19 Principles for Water Conveyance in the Delta, Storage Systems, and for the Operation of Both to Achieve the Coequal Goals[1,2]

New or Improved Water Conveyance, Storage Systems, and the Operation of Conveyance and Storage are Needed Now. The Sacramento-San Joaquin Delta watershed and California's water infrastructure are in crisis and existing Delta policies are not sustainable. The current drought underscores this crisis. The Delta Plan includes a series of policies and recommendations intended to build regional self-sufficiency, reduce reliance on the Delta, and improve the Delta's ability to support viable populations of native resident and migratory species and their habitats. No single project, however, can sufficiently address all these objectives. New Delta conveyance infrastructure by itself does not create any new supplies of water. Improvements to conveyance and increases in storage capacity must be considered as interdependent parts of a system and be operated in a way that maximizes benefits for each of the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. Inherent in the coequal goals for management of the Delta is improving water quality to protect human health and the environment, consistent with achieving water quality objectives in the Delta.

Delta Conveyance Principles

1. *New or improved Delta conveyance infrastructure should (a) enhance the Delta ecosystem, including restoring more natural flows, (b) protect or enhance water quality, and(c) increase the reliability that water available for export supplies can be exported.*

2. *Flexibility is key to new or improved Delta conveyance infrastructure.*

   Conveyance improvements should be able to adapt to changing conditions (hydrology, climate change, and ecosystem needs) both near-term and in the future while continuing to provide benefits to the ecosystem and reliably convey available water supplies.

3. *New or improved Delta conveyance infrastructure should increase resiliency of the state's water supply systems in the face of future threats related to climate change and levee failures due to sea level rise, more frequent flood events and earthquakes.*

4. *To maximize benefits, new Delta conveyance infrastructure should be integrated with new and expanded storage projects, increased water-use efficiency and conservation improved groundwater management; and restoration of the structure and function of some key Delta ecosystems.*

5. *New or improved Delta conveyance infrastructure should contribute to achieving improved water quality both in the Delta and for water quality delivered to the end users of the conveyance system.*

Water Storage System Principles

6. *New or expanded water storage projects above and below the Delta are necessary.*

   They should enhance the ability to divert and store water during wet periods that can be released, during dry periods to provide more natural, functional flows; help maintain proper temperature regimes on Delta tributaries; and protect water quality in the Delta for drinking water, agricultural and recreational use, and the Delta ecosystem. New or expanded storage systems should improve system flexibility to meet the coequal goals, and provide multiple additional benefits such as flood control, recreation, or hydropower generation. Projects enhance the Delta ecosystem when they help better manage water quality and water temperature - especially during dry years, and when they increase the reliability of water supplies for wildlife refuges. Storing water in wet periods to use in dry periods also increases California's water supply reliability.

7. *New or expanded storage projects should be cost effective*.

   The amount of new storage that can be added to the system is limited by California's hydrology and topography. Smaller regional surface water storage projects and groundwater storage projects can sometimes provide significant benefits at a more affordable cost.

8. *Groundwater storage opportunities should be protected.*

   Groundwater basins in the Central Valley provide the largest amount of existing capacity to store excess flows from wet years. This capacity is threatened by land use decisions and by land subsidence caused by groundwater overdraft.

9. *New or expanded storage projects should provide both immediate and enduring ecosystem and water supply benefits.*

   Climate change and California's changing hydrology will challenge the ability for existing storage systems to maintain the level of benefits they currently provide.

10. *New or expanded water storage projects are part of a system and should support a comprehensive approach to managing the water cycle.*

This also includes conjunctive management of rivers, groundwater, surface storage, floodplains, and wetlands that enhance groundwater recharge and improvements in regional water self-sufficiency.

Delta Water System Operational Principles

11. *Water exported from the Delta should more closely match water supplies available to be exported.*

    This should be based on water year type and consistent with the coequal goal[2] of protecting, restoring, and enhancing the Delta ecosystem.

