



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southwest Region
777 Sonoma Ave., Room 325
Santa Rosa, CA 95404-4731

May 19, 2011

In response, refer to:
151416SWR2009SR00579

Division of Water Rights
State Water Resources Control Board
Attention: Paul Murphey
P.O. Box 2000
Sacramento, California 95812-2000

SUBJECT: Big Sur River Hearing

This policy statement transmits the position of NOAA's National Marine Fisheries Service (NMFS) on the matter of Water Right Application 30166 by El Sur Ranch to be heard by the State Water Resource Control Board (SWRCB) on June 6, 2011. The subject diversions are located just upstream of the Big Sur estuary where they divert surface waters, groundwater, and/or subterranean streamflow. These waters maintain estuary conditions important to the survival of South-Central California Coast (S-CCC) Distinct Population Segment (DPS) steelhead (*Oncorhynchus mykiss*) listed as a threatened species on August 18, 1997 (70 FR 52488), pursuant to the Federal Endangered Species Act (ESA) of 1973, as amended. It is the position of our agency that the El Sur Ranch water right application, as proposed, will not ensure the protection of listed species and their habitat.

NMFS is responsible for administration of the Federal Endangered Species Act (ESA) as it applies to anadromous salmonids. This responsibility includes working with the SWRCB to resolve water resource issues in concert with conservation of threatened and endangered species (ESA 2(c)(2)).

Function of Lagoon for Steelhead Productivity

Estuaries and lagoons typically form at the mouth of rivers and streams and form the interface between freshwater and saltwater habitats for steelhead. Although these ecotone habitats typically form less than 5 percent of the watershed area (Bond *et al.* 2008), they provide critical nursery habitat important to the survival and recovery of steelhead populations. They are heavily relied upon by smolts to facilitate their physiological transition to saltwater during their migration to the ocean, but perhaps the greatest value of lagoons and estuaries is in their ability to promote rapid growth in rearing juveniles. This growth confers a disproportionate advantage



in survival to adulthood. Bond et al. (2008) found that 87% to 95.5% of the returning adult population had reared in the estuary despite representing between 8 and 48 percent of the outmigrating juvenile population.

The timing of the transition from a tidal estuary to a freshwater lagoon is important for maintaining water quality parameters such as temperature, dissolved oxygen (DO), and salinity; which are important indicators of ecological health in estuaries and lagoons. Vertical stratification of saltwater and freshwater can occur in response to reduced freshwater inputs. This can lead to hypoxic or anoxic conditions that severely limit benthic prey production and reduce the available rearing habitat in the lagoon.

Review of Studies to Date

We have reviewed biological monitoring information provided to us by the applicant in May of 2011 (Hanson 2011), as well as other documentation in the record, and have concluded that the information provided does not support the applicant's assertion that diversions are having no impact on salmonids. The applicant's contention that their diversions are not negatively affecting steelhead or their habitat is based largely on the three years of study (2004, 2005, 2007) on conditions in the lower Big Sur River and its lagoon by Hanson Environmental, Inc. (summarized in Hanson 2011). In the report, 2007 was used as the primary reference condition because it was a very dry year¹. Though the report looked at several important issues regarding juvenile abundance and habitat conditions in the lower Big Sur River and lagoon, we have the following concerns regarding the adequacy of the document:

