MEMBER UNITS EXHIBIT NUMBER 21

HANSON ENVIRONMENTAL

MEMO TO: Santa Ynez River Technical Advisory Committee

FROM: Chuck Hanson

DATE: May 24, 1993

SUBJECT: Technical Advisory Committee Meeting - May 18, 1993

The first meeting of the Santa Ynez Technical Advisory Committee was held May 18, 1993 at the Goleta Sanitary District offices.

Water Temperature Monitoring

Maurice Cardenez (CDFandG) briefly described the installation of temperature monitoring data pods at various locations within the Santa Ynez River system. Temperature monitoring by CDFandG includes lower Hilton Creek, the mainstem Santa Ynez River downstream of the confluence with Hilton Creek, the mainstem river downstream of the confluence with Santa Rosa Creek, Salsipuedes Creek, and in the mainstem immediately upstream of the lagoon. Temperature recording at each location is at 2.4 hour intervals.

Chuck Hanson discussed the installation of temperature monitoring equipment at four locations including the stilling basin below Bradbury Dam, San Lucas Bridge (Highway 154 crossing), the mainstem at the Alisal Road bridge, and in the mainstem in the vicinity of the narrows downstream of the confluence with Salsipuedes Creek. Water temperatures will be recorded hourly at each location.

Juvenile Survey

Maurice Cardenez will develop a survey design to assess the presence and relative abundance of juvenile and adult trout, and other fish species, currently residing within the Santa Ynez River system and tributaries. Maurice will contact local residents familiar with the Santa Ynez River system to identify on topographic maps the general location where historic observations indicate that deep pools remain on the mainstem river and tributaries throughout the summer period and may provide suitable rearing areas for juvenile fish. Areas where historic observations indicate juvenile fish have been observed will also be mapped. CDFandG will then develop the design for a survey program to evaluate the presence of juvenile fish within different areas of the system including, but not limited to, the stilling basin, lagoon, upper and lower reaches of the mainstem, Salsipuedes, San Lucas and Hilton creeks, and other tributaries. Problems were discussed regarding potential fisheries sampling techniques for areas such as the mainstem, lagoon, and stilling basin. CDFandG will develop the design and schedule for conducting the fisheries surveys which will be provided to the Technical Advisory Committee members for review as soon as possible.

500 Ygnacio Valley Road, Suite 250, Walnut Creek, California 94596
Tel: (510) 942-3133 FAX: (510) 256-6589 Pager: (510) 729-4052

Habitat Quality

Maurice will contact local residents and review data collected from previous fisheries or water quality surveys for use as a basis in developing a plan to evaluate habitat quality for juvenile rearing within various areas of the Santa Ynez River system. Historic observations on intermittent and perennial flows within tributaries will be compiled including Salsipuedes Creek and the upper areas of San Lucas Creek which may provide perennial habitat for oversummering trout. Additional information regarding water temperatures within the tributaries will be compiled to assess potential suitability of these areas as rearing habitat. Rearing conditions on the mainstem, including instream flow and temperature requirements, will also be compiled for review by the technical committee. Jim Moore (USBR) provided a copy of a preliminary analysis prepared by Jack Rowell on Santa Ynez River temperatures as a function of streamflow at various locations during the period May-September for use in evaluating potential habitat suitability.

After discussion by the technical committee it was generally agreed that Alisal Creek would not provide suitable habitat conditions for oversummering trout. Concern was expressed regarding both adverse water temperature conditions and the presence of predatory fish (largemouth bass) inhabiting Alisal Creek.

CDFandG will provide a preliminary assessment and plan for evaluating habitat availability and suitability for juvenile rearing as soon as possible for review by the technical committee.

Aerial Photographs

There was a brief discussion regarding the potential use of aerial photographs for the Santa Ynez River system which may be helpful in identifying the presence of potentially suitable oversummering habitat. Photographs were taken to document changes in riparian vegetation along the Santa Ynez River, but this monitoring program has been discontinued in recent years. There is the possibility of using satellite photographs to identify perennial areas which may provide habitat within the mainstem and tributaries, however the cost of obtaining these photographs may be high.

Instream Flows - Bradbury Releases

There was considerable discussion regarding the evaluation of habitat suitability on the mainstem Santa Ynez River and water budget requirements to meet various flow requirements during the period from June through November. It was agreed that a hydrologic water budget analysis should be prepared documenting reservoir releases sufficient to provide three different levels of flow (surface flow, 5 cfs, and 35 cfs) at three locations (Solvang, the Narrows, the lagoon) throughout the period from June through November. Hydrologists participating on the Technical Advisory Committee will prepare the requested analysis based on actual hydrologic conditions within the Santa Ynez River system occurring in 1993. Ali Shahroody cautioned that water budget requirements to meet various flows in 1993 may not be predictive of requirements in other years as a consequence of variation in groundwater basin conditions and other environmental factors.

There was considerable discussion regarding an assessment of operational flexibility for releases from Bradbury Dam to meet downstream needs which may also provide instream benefits for fisheries habitat and rearing. Hydrologists participating in the meeting indicated that they would examine operational flexibility, however it is not anticipated that large releases would be made from Lake Cachuma this year to meet downstream groundwater recharge demands. To increase operational flexibility the Technical Advisory Committee unanimously requested that the USBR surcharge Lake Cachuma to the maximum extent possible. The committee agreed that releases from Bradbury Dam should be reduced if necessary to increase reservoir surcharge. Jim Moore agreed to maintain a reservoir surcharge of 0.3 feet effective immediately.

There was considerable discussion and concern expressed regarding water temperatures within the mainstem Santa Ynez River during the summer. Water temperatures in excess of approximately 68-70 F (mean daily temperature) represent adverse conditions for juvenile trout rearing. All of the participants in the Technical Advisory Committee were requested to identify any data sources available which could be used to determine potential water temperature regimes within the mainstem river throughout the summer months. One data source which was identified includes grab sampled water temperature measurements during periods when USGS is servicing streamflow gauges. Additional temperature data may also exist for both the mainstem Santa Ynez River and tributaries which should be compiled and evaluated as soon as possible as part of the assessment of potential habitat quality.

Lake Cachuma Temperature and Dissolved Oxygen Profiles

The Technical Advisory Committee discussed the significance of vertical temperature and dissolved oxygen profiles within Lake Cachuma as a factor influencing water quality and habitat suitability for juvenile rearing downstream. The technical committee briefly discussed the potential for aeration of waters released from Lake Cachuma in an effort to maintain both suitable water temperatures and dissolved oxygen concentrations. The location and operation of the flexible intake/outlet structure for regulating water quality conditions in flows released from Lake Cachuma were discussed. Chuck Hanson was given responsibility to compile temperature and water quality data available from Lake Cachuma documenting vertical profiles in temperature and dissolved oxygen throughout the summer and fall. Chuck is also responsible for developing a monitoring plan to collect additional vertical temperature and dissolved oxygen profile data, if necessary, from the reservoir.

Contingency Planning

The Technical Advisory Committee briefly discussed evaluations which are currently underway for changes in recreational fishing regulations to provide increased protection for juvenile and adult fish rearing on the Santa Ynez River and a fish salvage/rescue operation for both the mainstem and tributaries for fish which may become stranded with declining flows.

Chuck was given responsibility for developing a contingency plan for the fish rescue operation. The fish rescue operation will rely on information regarding the presence and relative abundance of juvenile and adult fish in various rearing areas, anticipated changes in streamflows for each area (risk of stranding), and assessment of the potential suitability of various areas where rescued fish could be relocated (including consideration of both water temperature conditions and susceptibility to predation

losses). Implementation of the fish rescue as part of a contingency plan requires approvals for collections authorized by CDFandG and coordination for the effort among various participants.

Modifications to existing recreational angler fishing regulations to provide additional protection for oversummering fish and adults returning to the Santa Ynez River to spawn was briefly discussed. CDFandG indicated that they were considering various potential changes to existing regulations including closure of the area, catch and release, gear limits (e.g., artificial lures, barbless hooks), etc. It was reported that changes in fishing regulations would require approval by the Fish and Game Commission and a minimum review period of 45 days after submittal of a proposal for a change in existing regulations.

Next Meeting

The next meeting of the Technical Advisory Committee is scheduled for May 28, 1993 at 9:30 AM in the Fish and Game Commission Conference Room (Room 1320 - 1416 Ninth Street, Sacramento). If you need directions please call CDFandG at (916) 653-4875.

C to Rob Titus
C to [illegible]
IFI
C to Steve Parm
R5 [illegible]

HANSON ENVIRONMENTAL

VIA FAX

MEMO TO: Santa Ynez River Technical Advisory Committee

Cindy Chadwick (CDFandG)
Robert Almy (SBCWA)
Naomi Mitchell (USFWS)
Dwayne Maxwell (CDFandG)
Ali Shahroody (SYRWCD)
Jim Bybee (NMFS)
Brian Trautwein (UCC)
Gary Sackett (USBR)
Steve Mack (SB)
Craig Fusaro (SBCC)
Maurice Cardenas (CDFandG)
Bob Biaocchi (CSPA)
Jean Baldridge (Entrix)

FROM: Chuck Hanson

DATE: June 2, 1993

SUBJECT: Technical Advisory Committee Meeting - May 28, 1993.

A meeting was held of the Santa Ynez River Technical Advisory Committee (TAC) May 28, 1993, in the Fish and Game Commission Conference Room, Sacramento. A copy of the agenda and list of attendees is attached.

TAC Meeting Notes

Chuck Hanson prepared notes from the May 18, 1993 TAC meeting which were distributed *via* FAX to various meeting participants. Copies of the meeting notes were also distributed at the May 28 TAC meeting. Bob Baiocchi objected to the reference in the May 18 TAC meeting notes that stated that the TAC unanimously agreed to a recommendation that releases from Bradbury Dam be reduced by an amount sufficient to surcharge Lake Cachuma to an elevation of 750.25 feet. The reservoir surcharge was intended to provide approximately 700-800 acre-feet in storage which would then be available to provide options and increased flexibility when considering short-term actions which may be implemented this year. Bob noted that CSPA did not concur with any recommendation to reduce releases from Bradbury Dam.

Hydrologic Conditions

Rob Almy offered to provide an overview of the hydrology and operations of the Santa Ynez River system as educational background information. As a consequence of limited time availability the hydrologic overview was deferred to a future meeting.

500 Ygnacio Valley Road, Suite 250, Walnut Creek, California 94596
Tel: (510) 942-3133 FAX: (510) 256-6589 Pager: (510) 729-4052

At the previous TAC meeting it was requested that an analyses be prepared to estimate Bradbury Dam release requirements to provide instream flows of various levels (e.g., 5 and 35 cfs) at seasonal downstream locations. It was reported that hydrologists had examined precipitation records for the Santa Ynez River basin for historic periods and determined that 1978 represented baseline conditions most similar to those occurring during 1993. Hydrologic information from 1978 was then used in both the Santa Ynez River hydrologic computer model and an analysis of actual flows occurring at various times and locations for use as a basis in predicting Bradbury releases necessary to meet the requested conditions. Rob reported that efforts were currently underway to evaluate the applicability and sensitivity of the computer model for estimating Bradbury releases under the assumed conditions. Rob described several of the concerns regarding the interpretation of predictions from the computer model including the monthly time-step used in the model, variation in groundwater conditions between 1978 and 1993, the designation of reaches based on water rights rather than biological criteria, etc. Rob estimated that the critical review and sensitivity analysis of the computer model would be completed within a period of approximately 10 days.

Ali Sharoody cautioned that flows necessary to meet various instream flow conditions were extremely sensitive to groundwater conditions within the Santa Ynez River Basin which may make predictions from one year to the next unreliable. Ali also noted that the computer model had not been developed for use in estimating absolute flow levels for releases from Bradbury Dam necessary to meet instream flow conditions downstream, particularly at lower flow levels. The model was developed as a management tool for use in evaluating relative comparisons among management alternatives. Ali expressed concern about extending results of the hydrologic computer model beyond the assumptions and limits upon which the model has been based. Ali indicated that part of the model review and sensitivity analysis included a comparison of model predictions with actual daily flows to determine confidence which can be placed in model predictions. It was estimated that information would be available on Bradbury releases necessary to meet various flows at different points downstream on the Santa Ynez River this year for presentation at the June 1 policy meeting.

Rob Almy described available grab-sample data used to correlate water temperature with historic flows at the narrows. Rob noted that there is high variability within the correlation between temperature and discharge which may reflect the influence of spurious datapoints, air temperature effects, and other factors. It was suggested that a multivariat-analysis be performed incinding both flow and air temperature be evaluate the available data.

Bob expressed a concern regarding a potential conflict of interest in having water users conduct hydrologic analyses as opposed to USBR which operates the Cachuma project. Rob noted that development of the model and subsequent hydrologic analyses was a cooperative effort including participation by water users, USBR, U.S. Forest Service, and others and that results of these analyses would be made available for review by all parties through the TAC.

Ali presented a brief overview of actual surface water flows at the Narrows (1907-1993) and a description of the historical development of impoundments and diversions on the Santa Ynez River (attached). Historic flow records at the Narrows were characterized by high variability within and between years. Ali also described the calculation of firm yield from the Cachuma project based on recent sediment surveys, noting that present calculation indicates firm yield is 24-25 TAF. Ali also noted that the period from 1947-1951 has been established as the critical drought period for

planning purposes. He also noted that the first 15-20 years of the century were characterized by unusually wet hydrologic conditions.

