ATTACHMENT "F"

Cachuma Conservation Release Board and
Santa Ynez River Water Conservation District, Improvement District No. 1

May 2, 2007

Mr. Craig Wingert
Area Office Supervisor, Protected Resources Division
National Marine Fisheries Service, Southwest Region
501 W. Ocean Blvd., Suite 4200
Long Beach, CA 90802-4213

RE: Comments on the Draft Viability Report for Southern Steelhead

Dear Mr. Wingert,

Thank you for the opportunity to comment on the Technical Recovery Team's (TRT) *Draft Viability Criteria for Steelhead of the South-Central and Southern California Coast* (March 2007) (Draft Viability Report). Although we appreciate that the National Marine Fisheries Service (NMFS) initiated the effort to develop a scientific basis for establishing viability criteria for southern steelhead, we believe that much work is still needed before a viable recovery plan can be written. We agree with NMFS that the limited amount of historical and scientific data presents a difficult challenge to making accurate and well-based conclusions on the requirements for survival and recovery for this species, which likely is existing at the limits of its historical range in these ESUs.

The comments provided address three categories: the technical merits of the TRT's Draft Viability Report; the TRT's general approach; and NMFS' recovery planning process. We also have included a brief inventory of data and other information for steelhead in the Santa Ynez River watershed which, although available, was not utilized in the preparation of the Draft Viability Report. Along with monitoring steelhead stocks in the Santa Ynez River, the Cachuma Project Member Units have spent considerable time, money and resources in implementing the *Lower Santa Ynez River Fish Management Plan* (October 2000), and participating in local and regional water management planning. As a result of these long-term efforts, we have gained extensive experience in stakeholder processes. From this perspective, we urge NMFS to revisit Phase 1 of the recovery planning process to incorporate scientifically-based local knowledge, and reconsider its approach to Phase 2 of the recovery planning process in order to meet its stated goal of an "implementable plan that has stakeholder support."

Introduction

Since the early 1990s, and as signatories to the *2001 Memorandum of Understanding to Support Implementation of the National Marine Fisheries Service Biological Opinion and the Santa Ynez*

River Technical Advisory Committee Lower Santa Ynez River Fish Management Plan, the Cachuma Conservation Release Board (CCRB)[1] and the Santa Ynez River Water Conservation District, Improvement District No. 1 (ID No. 1) have been active participants in the extensive fishery management efforts undertaken on the Santa Ynez River. Since 1993, we have jointly conducted and funded studies, restoration projects, and flow related actions in the lower river. Because the fisheries program is funded entirely by the Cachuma Project Member Units, which ultimately are the local water rate payers, there is an effort to seek partnerships through national, state and regional salmonid coalition groups, and to pursue grant opportunities to help with the high cost of carrying out steelhead restoration and enhancement projects.

Draft Viability Report Technical Comments

We recognize that the TRT faces significant challenges in determining viability criteria for steelhead in the South-Central and Southern California ESUs. These are highly variable systems characterized by flashy stream flows, periods of high precipitation, and followed by cycles of drought. The majority of the major rivers in these two ESUs have been altered by anthropogenic actions with consequential, although unquantified, impacts on steelhead and their habitat. Further, we observed the difficulties the TRT encountered in attempting to adapt and apply models developed in other, more thoroughly studied regions with different climate and flow regimes, to the markedly different conditions in these ESUs.

One of our technical concerns with this approach lies with the extremely conservative nature of the existing models utilized and the resulting challenges in applying such conservative targets to recovery planning. As stated in the draft report, prescriptive criteria can lead to an outcome, which is "biologically infeasible recovery, in which the criterion is impossible to achieve" (Page 2).

Population Size Viability Threshold

Model Analysis

The population size viability threshold has been estimated at N=12,500 adult steelhead within each of the identified watersheds based on calculations and models as described in Appendix A and further described by the references cited in the appendix (Foley 1994, Lande 1993). As indicated in the text and appendix of the Draft Viability Report, this risk- based model is extremely sensitive to the parameters of the model. For example, a managerial risk tolerance of 94% changes the threshold to N=5,400, as compared to the N=12,500 of a 95% risk tolerance. It can be argued reasonably that only one percentage point less of risk tolerance greatly lowers the

[1] CCRB is a joint powers agency established among of the City of Santa Barbara and the Goleta, Montecito, and Carpinteria Valley Water Districts, to jointly represent the respective parties in protecting their Cachuma Project water rights and interests.

target threshold, which may lead to a more biologically feasible recovery goal. The sensitivity of the model is our concern, especially as small changes in key parameters lead to very large differences in the model output.