1. Hanson (2011) does not relate the relationship between stream flow, water diversions and the water quality indicators of lagoon health (e.g. dissolved oxygen, salinity and water temperature). Without knowing if they were pumping at maximum capacity, and what proportion of flow that represents, we cannot determine if the study reflects an actual operating scenario. This information is essential to a meaningful evaluation of the proposal's impact on water quality, lagoon ecology and S-CCC steelhead.
2. Water quality conditions were only recorded from late-August through mid-October. This sampling window is insufficient to adequately characterize these important habitat indicators. For example, water temperature typically reaches its peak in the last week of July or early August.
3. No evaluation of lagoon ecology in the lower lagoon occurred with this study. The study begins approximately 0.2 river miles (RM) from the Pacific ocean at transect PT1 (see figure 1), within the riverine/freshwater tidal zone. This zone is less likely to fluctuate in water quality conditions due to the persistence of freshwater inflow. In contrast, the marine salinity and transitional/mixing zone better represents the effects of altering freshwater inflows for two reasons. First, the hydrostatic pressure needed to maintain a freshwater lagoon is a relationship between ocean conditions and the influx of freshwater. When freshwater inflows are reduced, the shift towards saline conditions increases in the lower lagoon and can reduce available habitat for rearing juveniles. This is critically important in the fall period

¹ Hydrologic conditions in Big Sur were extremely dry in 2007 and considered critical in September of 2007 - this study covers that period.

when large waves overtop the beach and the freshwater inflow plays a critical role in limiting the area of stratification and in flushing the saline layer back out of the lagoon.

Thus, the critical issue of effects of reduced stream flows on lagoon ecology in the lower estuary remains unexamined. It is, therefore, not reasonable to infer that proposed operations are benign with respect to salmonids.



Figure 1. Location of the lowest most transect of water quality and biological monitoring (Hanson 2011).

Importance of Big Sur River Steelhead Population

NMFS is concerned with the status of S-CCC steelhead DPS and believes that many of the populations will be extirpated in the foreseeable future. During the past 30 years steelhead populations within the S-CCC (DPS) have declined dramatically from estimated annual runs totaling 25,000 adults to less than 500 returning adult fish (Busby *et al.*, 1996).

CDFG estimated the annual abundance of steelhead in the Big Sur River to be approximately 300 adults (1965). While this is considered far below the historical population, it remains one of the best remaining streams for S-CCC steelhead. The Big Sur River maintains important refugia habitat important to the long term persistence of this species. The Big Sur steelhead population is one of the last stronghold populations for the DPS and will serve as a source population for future recovery of the species.

Proposed Bypass Flows

Based on our evaluation of the record, we support the interim flow recommendations proposed by the California Department of Fish and Game (CDFG) because it will provide sufficient protective measures for steelhead until a more thorough flow assessment is completed.

CDFG proposes a bypass flow of 29 cubic feet per second (cfs) downstream of the point of diversion. This supersedes NMFS' earlier flow recommendations of 8cfs at the USGS gage (which would roughly equate to 20 cfs at the point of diversion) in its letter to SWRCB dated October, 20, 2005. NMFS' recommendation was based on observed flow conditions in 2004 and the conclusion of Hanson (2005) that those flows provided sufficient physical habitat to support steelhead. In reviewing CDFG's proposed interim bypass flow, 8cfs is equivalent to the breakpoint flow where flows below this level will significantly impact water quality conditions, rearing habitat and juvenile steelhead. DFG asserts that the 8cfs threshold would protect 50-80 percent of the maximum wetted perimeter of the stream, whereas the incipient asymptotic flows (*i.e.*, 17cfs) would protect the entire wetted perimeter.

Neither bypass flow recommendations correlate the instream flow conditions to the freshwater inflows necessary for maintaining lagoon function. CDFG's proposed interim bypass flow evaluated wetted channel conditions which will provide suitable measures for protecting rearing space, invertebrate production, and riparian vegetation to support rearing steelhead. Hanson (2011) equally did not evaluate water operations, and subsequent flow conditions, impacts to the lagoon and the significant interaction between salt and freshwater found in the lower lagoon prism. Therefore, because CDFG's proposed interim bypass flow is more conservative than our initial recommended bypass flow, it is more likely to be protective of riverine and estuarine habitat conditions pending results from additional studies.

Given the importance of the population, the uncertainty of flows for lagoon maintenance and the rationale described by CDFG, it is appropriate to replace the earlier NMFS recommendation of 8cfs with the more recent and rigorous CDFG recommendation of 17cfs.