Bob noted that increased sediment deposition in upstream reservoirs has reduced storage capacity. He also noted that mandatory releases from upstream impoundments for fisheries purposes would provide additional inflow to Lake Cachuma which could then be used for releases from Bradbury Dam to the lower river. Bob noted that Bradbury Dam obstructs the upstream migration of steelhead precluding use of potentially suitable habitat in the upper portions of the drainage. Bob also noted that no fish passage facilities exist at any of the existing impoundments on the Santa Ynez River thereby blocking both upstream and downstream fish passage.

Temperature Monitoring

Chuck and Maurice briefly discussed the location of continuous temperature recording instruments which were placed in the Santa Ynez River and tributaries during mid-May. Locations of temperature monitoring equipment include the stilling basin, Hilton Creek, the Santa Ynez River upstream of the confluence of Hilton Creek, the Santa Ynez River at the San Lucas (Highway 154) Bridge, Santa Ynez River at the Alisal Bridge, the Santa Ynez River downstream of the confluence with Santa Rosa Creek, Salsipuedes Creek, the Santa Ynez River in the area of Lompoc, and the Santa Ynez River at the upper reach of the lagoon (see attached map).

In addition to continuous temperature monitoring, grab-sample temperature measurements have also been made at a variety of locations. Generally results of grab-sample temperatures showed that water temperatures in the stilling basin were approximately 54 F (Maurice reported a temperature of 41 F during an earlier reading). Grab-sample temperature in Hilton Creek was 64 F while temperatures in the mainstem Santa Ynez River at Refugio were 72, 70 downstream of Santa Rosa Creek, 72-73 near Lompoc, and 66-68 within the lagoon. The general trend in water temperatures is consistent with limited temperature data from other studies and analyses showing a strong increase in temperatures at downstream sampling locations. It was estimated that temperature monitors would be downloaded during early June when more detailed temperature information would be available.

Additional questions which arose regarding water temperature conditions within the Santa Ynez River included the potential for vertical temperature distribution within the stilling basin and lagoon, the presence of deep-water pools with lower temperatures along the mainstem and tributaries, the effects of flow on water temperature distributions downstream, diel temperature variation, and the availability of atmospheric temperature data for use in evaluating temperature patterns measured within the river. Many of these issues will be addressed once temperature monitoring data becomes available from the continuous recording locations. The need to monitor flow in association with the temperature monitoring was also discussed with the recommendation that local USBR staff be requested to periodically conduct flow measurements (e.g., weekly) to augment flow data available from USGS gauging stations.

Fisheries Surveys

Maurice presented an overview of recent field activities designed to document the presence or absence of fish species at various locations within the Santa Ynez River and tributaries. Surveys designed to identify potential locations for juvenile and adult trout have been conducted during late May. Maurice reported a problem with access to many of the areas along the river where it would be desirable to conduct fisheries surveys. John Turner discussed the importance of obtaining permission for access to the river for surveys at various locations, requesting assistance in identifying landowners and obtaining permission for access for both biological surveys and additional temperature monitoring.

Maurice reported results of snorkel surveys conducted in the area of Santa Rosa Road downstream of Buellton. The survey encompassed a reach approximately 200 M long. Water depth was to three or four feet along the north bank which was characterized by a clay substrate. Water temperature at the time of the survey was 21 C (70 F). No trout were observed at this location, although stickleback, catfish, and abundant aquatic invertebrates were observed. A number of shallow depressions (approximately 1-ft diameter and 4 inches deep) were observed in gravel areas with some speculation that these may represent remnant redds. Maurice reported observations by local residents of trout spawning in the area this year.

Fisheries surveys were also conducted in the area of Sweeney Road located approximately one mile upstream of the narrows. The area was characterized by rock outcroppings of both shale and limestone. A 300 M reach was surveyed by snorkeling. Water depth was typically 1-2 feet. Water temperature was 22 C (72 F). The area was characterized as having dense riparian vegetation. Local residents had reported that deep pools in the area remained throughout the summer which were characterized as being "uncomfortably cool for swimming during the temperature". Maurice found no evidence of either deep pools or thermal refuge areas at the site surveyed. Sand transport deposition has occurred throughout much of the Santa Ynez River mainstem this year. No trout were observed during the survey although both stickleback and catfish were present.

A survey was conducted on the Gainey Ranch, located approximately two miles upstream of the Refugio Bridge. The survey locations were characterized by shallow water depths with a few deeper pools. Substrate was mostly cobble with a few larger rocks. Water temperature was 22 C (72 F). No trout were observed, although other fish including stickleback, largemouth bass, panfish, and chubs were present. Maurice reported that Arroyo chubs, a species of special concern, were present.

Maurice discussed potential fisheries sampling techniques which may be applicable within the lagoon. Maurice and Chuck had recently visited the lagoon and observed variable water depth and bottom topography with the presence of a number of snags (woody material, concrete, rebar, riprap, etc.) which limits potential sampling techniques. At the time of these surveys the lagoon mouth remained open with influence of tidal effects on water surface elevation and water quality within the lagoon. Salinity within the lagoon was identified as a problem for electrofishing. Potential application of fyke nets and beach seines for sampling portions of the lagoon habitat were also discussed. The potential application of a round haul or purse seine was also discussed. Maurice reported a contact with the CDFandG Marine Resources Division in which large fish were reportedly sited within the lagoon, although these observations had not been verified. Maurice agreed to snorkel within the lagoon in an effort to

better define potential sampling areas and techniques in addition to making direct observations of any fish which may be inhabiting this area.

Maurice reported that he had gained access to the Crawford Ranch in the area of the San Lucas Bridge which will be surveyed in early June. This survey will also include areas along San Lucas Creek. These areas have been identified as potential habitat for juvenile and adult trout as a consequence of their lower temperatures than areas further downstream.

Maurice reported that surveys of Hilton Creek had not found juvenile trout. Historic observations suggest that juvenile trout have been produced from spawning within Hilton Creek and observations this year of adult trout indicated that spawning did occur. There was speculation that high stormwater runoff may have resulted in an overflow of sewage into Hilton Creek impacting incubating eggs and developing juveniles. No specific data was provided on either the magnitude or frequency of sewage overflow or water quality conditions resulting in Hilton Creek, although this information is being compiled and will be provided to the TAC.

It was agreed by the TAC that priority areas for fisheries surveys during early June would include the upper reach of the river in the area of the stilling basin and San Lucas Creek and within the lagoon. There is also a need to survey for juvenile presence within both Salsipuedes and Jaro creeks where relatively good riparian vegetation and the presence of deeper pools may provide acceptable habitat conditions (e.g., water temperatures) for oversummering. Maurice noted that there are many small creeks and tributaries which may provide potential rearing areas that will not be surveyed. It was speculated that receding flows in many of the smaller creeks and tributaries would provide an environmental cue stimulating juveniles to migrate downstream into refuge areas although some fish may remain in tributaries where deep pools and perennial water supplies provide suitable conditions.

The lagoon was an area that received considerable interest as potential fisheries habitat. During the discussion questions arose regarding mechanical breaching of the sandbar at the mouth of the lagoon to allow for fish passage. Maurice reported that mechanical breaching of the sandbar was considered this year as a potential flood control activity. Breaching of the sandbar would be administered under the Corps of Engineers 404 permit for the Vandenburg Air Force Base. After review Vandenburg officials determined that the existing permit did not authorize mechanical breaching of the bar. Permitting would be one issue to be addressed by the TAC in the event mechanical breaching of the sandbar is included as part of either a short- or long-term program for the Santa Ynez River. In addition, issues surrounding the potential presence of tidewater goby within the lagoon would also have to be examined and addressed as part of this effort.

John Turner noted that many of the issues identified for the Santa Ynez River would need to be evaluated and addressed as part of the process for establishing a long-term watershed plan for the Santa Ynez River Basin.

Angling Regulations

Information collected this year has demonstrated that recreational anglers harvested adult trout from the Santa Ynez River system. As part of an overall fishery program the TAC discussed the need to provide additional protection for spawning adults. Harvest of juvenile trout by recreational anglers during the summer and fall is

unknown. Chuck briefly described a petition submitted to the Fish and Game Commission for consideration of a complete closure of the Santa Ynez River system and major tributaries downstream of Bradbury Dam to all recreational angling in an effort to provide protection for both adult and juvenile trout. The TAC discussion focussed on the potential benefits and other considerations regarding either a complete closure of the fishery, or a zero take catch-and-release regulation. Although there was debate and discussion regarding both approaches, the TAC was in agreement that additional angling regulation and protection for fish on the Santa Ynez River was appropriate.

The need for review of other existing permits and regulations such as 1603 streambed alteration agreements for gravel extraction and other activities may also need to occur. The review of existing permits would need to take into account habitat restoration activities and improvements currently being performed in conjunction with mitigation associated with gravel extraction and other activities. Bob reported that information was being compiled on a number of water quality violations associated with gravel extraction operations within the basin. Rob agreed to provide appropriate contacts regarding potential water quality violations. The possibility of using selected sizes of gravel from the gravel extraction operations as part of habitat improvements within the Santa Ynez River to improve spawning habitat suitability and availability was also discussed.

Fish Rescue Contingency

Chuck provided a brief overview of a request to the Department of Fish and Game to permit a fish rescue operation on the Santa Ynez River and tributaries as a contingency plan if needed. Several TAC members expressed concern regarding potential stress and mortality on juvenile fish associated with the rescue operation, concern regarding suitability of habitat where fish could be relocated, and other issues. Contacts with CDFandG hatchery personnel indicate that it would not be acceptable to relocate wild juvenile trout from the Santa Ynez River to existing hatchery facilities as a consequence of concern regarding infectious disease transmission and contamination. It was agreed by the TAC that the fish rescue operation should be considered as a contingency plan to be implemented only if no other viable alternative exists. Inland Fisheries Division is currently developing a policy and guideline regarding fish rescue operations.

Other Discussion

Concern was expressed regarding potential adverse effects of flow fluctuations (ramping rates) on juvenile fish within the Santa Ynez River. Ali reported that changes in flows within the Santa Ynez River would be gradual without fluctuations in flow characteristic of some hydroelectric power operations where juvenile fish would be vulnerable to stranding. Members of the TAC generally agreed that ramping rates were not considered to be a key issue for consideration of short-term actions.

Ali reported that flows within the Santa Ynez River would continue for some period into the summer independently of releases from Bradbury Dam as a consequence of the contribution of tributary inflow. In addition, uncontrolled releases as a result of leakage through spillgates at Bradbury Dam under surcharged conditions will contribute approximately 5 cfs (leakage) to downstream areas. Planning for releases from Bradbury Dam for downstream groundwater recharge was also discussed. Ali reported

that releases for groundwater recharge would either not occur or be very limited this year.

Other issues which were discussed, but no short-term specific action identified include:

- Will CDFandG request continued flows from Bradbury Dam using surcharge water until fisheries surveys can be completed in the upper reach of the river?
- Does the stilling basin represent a suitable cold-water refuge for oversummering adult trout?
- Are predator populations inhabiting the stilling basin sufficient in abundance to preclude effective use of this habitat for rearing juvenile trout?
- If releases are not made from Bradbury Dam using surcharge water can that water supply be carried over into next year for fishery releases?
- Will flows be sufficient to maintain the integrity and water quality of the lagoon as juvenile rearing habitat through the summer months?
- Should releases of surcharge water be made from Bradbury Dam if no trout are found in the upper reaches for purposes of maintaining and improving riparian vegetation and habitat quality of the upper reach?
- Should desalinization plant begin operations to demonstrate operational performance and improve estimates of operating and maintenance costs? It was suggested that operation of the desalinization plant could provide additional water supplies for municipal usage thereby making available increased releases from Lake Cachuma for fisheries within the lower Santa Ynez River.

Short-Term Actions

Short-term actions include the following:

- Complete the preliminary analysis of estimated releases from Bradbury Dam to meet various assumed flow conditions at downstream locations for discussion at the June 1 policy meeting;
- Prepare to download temperature data and provide preliminary data summaries (e.g., mean daily minimum and maximum water temperatures) for the various locations surveyed during early June;
- Contact Craig Fusaro regarding water quality and operational data related to the potential sewage overflow into Hilton Creek;
- Chuck will contact DWR regarding the availability of water quality and temperature monitoring data from the lagoon;
- Chuck will investigate the availability of meteorological data (e.g., air temperature, wind speed, humidity, etc.) for various locations along the Santa Ynez River;

- Maurice will complete fisheries surveys in the upper reach of the Santa Ynez River and within San Lucas Creek the first week of June;
- Maurice will snorkel the lagoon as part of a reconnaissance survey to evaluate the potential effectiveness of alternative fisheries sampling techniques and document observations of any fish within the lagoon;
- CDFandG will prepare a response to the petition to the Fish and Game Commission regarding recommendation to close the recreationalfishery below Bradbury Dam;
- CDFandG will prepare a response to the request for permitting the fish rescue operation;
- U.S. Fish and Wildlife Service personnel will be invited to participate on the TAC.

Next Meeting

The next meeting of the TAC is scheduled for June 16 at 9:30 AM. Cindy Chadwick will confirm the meeting location.