Similarly, the model is sensitive to the estimate for population growth rate (r). As described in Appendix A, long-term population data from the Carmel River system were used as a starting point for estimating r. Data from 1992-2004 were examined, and found to be so variable as to be problematic in estimating r. An "optimistically cautious" population growth rate was then set at 10%. As this parameter is so important to the model, a more detailed explanation of why 10% was selected is warranted. Specifically, why was only data from 1992 through 2004 examined when a longer time series is available? As the population growth rate for this time period ranges as high as 63%, why was10% considered "cautiously optimistic?" Also, it is stated in the text that long-term population data on the Santa Ynez River have been collected, but these data are not examined or employed in the estimate of r.

Another parameter with great influence on the model outcome is environmental stochasticity, or the variance in the random variation of the population growth rate, referred to in the model as V_r. An estimate of V_r for the two ESUs was determined from a sample of 20 V_r values for salmonid populations in the Central Valley. It is interesting to note that the process of estimating this parameter (described on page 27) resulted in a V_r which is higher than any of the 20 values for the Central Valley (maximum $V_r = 0.576$, for the Stanislaus River fall Chinook, compared to $V_r = 0.603$ for the SCSCC ESUs). While we acknowledge that the process of using a gamma distribution may be appropriate for this exercise, given that this model is highly sensitive to this parameter, further analysis and review of a reasonable estimate of this parameter is warranted.

Figure 2 demonstrates the sensitivity of the model to the estimates of growth rate and environmental stochasticity on the threshold population size. Even slight adjustments in these values can result in large differences in this threshold criterion. If the recovery plan is based on unrealistic and unachievable goals for abundance, we are concerned that the plan will lose credibility and recovery actions will not be implemented (i.e. it would be difficult to obtain political and financial support to implement costly actions that would impact stakeholders through a reduction in water supplies or capital expenditures toward a biological goal that can not be achieved).

A sensitivity analysis should be included to test the relative importance of the parameter estimates to the viability model. At a minimum, both r and risk tolerance should be tested together to determine how the model responds to these parameters and the resultant recovery target.

Rescue Effect

A point of discrepancy is noted in the text which also has an impact on the population size viability threshold. On page 8, the rescue effect of resident rainbow trout contributing

anadromous smolts to the steelhead population is discussed as a process which would lower the extinction rate of the population (and, hence, the population size threshold). Due to lack of data on life-history polymorphism, this factor is ignored in the estimate of the population size threshold, although the text cites Boughton (2005) as evidence that recolonizations from these resident populations may have maintained steelhead populations in the Santa Clara River. Data on smolt production exists for a number of drainages in the SCSCC ESUs, including the Santa Clara River and the Santa Ynez River. Rather than ignoring this important and documented factor, it should be incorporated into the estimate of the population size threshold.

One-Size-Fits-All

The most apparent anomaly in the population size viability threshold is that it is a single number for all watersheds across a diverse geographical and climate range. This threshold does not account for watershed specific carrying capacity. In order for a recovery target to be implementable, it must be connected to available and potential habitat for the species. The population size variability threshold number used in the Draft Viability Report fails to do that. NMFS has recognized that the more southerly the river system is located, the less likely it is able to support appropriate habitat – a factor that has not been taken into account. Existing data on either habitat or historical run sizes for the watersheds in these biogeographic regions, including the extensive data available for the Santa Ynez River, were not incorporated into the estimate of this population criterion.

