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Phase II - Actions

CALFED Actions List
Reorganized for Water Quality Team

Explanatory Note

This list was compiled to assist the Water Quality Team in evaluating the impacts of potential CALFED actions on water quality. The intent was to increase comprehensibility and to reduce redundancy.

The approach was to group potential actions into broad classes, then to describe and renumber individual actions within those classes. Although the actions were reorganized, all of their content was retained. Also, impacts of the actions were not mentioned, unless they served to differentiate the action from others with different impacts. Benefits and constraints associated with the actions, including those cited in previous descriptions in CALFED-generated documents, will be cataloged as a next step.

The source materials were in previous CALFED documents. A numbered list of actions described in these documents is attached in Appendix A. As a cross-reference aid to those wishing to explore the origins of actions on this reorganized list, the numbers in the original list are referenced in parentheses at the end of corresponding action descriptions in the reorganized list. For completeness, several actions implied by the reorganization exercise were added by the Water Quality Team. These are labeled with "WQ" in parentheses at the end of the description of the action.

Reorganized Actions List

Flow Management

Dilution

- Alter timing of drainage inflow to the Delta, especially from the San Joaquin River.

    1. Retaining drainage water on land prior to discharge into the San Joaquin Valley River. Provide additional inflow of freshwater especially from the San Joaquin River.

- Use 50,000 to 100,000 acre-feet of existing water supply. Provide additional inflow of freshwater to the Delta, especially from the San Joaquin River. (11) (Any surface water currently captured or groundwater currently pumped in the Central Valley)

2. Acquire water from willing sellers (8, 13).
3. Acquire water by providing incentives for more efficient water management
4. Acquire water by reservoir re-operation (8, 22).
5. Acquire water through urban water conservation (22).
6. Acquire water through wastewater reclamation (4).

- Use new water supply. (11, 13) (groundwater not currently pumped, or new storage)

7. Acquire water by treating agricultural drainage (4, 7, 9).
8. Acquire water by developing additional groundwater supply (13).

- Acquire water by constructing new storage (13).

9. North of the Delta (27).
10. South of the Delta (28).
11. In the Delta (WQ).

Delta Facilities

- Improve water circulation in the Delta (40).

12. Install Interim Delta Plan including the operable fish barrier at the head of Old River to block fish movement into Old River, and to manage water flow and stage down Old River (12).

13. Implement Delta Long-Term Protection Plan (includes levee O&M) (21).

Non-Point Source Pollution Control

Agricultural Drainage

Reduce salt and other agricultural drainage constituent loading to the San Joaquin River and the Delta by reducing drainage flows and/or concentrations. Highest priority is treatment of lands with costly and severe drainage problems.

14. Retain drainage water (restrict subsurface drainage discharges by discharging to San Joaquin River or Delta during periods of low San Joaquin River inflow to the Delta) and control the timing of release (3). (Similar to Action 1).

- Control the sources of agricultural surface and subsurface drainage (reduce the amount or maintain the quality of applied water, or reduce loading of trace elements and agrochemicals).

15. Enforce existing source control regulations, including spraying chemicals adjacent to waterways (5, 15).

16. Provide incentives for additional source control, including higher water use efficiency and reduced agrochemical loading (22, 31).

17. Provide a sufficient, competitively priced, high-quality, and reliable irrigation water supply to avoid pumping of low-quality groundwater (WQ).

18. Land retirement and fallowing (especially during drought) through incentive programs (2, 6, 23).

19. Concentration and disposal of drainage water (22).

- Treatment of agricultural drainage.

20. Treatment of 10,000 to 15,000 acre-feet in wetlands (specifies drainage, and wastewater) (4).

- Treatment 20 to 30 percent by other means (e.g., reverse osmosis)

21. Recycle treated water.

22. Use treated water for flow augmentation (7).

Urban and Industrial Runoff

Reduce urban and industrial runoff constituent loading to Delta by reducing flows and/or concentrations. Highest priority is treatment areas contributing largest amounts of pollutants of concern.

23. Retain an additional 20 to 30 percent of runoff water, time release (14).

- Control the sources of urban and industrial runoff (reduce the amount of applied water, or reduce loading of agrochemicals and other pollutants).

24. Enforce existing source control regulations (25).
25. Provide incentives for additional source control (22).
26. Restrict new development (36).

Watershed Management

27. Incentives and/or coordination with ongoing watershed management programs that promote and protect Delta water quality and fisheries. Includes watershed

management within the area influencing (contributing to problems or areas that are able to mitigate problems) the Delta (including areas outside of the legal Delta) (26,33,36). *(Focus on nonpoint-source components of watershed management. Note that this action differs only in focus from actions 36 and 38.)*

Mine Drainage

Implement moderate on-site mine drainage remediation measures developed in site-specific studies at the Walker Mine, Malakoff Diggins, Leviathon Mine, Iron Mountain Mine, and Penn Mine sites. Control runoff from those and other high-priority sites to achieve current water quality objectives for pollutants.

28. Fund through pollution-credit trading (reduce loading from mines in lieu of costly wastewater treatment plant upgrades) (17).

29. Fund by other means (17).

Boat Discharges

30. Enforce regulation of boat discharges within the Delta and in water bodies tributary to the Delta (35).

Point Source Pollution Control

Industrial and municipal wastewater treatment

31. Construct wetlands to treat municipal wastewater (total 10,000 to 15,000 acre-feet with Delta agricultural drainage) (4).

32. Encourage pollution credit trading to reduce pollution in a cost-effective manner (17).

33. Provide incentives for phased conversion of municipal wastewater treatment facilities from processes producing large concentrations of disinfection byproduct precursors (DBPs) (30).

34. Provide incentives for reclamation and reuse of industrial and municipal wastewater (41).

Watershed Management

35. Provide incentives and/or coordination with ongoing watershed management programs that promote and protect Delta water quality and fisheries. Includes watershed management within the area influencing (contributing to problems or areas that are able to mitigate problems) the Delta (including areas outside of the legal Delta) (26,33,36). *(Focus on point-source components of watershed management. Note that this action differs only in focus from actions 28 and 38.)*

Water Supply Treatment

36. Provide incentives to upgrade drinking water treatment through filtration (29).

Habitat Restoration

37. Provide incentives and/or coordination with ongoing watershed management programs that promote and protect Delta water quality and fisheries. Includes watershed management within the area influencing (contributing to problems or areas that are able to mitigate problems) the Delta (including areas outside of the legal Delta) (26, 32, 33, 36). *(Focus on nonpoint-source and habitat-restoration components of watershed management. Note that this action differs only in focus from actions 28 and 36.)*

Riparian Habitat Restoration

Improve riparian habitat

38. In watersheds of participating water districts (32).

39. Restore riverine channel features on the Sacramento River upstream of the Delta, including tributaries (16).

40. Restore and enhance riparian vegetation on the Sacramento River from Verona to Colusa (16).

41. Restore riverine channel features (channel configurations to deepen the San Joaquin) on the San Joaquin River upstream of the Delta and on its tributaries (10).

Research

42. Fund research to provide critical (aqueous and sediment) toxicity information, including the detection and description of currently unknown toxicities (34, 37, 38).