Additional Recommendations

NMFS recommends the following measures for continued operations on the El Sur Ranch to minimize or avoid impacts to threatened S-CCC steelhead in the Big Sur River: A) reduce water demand; B) Establish seasonal and water-year type constraints to the period of diversion; and C) develop off stream storage facilities to offset their water demand during low flow periods.

A. Reduce Water Demand

NMFS recommends that El Sur Ranch reduce its overall annual water demand from its request of 1,800 acre-feet per year (AFY). In the Draft Environmental Impact Report (DEIR), a total of 242 acres out of the 292 acres in the place of use (POU) is pasture used for cattle grazing. The Division of Agricultural Sciences from University of California, Davis states 2.5 to 4.5 acre feet of water per year is normally required for irrigated pasture. El Sur Ranch currently utilizes 1,800 AFY, resulting in approximately 3.3 acre feet of water per year for their pastures. Using 4.5 acre feet as the maximum amount of water needed, El Sur Ranch would need a total annual maximum of 1,089 AFY. El Sur Ranch could reduce its overall annual water demand by incorporating water conservation measures such as, but not limited to, piping their irrigation lines, utilizing sprinkler systems, and setting off-channel livestock water troughs.

B. Establish Seasonal Constraints

NMFS also recommends that El Sur Ranch not pump during low flow periods (dry summer months and droughts). Based on migratory patterns of juvenile and kelt steelhead, the water

quality conditions during low flow periods, and habitat conditions in important rearing areas such as lagoons, we believe pumping during low flow periods will adversely affect steelhead. Assembly Bill 2121 (AB2121) sets guidelines for salmon and steelhead spawning and migration flow (Q_s) and winter baseline flow threshold (Q_{wb}). The guidelines were developed for northern California coastal streams, which receive greater annual precipitation than central California coastal streams. As such, NMFS recommends the SWRCB apply the stricter standards to the Big Sur River to avoid adverse effects to steelhead and their habitat.

C. Develop Storage Facilities

To offset demand during critically low-flow periods, NMFS recommends El Sur Ranch develop off channel storage facilities. Storage facilities could be filled during periods of higher flows and then accessed later for irrigation. El Sur Ranch would not need to develop storage capacity for their total annual water demand, but even offsetting a small fraction of their demand could minimize or avoid adverse impacts to steelhead during low-flow periods.

Conclusion

If the proposed project is determined to adversely affect S-CCC steelhead, the El Sur Ranch will need ESA take exemption or risk being in violation of ESA section 4(d). The mechanism to obtain an exemption for an otherwise legal activity would be through either ESA section 7 or section 10(a)(1)(B) (development of a Habitat Conservation Plan (HCP)).

Thank you for your cooperation in this matter. We look forward to continued opportunities for NMFS and the SWRCB to cooperate in the conservation of listed species. If you have any questions or comments concerning the contents of this letter, please contact David Hines at (707) 575-6098.

Sincerely,



for
Steve Edmondson

Steven A. Edmondson
Southwest Regional Habitat Manager
Habitat Conservation Division

cc: Brian Erlandsen, DFG, Fresno
Julie Means, DFG, Fresno
Kit Custiss, DFG
Deb Hilyard, DFG, Fresno
copy to file: 151416SWR2009SR00579

References

Bond, M. 2006. Importance of Estuarine Rearing to Central California Steelhead (*Oncorhynchus mykiss*) Growth and Marine Survival. MA. UC Santa Cruz. 59 p.

California Department of Fish and Game CDFG. 1965. California fish and wildlife plan. Volume III supporting data: part B, inventory salmon-steelhead and marine resources. California Department of Fish and Game, Sacramento, California.

Hanson, Charles H. 2011. Juvenile Steelhead Habitat Suitability and Rearing Conditions within the Big Sur River Lagoon. Prepared for El Sur Ranch.