HANSON ENVIRONMENTAL

VIA FAX

MEMO TO: Santa Ynez River Technical Advisory Committee

Cindy Chadwick (CDFandG)
Robert Almy (SBCWA)
Naomi Mitchell (USFWS)
Dwayne Maxwell (CDFandG)
Ali Shahroody (SYRWCD)
Jim Bybee (NMFS)
Brian Trautwein (UCC)
Robert Paul (GWD)
Robert Ream (G.Hart)
Gary Sackett (USBR)
Steve Mack (SB)
Craig Fusaro (SBCC)
Maurice Cardenas (CDFandG)
Bob Baiocchi (CSPA)
Tom Keegan (Entrix)
J. Carl Dealy (USBR)
Hossein Moazami (Lompoc)

FROM: Chuck Hanson

DATE: June 16, 1993

SUBJECT: Santa Ynez River Technical Advisory Committee Meeting - June 11, 1993.

A meeting of the Santa Ynez River Technical Advisory Committee was held June 11, 1993 at the U.S. Bureau of Reclamation offices in Sacramento. A list of attendees is attached. The primary topic of the meeting was the planning and coordination of fisheries surveys to be conducted June 14 and 15 in the reach of the Santa Ynez River between the San Lucas Bridge (Highway 154) and Bradbury Dam.

June 14-15 Fisheries Surveys

Fisheries surveys in the reach of the Santa Ynez River between San Lucas Bridge and (Highway 154) and Bradbury Dam are schedule for June 14 and 15. Objectives of the fisheries survey are to identify the presence, relative abundance, distribution, and condition of fish, including juvenile and adult trout, inhabiting the reach of the Santa Ynez River immediately downstream of Bradbury Dam. Surveys will be conducted using electrofishing techniques. Three backpack electroshockers are available for the survey. Personnel include representatives of the California Department of Fish and Game, U.S. Forest Service, consultants for local water districts, and potential involvement by U.S. Fish and Wildlife Service and National Marine Fisheries Service personnel. Maurice Cardenas was delegated responsibility to serve as on-site supervisor for the survey. Personnel were scheduled to meet at 9:00 AM Monday June 14 at the Highway 154 bridge. Logistics and the coordination of sampling gear for the fisheries survey were discussed. It was agreed that the survey would prioritize areas upstream of the Highway 154 bridge, with additional surveys within the reach approximately one mile downstream of the bridge being performed as a second priority if time allows. CDFandG agreed to provide data sheets and additional sampling equipment for use during the surveys.

500 Ygnacio Valley Road, Suite 250, Walnut Creek, California 94596
Tel: (510) 942-3133 FAX: (510) 256-6589 Pager: (510) 729-4052

Surveys will be conducted by blocking areas of the mainstem river (approximately 50 m in length) representing specific habitat types. Single pass electroshocking will then be performed with fish collected identified, enumerated, and length recorded. Weight for a subsample of fish collected will be determined by displacement to allow the calculation of length-weight relationships for use in assessing condition of fish captured. Scale samples and tissue samples will be collected from any adult trout sampled as part of these surveys.

USBR agreed to have local personnel measure cross-sectional area and velocity necessary to calculate streamflows in the vicinity of the Highway 154 bridge (streamflow estimate will be available June 14 by 3:00 PM). In addition to qualitative fisheries surveys to determine the presence and absence of various fish species information on habitat characteristics will also be compiled and documented for the survey reach. Grab sample temperature measurements will be made in association with surveys conducted throughout the reach.

Snorkeling may also be performed during the survey within the stilling basin below Bradbury Dam to assess the presence of various fish species, if visibility permits and the potential application of various fisheries sampling techniques within the stilling basin. Plans were discussed to have Chuck Hanson perform additional temperature measurements to determine potential vertical stratification in water temperatures within the stilling basin later in the summer which may coincide with additional fishery surveys.

Salsipuedes Creek/Mainstem Fisheries Surveys

Examination of aerial photographs taken during November 1987 showed evidence of pools within the area of the Narrows and the confluence between Salsipuedes Creek and the mainstem Santa Ynez River. During November 1987 when aerial photographs were taken the Santa Ynez River Basin, other than the stilling basin, lagoon, and area near the Narrows, were dewatered. Deep pools which retain water over extended periods of time may provide habitat for both warmwater and coldwater fish within the Santa Ynez River Basin. It would therefore be desirable to conduct additional fisheries surveys within Salsipuedes Creek and the mainstem in those areas where pools provide potential fisheries habitat. The area of the Carsaghi Ranch will be one of the primary locations surveyed.

Chuck and Rob Almy were given responsibility to research ownership of lands adjacent to Salsipuedes Creek and the confluence with the mainstem Santa Ynez River for purposes of securing access to private lands to permit fisheries surveys. Chuck will review ownership records available through USBR and begin contacting owners to gain access for a two-day fisheries survey in the area of the Narrows which is tentatively scheduled for July 7 and 8. The July 7 and 8 survey will be similar to the surveys planned for June including the use of electrofishing to assist in collecting juvenile and adult fish. Maurice will contact the U.S. Forest Service to determine if fisheries sampling has occurred this year within Salsipuedes Creek and obtain results of any fisheries investigations which have been performed.

Ali estimated that present flows within the area of the Narrows would be approximately 40-50 cfs as a consequence of both releases from Bradbury Dam and contributions from tributary flows which would make fisheries sampling difficult. Therefore it was recommended that fisheries surveys of the area adjacent to the Narrows be scheduled

for early July-when tributary inflows to the Santa Ynez River will have decreased allowing for sampling.

Fisheries Surveys Within the Lagoon

Potential fisheries sampling techniques for conducting surveys within the lagoon were briefly discussed. It was agreed that during the July 7-8 fisheries survey a brief reconnaissance of the lagoon will be performed. Reconnaissance will include consideration of bottom topography, water depth, presence of snags, and other information relevant to establishing a fisheries survey. A study plan will then be prepared briefly outlining the objectives, techniques, and a proposed schedule for sampling within the lagoon later this summer which will be distributed to the TAC for review and comment. It was agreed that a minimum of two weeks notice would be provided to TAC members prior to sampling in the lagoon to assist members in scheduling availability to participate in the surveys.

Media Exposure

Maurice reported that Nancy Crawford, owner of the Crawford Ranch in the area of San Lucas Creek which will be surveyed June 14-15 had been contacted by a local television station requesting access to photograph and report on the fisheries surveys. Maurice also reported that local media had followed him during previous fisheries surveys in an effort to gain information and to photograph the fisheries survey activities. Concern has been expressed regarding media exposure of the fisheries surveys and a potential increase in trespassing and poaching activity by members of the public as a consequence of information regarding the presence of adult trout within the Santa Ynez River.

It was recommended by the TAC that Nancy Crawford deny access to the media during the June 14-15 fisheries surveys to avoid disturbance and distraction during the intensive survey of the reach immediately below Bradbury Dam. It was recommended that a "media day" be established at a suitable location (e.g., public park or other area where photographs of the river could be taken) to provide information to the media under controlled conditions. Advantages of the media day approach include the preparation of a fact sheet providing specific information regarding surveys findings to date, a single opportunity for all media to have access to hydrologists and biologists involved in the investigations to answer questions and describe ongoing programs, and limit the disruption and distraction associated with individual media interviews. The TAC agreed with the recommended approach for addressing requests by the media for information.

Base Map

The desirability of establishing a uniform base map for the Santa Ynez River which could be used to locate temperature monitoring stations, fisheries survey locations, USGS gauging stations, river mile markers, etc. was discussed. The TAC agreed that there would be substantial benefit in establishing a uniform basis for reporting information from all of the ongoing surveys. Established base maps were reported to be available from both the Army Corps of Engineers and USBR. Rob Almy and USBR representatives will identify available base maps for review and selection by the TAC.

Temperature Monitoring

Chuck provided additional copies of the June 9 Memo presenting preliminary water temperature data for the Santa Ynez River during the period from May 21 through June 6.

Gary Sackett distributed results of additional preliminary water temperature modeling at flows below Cachuma Dam of 5 and 10 cfs assuming various ambient air temperature conditions during the period from May through September (attached).

It was recommended that additional temperature monitoring equipment be located within the Santa Ynez River in the area between Bradbury Dam and the San Lucas Bridge and within the lagoon. CDFandG has additional temperature monitoring equipment available which will be provided to Cindy Chadwick for installation during the June 14-15 survey period.

Technical Assistance ~~From~~ Maurice Cardenas

Maurice reported that his involvement in Santa Ynez River fisheries and water temperature monitoring required substantially greater levels of effort than originally anticipated. Maurice requested assistance to complete ongoing activities. Maurice will compile a list of specific tasks and an estimate of the level of effort based on his personal involvement in the project over the past two months. Several alternative proposals were made including, but not limited to, having Chuck provide assistance in downloading and preparing preliminary analyses of water temperature monitoring data, short-term funding for a temporary staff assistant to work under Maurice's supervision, and identifying alternative staff resources within CDFandG. Maurice will develop a proposal and recommendation for consideration at the next TAC meeting. Dwayne noted that CDFandG has developed a fisheries position within the Regional Office to specifically address issues such as those on the Santa Ynez River, however, the position has not yet been filled.

Fish Inhabiting Gravel Pits

It was noted that several gravel excavation operations within the area adjacent to Lompoc have resulted in the creation of flooded gravel pits which provide habitat for various fish species.. Observations indicate that catfish, largemouth bass, and other warmwater fish species inhabit these areas. Potential benefits of conducting fisheries surveys within these areas was discussed by the TAC which generally agreed that these surveys would be a low priority. One concern which was raised is how data collected from fisheries surveys within the gravel pit could be used or applied in context with the overall Santa Ynez River fisheries issues. Further consideration of fisheries populations inhabiting the gravel pits has been deferred to later meetings.

Upstream Migrant Traps

Maurice reported on his examination of fisheries traps which have been used in other river systems to monitor the timing and abundance of adult steelhead migrating upstream into tributaries to spawn. The TAC briefly discussed the potential application of traps and weirs to evaluate upstream adult migration on the Santa Ynez River system. John Turner suggested that consideration of alternative techniques for

documenting the timing and magnitude of adult movement within the Santa Ynez River should be considered in context with the development of a long-term monitoring and management plan. Consideration of a long-term management plan for the Santa Ynez River system by the TAC is anticipated to occur later this summer.

Corrections to the May 28 TAC Meeting Notes

Maurice noted that the May 28 TAC meting ntes discussed filling and elimination of deep pools which had historically been reported by local residents within the area of the Narrows. Maurice offered clarification noting that although sand had filled many of the previous deep pool areas, a number of deeper areas, up to five feet in depth, remain in the areas where he had performed snorkel surveys.

Next Meeting

The next meeting of the Santa Ynez River TAC is scheduled for July 9 at 9:00 AM in the Goleta Sanitary District Conference Room. The TAC meeting will follow the scheduled fisheries surveys of the areas adjacent to the Narrows and Salsipuedes Creek on July 7-8.

Santa Ynez TAC 6/11/93

	Phone	Fax
Chuck Hanson	510 942 3133	510 256 6589
Robert Almy	805 568-3542	805 568-3549
John Turner	(916) 653-4875	(916) 653-2588
[illegible]	(805) 640 9153	N/A
Dennis McEwan	(916) 653-9442	(916) [redacted] 654-3099
Gary Sackett	916 978-4933	
Dwayne Maxwell	(310) 590-5870	(310) 590-5817
Chuck Evans	(805) 969-2271	(805) 969-7261
Carl Dealy	(209) 487-5139	(209) 487-5397
Irma Lagomarsino	(310) 980-4016	(310) 980-4047
David Mattens	(707) 578-7513	(707) 578-3435
Bob Paul	(805) 964-6761	(805) 964-7002
Ali Shahroody	(415) 457-0701	(415) 457-1638
Cindy Chadwick	(916) 653-9743	(916) 653-2588

HANSON ENVIRONMENTAL

DRAFT

MEMO TO: Santa Ynez Technical Advisory Committee

Cindy Chadwick (CDFandG)
Robert Almy (SBCWA)
Naomi Mitchell (USFWS)
Dwayne Maxwell (CDFandG)
Ali Shahroody (SYRWCD)
Jim Bybee (NMFS)
Brian Trautwein (UCC)
Robert Paul (GWD)
Robert Ream (G. Hart)
Gary Sackett (USBR)
Steve Mack (SB)
Craig Fusaro (SBCC)
Maurice Cardenas (CDFandG)
Bob Baiocchi (CSPA)
Tom Keegan (Entrix)
J. Carl Dealy (USBR)
Hossein Moazami (Lompoc)

FROM: Chuck Hanson

DATE: July 28, 1993

SUBJECT: July 9, 1993 TAC Meeting.

A meeting of the Santa Ynez Technical Advisory Committee was held July 9, 1993 at the Gaviota Sanitary District offices. A copy of the agenda and list of attendees is attached.

Status Report on USBR Operations

Gary Sackett reported that as of July 8, 1993 Lake Cachuma was at an elevation of 749.48 feet with a storage volume of 188,836 AF. Inflow to the reservoir was 74 AF with an estimated evaporation of 61 AF. Releases to the lower river totalled 10 cfs comprised of 3 cfs uncontrolled release and 7 cfs controlled release from the Dam. It was estimated that existing surcharge within the reservoir will allow a 10 cfs total release to the lower river through August 15. The Memorandum of Understanding (MOU) stipulating a total release of 10 cfs on an interim basis is currently being circulated for review by local water agencies.

Fish and Game Commission Actions

The Fish and Game Commission considered a petition by Santa Ynez water users for an emergency closure of the recreational fishery designed to protect resident trout/steelhead which may be residing in the mainstem below Bradbury Dam and within major tributaries such as Salsipuedes Creek. The Fish and Game Commission declined to take emergency action on the petition, but rather will consider changes in recreational angling regulations for the Santa Ynez River and its tributaries as part of the regular review of existing fishing regulations. Modifications to fishing regulations can be implemented as early as October, but may occur as late as January. A letter has been prepared by the Fish and Game Commission to the petitioners announcing their decision.

