



Cachuma Project Hearing, Phase 2
United States Bureau of Reclamation Applications 11331 and 11332
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Qualifications

B.A. (1971) and M.A. (1974) in Biological Sciences, California State University Fullerton; Ph.D. Candidate in Fisheries (1977), University of Washington. I have been employed by NOAA Fisheries since September 1991 as supervisory fishery manager. During my employment with NOAA Fisheries I have been responsible for managing and participating in a wide range of Endangered Species Act (ESA) activities related to salmon and steelhead throughout California including status reviews, listing determinations, critical habitat designations; recovery planning; section 7 consultations; and section 10 research permits and habitat conservation planning. I am currently the Southwest Region's salmon and steelhead recovery coordinator, as well as the Region's lead for status reviews and critical habitat designations, and also supervise 5 fisheries biologists engaged in section 7 consultations and recovery planning for steelhead in southern California.

Introduction

Over the past decade, NOAA Fisheries has conducted status reviews of west coast Pacific salmon and steelhead and listed 26 individual populations (or Evolutionarily Significant Units [ESUs]) in California, Oregon and Washington as threatened or endangered under the Endangered Species Act (ESA). One of these populations is the Southern California steelhead ESU that was listed as endangered in August 1997 (Busby et al 1996; National Marine Fisheries Service 1997). In 2002, the range of this ESU was extended southward to the Mexican border after steelhead were found to occur in the San Mateo Creek watershed in northern San Diego county (National Marine Fisheries Service 2002). Presently, this endangered ESU includes all naturally spawning populations of steelhead ranging from the Santa Maria River (inclusive) southward to the Mexican border, including the Santa Ynez River.

To reverse the pattern of population decline which led to these listings, including that of the Southern California steelhead ESU; NOAA Fisheries believes that comprehensive and focused recovery efforts are essential - and NOAA Fisheries is committed to this effort. Throughout California, state agencies, local and regional governments and agencies, Federal agencies, and private organizations have developed numerous programs designed to help protect and recover listed salmon and steelhead populations and their

habitats. In the case of the Southern California steelhead ESU, one important example of such a multi-agency, cooperative effort is the Fisheries Management Plan (FMP) which was developed for the Lower Santa Ynez River by the Santa Ynez River Technical Advisory Committee (SYRTAC), elements of which are currently being implemented. Also important for the protection and recovery of listed salmonids are ESA regulatory tools such as the section 7 consultation process which ensures that actions taken by Federal agencies do not reduce the likelihood that a species will survive and recover. The Biological Opinion that NOAA Fisheries issued to the Bureau of Reclamation (BOR) in 2000 concerning the effects of Cachuma Project operations on steelhead (National Marine Fisheries Service 2000) is an important example of how this ESA tool can be used to help protect and assist in the recovery of the Southern California steelhead ESU.

Although these individual conservation efforts and ESA regulatory tools provide important protections for the Southern California steelhead and other listed salmonids, they add up to an uncoordinated approach to recovery that does not take into consideration ESU wide recovery goals or specific recovery goals for individual river systems such as the Santa Ynez River. NOAA Fisheries believes that a successful recovery effort for the Southern California steelhead ESU requires the development of a comprehensive recovery plan that provides the scientific and management framework for addressing all factors across the range of the ESU that were responsible for its decline and that impede its recovery. Because funding for planning and implementation of recovery actions is limited or uncertain, and the ESA itself does not require that recovery plans be implemented, NOAA Fisheries' recovery efforts will require close coordination and cooperation with local, state, and other federal agencies, as well a variety of private stake-holders, to achieve its salmon and steelhead recovery goals.

Developing Recovery Plans

The ultimate goal of NOAA Fisheries' salmon and steelhead recovery planning program is to achieve self-sustaining populations that spawn and rear naturally in their native streams. Once this objective is met, the listed ESUs can be removed from the protection of the ESA. The ESA requires that recovery plans contain: (1) objective, measurable goals for de-listing species or ESUs, (2) a comprehensive list of the actions necessary to achieve the de-listing goals, and (3) an estimate of the cost and time required to carry out those actions. NOAA Fisheries recovery planning guidelines also recommend that recovery plans include an assessment of the factors that led to the population decline and/or which are impeding recovery (i.e. limiting factors). Lastly, NOAA Fisheries believes it is essential that all recovery plans include a comprehensive monitoring and evaluation program for assessing (a) the effectiveness of recovery actions that are implemented, and (b) progress towards the achievement of the de-listing or recovery goals.

