

Summary of Santa Cruz 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

January 2001
by
Dr. Richard Harris
Susie Kocher
UC Berkeley Extension

A list of activities considered to have potential impacts on fish and fish habitat was developed through the work of the 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
F. Migration Barriers	Domestic animals
	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 Santa Cruz 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.

TABLE-2: General Plan Elements and Ordinances Reviewed

General Plan Element	Ordinance
Land use element	Zoning ordinance, Chapter 13.10
Circulation element	Site and landscape design review, Chapter 13.11
Housing element	Coastal zone regulations, Chapter 13.20
Conservation and open space element	Subdivision ordinance, Chapter 14.01
Public safety and noise element	Geologic hazards, Chapter 16.10
Parks, recreation and public facilities	Grading regulations, Chapter 16.20
Community design	Erosion control, Chapter 16.22
	Riparian corridor protection, Chapter 16.30
	Sensitive habitat protection, Chapter 16.32
	Significant Tree Ordinance- Chapter 16.34
	Mining regulations, Chapter 16.54

DISCUSSION:

Guiding principles found in Santa Cruz County's General Plan are implemented through county ordinances and performance standards. 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. Unlike other nearby counties, Santa Cruz extends most of its protective policies from its coastal zone to the entire county.

There are a number of policies in place in Santa Cruz County that protect fish habitat, even if that is not always their specific intention. These policies are put in place to protect wildlife

habitat in general, protect riparian corridors, prevent erosion and sedimentation, and to regulate stream channel modification.

Wildlife Habitat

Santa Cruz county policies protecting wildlife habitat go farther than those of the other Fishnet 4C counties in that they establish sensitive habitat provisions throughout the county (rather than just in the coastal zone) and they are implemented by a specific sensitive habitat ordinance. They also track habitat information for project review with a GIS database.

Santa Cruz County's Conservation and Open Space Element defines "environmentally sensitive habitat" as all areas which provide habitat for species of special concern listed by the California Department of Fish and Game, areas of rare, endangered or threatened species designated by the State Fish and Game Commission and USFWS, and all lakes, estuaries, lagoons, streams, rivers, and riparian corridors (5.1.2). Only those uses dependent on the habitat are allowed unless other uses are consistent with habitat protection policies, completely mitigate adverse impacts, and are legally necessary to allow economic use of the land (5.1.3). The county's Sensitive Habitat Protection Ordinance restricts these uses to nature study and research, hunting, fishing and equestrian trails with timber harvest as a conditional use. Commercial agriculture is exempted from these provisions (16.32).

Biotic assessments are required with normal project review in sensitive habitat (5.1.9 and 16.32). The county is directed to reduce, redesign or deny any project which cannot sufficiently mitigate impacts unless approval is legally necessary to allow a reasonable use of the land. Structures are to be sited as far from the habitat as feasible, development envelopes are to be specified, and protection provided through easements, and deed restrictions. Domestic animals and landscaping with exotics is to be prohibited (5.1.7). The ordinance establishes buffer zones within which land uses are restricted to those compatible with habitat needs.

County staff report that applications for both discretionary and ministerial building permits are checked for proximity to sensitive habitat on the county's Geographic Information Systems (GIS) database which incorporates up to date information on salmonid fish habitat. Gross scale mapping is then field checked by trained county staff.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Santa Cruz county's wildlife habitat conservation policies are comprehensive and consistent. The extent to which their GIS database incorporates the most recent salmonid habitat information is not known.

A. 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. County governments are responsible for regulation of drainage from developments which can change flow regimes but are not responsible for maintenance of instream flow (which is primarily regulated by the State Water Resources Control Board). Santa Cruz county policies protecting streamflow quantity go

farther than those of the other Fishnet 4C counties in that they establish targets for instream flow and set requirements for stormwater detention basins in their general plan.

Instream Flow Withdrawals: Santa Cruz’s Conservation and Open Space Element (5.6) establishes a target for minimum stream flows for anadromous fish runs that comes into play when a biologic assessment has not been completed for a particular stream. The perennial stream flow target is 95 percent of normal during summer and 70 percent during winter baseflow. The county is directed to oppose new water rights applications or transfers that would individually or cumulatively diminish instream flows below this 95/70 standard. New diversions, dams, and reservoirs constructed on anadromous fish streams must be designed to provide adequate stream flow levels for successful fish populations (5.3).