500 Ygnacio Valley Road, Suite 250, Walnut Creek, California 94596
Tel: (510) 942-3133 FAX: (510) 256-6589 Pager: (510) 729-4052

Rob Almy reported that the Santa Barbara County Fish and Game Commission had requested information regarding studies and findings of the Santa Ynez River fisheries investigations. Rob indicated that he planned to attend the July 22 meeting of the Fish and Game Commission to address questions and provide additional information. A letter, dated July 2, 1993, from Rob Almy to the Fish and Game Commission is attached.

Summary of Findings from the June 14 Fishery Surveys

Fisheries surveys were conducted June 14, 1993 in the reach of the Santa Ynez River between Bradbury Dam and the San Lucas (Highway 154) bridge. The survey, conducted using electrofishing, collected one adult trout and no juvenile trout within the reach surveyed. Sunfish, stickleback (not threatened or endangered), mosquitofish, and largemouth bass were either collected or observed during the surveys. No Arroyo chub were either collected or observed. Photographs of the surveys were circulated showing large accumulations of filamentous algae within the channel. Water temperatures ranged from 18-21 C (64-70 F). USBR conducted a series of flow measurements at the Highway 154 bridge during the period of the survey and determined that flows ranged from 14-16 cfs with a total release from Bradbury Dam of approximately 10 cfs.

There was considerable discussion regarding the outcome of spawning activity during 1993 including that observed within Hilton Creek. The absence of juvenile trout within the upper reach suggests that spawning may have been unsuccessful for unknown reasons, or that juveniles may have emigrated downstream prior to the survey. An alternative hypothesis is that juvenile trout may be residing within the stilling basin at the base of Bradbury Dam. No sampling of the stilling basin has occurred and attempts to snorkel within the basin during the June 14 survey proved to be unsuccessful because of turbid conditions. The TAC should give additional consideration to potential methods for sampling within the stilling basin for the occurrence of both juvenile trout and oversummer adults.

long pool is of basin

Cindy indicated that CDFandG was reconsidering their original flow recommendations provided to the State Board and, based upon results of the June 14 survey, was considering recommending a release from Bradbury Dam of 10 cfs. Opportunities exist to improve the riparian canopy within the upper reach of the river which would provide benefits including additional shading and reduced water temperature and provide habitat for resident fish.

if other parties agreed

July 7-8 Fisheries Sampling

Fisheries sampling occurred during July 7 and 8, 1993 within Salsipuedes Creek, El Jaro Creek, and the mainstem Santa Ynez River near the confluence with Salsipuedes Creek in the vicinity of Lompoc. Habitat conditions in the vicinity of the confluence between Salsipuedes Creek and the Santa Ynez River were characterized as poor habitat with shallow braided channels.

Sampling within El Jaro Creek at Cross-Creek Ranch using electrofishing techniques proved to be unsuccessful. Electrofishing units consistently overloaded. Data provided from water quality surveys conducted by the Lompoc Sanitary District showed that electrical conductivity (EC) was 1432 μmhos which exceeds the range where Smith-Root Model 7 electrofishing units successfully operate. The high electrical conductivity explains the poor performance of the electrofishing units.

As an alternative to electrofishing, snorkel surveys were performed within El Jaro Creek. Several pools exist which were surveyed. Stickleback and Arroyo chubs were observed during the snorkeling surveys. The chubs were characterized as having a high degree of infection, lesions, fungus, and were in poor physical condition (40-70% of the chubs observed were characterized as being in poor condition). Water temperatures were estimated to be 65 F in the morning during snorkeling surveys within El Jaro Creek. There was not extensive algal growth within either the pools or riffle areas of the creek.

Snorkeling surveys were also conducted within the deep pool (over six feet deep) at the base of Jalama Bridge on El Jaro Creek. Surface water temperature within the pool was 70 F with bottom temperature of 68 F. No fish were observed. Mats of algae did occur within the pool, but were less dense than those observed within the Santa Ynez River.

A preliminary reconnaissance survey was made within the lagoon on July 7, 1993 to evaluate potential alternative sampling techniques. Visibility within the lagoon was approximately two feet. Various alternative sampling techniques were discussed, however, no sampling protocol was established.

Observations during the July 7 survey indicated that a live stream existed within the Santa Ynez River with the exception of the reach between the Narrows and the Lompoc Sewage Treatment Plant discharge.

The area at the confluence between Salsipuedes Creek and the Santa Ynez River was also surveyed. Access was from Santa Rosa Road. Flow within Salsipuedes Creek was estimated to be less than 0.5 cfs. The area was characterized as providing no suitable habitat. The mainstem Santa Ynez River was characterized as a braided channel 3-6 inches deep. There was extensive evidence of all terrain vehicle (ATV) activity in the area. No sampling or snorkel surveys were performed. 25.4.R2.

Additional snorkeling surveys were performed within Salsipuedes Creek (Ramos property) located approximately 1.2 miles from the Jalama Bridge. Within the area surveyed there exists a relatively large pool approximately 5-6 feet deep. Flow within the creek was estimated to be 1 cfs at the time of the surveys. Stickleback and one semi-adult trout (7-9 inches in length; with the possibility of a second similar sized trout) were observed. No juvenile trout or chubs were observed within the pool.

Exploration of the area detected the presence of several additional large pools approximately 3-5 feet deep. Snorkeling surveys within these pools were performed. Three juvenile trout approximately 2-3 inches in length were observed. Further surveys detected the presence of six juvenile trout (confirmed identification) with the possibility of up to 12 juvenile trout within the pool (unconfirmed observations). Water temperature was 64.5 F within the pool at the time of the survey.

Snorkeling surveys were performed in the area adjacent to the bridge crossing below Jalama Road (toward Lompoc). Relatively large deep pools were observed, however these contained more green algae than was observed in pools further upstream. A large population of sticklebacks and chubs was observed within the pool in addition to one trout (6-10 inches in length). However, no juvenile trout were observed. Water temperature was approximately 70 F. Bottom substrate was characterized as sand and mud. The trout was observed to be actively feeding and was characterized as being in good health and condition. It was reported that local residents fish within the pools

(e.g., Cross-Creek Ranch) resulting in the harvest of sub-adult and adult trout. A fallen tree located on the creek downstream of the pool was characterized as migration blockage (at low flows) which would preclude movement of either adult or juvenile trout downstream.

Streamflow data from Salsipuedes Creek has been requested by CDFandG from USGS and will be made available to the TAC. Water quality personnel from the Lompoc sewage treatment plant will compile electrical conductivity (EC) data for the Santa Ynez River system which will also be distributed to the TAC.

Temperature Monitoring

Cindy reported that CDFandG had downloaded temperature data for the period from May 12-June 9, 1993 for various monitoring locations (temperature monitoring data for Hilton Creek will not be available). Cindy will provide graphic summaries of temperature monitoring data for each of the sampling locations which will be distributed to the TAC.

Chuck described the location of temperature monitoring equipment along with a brief discussion of results of temperature monitoring to date. Temperature monitoring equipment is planned to be downloaded July 9, 1993, with data summaries, including graphical displays, provided to the TAC. Chuck noted that the temperature recorder (Station 4) currently within the main Santa Ynez River channel in the area of Lompoc will be removed as a consequence of shallow water depth effective July 9.

Santa Ynez River Hydrology

Rob Almy provided a brief overview of Santa Ynez River hydrologic conditions. Rob presented a map of hydrologic sub-basins and various water diversion and conveyance facilities that exist within the Santa Ynez River system. Rob described groundwater basins utilized as water storage facilities below Bradbury Dam. Rob reported that there are no surface diversions on the Santa Ynez River downstream of Bradbury Dam. The main channel of the Santa Ynez River has been dewatered during many months within the period encompassed by the historic hydrologic record. Precipitation for the period from 1920 through 1992 was presented and discussed noting the high variability in precipitation among years. Rob reported that Lake Cachuma was designed to capture flood flows (during high precipitation years) and is designed and operated on a critical period basis. The critical period is defined as a seven year period occurring during the late 1940's and early 1950's. Hydrologic conditions occurring during the late 1980's drought approached critical period conditions.

Rob presented a histogram of historic hydrologic conditions at the Narrows noting that during early years high flows occurred before Cachuma was constructed however, a number of years also exist with no flow occurring at the Narrows. A question arose regarding consumptive use of groundwater basins. Rob reported that as a result of municipal and industrial (M&I) conservation and a stable or declining pattern of agricultural land usage (including changes in cropping patterns) groundwater consumption has remained stable or declined during recent years. Rob briefly described the interaction between water storage within groundwater basins and storage within Lake Cachuma (credits) to meet downstream consumptive demand. Rob

described operations and releases from Bradbury Dam designed specifically to improve the efficiency of groundwater recharge.

Rob presented a graph showing the temporal trend in declining inflows to Lake Cachuma and briefly described the methods used to estimate the end date at which inflow and spill from Lake Cachuma will occur.

Rob also presented a graph of water elevations within Lake Cachuma for the period from 1983 through 1993 and briefly discussed the planning process for downstream deliveries based on estimates of available storage. Rob noted that the recent drought sequence was one year short of defining a new critical period for the Santa Ynez River system. Rob expressed concern over the use of firm project yield for meeting fisheries releases and the impact such releases would have on future drought planning. Rob noted a need to develop alternative supplies. Rob noted that groundwater basins within the Santa Ynez River system are currently depleted (overdrafted) despite high precipitation occurring during the winter of 1992-93. Rob noted that there may be greater demand than can be met by existing water storage facilities and supplies until State Water Project (SWP) supplies become available.

Rob reported that Goleta has established a specific schedule of conservation objectives which were enacted during the drought period. Rob reported that Goleta is currently conserving at a rate of approximately 60% of pre-drought deliveries despite the fact that mandatory water conservation ended approximately two years ago.

Rob noted that there is considerable variability in the geological material within the Santa Ynez River drainage system. High variability in local substrate has an effect on local water quality conditions. There also exists high variability in the depth to bedrock because of recent tectonic activity which directly impacts river underflow and groundwater conditions within the basin.

Rob briefly discussed existing models which provide monthly accounting, calibrated to instream flow and precipitation, for the Santa Ynez River water management system.

Fisheries Sampling Within the Lagoon

There was a general discussion regarding potential opportunities and alternatives for sampling within the lagoon. It was suggested that beach seining may be feasible in selected areas with the use of a roundhaul in deeper pools. There is a need for boat access within the lagoon for use of roundhauls and several other fisheries techniques which were discussed. The need to coordinate fisheries sampling and access within the lagoon with the Santa Barbara County Parks Department and Vandenburg Air Force Base was discussed. The mouth of the lagoon is currently open with a tidal flux reported to be in the range of 4-6 feet. Chuck agreed to prepare a letter request to the County Parks Department and Vandenburg Air Force Base requesting access for fisheries sampling within the lagoon during the week of August 30. The access request will include the possibility of boat launching and night sampling. Tom Keegan agreed to prepare a sampling plan for distribution and review by the TAC prior to the August 30 sampling. Cindy agreed to check with the CDFandG Marine Resources Division regarding any prior or current sampling or permitting issues. Dave and Rob agreed to provide tide tables to help in coordinating sampling within the lagoon. The need to establish a variety of sampling techniques which can be used within the gradient from the main Santa Ynez River downstream into the lagoon was discussed. AF

The need to provide information to local news media regarding the objectives and preliminary findings of the fisheries investigations was discussed. Several requests for information have been received for information and interviews by both television and the print media. It was agreed that a media conference would be organized and preliminarily scheduled for August 30 at the County Park parking lot adjacent to the lagoon. A fact sheet discussing the Santa Ynez River fisheries investigations and findings to date will be prepared for distribution to the media. The facts sheet will be prepared in advance for review and approval by all participating members of the TAC. A.E.

Tom Keegan agreed to perform a preliminary reconnaissance survey of the lagoon, including TDS and other conditions, prior to the August 30 surveys. The preliminary reconnaissance survey will include the selection of sampling sites, sampling gear, access for boat launching, and development of a study plan and sampling protocol for review by the TAC prior to the surveys.

Next Meeting

The next meeting of the TAC is scheduled for August 13, at the Goleta Sanitary District.

Temperature Monitoring - At the next meeting an update of temperature monitoring results, including graphic summaries of temperature data, will be provided for each of the stations currently being monitored. Chuck agreed to distribute temperature monitoring results for the period through July 9 to the TAC in advance of the August 13 meeting.

Flows - Flow measurement data developed by USBR at the Highway 154 bridge will be distributed and discussed along with flow data from Bradbury releases and USGS gauging stations on the Santa Ynez River and Salsipuedes Creek.

Interim Flow Recommendations - At the next TAC meeting short-term recommendations for releases from Bradbury Dam this fall and early winter (after expiration of the MOU) will be discussed based on results of temperature and fisheries surveys.

Long-term Management Plan - The TAC will discuss development of a long-term management plan for the Santa Ynez River system including the identification of specific monitoring and survey data required for use in developing and evaluating alternative management strategies. To facilitate the discussion of developing a long term plan Chuck and Cindy agreed to prepare a preliminary outline of the elements and issues to be addressed by such a plan for distribution and review by the TAC in advance of the August 13 meeting. A.E.