NOAA Fisheries is in the early stages of the recovery planning process for all listed salmon and steelhead ESUs in California. The recovery planning effort has been divided into four geographic areas or planning domains based on the geographic range of the various listed ESUs in California. One of these geographic areas (Southern-Central

California Coast) includes the endangered Southern California steelhead ESU. The recovery planning process in each of the geographic areas has been designed as a two phase effort which when completed will result in the development of a comprehensive recovery plan meeting the requirements of the ESA and NOAA Fisheries recovery planning guidelines. Wherever possible, we intend to take advantage of and expand upon cooperative efforts already in place such as those that produced the Lower Santa Ynez River FMP and the Cachuma Project Biological Opinion.

Technical Recovery Planning (Phase I)

The first phase of NOAA Fisheries recovery planning program in each planning area is a technical recovery science effort that is being led by agency scientists from the Southwest Fisheries Science Center's research laboratory in Santa Cruz, CA. The purpose of this technical effort is to develop a credible scientific foundation for each geographically based recovery plan. In order to carry out this recovery science effort in the planning area which includes the Southern California steelhead ESU, NOAA Fisheries has recently appointed a Technical Recovery Team (TRT). The TRT consists of 15 scientific experts from NOAA Fisheries Santa Cruz Laboratory, academia, and other government agencies that are knowledgeable about steelhead biology and genetics, population dynamics, conservation biology, estuarine ecology, fluvial geomorphology, and other relevant disciplines. The appointment of this TRT followed a public solicitation of nominations earlier this year and a review of all nominees by the American Fisheries Society to determine which met the required scientific and professional qualifications. NOAA Fisheries scientists on the TRT are not only responsible for directing the team's efforts, but also will be providing technical and scientific support, such as genetic analysis and interpretation, modeling, and GIS support, to the entire TRT.

In carrying out the phase I technical recovery planning effort for the Southern California steelhead ESU, the TRT will be responsible for the carrying out several tasks. These include:

- 1) Developing biological viability criteria or recovery goals for the ESU as a whole,
- 2) Characterizing habitat and fish productivity relationships in the ESU,
- 3) Identifying and evaluating the key factors limiting the recovery of the ESU,
- 4) Evaluating and recommending early recovery actions,
- 5) Identifying specific research, monitoring, and evaluation needs, and
- 6) Supporting the phase II recovery planning process as science advisors.

The principal focus of the TRT's efforts, especially at the outset, will be to develop biological recovery goals for the Southern California steelhead ESU as a whole. The scientific framework the TRT will use to develop these recovery goals is outlined in a Technical Memorandum published by NOAA Fisheries in June 2000 entitled: "Viable Salmon Populations (VSP) and the Recovery of ESUs" (McElheny et al 2000). This VSP framework document is designed to facilitate development of ESU-level de-listing criteria or recovery goals by identifying key parameters related to population viability including abundance, productivity, spatial structure, and diversity, and by providing

guidance on how these parameters should be evaluated for individual populations and the ESU as a whole.

Application of the VSP framework concepts in establishing biological recovery goals for the Southern California steelhead ESU will involve two key steps. First, viability criteria will be developed for all independent populations comprising the ESU, and second, the individual population specific viability criteria will be integrated to formulate ESU-wide recovery goals. To develop population level viability criteria, the TRT will first need to delineate the independent population structure of the Southern California steelhead ESU - both as it occurred historically and as it occurs today. Independent populations may constitute fish occurring in a single large river basin such as the Santa Ynez River, sub-basins of a large river system, or a group of smaller coastal watersheds that are in close proximity to one another. Once the independent populations that comprise the ESU are identified, the TRT will then develop viability criteria such as abundance and productivity goals for each population that if achieved would allow the population to be viable in the long-term. In developing these abundance and productivity goals, the TRT will also take into consideration the extent to which the spatial structure and phenotypic diversity (e.g. anadromous versus non-anadromous life histories) within an individual population contributes to overall population persistence.

Once independent populations are identified and their viability criteria established, the TRT's second task will be to integrate this information up to the ESU level by identifying one or more combinations of independent populations and their associated viability criteria that if met would provide for recovery of the ESU as a whole and allow it to be de-listed.