12. *Storage and conveyance should be operated by storing water in wet periods and reducing diversions in dry periods to (a) protect water quality in the Delta, (b) provide more natural, functional flows, and (c) enhance Delta inflows and outflows, consistent with the needs of the Delta ecosystem and water users.*

13. *Operational decisions should be based upon more accurate, timely, and transparent water accounting and budgeting.*

14. *Additional water supplies can be derived from more efficient reoperation of existing infrastructure.*

15. *Water storage operational guidelines should adopt a multi-year planning horizon to ensure adequate carryover of stored water in surface and groundwater reservoirs at the end of each water year to buffer against multiple dry years.*

16. *Surface and groundwater storage, whenever feasible, should be operated conjunctively to reduce long term groundwater basin overdraft and improve groundwater basin recharge.*

17. *Conveyance and storage infrastructure and their operation should provide net benefits to the ecosystem, as opposed to just protecting the ecosystem from further degradation.*

18. *Operation of storage and Delta conveyance infrastructure should be informed by best available science, adequately monitored and evaluated, and adaptively managed to ensure progress towards well-defined performance measures.*

19. *Ecosystem benefits should be assured through contracts, operations and governance protocols, or other enforceable agreements.*

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[1] Water Code section 85304 - The Delta Plan shall promote options for new and improved infrastructure relating to the water conveyance in the Delta, storage systems, and for the operation of both to achieve the coequal goals.

[2] Title 23 CCR 5001(h)(1)-(3) "Coequal goals" means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. In addition, "achievement" for the purpose of determining whether a plan, program, or project meets the definition of a "covered action" under section 5001(j) is further defined as follows:

(1) "Achieving the coequal goal of providing a more reliable water supply for California" means all of the following:

(A) Better matching the state's demands for reasonable and beneficial uses of water to the available water supply. This will be done by promoting, improving, investing in, and implementing projects and programs that improve the resiliency of the state's water systems, increase water efficiency and conservation, increase water recycling and use of advanced water technologies, improve groundwater management, expand storage, and improve Delta conveyance and operations. The evaluation of progress toward improving reliability will take into account the inherent variability in water demands and supplies across California;

(B) Regions that use water from the Delta watershed will reduce their reliance on this water for reasonable and beneficial uses, and improve regional self-reliance, consistent with existing water rights and the State's area-of-origin statutes and Reasonable Use and Public Trust Doctrines. This will be done by improving, investing in, and implementing local and regional projects and programs that increase water conservation and efficiency, increase water recycling and use of advanced water technologies, expand storage, improve groundwater management, and enhance regional coordination of local and regional water supply development efforts; and

(C) Water exported from the Delta will more closely match water supplies available to be exported, based on water year type and consistent with the coequal goal of protecting, restoring, and enhancing the Delta ecosystem. This will be done by improving conveyance in the Delta and expanding groundwater and surface storage both north and south of the Delta to optimize diversions in wet years when more water is available and conflicts with the ecosystem are less likely, and limit diversions in dry years when conflicts with the ecosystem are more likely. Delta water that is stored in wet years will be available for water users during dry years, when the limited amount of available water must remain in the Delta, making water deliveries more predictable and reliable. In addition, these improvements will decrease the vulnerability of Delta water supplies to disruption by natural disasters, such as, earthquakes, floods, and levee failures.

(2) "Achieving the coequal goal of protecting, restoring, and enhancing the Delta ecosystem" means successfully establishing a resilient, functioning estuary and surrounding terrestrial landscape capable of supporting viable populations of native resident and migratory species with diverse and biologically appropriate habitats, functional corridors, and ecosystem processes.

(3) "Achieving the coequal goals in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place" means accepting that change, including change associated with achieving the coequal goals, will not cease, but that the fundamental characteristics and values that contribute to the Delta's special qualities and that distinguish it from other places can be preserved and enhanced while accommodating these changes. In this regard, the following are core strategies for protecting and enhancing the unique values that distinguish the Delta and make it a special region:

(A) Designate the Delta as a special place worthy of national and state attention;

(B) Plan to protect the Delta's lands and communities;

(C) Maintain Delta agriculture as a primary land use, a food source, a key economic sector, and a way of life;

(D) Encourage recreation and tourism that allow visitors to enjoy and appreciate the Delta and that contribute to its economy;

(E) Sustain a vital Delta economy that includes a mix of agriculture, tourism, recreation, related industries and business, and vital components of state and regional infrastructure; and

(F) Reduce flood and other risks to people, property, and other interests in the Delta.