Water quality modeling - one element of developing a long-term management plan for the river will be consideration of water quality and water temperature modeling. Modeling will need to consider both water temperatures within the lower Santa Ynez River and also temperature and water quality conditions within Lake Cachuma. Chuck agreed to identify and provide information on existing water quality and temperature models that may be adapted for use on the Santa Ynez River system.

Press Release - A preliminary draft of the fact sheet to be provided to local media during the August 30 "Press Conference" will be distributed for review by the TAC.

HANSON ENVIRONMENTAL

MEMO TO: Santa Ynez Technical Advisory Committee

Cindy Chadwick (CDFandG)
Robert Almy (SBCWA)
Naomi Mitchell (USFWS)
Dwayne Maxwell (CDFandG)
Ali Shahroody (SYRWCD)
Jim Bybee (NMFS)
Brian Trautwein (UCC)
Robert Paul (GWD)
Robert Ream (G. Hart)
Gary Sackett (USBR)
Steve Mack (SB)
Craig Fusaro (SBCC)
Maurice Cardenas (CDFandG)
Bob Baiocchi (CSPA)
Tom Keegan (Entrix)
J. Carl Dealy (USBR)
Hossein Moazami (Lompoc)

FROM: Chuck Hanson

DATE: August 16, 1993

SUBJECT: TAC participant addresses/August 30 TAC meeting.

To assist in the distribution of information collected as part of fisheries and water quality studies performed on the Santa Ynez River I have included mailing addresses and fax numbers for participants in the Santa Ynez River Technical Adviosry Committee (TAC). During our August 12, 1993 TAC meeting it was agreed that all correspondence and information developed as part of the ongoing investigations, in addition to meeting notes and other administrative materials, would be distributed uniformly to all TAC participants as identified on the distribution list above.

Since the inception of the TAC I have prepared documentation notes for each meeting. Notes are available for meetings held on the following dates:

January 14, 1992	June 11, 1993
May 18, 1993	July 9, 1993
May 28, 1993	August 13, 1993 (in preparation)

If you would like to receive copies of any of the TAC meeting notes for the dates identified above please do not hesitate to contact me.

To facilitate initial discussions regarding the development of a long-term framework for Santa Ynez River fisheries and water quality investigations a draft plan outline (dated July 28, 1993) has been distributed to all TAC participants for review and comment. The preliminary draft outline was developed to help focus discussion on a long-term plan and is intended to be an evolving document as new insight and information becomes available. Comments on the draft outline should be received by Cindy Chadwick prior to the August 30 TAC meeting. The preliminary outline for the long-term management plan will be discussed at the next TAC meeting scheduled for 1:00 PM August 30 in Lompoc (a specific meeting location will be announced). The TAC meeting will follow the August 30 press briefing scheduled for 10:00 AM at the County Park adjacent to the Santa Ynez River lagoon.

SYTAC816/b:SNTANEZ/CHH/sgh

SANTA YNEZ RIVER FISHERIES/TAC CONTACTS

Cindy Chadwick California Dept. of Fish and Game Environmental Services Branch 1416 - 9th Street, Room 1236-8 Sacramento, CA 95814	[916] 653-2588	*(FAX)*
Chuck Hanson Hanson Environmental, Inc. 500 Ygnacio Valley Road Suite 250 Walnut Creek, CA 94596	[510] 256-6589	*(FAX)*
J. Carl Dealy U.S. Department of the Interior Bureau of Reclamation 2666 N. Grove Industrial Drive Suite 106 Fresno, CA 93727-1551	[209] 487-5397	*(FAX)*
Robert E. Wignot, P.E. Cachuma Operation and Maintenance Board 3301 Laurel Canyon Road Santa Barbara, CA 93105-2017	[805] 569-5825	*(FAX)*
Robert A. Paul General Manager & Chief Engineer Goleta Water District P.O. Box 788 Goleta, CA 93116	[805] 964-7002	*(FAX)*
Hossein Moazami City of Lompoc 100 Civic Center Plaza Lompoc, CA 93438-8001	[805] 736-5347	*(FAX)*
Peggy Good-Cordero/ Robert K. Ream Administrative Assistant - G. Hunt 1216 State Street Room 807 Santa Barbara, CA 93101	[805] 965-1161	*(FAX)*
Craig Fusaro SBCC 435 El Sueno Road Santa Barbara, CA 93101	[805] 963-0647	*(FAX)*

Dave Mattens/Jim Bybee
National Marine Fisheries Service
777 Sonoma Avenue
Room 325
Santa Rosa, CA 95809
[707] 578-3435 *(FAX)*

Naomi Mitchell
USFWS
2140 Eastman Avenue
Suite 100
Ventura, CA 93003
[818] 904-6288 *(FAX)*

Robert Almy
SBCWA
122 West Figuera
Santa Barbara, CA 93101
[805] 568-3549 *(FAX)*

Ali Shahroody
Stetson Engineering
2171 East Francisco Blvd., Suite K
San Rafael, CA 94901
[415] 457-1638 *(FAX)*

Brian Trautwein
Urban Creeks Council
5771 Leeds Lane
Goleta, CA 93117

Gary Sackett
U.S. Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825-1898
[916] 978-5284 *(FAX)*

Steve Mack
City of Santa Barbara
P.O. Box 1990
Santa Barbara, CA 93102
[805] 564-5467 *(FAX)*

Maurice Cardenas
CDFandG
917 Deuereux Drive
Ojai, CA 93023
[805] 568-1235 *(FAX)*

Bob Biaocchi
P.O. Box 357
Quincy, CA 95971
[916] 283-5017 *(FAX)*

Tom Keegan
Entrix
590 Ygnacio Valley Road
Suite 200
Walnut Creek, CA 94596
[510] 935-5368 *(FAX)*

Dwayne Maxwell CDFandG 330 Golden Shore Long Beach, CA 90802	[310] 590-5193	*(FAX)*
Gregory K. Wilkinson, Esq. Best, Best & Krieger 3750 University Avenue Riverside, CA 92502	[909] 686-3083	*(FAX)*
Scott Slater Hatch and Parent 21 East Carillo Street Santa Barbara, CA 93101	[805] 965-4333	*(FAX)*
Arthur Kidman McCormick, Kidman, Behrens, Holzwarth 3100 Bristol Street Suite 390 Costa Mesa, CA 92626	[714] 755-3110	*(FAX)*
Tom Peterson SYRWCD I.D. #1 P.O. Box 157 Santa Ynez, CA 93460	[805] 688-3078	*(FAX)*

HANSON ENVIRONMENTAL

VIA FAX

MEMO TO: Greg Wilkinson
Scott Slater
Art Kidman

Copy to: Tom Peterson
Cindy Chadwick

FROM: Chuck Hanson

DATE: October 18, 1993

SUBJECT: Santa Ynez River Technical Advisory Committee (TAC) flow reduction recommendations.

The Santa Ynez River Technical Advisory Committee met October 18, 1993 to consider recommendations for reductions in instream flow releases from Bradbury Dam in response to the Memorandum of Understanding (MOU). Fisheries and water quality data collected during September and October at combined controlled and uncontrolled releases of 10 and 5 cfs were reviewed. During surveys completed October 13-14 a number of adult trout and other fish species were observed at various locations within the Santa Ynez River between Bradbury Dam and the Highway 154 bridge. It is anticipated that as releases from Bradbury Dam decline suitable fisheries habitat within riffles will also decline resulting in fisheries populations being restricted to pool habitats. The objectives of the fisheries investigations to be performed during late October and November include documentation of water quality conditions within remaining pool habitat areas, the response of various fish species to declining flows, and the significance of groundwater flows, dam leakage, and declining fall atmospheric temperatures in providing suitable habitat for fisheries populations within pool habitats.

After considerable discussion, members of the TAC unanimously agreed to the following recommendations:

- Releases from Bradbury Dam will be reduced to uncontrolled (dam leakage);
- The decrease in flow will occur at a ramping rate of 0.5 cfs per day;
- Staff gauges will be installed and monitored daily by USBR personnel within the stilling basin, long pool, and at the Highway 154 bridge;
- USBR personnel will monitor dissolved oxygen and water temperature daily at a location adjacent to each staff gauge within the stilling basin, long pool, and at the Highway 154 bridge;
- Members of the TAC will develop data sheets for use by USBR personnel in daily monitoring of staff gauge readings, dissolved oxygen and water temperature;
- TAC personnel will hold an on-site orientation meeting with USBR personnel to establish monitoring and reporting protocols;

500 Ygnacio Valley Road, Suite 250, Walnut Creek, California 94596
Tel: (510) 942-3133 FAX: (510) 256-6589 Pager: (510) 729-4052

SYMEMO/b:SantaYnez/CHH/sch

- o TAC personnel will conduct periodic surveys of the vertical distribution of dissolved oxygen and water temperature within major pools located between Bradbury Dam and the Highway 154 bridge;

- o USBR personnel and Steve Mack will continue weekly measurement of streamflow rates at various locations between Bradbury Dam and the Highway 154 bridge;

- o Hanson Environmental and CDFandG personnel will download water temperature monitoring data and relocate temperature monitoring equipment, if necessary, to major pool areas;

- o A fisheries survey will be conducted at established sampling locations within the reach extending from Bradbury Dam to the Highway 154 bridge in mid-November (November 9-10) after flows have stabilized at minimum (leakage) levels using electrofishing and snorkeling techniques;

- o In the event that one or more of the following criteria are exceeded during daily water quality monitoring USBR staff will immediately notify Cindy Chadwick, Chuck Hanson, and Tom Keegan of water quality monitoring results:
  - water depth as measured on established staff gauges declines by more than two feet from baseline levels established *prior to flow* reduction;
  - dissolved oxygen concentration measured during afternoon surveys at any of the three monitoring locations declines below 5 ppm
  - water temperature measured during afternoon surveys exceeds 21 C (70 F) at any of the three monitoring locations.

  In the event that none of the above water quality criteria have been exceeded USBR will provide a weekly water quality summary, *via* FAX Thursday afternoon, to TAC members;

- o A reserve water supply will be allocated for fisheries release, immediately upon demand, at a ramping rate of 0.5 cfs per day in a total amount not to exceed 20 acre feet in the event that water quality monitoring thresholds have been exceeded and, in the professional opinion of Cindy Chadwick, Chuck Hanson, and Tom Keegan (a minimum of two out of the three TAC designees) is necessary to maintain fisheries populations below Bradbury Dam. Authority for the release of up to 20 acre feet of water from Lake Cachuma for purposes of maintaining acceptable water quality conditions downstream for fish will terminate November 30, 1994.

We are currently in the process of scheduling installation of the staff gauges, the on-site orientation for USBR water quality and monitoring, and vertical dissolved oxygen and temperature monitoring within deeper pools as part of the recommended program of actions. If you have any questions or would like additional information regarding these TAC recommendations, or the ongoing water quality and biological monitoring program to evaluate fall conditions, please do not hesitate to call.

SYMBIO/h:\SantaYnez/CIII1/tqh

HANSON ENVIRONMENTAL

JAN 12 1994

MEMO TO: Santa Ynez River Technical Advisory Committee

FROM: Chuck Hanson

DATE: December 1, 1993

SUBJECT: Santa Ynez River Technical Advisory Committee meeting - October 18, 1993.

A meeting was held of the Santa Ynez Technical Advisory Committee (TAC) October 18, 1993 in the conference room of the Goleta Sanitary District. Principal topics on the meeting agenda included (1) status reports on ongoing fisheries and water quality monitoring; (2) consideration of the draft outline for the 1993 documentation report; and (3) consideration of the draft outline for the long-term program of investigations to evaluate alternative management actions for the Santa Ynez River. A copy of the list of attendees is attached.

Status Report on Fisheries Surveys

Tom Keegan presented a brief summary and status report on results of fisheries surveys conducted between Bradbury Dam and the Highway 154 Bridge during periods when total releases from the Dam were 10 and 5 cfs. The survey area was divided into four sampling segments representing (1) the stilling basin and riffle/pool; (2) the area immediately below the long pool; (3) the area adjacent to San Lucas Ranch; and (4) the area immediately upstream of the Highway 154 Bridge. Survey methods primarily focused on the use of electrofishing within riffle areas and snorkel surveys within deeper pools. Extensive algal growth within the mainstem channel was present during both surveys. One of the primary objectives of the fisheries surveys was to document changes in relative abundance, species composition, and distributional characteristics of the fisheries community as flows declined from 10 to 5 cfs. Results of these two surveys showed:

- o A decline in the width and depth of the river channel coincident with the decline in releases from Bradbury Dam;
- o A decline in the areal extent of riffle habitat;
- o A reduction in algal cover, however algal growth within the channel was extensive during both surveys;
- o Sculpin were the most abundant fish observed during both surveys with other species including Arroyo chub, stickleback, smallmouth bass, and adult trout also observed;
- o No juvenile trout were collected or observed during either survey;

500 Ygnacio Valley Road, Suite 250, Walnut Creek, California 94596
Tel: (510) 942-3133 FAX: (510) 256-6589 Pager: (510) 729-4052

- There appeared to be a decline in the abundance of sculpin within riffle habitat as flows were reduced from 10 to 5 cfs with a corresponding increase in sculpin abundance within pool habitats suggesting movement of sculpin from one habitat to another in response to changing flows;

- Increased numbers of sculpin were apparent within survey segment 2 (below long pool) during the 5 cfs surveys, however the apparent difference may have been attributable to variable efficiency of electrofishing between the two surveys;

- There appeared to be a reduced number of sculpin within survey segment 3 (San Lucas Ranch) with an apparent increase in abundance of chubs and stickleback during surveys conducted at 5 cfs. Both chub and stickleback were characterized by patchy distributions with greatest numbers occurring within pool areas near algal cover;

- Characteristics of the fisheries community within survey segment 4 (Highway 154 Bridge) were similar during surveys conducted at 10 and 5 cfs;

- Results of the fisheries surveys were consistent with predicted patterns and a response to declining flows (no surprises were detected during the surveys);

- The apparent decline in relative abundance of several fish taxa may be related to predation mortality rather than a direct effect of changing flows. Evidence and observations of predation by both birds and fish were apparent during the surveys;

- Algal accumulations within the mainstem made fisheries surveys and flow measurements difficult.

