# CALFED Interagency Fish Facilities Technical Team

## June 16, 1998, 8:00 am to 5:00 pm

## Meeting Minutes

**Present:**

Dan Odenweller, DFG (Chair)
Darryl Hayes, DWR
Paul Raquel, DFG
George Heise, DFG
Charles Liston, USBR
Ron Brockman, USBR
Michael Lee, USBR
Sergio Guillen, CALFED
Nichele Ng, DWR
Steve Roberts, DWR
Dave Samson, CALFED
Mike Ford, DWR
Jim Spence, DWR
Steve Ford, DWR
Shawn Mayr, DWR
Ted Frink, DWR
Marcin Whitman, DFG
Ned Taft, Consultant
Ken Bates, Consultant
Dennis Dorratcague, Consultant
Rick Wantuck, NMFS
Kevan Urquhart, DFG
Jane Arnold, DFG
David Fullerton, CALFED
Bruce Herbold, EPA
Mike Fris, USFWS
Jeanne Schallberger, DWR
Ron Ott, CALFED

The meeting was convened at the request of CALFED management for the general purpose of providing recommends on how to stage fish facilities (next 7 to 10 Years)in the south and north Delta and to minimize the risk in doing so. The Agenda and the general questions to be addressed are attached.

The following recommendations and considerations were made by the Team.

### South Delta

If the CALFED decision is to maintain two diversions in the south Delta (Tracy and north end of CCF), the follow staging is recommended.

1) Construct by the year 2,000 a research screening facility at Tracy that can eventually become a production facility. The facility would consist of a 1,500 to 3,000 cfs module "V" type screen that could be replicated in the south Delta. Use this facility to conduct research on components and programs that would lead more efficient designs in the south Delta (such as trash racks, screening velocities, bypasses, screen material and orientation, fish handling and sorting, debris management, cleaning, transportation, etc.)

2)Start the planning, permitting and design process for a 5,000 to 7,000 cfs screening production screening facility (with capability for research and modification) at north end of CCF. It is anticipated that construction would not start for two to three years and the design would consider the research information from the facility at Tracy. Both facilities would be designed for 0.2 fps approach velocity with capability to increase to 0.4 fps at

certain periods.

3)Start the planning and the design of the SWP/CVP intertie.

If the CALFED decision is to construct a joint SWP/CVP screening facility at the north end of CCF, the follow staging is recommended.

1)Start the planning, permitting and design process for a first stage 5,000 to 7,000 cfs joint SWP/CVP screening research and production screening facility at north end of CCF. Design the facility in modules for research and production, with capability to be expanded to 15,000 cfs in the future. It is anticipated that the initial stage would be completed in two to three years. Design for a 0.2 fps approach velocity with capability to increase to 0.4 fps at certain periods.

2)Start the planning and the design of the SWP/CVP intertie.

**Considerations:**

1)Advantages of Separate and Joint Facilities **(at build out)**

Separate Facilities

- Flexibility (may have biological and water quality advantage especially without barriers)
- Redundancy of system
- USBR has been mandated to fix their screens
- USBR can start immediately and may have constructed by 2000

Joint Salvage Facility

- Economies of scale
  - -Capital cost
  - -Operations cost
- One joint salvage and research facility
- Research done at one joint facility - better coordination, transferability, and no duplication of effort
- Little or no potential stranded cost (capital and O&M)

2)Need modeling studies to determine impacts on water stages of pumping 10,000 to 15,000 cfs continuously even with barriers.

3)A well designed and researched 1,500 to 3,000 cfs screening module in the south Delta could be added sequentially to increase the diversion capacity using best feasible technology with full assurance that "it has been done before".

4) Any facility should be adaptive to changes in requirements for cleaning, sorting, transport, new organisms, and predation interaction with the facility.