Anadromous Fraction

As noted above with respect to the rescue effect, it is unreasonable to expect that 100% of the population would be anadromous, and no biological basis was provided to support this goal. As noted in the text, studies of *O. mykiss* in Alaska demonstrate flexible life histories between anadromous and resident fractions of the population. The recovery plan for the SCSCC ESUs needs to reflect the high diversity of life history strategies employed by the populations in these regions to respond to highly variable and uncertain environmental conditions. Under these conditions it would not be expected that all progeny migrate to the ocean, but rather a portion migrate downstream and a portion remain in the watershed to reduce the risk of failure. In many Southern California rivers, including the Santa Ynez River, this criterion may never have been met, especially in dry years when the sand bar at the mouth did not breach. In high flow years a large percentage of the juveniles may go to the ocean. Given these uncertain conditions among years, it seems the recovery goal should be to maintain life history diversity within the populations rather than unnaturally push for one extreme or the other as a recovery criterion. In addition to questions regarding anadromy, genetic differences between steelhead and hatchery fish introduced into the watershed should be considered.

Biogeographic Diversity Viability Threshold

Sufficient Number of Populations

Table 5 provides an estimate of the "Sufficient Number of Populations" required for ESU viability in the event of a 1000-year fire. The method for estimating these numbers of populations is described in detail on pages 16-17. There are inherent challenges in estimating the size, frequency and impact of this important factor that are not appropriately taken into consideration, even though the TRT clearly explained its approach. We also note that the methods used in the Draft Viability Report to estimate these numbers are extremely conservative for the following reasons:

- the calculation started with the most extreme 1000-year fire event (2003);
- it calculated the expected number of wildfires for each biogeographic region based on the rate of fire-starts in 2003 (fires greater than 1 square kilometer (km^2));
- it then calculated the maximum number of fires that is not unlikely (99% confidence), increasing the number of expected wildfires;
- it assumed that each of these fires would be catastrophic (i.e. a width up to 68 kilometers as seen in the 1095 km^2 Cedar Fire);
- finally, to assure sufficient redundancy of the populations within the biogeographic region, the total number of populations was increased by 1.

While the logic of this estimate is understandable, the compounding of conservative estimate upon conservative estimate leads to a resulting number of populations that is likely to be unduly conservative. For example, the calculation assumes that all fires that could possibly be started in a biogeographic region will be catastrophic in size (68 kilometers wide). In 2003, considered a 1000-year fire event, only three of the 31 fires that were over 1 km^2 were of catastrophic proportions (Simi Fire, 435 km^2, Old Fire, 617 km^2, and the Cedar Fire). Each of these fires was in a separate biogeographic region. As noted on page 19, Summary and Recommendations, "the criteria for redundancy are based on a simple assessment of wildfire risk that is precautionary and perhaps inefficient."

Core Populations vs. Sufficient Populations

On page 19 of the Summary and Recommendations, there are recommendations for identifying and committing to a core set of populations on which to focus recovery actions. It is unclear how the number of Core Populations is related to the Sufficient Number of Populations identified in Tables 1 and 5. Based on discussion at the TRT Recovery Planning workshops, it was apparent that the NMFS recovery plan will consider the number of core populations to be the same as the sufficient number of populations for each biogeographic region. This is of significant concern for the Santa Ynez River watershed and would be difficult to support.

Potential Habitat

The Draft Viability Report refers to Boughton, et al (2006) (Population Characterization Report) in a number of places, especially with respect to biogeographic regions, description of watersheds within the biogeographic regions and potential habitat. As such, the following comments are provided on the limitations of the model used to determine the potential habitat.

Model Analysis
As with the population size model, there are significant difficulties in modeling potential habitat over such a varied geographic range as the SCSCC ESUs. However, we do not think it appropriate for the TRT to adapt models developed in northern climes to the unique climatic and geomorphological conditions of South-Central and Southern California watersheds. Consequently, we have concerns regarding the applicability of the model results. As expressed in the Population Characterization Report (and the previous Oversummering Habitat Report), the model did not perform as expected in many instances. Determination of steelhead over-summering habitat for the Santa Ynez River watershed, if not for much of the SCSCC recovery domain, is inaccurate. Most streams in Southern and South-Central California cease to exist in summer months. In fact, much of the habitat identified in the maps of "potential habitat" is known to go dry in summer months. In particular, streams on the north side of the lower Santa Ynez River (e.g. Alamo Pintado Creek and Santa Agueda Creek) have geomorphological conditions which cause the stream flow to go sub-surface and cease altogether early in the season. Some streams on the south side of the mountains, although much shorter, have perennial flow, although often very limited.