Historical Distribution and Abundance

The ESA does not require that a species or ESU be restored in all parts of its historic range, nor that it be restored to its historical level of abundance in order for it to be de-listed. However, in developing biological recovery goals for the Southern California steelhead ESU as a whole, the TRT will consider all available information about the historic distribution, abundance, and structure of the ESU since this information provides useful guidance about what a viable ESU may look like. Although the Southern California steelhead ESU may be viable in the long-term with a geographic distribution and/or level of abundance that is substantially different than historic levels, determining how much of the ESU and which geographic and environmental areas inhabited by the ESU are non-essential for ensuring its long-term viability and recovery will be difficult. We can be confident, however, that the ESU is more likely to be viable in the long-term the closer it approximates its historic patterns of distribution and abundance because ESUs are thought to have persisted as independent population units over evolutionary time periods. All else being equal, the greater the departure from historic conditions in terms of distribution and abundance the greater the uncertainty about the viability of the ESU. In developing biological recovery goals for the Southern California steelhead ESU, scenarios that involve substantial departures from historical patterns of distribution and abundance will need to be scrutinized very carefully by the TRT to ensure they do

provide adequate assurance of long-term viability. At the same time, the TRT will need to recognize and take into consideration that the restoration potential of some watersheds is substantially different from what it was in the past and that restoring some of these watersheds to historic or near historic levels of production may be difficult or impossible in some instances.

The Santa Ynez River is one of four large river systems within the current range of the Southern California steelhead ESU that presently support steelhead; the others being the Santa Maria, Ventura, and Santa Clara Rivers. Historically, other larger river systems further south may have also supported steelhead in this ESU, but they no longer do and the scant evidence that exists does not give us confidence that they ever were as productive as the four river systems just mentioned. Although historical run size information for these large river systems is not well documented, it is probable that one or more of these large river systems were key sources of steelhead production for the ESU as a whole and served as source populations for many smaller streams before steelhead access to upstream spawning and rearing habitat was lost due to the construction of dams. Because the Santa Ynez River is known to have been historically productive, and contains extensive spawning and rearing habitat that was accessible to steelhead before the construction of Bradbury Dam, we expect that current and potential production from this and other large river systems will be considered by the TRT in their development of population viability criteria and biological recovery goals for the ESU as a whole. In evaluating the potential production capacity from the Santa Ynez River, the TRT will need to consider areas above Bradbury Dam in light of the relatively limited production of steelhead from the lower River and the historical production from the system upstream from the dam, particularly if they determine that this system would need to be a large producer of steelhead in order to recover the ESU as a whole. If the ESU wide recovery goals identify the need for a large and viable population in this watershed, phase II recovery planning will need to consider feasible methods of providing fish passage for adult and juvenile steelhead past Bradbury Dam.

Recovery Planning - Implementation (Phase II)

The second phase (phase II) of the recovery planning effort for the Southern California steelhead ESU is aimed at identifying and prioritizing specific recovery implementation actions necessary to achieve both the ESU-level biological recovery goals and address the critical limiting factors identified by the TRT during the phase I technical process. NOAA Fisheries intends to work with a wide range of stakeholder groups to establish a planning team comprised of state, local and federal agencies and other parties that will be responsible for carrying out this effort. In addition to identifying and prioritizing recovery actions, this planning team will be asked to estimate the time and cost of implementing recovery actions, identify the responsible agencies or other parties, and formulate an implementation plan. Throughout this planning process, the TRT will be available to serve as science advisors and assist the planning team in understanding the recovery goals and options, evaluating recovery measures, identifying early recovery actions, and additional technical analysis that might be required. To the maximum extent possible, NOAA Fisheries expects this planning effort will build upon existing

conservation efforts throughout the ESU. In the Santa Ynez River, we anticipate that the Cachuma Project Biological Opinion issued in 2000 and the Lower Santa Ynez River Fisheries Management Plan will serve as important elements around which further recovery planning and implementation efforts can be built.

To the extent that the recovery goals considered by the TRT for this ESU include a large, viable population of steelhead in the Santa Ynez River that would necessitate reconnecting the lower and upper watersheds, there are several studies which NOAA Fisheries believes need to be conducted to inform both the phase I and II planning processes. These include:

- 1) Investigating the feasibility of steelhead passage at Bradbury Dam and Cachuma Reservoir;
- 2) An assessment of steelhead spawning and rearing habitat above Bradbury Dam that would become available if passage were provided; and
- 3) Investigating instream flows that would support migration, spawning, and rearing of steelhead above Bradbury Dam.

These and other investigations will be discussed by other NOAA Fisheries staff providing testimony. We urge the Board to incorporate specific conditions into the BOR's water rights that would require these and other studies to be conducted over the next 3-4 years, and to operate the Cachuma Project on an interim basis according to the provisions described in the NOAA Fisheries Biological Opinion of September 8, 2000 (BO), including all Reasonable and Prudent Measures and implementing Terms and Conditions.

References

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