

**Structural Changes:**

1. A new Hood Diversion Demonstration/Testing Facility on the Sacramento River capable of diverting up to 2,000 cfs water from the Sacramento River to the Mokelumne River. The facility would have an alignment as defined for Alternatives 2 and 3, so that those options would not be precluded in the future. Screen operation would be under criteria established by NMFS, FWS, and DFG. The facility would be operated for the following purposes:

- i. Test screening efficiency, cleaning and bypass mechanisms (Programmatic Action: D).
- ii. Test upstream passage mechanisms (Programmatic Action: E).
- iii. Enable closing the Delta Cross Channel without compromising interior Delta water quality (Programmatic Action: C).
- iv. Improve Delta water quality (Programmatic Action: F).
- v. Improve cues for migrating fish (Programmatic Action E).

This action also has some potential negative effects:

- exposes young salmon to a new screen system
- may impair cues of migrating fish
- may block or impair upstream passage of migrating fish

2. A Barrier at the Head-of-Old-River. The facility will be used for the following purposes:

- i. Improve San Joaquin salmon survival (Programmatic Action E).
- ii. Improve water quality in lower San Joaquin River below the Barrier (Programmatic Action F).

This action also has some potential negative effects:

- May impair upstream migration of San Joaquin salmon in the fall
- May increase entrainment of organisms living in the central and southern Delta

3. A new Tracy Demonstration/Testing Fish Screen and Handling facility capable of screening 2,500 cfs at 0.2 fps through-screen velocity and 5,000 cfs at 0.4 fps through-screen velocity. Screen operation would be under criteria established by NMFS, FWS, and DFG. The facility would be operated for the following purposes:

- i. Will improve survival of salvaged fish at the Tracy pumping plant (Programmatic Action C).
- ii. Will reduce entrainment at the Tracy pumping plant (Programmatic Action C).
- iii. Will provide valuable information for design of future fish facilities.

This action also has some potential negative effects:

- There may be some stranded costs if the point of diversion is moved sometime in the future.

4. A new Clifton Court Screen and Handling facility at the northeast entrance to Clifton Court Forebay capable of screening 6,000 cfs at 0.2 fps through-screen velocity and 12,000 cfs at 0.4 fps through-screen. Screen operation would be under criteria established by NMFS, FWS, and DFG. There two primary options to consider:

- Design the screens and low head pumping facilities to screen 6,000 cfs at 0.2 cfs approach velocity. For pumping above 6,000 cfs use a combination of the screens and the existing intake gates. Operate both the salvage facilities at the new screens and at Skinner.
- Design the screens with the capability to operate at 0.2 to 0.4 fps approach velocity and the low head pump station at 10,300 cfs. To achieve the 10,300 cfs capacity through the new screens at particular times, the approach velocity would be increased to accommodate the total flow (approach velocity around .33 cfs).

DEFT recommends that the facility be designed not to preclude either option and to continue with the research at UC Davis Tread Mill and the Research work at Tracy to help guide the use of flexible criteria. The facility would be operated for the following purposes:

- i. May improve survival of fish in the south Delta near the State export pumping plant (Programmatic Action D).
- ii. May reduce predation of fish in Clifton Court Forebay (Programmatic Action D).
- iii. More constant export rates (less gulping) may reduce disruption of fish migrations (Programmatic Action E) and reduce exposure of fish residing in or migrating through the central and south Delta to entrainment (Programmatic Action C).

This action also has some potential negative effects:

- There may be conflicts with higher pumping rates (e.g., over pumping screens or exporting water that is not first screened).