Critical Water Supply Streams, including streams with anadromous fish, are designated in which new or expanded water diversions are to be prohibited or opposed by the county. The county should seek to restore in-stream flows where there is harm to beneficial uses (5.6). New water supply projects elsewhere should be conditioned to protect instream uses. The Public Safety Element requires that flood control structures built to protect existing development not restrict stream flows below minimums necessary for fish production (6.4.10).

Stormwater Retention: Development projects typically create hardened surfaces which change hydrologic regimes affecting the magnitude and timing of stream flow. Santa Cruz’s Public Safety Element requires onsite retention or detention of storm water to prevent any significant increase over pre-existing volumes and velocities (6.3.8). New discretionary development projects must maintain runoff at pre-development rates (7.23) and should limit coverage by impervious surfaces. On-site retention and percolation of runoff is required for new development in Water Supply Watersheds, in groundwater recharge areas, and for all projects over an acre in size for which adequate on and off site improvements to alleviate drainage problems cannot be made. When on-site detention is used, projects must be conditioned to ensure ongoing operation and maintenance of basins. The Erosion Control Ordinance (16.22) specifies the “design storm” for which runoff must be controlled which varies by soil type.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Provisions requiring consideration of the county’s stream flow targets or on-site water detention requirements was found in the General Plan but is not supported in county implementation ordinances. It is possible this could lead to inconsistent implementation of general plan provisions during development.

B. Riparian Vegetation

Santa Cruz county policies protecting riparian corridors go farther than those of the other Fishnet 4C counties in that they establish riparian corridor provisions throughout the county (rather than just in the coastal zone) and they are implemented by a specific riparian corridor ordinance.

Santa Cruz County’s Conservation and Open Space Element designates riparian corridors throughout the county (5.2). Corridors measure 50 feet from the top of channel or high water mark of perennial streams, 30 feet from intermittent streams and 100 feet from the high water mark of lakes, lagoons and estuaries. Development activities, land alteration and vegetation

disturbance within the corridors is prohibited. Exceptions must be approved by the US Army Corps of Engineers, and Department of Fish and Game. In addition to the corridor width, additional buffer setbacks are required based on stream characteristics, vegetation and slope. Setback reductions are allowed only with an approved riparian exception. An additional 10 feet of separation is required from the edge of the buffer to any structure. Land within the riparian corridor is excluded when calculating allowable density. Compatible uses that do not impair or degrade the riparian system such as non-motorized recreation and trails, parks, and fishing are allowed. Environmental review of all proposed development projects affecting corridors is required, including preparation of an EIR or biotic report for projects which may have a significant effect.

Santa Cruz's Riparian Corridor and Wetlands Protection Ordinance (Chapter 16.30) implements the guidelines in the general plan throughout the county. No development activities are allowed within riparian corridors. Exemptions include continuance of pre-existing non-agricultural uses not lapsed for more than a year, and pre-existing agricultural uses not lapsed within the last five years. Exceptions to these prohibitions may occur if there are special circumstances, or as a necessary part of a permitted activity. When exceptions are allowed, mitigations may include vegetated buffer strips, water breaks, surface treatments, and sediment catch basins. Fines of \$500 per day may be levied for non-compliance.

Tree Protection Ordinances: Santa Cruz County has a Significant Tree Protection Ordinance which prohibits removal of trees >20" dbh or groups of 5 trees >12" dbh on a parcel without a permit in the Coastal Zone.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Santa Cruz County's riparian corridor protection policies are comprehensive and consistent. However, definition of riparian protection areas on the basis of stream geomorphology rather than arbitrary distances from streams would probably improve salmonid habitat protection in many cases.
- Development may still occur in riparian areas when protection provisions make an already established parcel unbuildable. The county could establish a fund for purchase of property or easements for these cases.

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.

Santa Cruz County policies protecting floodplains go farther than those of the other four Fishnet 4C counties because they limit the amount of fill that can be put on the 100-year flood plain to create building sites. On current lots only 50 cubic yards of fill can be used to create a building site. A new parcel may be created in a floodplain only if already contains a buildable site above flood level.

Santa Cruz 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).