One identifiable source of error in the model may be related to the regression model used to predict mean summer discharge as a function of precipitation and watershed area. The regression analysis used August-September discharge measurements from 29 USGS stream flow gauges over an extremely wide range flow regimes (Santa Cruz to San Diego). The relatively small number of gauges is unlikely to fully capture the variation in the precipitation/discharge relationship over such a wide range of watershed systems and climate conditions. Only one of these gauges was in the Santa Ynez River watershed (Santa Cruz Creek).

As noted in the text, USGS gauges are inaccurate at flow levels less than 5 cubic feet per second. Further, we note that a number of the gauges are directly below dams, which will further distort the relationship between precipitation and discharge. The text notes that the model has "moderate predictive value" (Oversummering Habitat Report, page 6). Hydrologically, a regression coefficient of 0.38 provides no correlation or, at best, could be considered to have very poor predictive value.

We are concerned further that correlating the summer flows with the precipitation and drainage area results in a mathematical relationship where the August-September stream flows could

never be zero. In the SCSCC, this is an unreasonable assumption. Given that streams in these ESUs frequently have zero summer flow, we believe a different mathematical formulation would have been more appropriate. Alternatively, the authors should have used their judgment to determine the relationship when there was a no flow condition.

The use of a 30 meter Digital Elevation Model to generate stream networks, could further contribute to the inaccuracy of the potential habitat model results. Interpolating from 30 meters to 10 meters does not improve the accuracy of the result, and streams produced within the interpolated regions may generate false positive results.

Additionally, the y-axis in Figure 2 (Oversummering Habitat Report) is shown as number of pixels, whereas the model output is stream length. The number of pixels represents area (length squared), not stream reach length, yet there is no discussion of how these metrics are related.

These factors, along with a number of other limitations noted in the text (e.g. model assumptions regarding temperature, model results in areas of poor relief, lack of information on passage barriers, etc.) may affect the accuracy and the applicability of the model's predictions for viable habitat in small headwater streams such as those in the lower Santa Ynez Basin.

Ground Truthing Model Results

Although the TRT admits that the model performs poorly in many regions, predicting potential habitat where none exists and not identifying habitat which is known to be occupied by steelhead, there is a singular lack of model validation with on-the-ground data which have been collected in many of these watersheds. Ongoing studies, such as the Lower Santa Ynez River fisheries program, have developed extensive data on habitat, summer refugia, fish utilization of groundwater and upwelling refugia and other components critical to steelhead survival in South-Central and Southern California. Such data could be considered to refine and validate the maps of potential habitat identified in the Population Characterization Report.

Further, the model results for the Santa Ynez River watershed conclude that almost all tributaries and mainstem have mean flows greater than 0.5 cfs in the summer months of August and September. Gauged flow data and field observations indicate this is not the case. In addition, the model results for the Lower Santa Ynez River mainstem is estimated as having a mean flow in August and September of greater than 0.5 cfs. However, this is not consistent with the gauged flow data and observations of flow that indicate the mainstem at most locations typically dries in the absence of releases from Cachuma Reservoir. It is worthy to note that gauge data collected prior to the construction of Bradbury Dam and Cachuma Reservoir indicate that the flow in the mainstem went dry in these months in average and dry years even before Cachuma Reservoir was built. Also, many of the tributaries (except for Salsipuedes Creek) go dry in average and dry years. For example, the model shows that Zaca Creek, a tributary located north of the lower Santa Ynez River near Buellton has flows in August and September greater than 0.5 cfs and is

estimated as high potential for over-summering habitat. However, USGS gage 11129800 on Zaca Creek indicates a mean flow of zero in months of August and September.

There is no relationship between the mean annual precipitation, drainage area, and the flow during the summer months as is evident by the R^2 value in the NMFS draft report. To use this empirical relationship in the hydrologic analysis, despite evidence that there is no correlation, is questionable. Summertime flows in the Santa Ynez River watershed depend on groundwater discharge and vary locally depending upon factors other than precipitation and drainage area (i.e. local faults, local hydrogeology, vegetation, aspect of tributary, and channel structure). These factors were not included in the model.

Barriers
The assessment of potential habitat identified in the Population Characterization report fails to acknowledge the presence and significance of natural and man-made barriers to steelhead passage. A theoretical model, which identifies habitat above an impassable barrier, has little application to an implementable recovery program for this species.

