

List of Action Categories and Actions

Comments on Action Categories and Actions

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Name: STU PYLE

	Importance 1 - 5	Core Action C
Action Categories to Restore Bay-Delta System Habitats		
Restoration of Bay-Delta System Shallow Water (Tidal) Habitat	<u>4</u>	<u>C</u>
Actions:		
-Convert existing leveed lands to tidal action	_____	_____
-Protect existing shallow habitat from erosion	_____	_____
-Restore tidal action to existing diked wetlands	_____	_____
-Reconstruct levees to include shallow water habitat	_____	_____
-Fill deep water to produce shallow habitat	_____	_____
Restoration of Bay-Delta System Riverine Habitat	<u>5</u>	<u>C</u>
Actions:		
-Reconstruct river banks and shallow areas	_____	_____
-Restore and preserve channel islands	_____	_____
-Restore natural channel configurations	_____	_____
-Modify channel/levee construction practices to include riverine elements	_____	_____
Restoration of Bay-Delta System Riparian Habitat	<u>3</u>	_____
Actions:		
-Improve and protect degraded riparian habitats	_____	_____
-Establish new areas of riparian habitat	_____	_____
-Reestablish historic riparian areas	_____	_____
-Modify levee maintenance practices	_____	_____
-Protect existing riparian habitat	_____	_____

	Importance 1 - 5	Core Action C
Restoration of Bay-Delta System Wetland Habitat	<u>3</u>	_____
Actions:		
-Restore, enhance, and create wetlands	_____	_____
-Expand wetland acquisition programs	_____	_____
-Convert agricultural lands to wetlands	_____	_____
-Protect existing wetland habitat	_____	_____
Restoration of Bay-Delta System Terrestrial Habitat	<u>2</u>	_____
Actions:		
-Protect existing upland habitat	_____	_____
-Establish upland habitat on levees	_____	_____
-Establish upland habitat on fallowed croplands	_____	_____
-Establish oak woodlands on suitable soils	_____	_____
-Encourage wildlife-friendly agricultural practices	_____	_____
-Preserve agricultural land uses providing habitat	_____	_____
-Clean up sites contaminated with toxic substances	_____	_____
Implementation of Integrated Habitat Management Programs	<u>3</u>	_____
Actions:		
-Establish regional ecosystem restoration guidelines	_____	_____
-Implement integrated regional habitat management	_____	_____
-Develop cooperative management agreements	_____	_____
-Establish mitigation banking program	_____	_____
Establishment of Floodways and Meander Belts	<u>3</u>	_____
Actions:		
-Relocate levees to widen floodways	_____	_____
-Allow river channels to meander	_____	_____
-Acquire Delta islands as overflow areas	_____	_____
-Restore floodways as habitat corridors	_____	_____
Control of Introduced Species	<u>4</u>	<u>C</u>
Actions:		
-Remove or reduce nuisance species in key habitats	_____	_____
-Improve regulation of ballast-water releases	_____	_____
-Improve border inspection practices	_____	_____
-Inspect for invasions of nuisance species	_____	_____
-Modify habitat to favor native species	<u>?</u>	_____

	Importance 1 - 5	Core Action C
Delta Waterfowl Habitat Management	<u>3</u>	_____
Actions:		
-Manage agricultural crops for waterfowl forage production	_____	_____
-Improve management of public waterfowl areas	_____	_____
-Implement terrestrial predator control programs	_____	_____
-Increase sources and availability of wildlife forage	_____	_____

Action Categories to Restore Upstream Habitat

Restoration of Upstream Anadromous Fish Habitat	<u>3</u>	_____
Actions:		
-Manage flows and temperatures in upstream habitats	_____	_____
-Restore and replenish spawning gravels	_____	_____
-Restore channel configurations	_____	_____
-Restore shoreline habitat conditions	_____	_____
-Modify gravel mining practices	_____	_____
-Improve floodway drainage to reduce fish stranding	_____	_____

Improvements for Upstream Fish Passage	_____	_____
Actions:		
-Modify passage at upstream dams and other barriers	<u>3</u>	_____
-Modify natural barriers to improve passage	_____	_____