Santa Cruz's Public Safety Element (6.4) allows creation of new parcels in 100-year floodplains only if each proposed parcel contains at least one development site not subject to flood hazard. A restriction indicating the 100-year floodplain must be recorded on the deed. New flood control structures are allowed only to protect existing development where no other alternative is feasible and where necessary for public safety. Structures must not adversely affect sand supply, increase erosion or flooding on adjacent properties, or restrict stream flows below minimum levels necessary for maintenance of fish and wildlife habitat.

Santa Cruz's Geologic Hazards Ordinance (Chapter 16.10) sets conditions for development in floodplains. A geologic hazards assessment is required for development within 100-year flood plains. Critical facilities must be located outside of the 100-year flood plain and new parcels may only be created if a full hydrologic report demonstrates that each parcel contains at least one building site not subject to flood hazard. On current lots, a maximum of 50 cubic yards of fill may be placed within the 100-year floodplain for construction. A minimum setback of 20 feet from the banks of a watercourse is required where all development activities are prohibited if no specific floodway is designated on flood maps.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Santa Cruz county's floodplain protection policies are comprehensive and consistent. However, construction on current lots in floodplains may still occur. Floodplain development could be avoided by establishment of a fund for purchase of property or easements for buildable parcels in floodplains.

C. Sedimentation

Santa Cruz county policies to avoid stream sedimentation go farther than those of the other Fishnet 4C counties in that they regulate agricultural grading, prohibit development on slopes over 30 percent, prohibit winter grading in sensitive areas (except for unusual circumstances), require sediment basins in new and existing development, and require erosion control plans for both private and public projects. These measures are implemented through specific Grading, Erosion Control, and Geologic Hazards Ordinances.

Grading: Santa Cruz County's Conservation and Open Space Element requires all grading, building, and timber harvesting in Water Supply Watersheds (WSWs) and Least Disturbed Watersheds (Laws) to meet strict standards for erosion control (5.5). All new and existing development and land disturbances near streams and lagoons should install and maintain sediment basins and or other erosion control measures (5.7). It also charges the county to

require all new and existing development to install and maintain sediment basins or other strict erosion control measures to prevent siltation to streams.

The Public Safety Element requires land clearing permits and an erosion control plan for projects which clear more than one acre (except for agriculture), for any clearing in a sensitive habitat, and for clearing more than ¼ acre in Water Supply Watersheds (WSWs) and Least Disturbed Watersheds (LDWs). All sediment must be contained on site during construction and site design must minimize grading and vegetation removal (6.3).

Santa Cruz's Grading Ordinance (16.20) requires a grading permit for excavation of over 100 cubic yards of material. Those projects under this threshold must conform to the county's Riparian Corridor, Sensitive Habitat, and Erosion Control Ordinances. The Erosion Control Ordinance requires control of all existing and potential human induced erosion by both public and private agencies (16.22). An erosion control plan must be approved prior to issuance of a building, development (including grading), land division, or clearing permit.

Winter Grading: Santa Cruz County's Public Safety Element (6.3) and Erosion Control Ordinance requires installation of erosion control measures by October 15th. Measures must be in place before that time to prevent erosion from early storms. All exposed soil must be protected between October 15th and April 15th. Earth moving in areas of high erosion hazard in WSWs and LDWs is prohibited during the winter unless work is pre-authorized and erosion control measures are put in place at the end of each workday.

Santa Cruz's Erosion Control Ordinance prohibits land clearing over an acre in size or grading of over 100 cubic yards of material during the winter unless approved by the Planning Director. In these cases, specific measures including mulching, drainage, and runoff detention must be in place at the end of each day's work. Operations must cease during inclement weather.

Development on Steep Slopes: Development on steep slopes carries increased potential for soil erosion and subsequent stream sedimentation. Santa Cruz's Public Safety Element (6.3) prohibits building structures in discretionary projects on slopes greater than 30 percent except for single-family homes on existing lots of record when no alternative is available. Site design should not allow access roads and driveways to cross slopes over 30 percent.

The Geologic Hazards Ordinance (16.10) implements these guidelines by requiring a geologic hazard assessment for development on slopes over 30 percent. New parcels may not be created if they lead to building and road sites on slopes more than 30 percent. The Grading Ordinance (16.20) requires the maximum grade of a road to not exceed 15 percent, although it may be up to 20 percent for up to 200 feet. The Erosion Control Ordinance (16.22) prohibits creation of new lots that require new access roads to cross slopes over 30 percent. Construction of new roads across slopes greater than 30 percent is prohibited on existing lots unless there is no other alternative. Clearing of land over ¼ acre is prohibited on slopes over 30 percent.