We are further concerned that the Draft Viability Report uses the analysis from the Population Characterization Report (specifically the map of potential habitat; Figure 16, Page 37) to come to the conclusion that "efforts to restore fish passage... are necessary steps to achieving ESU viability in the Santa Ynez River and the Nacimiento River, both of which have a large majority of their steelhead habitat isolated by complete barriers to passage from the ocean" (page 19, Draft Viability Report). The ability to implement this recommendation may be infeasible and is challenging at best. Achieving fish passage around Bradbury Dam has been analyzed extensively from a biological and engineering perspective over the past two decades by the Santa Ynez River Technical Advisory Committee (SYRTAC). A summary of the challenges to providing passage is provided in the *Lower Santa Ynez River Fish Management Plan.* As described in detail in this document and other SYRTAC documents, achieving the passage of adults above the dam and their resulting progeny to below the dam appears to be infeasible. Moreover, experimentation with the limited population of steelhead that exists in the lower river would further jeopardize the survival of this species.

Population Viability
Ultimately, we are very concerned that for all elements of the analysis, there was an absence of ground-truthing in the findings of the Draft Viability Report, necessary for an accurate estimate of potential habitat in the Santa Ynez River basin (and other watersheds covered by the recovery planning process). Such ground-truthing is essential to any meaningful recovery plan and should be undertaken with a focus on the anadromous portion of the river. Among other benefits, ground-truthing would result in a more realistic population viability number for the Santa Ynez system that would be based upon the actual carrying capacity for the river, not the theoretical, "one size fits all" number currently found in the Draft Viability Report.

Comments on the TRT's General Approach

As described in our technical comments, one of our primary concerns is the TRT's top-down approach to developing population viability criteria for steelhead in the SCSCC ESUs. This top-down approach can be divided into three areas of limitation: scaling issues, implementation, and use of relevant habitat information.

Model Scaling Issues

The Population Size criterion is based on a risk-averse model that utilizes prescriptive criteria which, as stated on page 2 of the report, can be "biologically infeasible if the precautionary 'solution' is inherently unachievable." As noted in the technical comments above, the model is too general to be applied to site-specific conditions. The one-size-fits-all result was developed to fit a widely diversified geographic region from Santa Cruz to the Mexican Border and over a wide range of watersheds, from small coastal streams to the large Salinas River system. We believe this model, while an admirable academic exercise, is the wrong tool for developing an implementable recovery plan.

An additional concern with the Population Size criterion model is its rigidity to accepting available scientific information. Although a respectable amount of steelhead population data exists for the SCSCC ESUs, these data cannot be incorporated into the model unless they can meet its rigid requirement of 20+ years of spawner counts. It seems that the use of 14 years of carefully collected scientific data on the Santa Ynez River is vastly better than a failure to use any data at all in reviewing and improving the applicability to site-specific recovery goals.

Implementation

NMFS' stated purpose of the Phase 1 recovery planning process is to assist in the development of a recovery plan for the species. For it to be successful and capable of implementation, a recovery plan must outline specific recovery actions. Such actions must, in turn, be measurable, and ultimately, linked to available habitat. Our concern in this regard, is that the population viability criteria outlined in the Draft Viability Report are too general to support implementable recovery actions.

The second concern is related to the Draft Viability Report's failure to connect to the specifics of any of the watersheds within the SCSCC ESUs. Historical run sizes may not be achievable given the reality of the altered state of the majority of the watersheds in the SCSCC ESUs. Given that these watersheds are in populated areas and the water in these streams and rivers must support multiple agricultural, residential and commercial purposes, the opportunities for recovery are

necessarily constrained. Therefore, reasonable expectations for recovery of steelhead stocks should be less than the historical run sizes that may have existed prior to settlement. Finally, current data on run size from the Santa Ynez River and other Southern California watersheds suggest very low ocean return rates, even under the current period of relatively favorable oceanic conditions. Current population sizes of steelhead in the SCC ESU are so small (estimated at less than 100 fish), it may not be reasonable to expect recovery under a natural recruitment regime.

Habitat Based Recovery Model

Throughout the Draft Viability Report, the TRT laments the lack of available data on population run sizes and growth rates. On the other hand, there is a fair amount of data on potential habitat and habitat quality in a number of watersheds in the SCSCC ESUs. Given the limitations of building a model without adequate data, would it not make sense to explore a different recovery model, for example one based on available and potential habitat?