Restoration of Upstream Riparian Habitat	_____	_____
Actions:		
-Restrict livestock grazing in riparian corridors	<u>2</u>	_____
-Revegetate degraded riparian habitats	_____	_____
-Protect riparian lands through purchase/easements	_____	_____
-Restore flows to dewatered riparian habitats	_____	_____

Restoration of Upstream Wetland Habitat	<u>2</u>	_____
Actions:		
-Modify floodways to support wetland habitats	_____	_____
-Reuse agricultural drainage to create wetlands	_____	_____
-Reuse urban wastewater effluent to create wetlands	_____	_____
-Manage groundwater recharge for wetland habitat	_____	_____

Core
Importance Action
1 - 5 C

Action Categories to Reduce Effects of Diversions

Delta Inflow/Outflow/Export Management

5 C

Actions regarding Delta Inflows:

- Modify upstream consumptive use 1 ---
- Modify upstream reservoir operations criteria 2 ---
- Modify Delta inflow timing pattern 3 ---
- Provide instream pulse flows for fish passage 4 CP
- Provide instream flows for fish attraction 4 CP

Actions regarding Delta Diversions and Outflows:

- Modify volumes and timing of exports 4 C
- Modify in-Delta consumptive use 1 ---
- Modify central Delta channel operations 4 C
- Modify export operations criteria 2 ---
- Establish a Delta watermaster to manage flows 2 ---
- Use real-time monitoring and adaptive management 5 C

Modification of Diversion Timing Patterns

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- Actions:
- Modify diversion timing of in-Delta diversions 2 ---
 - Modify diversion timing of export diversions 4 ---
 - Coordinate SWP/CVP diversion timing 4 ---
 - Modify diversion timing through Montezuma Salinity Control Gate 3 (?) ---
 - Use real-time monitoring and adaptive management 5 C

Increased Rates of Diversion Capacity

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- Actions:
- Obtain approvals for expanded export capacities 4 C
 - Enlarge export pumping capacities 2 ---
 - Increase diversion capability at Red Bluff Diversion Dam 2 ---

Acquisition of Long-Term Water Supplies for Fish and Wildlife

3 ---

- Actions:
- Acquire water to augment instream flows 3 ---
 - Obtain shifts in timing of instream flows 3 ---
 - Obtain shifts in diversion timing patterns 3 ---

	Importance 1 - 5	Core Action C
-Acquire water for refuge habitat use	<u>1</u>	—
-Modify water law to establish instream rights	<u>2</u>	—
Installation and Improvement of Fish Screens	—	—
Actions: -Improve screens at Delta export pumps	<u>3</u>	—
-Improve other existing fish screen systems	<u>4</u>	—
-Install screens on other in-Delta diversions	<u>4</u>	—
-Install screens on upstream diversions	<u>4</u>	—
-Consolidate and screen existing small diversions	<u>3</u>	—
-Enforce screening requirements	<u>4</u>	—
Improvement of Bay-Delta System Fish Migration	<u>3</u>	—
Actions: -Install barriers to block fish movement into Old River	—	—
-Install barriers to keep fish in Sacramento River	—	—
-Install barriers to divert fish from Sacramento River to western distributaries	—	—
-Operate fish barrier on San Joaquin River at Merced River confluence in fall	—	—
-Provide instream pulse flows for fish passage	—	—
-Provide instream flows for fish attraction	—	—
Improvement of Fish Salvage Operations	<u>3</u>	—
Actions: -Improve design of salvage facilities	<u>3</u>	—
-Improve operation of salvage facilities	<u>3</u>	—
-Improve fish hauling and release procedures	<u>3</u>	—
Removal and Control of Aquatic Predators	<u>4</u>	—
Actions: -Harvest predators at Delta export pumps	<u>4</u>	—
-Harvest predators in upstream habitats	<u>4</u>	—
Action Categories to Manage the Enhancement of Anadromous Fish Populations		
Fish Hatchery Operations	<u>3</u>	—
Actions: -Expand hatchery capacities	<u>2</u>	—
-Construct new hatcheries on the San Joaquin River	<u>3</u>	—
-Improve hatchery operations	<u>3</u>	—