Cultivation: Santa Cruz County's Public Safety Element (6.3) requires agricultural activities to maintain adequate erosion control measures to prevent excessive sedimentation. The Grading Ordinance (16.20.195) requires a permit for agricultural grading. Plans must show erosion

control measures to be taken on disturbed non-crop areas. The Planning Director may require review or design by an engineer for grading with erosion potential. Agricultural activities are exempt from the county's Erosion Control Ordinance.

Road Maintenance: Santa Cruz County maintains 601 miles of road, only one mile of which is unsurfaced. There is very little written documentation of road maintenance procedures in the county although the county's Erosion Control Ordinance requires control of all erosion from public and private projects. Road maintenance BMPs are currently being developed for Santa Cruz, Monterey, and San Mateo Counties as part of the Water Quality Protection Program for the Monterey Bay National Marine Sanctuary.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Policies for mitigation of sediment impacts from road maintenance have not been adopted. Policies for county road maintenance that address disposal of spoils, stream crossings, culvert diversion potential, and slope repair would help avoid current sedimentation impacts. No program for road reconstruction, decommissioning and maintenance to minimize sedimentation and runoff impacts was identified.

D. 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, Santa Cruz County does have some jurisdiction over channels through its responsibilities to review permit applications for installation of bank stability structures, through its own channel clearing and maintenance and lagoon breaching practices. Santa Cruz's policies to protect stream channels from modification are in line with those of the other FishNet 4C counties except for the lack of formal policies on channel and levee maintenance.

Bank Stability Structures: Santa Cruz County's Riparian Corridor and Wetland Protection Ordinance (16.30) requires landowners wishing to install bank stability structures to obtain permission to work within the riparian corridor in the form of a Riparian Exception. This permit may require environmental review through the CEQA process.

Lagoon Breaching: Lagoons at the mouths of coastal streams may develop sandbars which cause flooding of adjacent properties. Breaching radically alters stream levels which may have negative consequences for salmonids. Santa Cruz's Conservation and Open Space Element prohibits lagoon sandbar breaching unless consistent with an approved management plan for the stream system (5.2.11).

Channel Maintenance: No formal policies on public channel and levee maintenance were found for Santa Cruz County. Generally, mitigations are established through Memorandums of Understanding or blanket Streambed Alteration Agreements with DFG. Conditions imposed include timing of clearing and restrictions on equipment in the stream bottom.

IDENTIFIED AND POTENTIAL POLICY GAPS:

- No established performance standards for county sponsored bank stability or channel and levee maintenance projects were found.
- Environmental review of bank stability structures for private or public projects does not require evaluation of cumulative effects on fish habitat.

E. Water Quality

Water quality is an important component of fish habitat. Many of the regulations governing water quality are implemented through state and federal agencies. Several areas of county jurisdiction affect water quality including storm water pollution prevention, use of chemicals, zoning density and road maintenance. Santa Cruz County's restrictions on chemical use in sensitive habitat (including riparian corridors) are stricter than any others in the FishNet 4C counties. However, unlike 3 of the other 4 counties, Santa Cruz has not yet obtained permits for its storm drains or developed a storm water pollution prevention ordinance since it has not yet been required to comply with the National Pollutant Discharge Elimination System (NPDES).

Storm Water Pollution Prevention: Santa Cruz's Conservation and Open Space Element requires review of proposed development projects for potential to contribute to water pollution via increased storm water runoff and use of storm water BMPs (5.4). New development should minimize the discharge of pollutants by providing curbs and gutters on arterials, and oil, grease and silt traps for parking lots, land divisions and industrial uses (5.7). All stables and other animal keeping operations should be managed to prevent discharge of sediment nutrients, and contaminants to surface and groundwater. This element also directs the county to obtain permits for storm drain systems once the Regional Water Quality Control Board requires the county to comply with the National Pollutant Discharge Elimination System (NPDES).

