensure that 50% of overstory and 50% of understory vegetation is retained.

In addition to specific riparian corridor protections, other ordinances may function to protect riparian vegetation in some cases. Sonoma's Tree Protection Ordinances requires that "protected" trees > 9" in diameter, especially Valley Oak, damaged during construction be replaced or a fee paid. Sonoma's Storm Water Quality Ordinance prohibits removal of healthy streambank vegetation. And the County's Vineyard Erosion and Sediment Control Ordinance requires agricultural setbacks of 25-50' from streams with no clearing of native vegetation.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Riparian buffers are designated in Biotic Resource Districts (BRDs) and not the county as a whole. The Open Space Element directs county planning to refer discretionary permits along undesignated streams to the Sonoma County Water Agency and the Department of Fish and Game as part of the review process. However, no standardized method of implementation of riparian buffers in these non-BRDs was identified for review.
- Sonoma County, like other counties, allows waivers of riparian buffers, if it renders the lot unbuildable.
- There is no specific Riparian Protection Ordinance to implement these provisions, although the zoning ordinance implements them in a comparable way, but only in BRD zones.

D. Floodplain Management

Riparian areas are by definition, a portion of the stream's floodplain. Some floodplain management policies may serve to protect riparian and stream functioning when they prohibit structures from the floodplain. Once structures are built on a floodplain, measures to prevent flooding such as installation of levees, clearing of riparian vegetation, or hardening of channel banks, often follow, all of which impact fish habitat.

Sonoma County manages the floodplain based on federal policy which seeks to minimize damage to property and people from flooding. The floodplain area is divided into two major sections, the floodway or primary floodplain and the flood zone, or secondary floodplain. The floodway is defined as the stream channel and immediately adjacent lands (i.e., bankfull). The floodzone is the area prone to flooding during the 100-year flood as defined by the Flood Insurance Rate Map (FIRM) delineated by the Federal Emergency Management Agency (FEMA).

Sonoma County's Land Use Element (LU-7) states that general plan amendments which allow additional development in floodplains should be avoided unless projects are of low intensity and do not include permanent structures. Sonoma's Public Safety Element (PS-2) directs the county to give priority to floodplain management over flood control structures, to regulate vegetation removal and grading and to limit filling in areas which could retain a significant amount of floodwater.

New permanent structures are prohibited within the floodway and any permitted development within the floodplain must be raised above the 100-year flood elevation. Variances may be issued if projects do not alter the existing flood capacity. However, the Public Safety Element directs the county to avoid variances to building setbacks along streams.

These policies are implemented through a flood damage prevention ordinance (Chapter 7) which prohibits encroachments, including fill, new construction, substantial improvements in floodways unless certification by a registered professional shows that the project will not result in any increase in flood levels. No structure may be constructed, located, extended, converted or altered in a flood plain without a permit. Variances may be issued if projects do not alter the existing flood capacity. The zoning ordinance (26-56/58) also regulates development in floodways and floodplains.

In addition, a provision of the county's Watercourse Protection Ordinance (#1108) prohibits construction any structure within 100' of the top of any embankment, natural or man-made which defines a channel except structures constructed on a lot in a subdivision where the flood hazard has been found to be remote by the Sonoma County Water Agency.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- No mandatory setbacks from floodplains were found in county policy documents. It is not clear how the 100' setbacks established in the Watercourse Protection Ordinance are applied or whether 100' is the appropriate width to accommodate most floodplains.
- Policies allow development in floodplains if it can be accomplished without altering the existing flood capacity. Projects in floodplains have gone forward in some counties with similar policies when a no net fill mitigation was proposed (which consists of excavation of the floodplain in quantities sufficient to account for fill used to raise structures above the 100-year flood elevation.) This type of development is not excluded by Sonoma County policy language.
- Zero net fill policies on lands in floodways and floodplains may apply to the Laguna de Santa Rosa and tributaries only.

E. Channel Modification and Maintenance

The primary agencies regulating activities in stream channels are the California Department of Fish and Game through the requirement for Streambed Alteration Agreements, and the US Army Corps of Engineer through the Section 404 permitting process. However, county governments do have some jurisdiction over channels through their responsibilities to review permit applications of installation of bank stability structure installation, and through their own channel clearing and maintenance, and lagoon breaching practices.

Bank Stability Structures: Sonoma County requires private landowners to obtain permits for channel modification through the Zoning Ordinance. Applicants seeking to install bank stabilization structures must complete a zoning permit application with appropriate technical assessments, permits from appropriate agencies, and temporary and permanent erosion control measures. The Zoning Ordinance (26-56) imposes development standards in the floodway (the stream channel and immediately adjacent lands, i.e. bankfull). These standards require placement of bank stabilization measures which are complementary to surrounding development and natural conditions. Applicants for stabilization projects may be required to furnish data to determine the effects of bank erosion on proposed structures, the floodway and natural vegetation. Projects which would lead to significant stream channel alteration are prohibited. Site review is conducted by county staff.