Comments on the Recovery Planning Process

It is NMFS' goal to have a steelhead recovery plan which is "implementable and has stakeholder support." We are concerned the planning process is undermining this admirable goal by limiting stakeholder involvement. The TRT took seven years to develop their technical documents and did so without input or data from key stakeholders. Phase 2 of the process is scheduled to take a small fraction of that time--six months--for the development of a Final Recovery Plan. This condensed time schedule for Phase 2 severely limits the opportunities for meaningful comment or input from the biologists possessing site-specific data and knowledge of the individual watersheds. Incorporating such on-the-ground knowledge is more likely to produce a recovery plan with realistic goals and objectives than one that ignores such knowledge. Our concern regarding the development and public distribution of a premature draft recovery plan is that substantially more time and effort may be required to revise a faulty document than to work collaboratively to develop a document with the needed stakeholder input before it is released to the public. Our experience is that correcting a document that has been distributed to a wide public audience is much more difficult than correcting problems through an informal internal stakeholder based process. In addition, release of a premature draft recovery plan has a high risk of polarizing stakeholders and interested parties at both the technical and political levels that obstructs, rather than facilitates, resolution and production of a recovery plan that has broad based support.

Second, in the past decade alone, water districts and municipalities have contributed hundreds of thousands of dollars to monitoring and studying steelhead run sizes and habitat in the SCSCC ESUs. These agencies and cities have participated in (and paid for) the development of Biological Assessments, Habitat Conservation Plans, Fish Management Plans, watershed

assessments and barrier identification. They have a vested interest in a recovery plan that contains achievable recovery goals for the species. Ignoring the information collected from these agencies is nonsensical and does nothing to advance the recovery planning process. To the contrary, it frustrates and alienates the public entities that have spent the most time, effort, resources, and money dealing with the steelhead. Such frustration needlessly provokes a lack of confidence in the resulting recovery plan, thereby defeating the intended goal of a plan which has stakeholder support.

Finally, the population size viability criterion of 12,500 adult steelhead per designated watershed is simply unrealistic. However, the Draft Viability Report and the discussions at the recovery planning workshops suggest the population viability criterion can be revised only if long-term (20+ years) adult population run size data can be collected and incorporated into the population model. Given the time and effort required to monitor these populations over a range of watersheds, this requirement is, practically speaking, unachievable. It leaves the impression that the viability criterion has been predetermined and that the planning process is rigid and unyielding. This will result in neither an implementable plan nor actions that sustain and promote recovery of the species.

Available Steelhead Data for the Santa Ynez River

The Draft Viability Report creates a 20-year data gathering horizon to understand conditions and populations in our ESU (Draft Viability Report; Table 3). Although the Cachuma Member Units have the longest standing dataset in the SCC ESU at 14 years (since 1993), our data were not used in the Viability Criteria Study and only very limited data were used in the Over-summering Habitat Report (Engblom 2001). We encourage NMFS to collaborate and work with the agencies involved in studies, data collection and analyses to incorporate the information from the Santa Ynez River watershed. Doing so will, in our view, assist in the development of realistic, site-specific recovery actions, that are feasible and that will result in a recovery plan that can be implemented and that will result in actual benefits for the steelhead.

To this end, below is a summary of the data we have available for the TRT's and NMFS' review and inclusion:

Available Data	Years of Record
Spot Flows	1997-present
Redd Surveys	1997-present
Habitat Mapping	1997,2001,2004-2005
Hilton Transects	2000-2001,2004-2005
Migrant Trapping	1994-present
Diel Water Quality (Spot)	1995-1999,2001,2003
Diel Water Quality (24hr)	2004-present
Digital Photos	2002-present
Water Temperature (Thermographs)	1997-present
Snorkel Surveys	1995-present
Lake Profiles	1994-2004,2006
Lagoon Water Quality	1995-2005
Lagoon Breaching	1993-present
Lagoon Trapping	1997-1999
BMI Survey	2002
GIS	2006-present
Air Temperatures (S.Y. Airport, Lompoc)	1993-present
Daily Precipitation (USBR)	1993-present
Mainstem/Tributary Flow (USGS)	1993-present
Resevoir Storage/Elevation (USBR)	1993-present
WR 89-18 Flow Release Rates (USBR)	2002, 2004

The Lower Santa Ynez River fisheries program began collecting data in 1993. Data for some parameters (e.g. flow measurements, precipitation, reservoir storage) extends back prior to 1993.