	Importance 1 - 5	Core Action C
-Reduce hatchery effects on wild fish populations	<u>3</u>	_____
-Implement tagging of hatchery-bred fish	<u>3</u>	_____
-Establish new captive breeding programs	<u>3</u>	_____
Fish Harvest Management	<u>4</u>	<u>C</u>
Actions: -Improve regulation of commercial take	<u>4</u>	<u>C</u>
-Improve regulation of recreational take	<u>4</u>	<u>C</u>
-Improve enforcement of harvest regulations	<u>4</u>	<u>C</u>

Action Categories for Reducing Reliance on Delta Exports

Desalination	<u>3</u>	_____
Actions: -Expand desalination of Southern California supplies	<u>3</u>	_____
-Expand desalination of San Joaquin Valley supplies	<u>3</u>	_____
-Improve desalination technologies and cost	<u>3</u>	_____
-Educate users about desalination feasibility	<u>2</u>	_____
Water Conservation	<u>3</u>	_____
Actions: -Increase use of district-wide conservation practices	<u>3</u>	_____
-Increase use of on-farm conservation practices	<u>3</u>	_____
-Increase use of municipal conservation practices	<u>3</u>	_____
-Increase use of industrial conservation practices	<u>3</u>	_____
-Implement financial incentive policies	<u>2</u>	<u>C</u>
-Implement conservation-oriented rate structures	<u>3</u>	_____
-Educate users about conservation technologies	<u>3</u>	_____
Water Reclamation	_____	_____
Actions: -Recharge groundwater with reclaimed water	<u>3</u>	_____
-Use reclaimed water for agricultural irrigation	<u>3</u>	_____
-Reclaim saline agricultural drainage water	<u>2</u>	_____
-Recycle and treat water for potable reuse	<u>2</u>	_____
-Use reclaimed water for nonpotable urban uses	<u>3</u>	_____
-Use reclaimed water for landscape irrigation	<u>3</u>	_____
-Use reclaimed water for power plant cooling	<u>3</u>	_____
-Use reclaimed water for industrial processes	<u>3</u>	_____
-Use reclaimed water to repel salinity intrusion	<u>3</u>	_____
-Improve reclamation technologies and cost	<u>3</u>	_____
-Educate public about water reclamation	<u>2</u>	_____

	Importance 1 - 5	Core Action C
Land Retirement and Fallowing	<u>2</u>	___
Actions:		
-Encourage land fallowing during drought periods	<u>3</u>	___
-Develop incentive programs for land retirement	<u>2</u>	___
-Purchase lands or easements	<u>2</u>	___
-Retire lands with drainage problems	<u>2</u>	___
Water Pricing	<u>2</u>	___
Actions:		
-Establish incentives for pricing to reduce demand	<u>2</u>	___
-Educate users about pricing feasibility	<u>2</u>	___
-Remove legal obstacles to pricing incentive programs	<u>2</u>	___
Action Categories to Enhance Water Supplies		
Watershed Management	___	___
Actions:		
-Manage vegetation cover to increase yield	<u>2</u>	___
-Manage riparian zones to protect water quality	<u>3</u>	___
-Manage land uses to reduce sedimentation	<u>3</u>	___
-Modify weather to increase precipitation	<u>1</u>	___
New or Expanded Onstream Storage	___	___
Actions:		
-Construct new storage facilities south of the Delta	<u>2</u>	___
-Construct new storage facilities north of the Delta	<u>2</u>	___
-Enlarge existing onstream storage reservoirs	<u>2</u>	___
-Modify operations of existing onstream reservoirs	<u>3</u>	___
New or Expanded Offstream Storage	___	___
Actions:		
-Construct new storage facilities south of the Delta	<u>2</u>	___
-Construct new storage facilities north of the Delta	<u>2</u>	___
-Construct new storage facilities in Delta	<u>3</u>	___
-Enlarge existing offstream storage reservoirs	<u>2</u>	___
-Modify operations of existing offstream reservoirs	<u>3</u>	___
Groundwater Banking and Conjunctive Use	___	___
Actions:		
-Establish incentives for conjunctive use	<u>3</u>	___
-Modify Water Code to encourage conjunctive use	<u>2</u>	___
-Establish conjunctive use programs	<u>3</u>	___