The county's Anti-Roiling Ordinance (23-3836R) also requires that those seeking to perform any work to protect riparian property which has the potential of impairing water clarity must first obtain a permit must find that the work will not unreasonably decrease the clarity of rivers and stream in the county. The permit is then good for 30 days.

The county's Watercourse Protection Ordinance (#1108) also prohibits depositing materials in stream channels without a permit.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Bank stability structure permit requirements do not require applicants to evaluate the cumulative effects of their projects on fish habitat, nor does the county perform this analysis.
- No established performance standards for county sponsored bank stability projects were found.

Channel Maintenance: Sonoma County has clearing easements on 150 miles of natural channel and also maintains 100 miles of constructed floodway. No formal Sonoma County policies on channel maintenance were found, although county agencies no doubt follow conditions imposed by Streambed Alteration Agreements with DFG and direction from the US Army Corps of Engineers.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- No established performance standards for county sponsored channel maintenance projects were found.

Lagoon Breaching: Sonoma County breaches the sand bar at the mouth of the Russian River in accordance with recommendations made by fish biologists in the 1994 Russian River Estuary Study.

F. Sedimentation

About 325 net housing units per year have been built in Sonoma County over the past five years. New subdivisions have created about 170 lots per year. Land development has the potential to create soil disturbance and sedimentation impacts on streams. Policies that address grading, winter grading, and development on steep slopes all serve to avoid or reduce these impacts. In addition to development, work such as road maintenance and agricultural cultivation routinely disturb soil. Policies that regulate these activities also avoid sedimentation impacts.

Grading: Sonoma County's Resource Conservation Element (RC-2) requires erosion control measures for any discretionary project involving construction or grading near waterways or on lands over 10 percent slope. A grading permit is required for any project involving greater than 50 cubic yards of material in any location. The county has adopted amendments to Chapter 33 of the Uniform Building Code that require construction and post construction erosion control measures to be identified on grading plans. Amendments to Chapter 7 of the Sonoma County code prohibit construction, grading, cutting, or filling between October 15th and April 15th except in accordance with an erosion control plan approved by the chief building official. Planting completed during the summer must be monitored and maintained until well established or until the rainy season, whichever comes first. Any areas 10 percent or steeper graded for public or private road construction must have erosion control measures in accordance with Section 20 of CalTrans Standards.

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IDENTIFIED AND POTENTIAL POLICY GAPS:

- Sonoma County does not have a specific Grading or Erosion Control Ordinance. General plan language implies that erosion control measures are required only near waterways or on lands over 10 percent slope. Plans are required for all winter grading.
- No policy statement on requirements for erosion control and controls on winter grading for public projects other than road construction were identified or reviewed.
- No standards or BMPs for grading and erosion control were identified or reviewed.

Development on Steep Slopes: Development on steep slopes carries increased potential for soil erosion and subsequent stream sedimentation. Sonoma County's Resource Conservation Element requires design of discretionary projects so that structures and roads are not located on slopes of 30 percent or more. However this may be waived if it makes the parcel unbuildable. Erosion control measures must be included on discretionary projects involving construction or grading near waterways or on lands with slopes over 10 percent.

Cultivation: Sonoma's Vineyard Erosion and Sediment Control Ordinance requires growers to get approval from the Agricultural Commissioner prior to planting or replanting vineyards. Planting is categorized according to slope and erodibility of soils. Lands prone to erosion must have erosion and sediment control plans. All disturbed areas must be protected by both

temporary and permanent measures. The ordinance prohibits some new vineyard plantings on slopes >50%.

Road Maintenance and Related Activities: Sonoma County maintains 1400 miles of road, only 30 miles of which are unsurfaced. However, there was no documentation of road maintenance procedures used in the county for review.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Sonoma County does not have written policies on road construction and maintenance or related activities such as storage and disposal of spoils, stream crossings, culvert diversion potential, fish passage and landslide and slope repair. .

G. Water Quality

Storm Water Pollution Prevention: In order to comply with the federal Clean Water Act, Sonoma County has obtained a permit from the National Pollutant Discharge Elimination System (NPDES) for storm drain systems in portions of the county. Sonoma, like other counties, must report annually to the Regional Water Quality Board describing the amount of pollution prevented by cleaning storm drains, clearing channels and creeks, collecting material from street sweeping and chemical collection facilities.