## North Delta

The Team recommended the first stage in the north Delta should be a 1,500 to 3,000 cfs screen module at Hood with a discharge to the North Fork of the Mokelumne River. A well designed and researched 1,500 to 3,000 cfs screening module in the north Delta could be added to sequentially thereby increasing the diversion capacity using standard technology with full assurance that "it has been done before". The focus of the production type research facility at Hood would be to test the following:

- The bypass system to the Sacramento River. (Predation issues, pumps, outlets location and types etc.)
- The screen cleaning and debris management systems
- Upstream passage facilities
- Other testing include trash racks, screening velocities, screen material and orientation.
- Forebay hydraulics and predation

**Considerations:**

1)For alternative 2 we can provide upstream passage around screens and pumps in alternative 2 using:

- Salmon - ladder
- Delta Smelt - locks
- Striped Bass - locks
- Sturgeon - locks
- American Shad - ladder

What is the risk?

- Staging a facility may not demonstrate the ultimate impacts of the facilities.
- Could stage size of ladder and buckets for locks as you stage amount of diversion.
- May want to construct total passage facilities on any size of diversion.
- May need a bay at exit to ladder
- Capital cost high and unsure of delay impact for many species.

2)Do we know how many salmon and other species pass thru the DCC when its open? If not, should do research now to try to get some numbers.

3)Need to look at historical passage record at RedBluff ladders. May not be applicable for some species.

4)If we build any size diversion at Hood for alternative 2 need an upstream passage facility.

5)Because of varying river stages will have to sluice the fish over the levee back into the River or use other devices such as false weirs, locks ,etc..

6)Need to know species, how many, and when they will arrive at the base of the pumps in order

to design effective upstream passage..

7)Flooding of McCormack Williamson Track in alternative 2 may cause delays in upstream fish migration. (Should be looked at by the diversion effects on fishery populations team.)

8) Need to analyze the pool in front of the screens for predation problems. (The area between trash racks and screens)

9)There is no problem designing a facility that allows for different criteria for various species and periods, such as a .2 and .4 approach velocity to the screens.

10)The staging considerations for alternative 3 are similar to Alternative 2, only simpler (no upstream passage facilities)

11)In alternative 3 may need radial gates (i.e hydraulic controls) downstream of the screens if the pumps are moved to the downstream end of the canal near CCF.

12)The risk is much higher in designing effective screens in the south Delta than the north Delta. (Debris management, salvage, transfer, transport ,etc.)

13)Moving the intake to upstream to Freeport would encounter the same issues as Hood. Hydraulic conditions would be similar if not better.

**Questions addressed at the meeting:**

- **South Delta** - The "Policy Team" would like to consider the merits of a first step in the south Delta. Such a step might be a first stage of an Alternative 1, or Alternative 2. However, it should not preclude moving to Alternative 3.

  1) How would we stage the construction of a new south Delta and fish screen complex?

  2) Is it feasible to start constructing a 3,000 to 7,000 cfs fish screen in the south Delta, starting in 1999?

  - Do we know enough about the engineering and biological constraints to start design next year?

  - What is the information we need to build screens (data, research, etc . . . )?

  - How would we maximize flexibility, given that we may expand in the future?

  - How do we minimize stranded costs?

  3) Assume that we start design next year.

- What is the risk we assume?

- What do we do to minimize risk?

  Research

  Redundancy

  Staging

4) Can we build a facility that allows for operations for various species and periods? Can we add the flexibility of operating under a range of hydraulic criteria (such as approach velocities ranging between 0.2 and 0.4 fps)?

**North Delta** - The "Policy Team" may wish to consider staging construction in the north Delta by starting with a "Hood to Mokelumne River" channel, while deferring a decision on the balance of the project until a later date. The channel should be designed to accommodate both Alternative 2 and Alternative 3 as the final stage.

1) How would we stage the construction of a fish screen complex in the north Delta?

2) How do we minimize the risk to fisheries while staging the fish facilities in the north Delta?

- Do we know enough about the engineering and biological constraints to minimize the risk?

- What is the information we need to build screens (data, research, etc . . . )?

- How would we maximize flexibility, given that we may expand in the future?

- How do we minimize stranded costs?