Snorkel surveys were conducted during the 5 cfs survey within 12 pools located between Bradbury Dam and the Highway 154 Bridge. Although visibility was limited within the stilling basin immediately below Bradbury Dam, diver observations confirmed the presence of adult trout, catfish, bass, and sunfish. Schools of chub and sticklebacks were observed in pool habitats located downstream of the stilling basin. Adult trout were observed within the stilling basin and four to six adults were observed within the long pool. William Trautwine reported hooking 12 adult trout within the stilling basin and long pool using recreational angling gear. The trout were reported to be up to 18 inches in length with one trout estimated to be 20 inches in length. Adult trout were also observed within the pool adjacent to the San Lucas Ranch which were reported to be in good condition. Approximately 30-40 bass were observed within pools adjacent to the San Lucas Ranch. One adult trout was observed in the pool immediately upstream of the Highway 154 Bridge. The fish was reported to be in relatively poor condition with a rounded caudal fin suggesting possible hatchery origin.

During the surveys one adult trout was sacrificed and scale samples were collected from other adult fish, however because of the small sample size these fish may not be representative of the trout population inhabiting this reach of the Santa Ynez River. Cindy noted that additional scale samples had also been collected from adult trout during earlier surveys which were being examined for information on age and evidence of saltwater residence. The adult trout within the stilling basin and long pool were characterized as being aggressive foragers (actively striking at lures). Adult trout were observed during snorkeling surveys within four to five areas (pool habitat) within the

areas surveyed at 5 cfs. No juvenile trout were observed during snorkel surveys within the pool habitats.

Temperature Monitoring

Rob expressed concern that, as a consequence of the fire within the Santa Ynez River Basin, runoff and flows from early rainfall could result in high flows within the river and the potential loss of continuous temperature recording instruments. As a consequence of this potential risk both Chuck and Cindy agreed to download temperature monitor data from existing recorders by November 15 to avoid the potential loss of temperature monitoring information collected during the late summer and early fall. Temperature monitoring equipment remaining within the river will be secured to reduce the risk of instrument loss during high flow periods.

Chuck presented results of dissolved oxygen monitoring conducted at three locations between Bradbury Dam and the Highway 154 Bridge during the early morning and late afternoon hours. The accumulation of algae within the Santa Ynez River channel was expected to contribute to substantial diurnal variation in dissolved oxygen measurements (photosynthesis contributing to high DO levels during the day with algal metabolism contributing to low DO's during the night). Results of dissolved oxygen monitoring conducted October 13 and 14, 1993 (Table attached) confirmed the existence of a diurnal pattern in DO's within the river. Based on results of the October surveys Chuck recommended that DO monitoring be expanded to include measurements within selected areas during both day and nighttime hours and also as a function of water depth within deeper pools. Craig Fusaro concurred with the recommended expansion of the DO monitoring program. Vertical DO profiling is scheduled to occur as part of fisheries and water quality monitoring surveys scheduled for November. It was hypothesized that the presence of springs or DO stratification within the water column of deeper pools may exist contributing to increased DO levels within microhabitats used as refuges by resident fish during diurnal periods of low DO within the system.

Flow Measurements

Carl presented a summary of flow measurements made periodically at various locations between Bradbury Dam and the Highway 154 Bridge (summary attached). Ali noted high variability at measurement locations downstream. In general, however, there appears to be a pattern of proportionally declining flow with reductions in releases from Bradbury Dam and with the distance downstream from the Dam (as a result of percolation and transpiration). Results of flow monitoring also show an apparent increase in flow downstream attributable to the influence of San Lucas Creek and/or the influence of the pipeline crossing in the vicinity of the San Lucas Ranch. The effects of pumping withdrawals for irrigation on the San Lucas Ranch was also detected in flow measurements. The increase in apparent streamflow detected during October was speculated to be the direct result of seasonal reductions in evapotranspiration by riparian vegetation and reduced pumping withdrawals. Steve Mack and USBR personnel are planning to continue flow measurements at various locations through October.

Reduction in Releases from Bradbury Dam

Based upon results of fisheries surveys, water quality monitoring, and streamflow measurements the TAC was asked to develop recommendations for a schedule of releases from Bradbury Dam during the remainder of the fall. Brian expressed concern regarding a reduction in flow rates and recommended that releases from Bradbury Dam continue at 5 cfs to support trout populations throughout the remaining part of the year. The current 5 cfs release from Bradbury Dam includes controlled release from the outlet structure and leakage (uncontrolled release) from the Dam but does not include underground seepage into the long pool or spring flows. Uncontrolled release is currently expected to be about 2 cfs. No flood control constraints currently exist which would influence operational criteria during the fall and winter.

Steve reported that there appears to be a rising water table downstream associated with reduced evapotranspiration and reduced pumping diversions. Ali noted that these conditions could lead to bank discharges from a rising water table and seepage into the river channel. Rob suggested that a reduction in controlled releases from Bradbury Dam may be offset by reductions in evapotranspiration and a rising water table.

Bob asked about the speed of water transport between Bradbury Dam and the Highway 154 Bridge. Steve reported that transit through this reach would require approximately 12 hours. Bob suggested that flows be maintained at a rate of 1.5 cfs at the Highway 154 Bridge with adjustment in Bradbury Dam releases to maintain the downstream flow. Brian again expressed concern that further reduction in releases from Bradbury Dam could adversely impact trout inhabiting the area between Bradbury Dam and the Highway 154 Bridge. Brian reiterated his recommendation that flows be maintained at existing levels through the remainder of the fall and winter.

The use of a controlled release strategy during the fall and winter for purposes of monitoring and gaining additional information regarding the response of the Santa Ynez River to declining flows was discussed. It was noted that trout are currently inhabiting deeper pool areas and that it would be useful, in support of development of a long-term management plan, to document the response of both the trout population and other fish species to declining water levels. Through systematic reductions in flow, information can be gained on the response of fisheries populations, changes in habitat availability and quality, water quality, and hydraulics of the river system. Reductions in flow during the fall and winter will also be used to test the hypothesis that groundwater levels are sufficient to maintain water level elevations within pools and provide habitat for fisheries populations in the absence of controlled releases from Bradbury Dam. Ali asked about the depth of existing pools. It was reported that the stilling basin has a maximum depth of approximately 40 feet, the long pool has depths ranging from 8-10 feet, with other pools typically ranging in depth from 3-6 feet. Brian expressed concern regarding the potential for stranding, desiccation, increased water temperature, and reduced dissolved oxygen concentrations adversely impacting trout within pool habitats. Cindy noted that a monitoring program would be required to document conditions within selected pools used as habitat by trout.

Rob noted the importance of documenting vertical stratification in both temperature and dissolved oxygen concentrations within deeper pool areas at Bradbury Dam releases of 5 cfs and as releases decline. It was also noted that water surface elevations within pools should be monitored to document pool stability and the ability of groundwater to maintain pool elevations in the absence of releases from the Dam. Continuous water temperature monitoring during the fall and winter was also identified as an important element to be continued. It was suggested that groundwater well monitoring data from

adjacent areas be compiled and evaluated to assess the gradient and potential flow rate of groundwater in the immediate vicinity of the Santa Ynez River. It was reported that the Crawfords are expected to irrigate, using groundwater wells, once more during 1993 which is expected to have an influence on both groundwater levels and elevation within pools used as habitat by fish.

Steve noted that the existing MOU does not provide flow releases from Bradbury Dam beyond October 31, 1993. Brian emphasized the need to protect trout populations (estimated to be between 20 and 30 fish) within the Santa Ynez River reach below Bradbury Dam. Tom noted that the trout population within the Santa Ynez River is low compared to other streams and habitat conditions within pools appear to be good for trout. It was predicted that a reduction in releases from Bradbury Dam would result in a reduction in riffle habitat, however it was not expected that substantial reductions in pool habitat would occur if flows are reduced. Results from fisheries surveys have indicated that riffle habitat was reduced when flows were reduced from 10 to 5 cfs, however the area and depth of pools did not change substantially.

Cindy acknowledged the need to maintain habitat quality (both suitable temperature and dissolved oxygen levels) within pool habitats below the dam and suggested that it would be possible to reduce releases from Bradbury Dam while also maintaining habitat quality. Ali noted that it would be possible to implement a daily monitoring program within pool habitats downstream of the dam and to increase releases from the Dam if necessary to maintain suitable fisheries habitat. Carl noted that staff gauges would need to be installed within several pools for use as part of the monitoring program. Naomi asked about turn-around time for both obtaining water quality monitoring data and responding to the need for increased flows. Carl reported that USBR personnel on-site can perform daily monitoring and that changes in dam operations can be made quickly if necessary. Chuck agreed to provide a dissolved oxygen meter to Bruce Jones (USBR) for use in dissolved oxygen and water temperature monitoring. Chuck also agreed to check the location of continuous temperature monitoring recorders and relocate instruments to key pool areas if necessary.

Qualitative observations made during fisheries surveys have indicated that the mainstem Santa Ynez River is highly productive with abundant macroinvertebrates providing a food resource for resident fish populations. A reduction in flow is expected to reduce riffle areas and may reduce macroinvertebrate production. A reduction in riffle habitat is also expected to result in the movement of fish, such as sculpin, into pool areas where their susceptibility to predation is expected to be increased.

After considerable discussion the following proposed management scenario was developed and unanimously agreed to by the TAC:

- Releases from Bradbury Dam will be reduced to uncontrolled (dam leakage);
- The decrease in flow will occur at a ramping rate of 0.5 cfs per day;
- Staff gauges will be installed and monitored daily by USBR personnel within the stilling basin, long pool, and at the Highway 154 bridge;
- USBR personnel will monitor dissolved oxygen and water temperature daily at a location adjacent to each staff gauge within the stilling basin, long pool, and at the Highway 154 bridge;

- Members of the TAC will develop data sheets for use by USBR personnel in daily monitoring of staff gauge readings, dissolved oxygen and water temperature;

- TAC personnel will hold an on-site orientation meeting with USBR personnel to establish monitoring and reporting protocols;

- TAC personnel will conduct periodic surveys of the vertical distribution of dissolved oxygen and water temperature within major pools located between Bradbury Dam and the Highway 154 bridge;

- USBR personnel and Steve Mack will continue weekly measurement of streamflow rates at various locations between Bradbury Dam and the Highway 154 bridge;

- Hanson Environmental and CDFandG personnel will download water temperature monitoring data and relocate temperature monitoring equipment, if necessary, to major pool areas;

- A fisheries survey will be conducted at established sampling locations within the reach extending from Bradbury Dam to the Highway 154 bridge in mid-November (November 9-10) after flows have stabilized at minimum (leakage) levels using electrofishing and snorkeling techniques;

- In the event that one or more of the following criteria are exceeded during daily water quality monitoring USBR staff will immediately notify Cindy Chadwick, Chuck Hanson, and Tom Keegan of water quality monitoring results:
    - water depth as measured on established staff gauges declines by more than two feet from baseline levels established prior to flow reduction;
    - dissolved oxygen concentration measured during afternoon surveys at any of the three monitoring locations declines below 5 ppm
    - water temperature measured during afternoon surveys exceeds 21 C (70 F) at any of the three monitoring locations.

  In the event that none of the above water quality criteria have been exceeded USBR will provide a weekly water quality summary, *via* FAX Thursday afternoon, to TAC members;

- A reserve water supply will be allocated for fisheries release, immediately upon demand, at a ramping rate of 0.5 cfs per day in a total amount not to exceed 20 acre feet in the event that water quality monitoring thresholds have been exceeded and, in the professional opinion of Cindy Chadwick, Chuck Hanson, and Tom Keegan (a minimum of two out of the three TAC designees) is necessary to maintain fisheries populations below Bradbury Dam. Authority for the release of up to 20 acre feet of water from Lake Cachuma for purposes of maintaining acceptable water quality conditions downstream for fish will terminate November 30, 1994.

1993 Documentation Report

The outline prepared by Chuck for the 1993 documentation report was reviewed and discussed. It was generally agreed that the outline was acceptable and that we should proceed with compilation of individual sections of the report. Rob suggested that quad sheets be used to identify all of the fisheries sampling and water quality monitoring stations surveyed during 1993. Rob agreed to provide three sets of quad sheets for use in identifying sampling locations. Steve agreed to provide a summary of USGS flow measurements for 1993 for inclusion in the report. Carl and Bruce agreed to provide a summary of daily operations and monitoring data from Bradbury Dam. It was agreed that the 1993 documentation report would cover activities during the period from January through December and would be comprised of a series of memos and other documents prepared by individual TAC members reflecting results of specific monitoring or survey activities (e.g., fisheries survey results, water quality and temperature monitoring results, TAC meeting notes, correspondence, etc.).