Chemical Use: Santa Cruz's Conservation and Open Space Element prohibits the use of insecticides, herbicides or toxic chemicals within sensitive habitats (including riparian corridors) except during an emergency, when habitat is threatened, or for flood control maintenance by Public Works (5.1.8).

Density: Santa Cruz's Conservation and Open Space Element (5.5) designates Least Disturbed Watersheds (LDWs) and Water Supply Watersheds (WSWs) in which new parcels must be at least 10 acres (20 acres in the coastal zone).

IDENTIFIED AND POTENTIAL POLICY GAPS:

- Santa Cruz County does not yet have a storm water pollution prevention ordinance or permits for its storm drains under the National Pollutant Discharge Elimination System (NPDES). The county has not yet been required to obtain these by the Regional Water Quality Control Board.

F. Migration Barriers

Culverts and bridges over anadromous fish streams may create a barrier to migration of fish when not properly sized or installed. Santa Cruz County maintains about 3100 culverts and 130 bridges. Thirty-two bridges are scheduled for repair or replacement over the next twenty years.

In general, replacement of culverts and crossings affecting fish bearing streams is reviewed the Department of Fish and Game through the Streambed Alteration Agreement process. Santa Cruz County policies make more mention of avoiding migration barriers than the other FishNet 4C counties (which make no mention at all). However, these policies are not comprehensive or consistently applied through ordinances or action plans.

Santa Cruz County's Conservation and Open Space Element requires that new diversions, dams, and reservoirs constructed on anadromous fish streams be designed to protect fish populations (5.35). The Grading Ordinance requires that private bridges cross a stream channel based on 100-year storm levels (16.20.180).

IDENTIFIED AND POTENTIAL POLICY GAPS:

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

Summary of Policy Conclusions

Santa Cruz county's riparian corridor protection and wildlife habitat conservation policies are comprehensive and consistent. They surpass those of the other FishNet 4C counties by establishing sensitive habitat provisions and riparian corridors throughout the county and implementing them with specific ordinances. Floodplain protections are stronger because the amount of fill that can be placed in the 100-year flood plain to create building sites is limited to 50 cubic yards on current parcels, and none on new parcels. Santa Cruz County is unique in establishing targets for instream flow and setting requirements for stormwater detention basins in their general plan.

Sedimentation avoidance policies are also more comprehensive than the other counties in that they regulate agricultural grading, prohibit development on slopes over 30 percent, prohibit winter grading in sensitive areas (except for unusual circumstances), require sediment basins in new and existing development, and require erosion control plans for both private and public projects.

Policies to protect stream channels from modification are in similar to those of other counties except for Santa Cruz's lack of formal policies on channel and levee maintenance.

Water quality policies are stronger for chemical use since they prohibit use of herbicides and pesticides in sensitive habitat (including riparian corridors) are stricter than any others in the FishNet 4C counties. However, unlike 3 of the other 4 counties, Santa Cruz has not yet obtained permits for its storm drains or developed a storm water pollution prevention ordinance.

Santa Cruz County policies make more mention of avoiding migration barriers than the other FishNet 4C counties (which make no mention at all). However, these policies are not comprehensive or consistently applied through ordinances or action plans.

Summary of Identified and Potential Policy Gaps

A. Streamflow quantity modification

- Provisions requiring consideration of the county's stream flow targets or on-site water detention requirements were found in the General Plan but is not supported in county implementation ordinances. It is possible this could lead to inconsistent implementation of general plan provisions during development.

B. Riparian protection areas

- Definition of riparian protection areas on the basis of stream geomorphology rather than arbitrary distances from streams would improve salmonid habitat protection.
- Development may still occur in riparian areas when protection provisions make an already established parcel unbuildable.
- Construction on current lots with buildable sites in floodplains may still occur.

C. Sedimentation

- Policies for mitigation of sediment impacts from road maintenance including disposal of spoils, road reconstruction, decommissioning, and maintenance to minimize sedimentation and runoff impacts have not been adopted.

D. Channel modification

- Environmental review of bank stability structures for private or public projects does not require evaluation of cumulative effects on fish habitat.

E. Water Quality

- Santa Cruz County does not yet have a storm water pollution prevention ordinance or permits for its storm drains under the National Pollutant Discharge Elimination System (NPDES).

F. Migration barriers

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

Wildlife habitat conservation

- The extent to which the County GIS database incorporates the most recent salmonid habitat information is not known.