	Importance 1 - 5	Core Action C
-Store groundwater south of the Delta	<u>3</u>	___
-Store groundwater north of the Delta	<u>3</u>	___
-Implement techniques to increase groundwater recharge	<u>3</u>	___
Improvement of Through-Delta Conveyance	<u>4</u>	<u>C</u>
Actions: -Increase capacities of existing east-side channels	<u>4</u>	<u>C</u>
-Increase flows from the Sacramento River to the central Delta	<u>4</u>	<u>C</u>
-Modify Delta levees to increase flow cross sections	<u>4</u>	<u>C</u>
-Construct pump/siphon systems between Delta channels	<u>4</u>	<u>C</u>
-Expand existing intakes at the Delta export facilities	<u>4</u>	<u>C</u>
-Construct expanded export intake/forebay pumping system	___	___
Construction and Improvement of Conveyance Facilities	___	___
Actions: -Construct east-side isolated transfer system	<u>4</u>	<u>C</u>
-Construct west-side isolated transfer system	<u>1</u>	___
-Construct small isolated transfer facility	<u>3</u>	___
-Convert Delta islands to storage/conveyance system	<u>3</u>	___
-Construct conveyance to offstream storage	<u>1</u>	___
-Construct conveyance to groundwater storage	<u>1</u>	___
Changes in Locations of Diversions	___	___
Actions: -Relocate Delta export pumps from key habitats	<u>2</u>	___
-Relocate other in-Delta diversions for more reliable supplies	<u>4</u>	<u>C</u>
-Consolidate in-Delta agricultural diversions	<u>3</u>	___
-Relocate upstream diversions from key habitats	<u>3</u>	___
-Improve diversion designs when relocating	<u>4</u>	<u>C</u>
Action Categories to Increase Supply Predictability		
Water Transfers	<u>3</u>	___
Actions: -Modify Water Code to ease transfers	<u>4</u>	___
-Improve procedures for transfer permitting	<u>3</u>	___
-Coordinate diversion and conveyance of transfers	<u>3</u>	___

	Importance 1 - 5	Core Action C
Long-Term Planning for Drought Contingencies	_____	_____
Actions: -Increase water storage capacities at user locations	<u>3</u>	_____
-Establish incentives for long-term planning	<u>2</u>	_____
-Conduct Integrated Resources Planning	<u>2</u>	_____
-Establish incentives for long-term conservation	<u>2</u>	_____
-Develop alternate supplies for drought situations	<u>3</u>	_____
Water Resources Data and Information Management	_____	_____
Actions: -Establish a comprehensive water data system	<u>4</u>	<u>C</u>
-Implement real-time data management system	<u>5</u>	<u>C</u>
-Integrate data for adaptive management decisions	<u>5</u>	<u>C</u>
-Establish accessible data management system	<u>4</u>	<u>C</u>
Establishment of Institution for Integrated Long-Term Water Management	_____	_____
Actions: -Establish long-term guarantees for management	<u>4</u>	<u>C</u>
-Establish institution to implement guarantees	<u>3</u>	_____
-Coordinate multiagency roles in management	<u>5</u>	<u>C</u>
-Coordinate groundwater and surface water management	<u>3</u>	_____
-Establish incentives for cooperation/coordination	<u>4</u>	<u>C</u>
-Establish a public awareness and education program	<u>3</u>	_____
Establishment of Export Capacity Market	<u>2</u>	_____
Actions: -Establish procedures for allocation of export capacity	<u>2</u>	_____
-Establish institution to allocate export capacity	<u>2</u>	_____
-Coordinate water transfers and export capacity	<u>3</u>	_____
-Market export capacity for environmental benefits	<u>2</u>	_____
Integration of Land Use and Water Supply Planning	<u>1</u>	_____
Actions: -Coordinate land uses with water supplies	<u>1</u>	_____
-Encourage local determination of supplies available	<u>1</u>	_____
-Encourage local assessment of water supply reliability	<u>1</u>	_____