Long-Term Plan

The development of a framework for studies to be conducted on the Santa Ynez River for use in developing and evaluating various alternative management actions was briefly discussed. Brian noted that it may be possible to obtain UCSB grants for specific elements of the long-term plan. Brian also noted that the Urban Creeks Council, a non-profit organization, would be able to assist in developing grant applications and may be able to provide technical and field assistance through an internship program.

There was a brief discussion regarding the geographic area to be considered in developing a long-term study plan. One option considered is to limit the geographic area to that reach of the Santa Ynez River from Bradbury Dam downstream to the lagoon including major tributaries such as Salsipuedes Creek. The alternative opinion was to include the entire Santa Ynez River Basin within the scope of the long-term planning effort. Various alternative approaches for expanding the geographic area and involvement by other parties in development of the long-term plan were discussed. Also discussed was the question of how the TAC, and development of a long-term study plan, fits into the overall planning process and preparation of environmental documentation for the Santa Ynez River system, contract renewal, and State Board water rights proceedings. It was agreed that many of these issues would need to be resolved through further discussion within both the TAC and Policy Committee.

Naomi briefly discussed development of a Santa Clara Management Plan which was approached as a watershed management plan involving a variety of interdisciplinary elements. Naomi suggested that it may be possible to obtain grants to support a similar watershed management plan development process for the Santa Ynez River Basin. Rob recommended that the Santa Ynez River TAC effort focus on a smaller area and limit the scope of the effort to those goals and activities that can be accomplished by the TAC within a reasonable time period. Rob noted that expanding the TAC and the scope of the long-term planning process may impact the effort.

It was noted that development of the long-term plan required consideration of species other than trout. The effort should also focus on habitat requirements for other fish species and wildlife inhabiting the Santa Ynez River stream corridor. Brian reported that the Urban Creeks Council supports development of a watershed management plan and would be willing to participate in developing grant proposals for such an effort. Rob noted that including issues and participants involved in activities upstream of

Bradbury Dam and Lake Cachuma would substantially increase the complexity of the process.

Cindy noted that there exists a strong need to address the integration and coordination of the TAC long-term planning process with other activities currently underway within the Santa Ynez River system. Cindy recommended that the TAC planning process focus on fisheries issues primarily within the area downstream of Bradbury Dam, but that this effort be coordinated with other activities through input and guidance provided by the policy committee. Brian noted that the existence of Bradbury Dam results in an impact to upstream and downstream passage of various fish species and that development of a long-term plan needs to consider factors such as streamflow and potential alternative physical facilities including a fish ladder for the dam. Rob noted that development of the long-term planning process provides and opportunity to include all alternatives that should be given further consideration which would then be considered in developing data collection activities and subsequent analyses of the technical feasibility and potential benefits of various alternative management actions. Steve recommended that questions regarding the scope of the long-term planning effort be directed to the policy committee with a request for guidance. Both Naomi and Brian representing U.S. Fish and Wildlife Service and the Urban Creeks Council, respectively, strongly supported the concept of a basin-wide watershed management plan for the Santa Ynez River. Rob suggested that it would appropriate to recognize the objectives of a watershed management plan as an overall context for the planning effort, but focus TAC activities primarily on downstream fisheries issues.

It was recommended that a section be added to the draft outline of the long-term study plan briefly discussing the relationship of the TAC plan to other ongoing or proposed planning efforts. Development of this section of the plan would encourage the policy committee to provide guidance on the geographic and technical scope of activities to be considered as part of this effort. Chuck expressed a desire to develop the long-term plan in context with an overall management framework, budget, and schedule for TAC activities which would also be presented to the policy committee for endorsement and approval. Budgeting for subsequent activities would include both financial commitments and services in kind for participating agencies and entities. It was generally agreed that a more rigorous framework was needed for the ongoing studies which will be developed as part of the initial planning effort. It was also agreed that the basic principals and scope of the long-term study plan should be the primary focus of the next TAC meeting.

The next TAC meeting is scheduled for November 17 at 9:00 AM in the Goleta Sanitary District conference room.

Santa Ynez River TAC Oct. 18 1993

Charles Hanson	Hanson Env.	510 942 3133
Steve Mack	City of Santa Barbara	805-564-5501
Carl Dealy	USBR	209 264-1233
Peggy Hood-Cordero	Senator Gary Hart	966-1766
Russell Reiz	Hill & Sandford Goleta WD	963-1453
Bob Pagel	Goleta	964-6761
Chuck Ehlin	Montecito WD	969-2271
Hossein Moazami	city of Lompoc	736-1261
William Trautwein	UCC	964-3105
Brian Trautwein	UCC	964-3105
Naomi Mitchell	US Fish & Wildlife Service	(805) 644-1766
Tom Petersen	S.Y.R.W.C.D. I.D.#1	(805) 688-6015
Ali Shahroody	SYRWCD	(415) 457-0701
Tom Keegan	Entrix	(510) 935-9920
Cindy Chadwick	DFG	916 653-9743
Robert Almy	S.B. Co. Water Agency	(805) 568-3572
Craig Fusaro	SBCC	(805) 963-8919

HANSON ENVIRONMENTAL

MEMO TO: Santa Ynez River Technical Advisory Committee

FROM: Chuck Hanson

DATE: December 1, 1993

SUBJECT: Santa Ynez River Technical Advisory Committee Meeting - November 17, 1993

Chuck presented a brief overview of the meeting agenda which includes (1) brief status reports on ongoing fisheries and water quality monitoring; (2) status of development of the 1993 documentation report; and (3) review and discussion of the outline for the draft long-term plan of investigations.

Cachuma Releases and Water Quality Monitoring

Daily monitoring of water surface elevation, temperature, and dissolved oxygen concentrations within three selected pool habitats in the reach of the Santa Ynez River from Bradbury Dam to the Highway 154 Bridge was begun by USBR staff (Bruce Jones) October 29, 1993. Bruce reported that releases from Bradbury Dam were reduced, following the established ramping rate schedule, to uncontrolled release levels by November 6. Bruce reported that after controlled releases had been stopped water elevation within riffle areas downstream in the vicinity of the long pool declined resulting in a concern that fish inhabiting the riffle area may be stranded. Releases from Bradbury Dam were subsequently increased November 7 to provide flow for those fish inhabiting the riffle area with a subsequent reduction in flow to uncontrolled release levels occurred on November 9. The increased releases between November 7 and 9 represented an estimated six acre-feet of additional release from the dam.

Results of daily monitoring within the long pool have shown that dissolved oxygen concentrations prior to the reduction in releases were 12 ppm at a water temperature of 18.5 C and by November 16, after controlled releases had been stopped, dissolved oxygen concentration was 12.6 ppm. After the reduction in releases from Bradbury Dam water surface elevation within the long pool had declined by about 1.3 feet. The stilling basin did not show a substantial decrease in water surface elevation in response to the reduction in flow, however a reduction in water temperature was observed. It was speculated that the reduction in water temperature may be associated with a turnover within the stilling basin. An increase in turbidity was also observed within the stilling basin.

Chuck Evans expressed concern regarding the delay in implementing the reduction in releases from Bradbury Dam. Chuck noted that the MOU provided for releases through October 31, and yet controlled releases continued to occur until November 6. The delay in reducing releases from Bradbury Dam was, in part, attributable to delays in developing and implementing the water quality monitoring program.

500 Ygnacio Valley Road, Suite 250, Walnut Creek, California 94596
Tel: (510) 942-3133 FAX: (510) 256-6589 Pager: (510) 729-4052

Carl reported observations of a rapid decline in riffle habitat in response to the reduction in releases from Bradbury Dam. The reduction in releases that occurred November 9 was coordinated with the period when fisheries and water quality monitoring surveys were being conducted in the reach immediately below Bradbury Dam and therefore provided the opportunity to document changes in habitat conditions associated with reduced releases. It was reported that flows within riffles downstream of the long pool were continuing to decline. Flow within the riffle areas is visible, but could not be measured. Results of field surveys have documented that the Santa Ynez River reach between Bradbury Dam and the Highway 154 Bridge was not dewatered with the reduction in dam releases and that viable fisheries habitat, within pool areas, remains within restricted areas. Carl presented a brief daily chronology of releases from Bradbury Dam and corresponding water quality monitoring data. Carl agreed to provide written documentation on results of these daily monitoring observations for distribution to the TAC and inclusion in the 1993 documentation report. Brian expressed concern regarding the reduction in riffle habitat and the decline in water surface elevations within the long pool which are areas inhabited by trout.

Hydrology Measurements

Steve presented a summary of hydrologic measurements (attached) for surveys conducted between September 14 and November 12, 1993. Steve examined available data and concluded that estimates of flow from staff gauges are reasonably accurate based on calibration results from stage-discharge relationships. Steve noted that although the riffle immediately below the stilling basin and long pool had experienced declining water surface elevations there appeared to be an increase in surface water further downstream after controlled releases from Bradbury Dam had stopped. Steve noted that hydrology within the area is highly variable based on complex geological formations and groundwater movement along the Santa Ynez River mainstem.

Ali requested that a summary table be prepared showing the daily allocation of flow from Bradbury Dam based on controlled and uncontrolled releases. Bruce and Carl agreed to prepare a daily water allocation for dam releases.

Steve briefly discussed a concern expressed by the Crawfords' regarding access to areas of the Santa Ynez River for purposes of making flow measurements. Steve noted that following the reduction in releases from Bradbury Dam there was no longer a need for detailed flow measurements this year. There is a need, however, to work with the Crawfords to obtain future access for both fisheries and water quality monitoring, including periodic flow measurements. Steve noted the desirability of having flexible access with the Crawfords for water quality and flow measurements rather than the need to contact the Crawfords prior to each individual survey. Steve expressed concern regarding the allocation of water resources from Lake Cachuma for purposes of maintaining fisheries populations within an area of the Santa Ynez River mainstem having no public access. Brian argued that the primary benefit would be preservation of the instream and riparian ecosystem.

Rob asked about the status of the Fish and Game Commission review and consideration of proposed regulation changes regarding recreational fishing on the Santa Ynez River. Cindy agreed to contact the Commission and provide a status report on the recommendations and schedule for adopting revised regulations for the river. Rob noted it would be important to let the public, including the Crawfords, know about changes in the angling regulations. Rob suggested that the angling regulation changes be published in the local press. Rob also felt that angling regulation changes may

provide relief to the Crawfords in the form of reduced trespassing and requests for access to the river by anglers.

It was agreed that Bruce will continue monitoring temperature, dissolved oxygen, and water surface elevation within pool habitats on a daily basis and provide weekly status reports. Observations will also be recorded after rains begin on the re-establishment of riffle areas connecting pools and surface water flows within tributaries. Bruce will continue to provide on-site daily monitoring and observations of conditions occurring within the reach between Bradbury Dan and the Highway 154 Bridge. Chuck briefly described the communication channel for reporting daily water quality measurements and specific monitoring thresholds which had been established to trigger consideration for additional releases from Bradbury Dam.

Water Quality

Cindy briefly discussed CDFandG's current status and plans for continuous temperature monitoring. Cindy reported that the temperature recorder in the lagoon had been lost including the loss of approximately six weeks of continuous temperature monitoring results. Other CDFandG temperature recorders have been downloaded and the data are currently being processed. CDFandG continues to maintain temperature recorders within the stilling basin, Highway 154 Bridge, and lagoon. Cindy agreed to complete processing and analysis of temperature monitoring results which will then be documented for inclusion in the 1993 annual report.

Chuck presented a brief summary of water temperature and dissolved oxygen monitoring results from October and November (attached). Water temperature and dissolved oxygen monitoring had been conducted, in association with fisheries surveys, during early morning and late afternoon hours at three pool locations. In addition, a series of vertical profile measurements of dissolved oxygen and temperature were conducted within pool areas in November. Chuck will prepare a memo documenting results of the water quality monitoring program. Chuck also presented graphic summaries of continuous temperature monitoring results for monitoring locations within the stilling basin, long pool, and at the Highway 154 Bridge for the period through November 12, 1993.

Fisheries Surveys

Tom presented a brief summary of results of the November fisheries surveys conducted after releases from Bradbury Dam had been reduced to uncontrolled levels. Tom reported an increase in the catch of sculpins within pool habitats which appeared to be a reflection of movement of fish from riffle areas dewatered as flows were reduced. Observations were also documented on stranding of sculpins within dewatered riffles. In the area adjacent to the San Lucas Ranch (pipeline crossing) an increase in the abundance of sticklebacks was observed suggesting that these fish were concentrating within the deeper pool habitat as flows within the riffles declined. No trout were observed or collected during electrofishing surveys. Adult trout were observed, however, in deeper pools during snorkel surveys. At the pipeline crossing on the San Lucas Ranch both bass and trout were observed in the pools. Bass and trout were also observed within the long pond and stilling basin. Trout were reported to be in good condition. It was speculated that trout and bass may be actively foraging on sculpin and stickleback which had moved into pool habitats as flows declined. Tom will

provide written documentation on results of the fisheries surveys for inclusion in the 1993 report.

Tom reported that one adult lamprey was collected from the pool in the area of the pipeline crossing on the San Lucas Ranch. It was speculated that the lamprey migrated into the Santa Ynez River last winter and had oversummered.

Tom reported that observations during the field surveys indicated that stranding within riffles was limited to sculpin. Bruce noted that he had observed one dead trout within a riffle area. The trout had been dead for approximately four days and no cause of mortality could be determined. Bruce reported that the trout was gravid. Bruce also reported observations of grebes wading in the riffles and osprey foraging on fish within pools. Bruce speculated that fish captured by osprey could be either bass or trout. Vultures have also been reported in the area.