Sonoma County also passed a Storm Water Quality Protection Ordinance (Chapter 11) to reduce pollutants in storm water discharges, as per NPDES requirements. Non-storm water discharges to a county storm drain are prohibited except when in compliance with an individual (NPDES) permit. Each discharger must comply with BMPs. Exempt discharges include water line flushing, landscape irrigation and lawn watering, irrigation water, diverted stream flows, rising groundwater, infiltration to separate storm drains, uncontaminated pumped groundwater, foundation and footing drains, water from crawl space pumps, air condition condensation, springs, residential car washing, flows from riparian habitats and wetlands, and flows from fire fighting and permitted use of reclaimed water.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Storm Water Pollution Prevention measures apply to only part of Sonoma County.

Chemical Use: Sonoma County's general plans and policies make no mention of measures to prevent water quality from pesticide or herbicide use in or near stream channels.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- No written county policies on use of chemicals in or near stream channels were identified or reviewed.

H. Migration Barriers

Sonoma County maintains about 10,000 culverts and cross drains, of which about 4,000 are culverts affecting fish-bearing streams. County staff estimated that 10 bridges and 1000 culverts require replacement. The County replaces an average of one bridge and 50 culverts per year. Twelve bridges are scheduled for replacement in the next 5 years. Routine replacement of culverts and crossings affecting fish bearing streams is reviewed the Department of Fish and Game through the Streambed Alteration Agreement process.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- No written county policies or action plans to mitigate fish migration barriers due to county maintained culverts were identified.
- No written policies requiring review of fish migration impacts due to emergency replacement of county culverts were identified.

Summary of Policy Conclusions

Sonoma County has a number of policies in place that serve to protect fish habitat. These protections are most comprehensive in the coastal zone where strict development standards protect salmonid streams with riparian buffers. Coastal zone rules restrict building in floodplains, channel modification, modification of streamflow quantity through water withdrawals, and they also strictly control grading.

In the non-coastal zone portions of Sonoma County, fish habitat protection is strongest in zoned Biotic Resource Districts. Critical habitat areas and riparian buffers, both of which implement restrictions on land use near streams, protect fish habitat. The measures listed in general plan elements are consistent with the county's zoning ordinance.

Sedimentation issues are addressed through the county's grading provisions, restrictions on development on steep slopes, and requirements for erosion control measures in vineyard development. A portion of the county is covered by a comprehensive storm water pollution prevention ordinance.

While existing policies play an important role in fishery protection in Sonoma County, a number of potential gaps in the protection of fish habitat by county policies were identified by this analysis. These are summarized below:

A. Wildlife Habitat

- Protection of critical fish habitat by Critical Habitat provisions is not extended to all anadromous fish streams but only those in Biological Resource Districts.
- There is no specific Critical Habitats Ordinance to implement these provisions, although the zoning ordinance implements them in a comparable way, but only in BRD zones.

B. Riparian Vegetation

- Riparian buffers are designated in Biotic Resource Districts only.
- There is no specific Riparian Protection Ordinance to implement riparian buffer provisions, although the zoning ordinance implements them in a comparable way, but only in BRD zones.

C. Floodplain Management

- There are no mandatory setbacks from streams to keep development out of the floodplain.
- Policies allow development in floodplains if it can be accomplished without altering the existing flood capacity.

D. Channel Modification and Maintenance

- Bank stability structure permit requirements do not require applicants or the County to evaluate the cumulative effects of their projects on fish habitat throughout a larger stream reach.
- No established performance standards for county sponsored bank stability projects or channel maintenance projects were found.

E. Streamflow Quantity Modification

- Sonoma County does not require development projects outside of the Coastal Zone to demonstrate that they will not reduce the availability of stream water for fish.
- No policies prohibiting changes in runoff due to development or promoting the retention of stormwater were found.

F. Sedimentation

- Sonoma County does not have a specific Grading or Erosion Control Ordinance. It appears that erosion control measures are typically required only near waterways or slopes over 10 percent.
- No policy statement or standards for erosion control and controls on winter grading for public projects, other than road construction, were identified.
- Sonoma County does not have written policies on road maintenance or related activities such as storage and disposal of spoils, stream crossings, culvert diversion potential, fish passage and landslide and slope repair.
- No county code to go with Universal Building Code (UBC).

G. Water Quality

- NPDES storm water pollution prevention measures apply to only part of Sonoma County.
- No written policies on use of chemicals in or near stream channels were identified or reviewed.

H. Migration Barriers

- No written county policies or action plans to mitigate fish migration barriers due to existing county maintained culverts were identified.
- No written policies to review or mitigate fish migration impacts due to routine or emergency replacements of culverts were identified.