In addition to these datasets, detailed reservoir operations and hydrologic models have been developed for the Santa Ynez River system that serve as a valuable tool for assessing the feasibility and potential impacts of alternative conservation strategies (e.g., streamflow releases) on reservoir conditions and local water supplies. It is not clear from the technical reports that NMFS is even aware of these tools or has used them in developing and evaluating alternative conservation strategies for the Santa Ynez River. Similar tools may be available for other major river systems and should be used by NMFS to develop realistic and implementable strategies. Most assuredly, these modeling tools will be used by stakeholders to evaluate the impacts of the proposed actions on water supplies.

Conclusions and Suggestions

CCRB and the Santa Ynez River Water Conservation District, ID No.1 have undertaken the studies and activities related to steelhead restoration in the lower Santa Ynez River. We have a staff of professional fisheries biologists who carry out the long-term fisheries monitoring program and, since 2000, we have implemented habitat enhancements, barrier removal, and streamflow projects as described in the *Lower Santa Ynez River Fisheries Management Plan.* Additionally, we have provided extensive stakeholder outreach, including: workshops and demonstration projects with local landowners; technical information and assistance to landowners; and bi-annual, widely distributed brochures about the lower Santa Ynez River fisheries activities. We have a vested interest in developing a steelhead recovery plan that must have achievable and implementable recovery goals. Based on our fourteen years of experience in developing and implementing a consensus-based fish management plan that incorporates extensive stakeholder input, we offer the following suggestions:

Extend the Recovery Planning Process

The Draft Recovery Plan would receive better acceptance if it were more complete, substantial, and reflected a more comprehensive conservation strategy incorporating local knowledge and data.

Extending the process would allow this to occur and would also facilitate coordination and input from other, related watershed planning efforts. Threats to steelhead viability and recovery opportunities frequently overlap with the goals and objectives of integrated regional water management planning. Similarly, the California State Coastal Commission is currently completing an extensive effort to compile and create a database of historical steelhead run data. The CEMAR database could prove a useful tool in the recovery planning process.

Revisit the Population Size Viability Criterion

As described above, the model that produced the population size viability criterion is extremely sensitive to the model inputs. The resulting criterion is overly conservative and is likely biologically infeasible for many watersheds. We encourage NMFS to revisit this criterion when setting a recovery planning target to avoid using a prescriptive criterion which is impossible to achieve.

Revise the Population Number Viability Criterion

We are concerned that the fire-based approach to determining the number of viable populations required for recovery also is overly conservative. As an alternative approach, we suggest that the number of required populations be defined by the number of large rivers within a region. Each of the large watersheds would then have an established population based on its potential habitat and carrying capacity. Smaller creeks in the region, although not required by the criteria, would provide further geographic diversity but would not be required to meet a minimum population size. Core populations (those which require higher priority) would be defined by the larger watersheds.

Incorporate Watershed Specific Habitat Information

As noted above, the recovery plan will have a higher degree of applicability if it includes site-specific information on watershed carrying capacity and habitat availability. Such information will lead to watershed specific recovery actions and implementable, achievable recovery goals. The resulting plan will have a higher likelihood of providing stakeholders with a roadmap of actions, and cooperative strategies which will forward the recovery goals.

Avoid A One-Size-Fits-All Approach

As described previously, linking population size viability criteria to watershed-specific conditions, including available habitat, level of impairment and watershed size, will result in a more realistic recovery goal. More clearly defining which watersheds fall into a "metapopulation" will also assist with the implementation of the recovery plan.

CCRB and the Santa Ynez River Water Conservation District, ID No.1 appreciate the opportunity to comment on the Draft Viability Report, and look forward to collaborating and working with NMFS in the steelhead recovery planning process.

Sincerely,

Kate Rees, Manager
Cachuma Conservation Release Board

Chris Dahlstrom, General Manager
Santa Ynez River Water Conservation
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cc: Dr. David Boughton, Research Ecologist, Chair SCSCC TRT