Brian asked if it would be possible to tag adult trout inhabiting pool areas and monitor their movement this fall and winter. Tom noted that such a tagging effort would be labor intensive. Floy tags could be used to identify trout, caught using hook-and-line, to determine their movement into tributary areas for spawning (or recaptured in monitoring weirs). It was agreed to defer further discussion regarding a mark-recapture study for trout until the long-term framework for future studies could be established.

1993 Documentation Report

It was agreed that the 1993 documentation report would represent a compilation of memos, prepared by TAC participants, describing the methods and results of fisheries, water quality, and flow studies performed during 1993. The memos would be organized by subject. The documentation report would cover studies and activities between January and December 1993. A map documenting sampling locations for fisheries surveys, water quality monitoring, and flow measurements is currently being prepared. Rob noted that he would be able to provide aerial photographs of the Santa Ynez River for inclusion in the report if needed.

Long-Term Study Plan

Chuck presented a brief summary of the preliminary draft outline for developing the long-term study plan (prepared July 1993) and several of the issues that had been raised during preliminary review of the outline. Brian expressed concern that the proposed study plan consider the entire Santa Ynez River Basin and adverse impacts of non-native fish species on native fishes. Cindy noted that the Arroyo chub, classified as a California Species of Special Concern, was introduced into the Santa Ynez River basin and therefore is a non-native species to the basin but would still require consideration in development of the long-term study plan. Brian noted that it is currently not known whether trout inhabiting the Santa Ynez River below Bradbury Dam are native to the system or released from hatchery production into Lake Cachuma and subsequently migrated downstream during high flow periods. Brian noted that the long-term plan should consider management for both native and planted trout.

Brian also recommended that stream flows be based on total surface and subsurface inflows to Lake Cachuma to determine water supply availability (Carl noted that currently USBR measures and manages for both surface and subsurface inflows). Ali

cautioned that measurement error, such as that associated with wind effects on Cachuma Reservoir elevation, can result in a calculated negative inflow to the reservoir. Brian also noted that consideration of streamflows should include provisions for juvenile trout/steelhead rearing. Brian supported the concept of non-flow management alternatives and requested that consideration of a fish ladder at Bradbury Dam be included as one of the options considered. Brian also recommended that the long-term study plan consider the entire watershed. Brian noted that habitat exists upstream of Lake Cachuma which was historically used by trout/steelhead as spawning and rearing areas. Brian requested that these habitats be considered as part of the development of a long-term study plan in addition to streamflows below Bradbury Dam. Steve noted that the MOU, under which the TAC operates, limits the scope and area of investigation to the Santa Ynez River downstream of Bradbury Dam.

Cindy noted that fish ladders have been designed for successful upstream migration of adult fish. Fish ladders have not worked effectively, however, in many cases for downstream passage of juveniles. Cindy also noted that migration of juvenile trout/steelhead through areas such as Lake Cachuma has resulted in high predation mortality rates in other systems. There is also a substantial water cost for operating fish ladders which would need to be included as part of the evaluation. Chuck suggested that an alternative approach would involve a trapping structure for adults with subsequent transport upstream to release locations above Lake Cachuma, however the problem still remains of successful downstream migration of juveniles. Brian noted that the Urban Creeks Council could provide engineering input for developing a conceptual design for a fish ladder at Bradbury Dam for consideration by the TAC as part of the long-term study plan. It was requested that Brian and the Urban Creeks Council engineer prepare a conceptual design for a fish ladder to be evaluated as part of the long-term study process.

Brian noted that the Urban Creeks Council would actively oppose releases from Bradbury Dam for the purpose of maintaining or managing non-native fish species below the Dam. Brian noted that many non-native fish species prey upon trout and other native fish and also compete for available habitat and food resources. Brian strongly supported a recommendation that the long-term study plan focus priority on native fish species, including trout.

Rob noted that the flood control district was concerned about a balance between riparian vegetation along the Santa Ynez River stream corridor and flood control. It was noted that consideration of actions such as streambed alterations or riparian revegetation would need to be evaluated in context with other requirements and constraints on the Santa Ynez River system including, but not limited to, flood control, groundwater recharge, and water supply. Consideration of other constraints in developing a long-term study plan and subsequent evaluation of various alternative management actions will require coordination and input from a variety of entities. A question arose regarding the overall framework and process through which the long-term fisheries study plan would be coordinated with other planning and management efforts ongoing for the Santa Ynez River system. It was agreed that the TAC would welcome participation and input from biologists involved with the flood control district on issues such as vegetation control and riparian revegetation to assist in adequately evaluating various potential management actions.

Based on observations this year of high algal production within the Santa Ynez River Ali recommended that the long-term study plan be expanded to include water quality measurement for parameters such as nitrogen, phosphorus, and other nutrients which may be contributing to high algal production. Carl expressed a similar concern, noting

the need to evaluate the potential effects of sewage effluent that may be entering the Santa Ynez River in the area of Hilton Creek and at Lompoc. It was noted that COMB has weekly water quality measurements and data for a variety of parameters within the Santa Ynez River. It was also noted that water quality monitoring should include consideration of vertical profiles within Lake Cachuma as it relates to the location of the water intake within the reservoir.

Brian recommended that the long-term study plan focus on evaluating the feasibility of improved habitat conditions and rebuilding native fish populations. It was also noted that it would be desirable to document information regarding the historic fisheries populations, including steelhead runs, on the Santa Ynez River for use as part of the framework for evaluating various management actions. Rob noted that there exists an overlap in the objectives as stated in the draft outline which need refinement. It was generally agreed that evaluating habitat conditions and associated management actions to maintain and improve habitat, was the key element of the long-term study plan. Other aspects of the study plan such as measurements of water temperature, vegetation, substrate conditions, etc. can all be related to the primary focus on habitat conditions.

Cindy reported that CDFandG departmental priorities focus on (1) maintaining and protecting threatened and endangered species; (2) achieving the legislative mandate to improve population abundance of anadromous fish including steelhead; (3) providing suitable habitat to maintain resident fish populations; and (4) providing recreational opportunities. Rob noted that one of the principal objectives of USBR is to maintain fish in good condition below Bradbury Dam. Cindy noted that USBR will be required to enter into consultations regarding threatened and endangered species on the Santa Ynez River as part of the EIR process for the contract renewal. Rob noted a need to have TAC input to the EIR process and the requirement for coordination among a variety of ongoing activities. Carl noted that protection of threatened and endangered species is one of the management objectives of USBR for the Santa Ynez River system, however this could also lead to management conflicts with other elements being evaluated as part of the long-term study plan. Cindy suggested that the long-term study plan document those threatened and endangered species that inhabit the Santa Ynez River below Bradbury Dam and to identify their habitat requirements as part of the overall program. Brian suggested that it may be appropriate to use steelhead as an indicator species of habitat quality within the river system. Cindy suggested that it would be appropriate in developing the long-term study plan to consider and evaluate habitat requirements and potential alternative management actions for a variety of resources.

A question arose as to whether the long-term study plan should be subject to environmental documentation. Cindy recommended that consideration of the long-term study plan be included in the USBR EIR for contract renewal, but would not be subject to separate environmental documentation requirements. Steve noted that there exists a conflict between the timing for preparation of the EIR and completion of the study plan. The study plan will involve data collection on fisheries resources, flow, and water quality over a variety of years and environmental conditions. The results of these studies will not be available for inclusion in the EIR. Cindy acknowledged the conflict in timing, but recommended that the long-term study plan be endorsed as part of the EIR process and that information collected to date be incorporated into the EIR. Rob questioned how the long-term study plan fits within the framework of the contract renewal EIR. Rob recommended that the long-term study plan and resulting evaluation of potential alternative management actions be considered as a proposed project within the water rights framework and not as part of the contract renewal EIR. Cindy noted that one element of the long-term study plan is to identify and evaluate alternative

actions designed to restore habitat and therefore could be included as part of the consideration of alternatives and mitigation measures within the EIR. Cindy noted that CDFandG is currently considering the scope of the long-term study plan within the context of Fish and Game Code Section 5937 as it relates to the feasibility of habitat restoration and maintaining fisheries populations in good condition. Rob suggested that the study plan may be more suitable within the water rights framework since no agency or entity has jurisdiction for implementation of a plan of management actions at this time. Cindy expressed concern that there may be a problem if a process is not established for evaluating the feasibility of habitat restoration within the contract renewal EIR. Carl noted that the study plan is designed as a data collection process to provide information used in evaluating the feasibility and potential benefits of various alternative management actions. The study plan process will result in a series of recommendations for management actions which, if implemented, may require environmental documentation.

One objective of developing a long-term study plan is to identify ongoing data collection and monitoring requirements. It was agreed that continuous temperature monitoring should be continued throughout the winter and spring with coordination between CDFandG and Chuck regarding monitoring locations. Ali noted that it was likely that spill would occur from Lake Cachuma during 1994, based on current elevations, or controlled releases would be made for Lompoc. Ali noted that controlled releases can be managed and coordinated to provide useful environmental conditions for study purposes. Ali noted that there is a need to continue studies and monitoring under either wet or dry-year conditions. Dry-year flows released for downstream water users could occur as early as June 1994. Ali noted that the TAC should be involved and participate in the coordination of these releases in terms of both the magnitude and schedule, so that associated monitoring downstream could be performed, to provide information on such factors as water temperature as a function of flow, stage-discharge relationships, or IFIM measurements. Steve agreed, noting that there is also a need to consider more rigorous project management, assigned responsibilities and authority, and staffing support to perform various monitoring programs. Carl mentioned that USBR may be able to hire a summer intern or work with volunteer help to accomplish some of the monitoring objectives defined in the long-term study plan.

Cindy and Chuck both agreed that there currently exists a need for establishing a long-term study plan and framework for continued monitoring and investigations which can then be presented to the policy group along with recommendations for program priorities. As part of the development of this framework there is also a need to establish a project budget, including services in kind and participation by CDFandG and other agencies, for the ongoing program. Chuck agreed to develop a preliminary budget for the program as outlined in the long-term study plan.

Carl presented a proposal to improve the USGS gauging station at the Alisal Bridge which needs to be modified to include measurements under low-flow conditions. There currently exists a problem of flow contact between the low-flow stream channel and the gauge. There is also a proposal to install a flow measurement gauge at the Highway 154 Bridge. It was suggested that USGS be contacted to obtain a proposed budget for the installation, operation, and data reporting on flow measurements from these locations. It was also suggested that staff gauges be located at other upstream locations. Water surface elevation observations on a weekly or monthly basis at upstream staff gauges could then be correlated with results from continuous recorders to obtain additional information regarding flow rates within the Santa Ynez River. A question arose as to whether the quality of data from USGS low-flow gauging stations would be as accurate as field measurements of channel width, depth, and velocity

currently being measured. Steve expressed the opinion that USGS gauging can be done accurately at low flows and participation by the agency would increase credibility of the Santa Ynez River data collection program. It was agreed that specific monitoring sites would be identified for use in developing a cost estimate for USGS participation in the hydrology monitoring program as part of the long-term study plan.

It was agreed that, in addition to flow measurements, analyses should be performed to predict the downstream location that flows would reach based on various releases from Bradbury Dam. In addition, it would be useful to estimate the magnitude of flow required to breach the sand bar at the mouth of the Santa Ynez River. Additional measurements and predictions of flow requirements to provide sufficient water depth for upstream passage of migrating fish and to maintain habitat within various reaches based on consideration of both flow and temperature.

In implementing the long-term study plan there is also a need to develop methods for monitoring adult trout/steelhead passage within the mainstem Santa Ynez River and tributaries. CDFandG is currently evaluating the use of various alternative weirs for monitoring adult fish passage into tributaries. Floating weirs have also been used to monitor adult passage in deeper water areas such as would occur within the mainstem Santa Ynez River, however problems have been encountered in anchoring and maintaining floating weirs under high flow conditions. As part of the adult trout monitoring program, which currently focuses on upstream movement of trout into tributary areas such as Salsipuedes, El Jaro, and Hilton Creek, issues associated with access to private lands and field labor/budget requirements will need to be evaluated. It was suggested that adult trout captured in weirs be tagged for subsequent monitoring of the movement of these fish downstream or residence within the upstream areas.

An additional element of the fisheries monitoring program would be to monitor and document spawning within various tributary areas and to determine hatching success and juvenile production within these areas.

Staffing requirements for these monitoring programs were discussed with a general recognition of the need for paid professional staff to conduct weir monitoring and winter-spring fisheries surveys. A core staff could then be augmented through additional volunteer help to assist in performing specific monitoring efforts. It was agreed that a plan for the installation of weirs and monitoring adult fish migration into tributaries would need to be finalized and implemented by January. Mapping and a habitat inventory of the mainstem and tributaries would also be a priority for 1994.

Chuck agreed to revise the draft outline for the long-term study plan and distribute copies, *via fax*, to TAC members for review and comment. Based on review comments the outline will then be revised prior to the November 30 scheduled policy committee meeting. Additional consideration will also be made regarding assignment of personnel and project management responsibility. Responsibility for specific aspects of the long-term study plan, project staffing, and a projected budget for short-term tasks to be performed during early 1994 will be developed by Chuck. Steve agreed to work with Carl and Rob regarding development of USGS cost estimates for the installation and operation of streamflow gauging stations at various locations. Chuck agreed to brief the policy committee regarding development of the long-term study plan and proposed project budget and management framework for 1994 investigations.

No schedule has been established for the next Santa Ynez River TAC meeting.