Action Categories for Managing Water Quality

Installation and Operation of Flow Barriers	_____	_____
Actions: -Install flow barriers to manage south Delta quality	<u>5</u>	<u>5</u>
-Install weirs to control salinity intrusion	<u>3</u>	<u>3</u>
Management of Agricultural Drainage	_____	_____
Actions: -Implement source control regulations for pollutants	<u>3</u>	_____
-Implement pollutant-load limits in San Joaquin River	<u>3</u>	_____
-Reduce or control volume of agricultural discharges	<u>3</u>	_____
-Modify cropping and irrigation practices	<u>1</u>	_____
-Export agricultural drainage to other watersheds	<u>2</u>	_____
-Retire lands with drainage disposal problems	<u>2</u>	_____
-Improve pest-control practices	<u>1</u>	_____
-Avoid use of high-salinity irrigation water	<u>?</u>	_____
-Manage irrigation tailwater to reduce pesticides	<u>?</u>	_____
-Manage drainage timing to reduce instream impacts	<u>?</u>	_____
-Treat drainage to remove salt or other pollutants	<u>?</u>	_____
-Dilute pollutants in Delta inflows from SJR using stored water	<u>?</u>	_____
Management of Urban/Industrial Drainage and Wastewater Discharge	_____	_____
Actions: -Retain and manage stormwater runoff	<u>?</u>	_____
-Implement urban awareness/education programs	<u>1</u>	_____
-Treat discharges to remove problem constituents	<u>1</u>	_____
-Construct wetlands to treat wastewater effluent	<u>2</u>	_____
-Increase key nutrient inputs to estuary	<u>?</u>	_____
-Enforce wastewater discharge requirements	<u>3</u>	_____
-Prevent toxic discharges from industrial plants	<u>4</u>	_____
Dredged Material Management	_____	_____
Actions: -Limit dredging to slack tides	<u>?</u>	_____
-Limit dredging to avoid fish migration periods	<u>?</u>	_____
-Use techniques to localize sediment movement	<u>?</u>	_____
-Dispose dredged materials at nonaquatic or other suitable sites	<u>?</u>	_____
-Remove contaminated sediments in critical habitat sites	<u>?</u>	_____
-Ensure material used for levee maintenance is noncontaminated	<u>?</u>	_____

	Importance 1 - 5	Core Action C
Management of Abandoned-Mine Drainage	_____	_____
Actions: -Manage discharges from abandoned mines	<u>2</u>	_____
-Remediate abandoned mining sites discharging pollutants	<u>?</u>	_____

Action Categories for Improving System Reliability

Levee Maintenance and Stabilization	_____	_____
Actions: -Maintain and stabilize existing levees	<u>3</u>	_____
-Modify agricultural practices to reduce subsidence	<u>3</u>	_____
-Use infilling to correct past subsidence	<u>?</u>	_____
-Implement uniform maintenance standards	<u>?</u>	_____
-Provide funding for maintenance and stabilization	<u>?</u>	_____
Improvement of Flood Protection Levels and Seismic Stabilities	_____	_____
Actions: -Reconstruct levees to higher design standards	<u>3</u>	_____
-Reconstruct levees to higher seismic standards	<u>3</u>	_____
-Relocate levees to more stable sites	<u>?</u>	_____
-Widen floodways to increase flood conveyance	<u>?</u>	_____
-Establish and manage flood overflow areas	<u>?</u>	_____
Rerouting and Protection of Infrastructure from Flooding and Seismic Risk	<u>2</u>	_____
Actions: -Maintain/reconstruct levees around infrastructure	<u>2</u>	_____
-Reconstruct infrastructure to increase reliability	<u>2</u>	_____
-Relocate/reroute infrastructure	<u>2</u>	_____
Establishment of Long-Term Funding Mechanisms	_____	_____
Actions: -Establish a disaster contingency funding program	<u>?</u>	_____
-Establish a Bay-Delta financing authority	<u>?</u>	_____
-Provide low-cost debt financing for local agencies	<u>?</u>	_____
-Establish a bond financing mechanism	<u>?</u>	_____
-Establish a statewide water utility surcharge	<u>?</u>	_____

COMMENTS: My primary reaction is that grading these is difficult. The word "important" - is highly subjective and reflects one's organizational biases. Does the grading scale relate to a CALFED/ Bay-Delta fix to implement the Accord - or does it relate to the States' water plan for 2020?

I've given 4's and 5's to actions I think relate to a CALFED/ Bay-Delta fix. The mix must depend on what can be accomplished by an action, and what the cost will be. It's becoming obvious that a sky-high Bay-Delta package will not get funded.

The actions need to be sorted with regard to accomplishments and costs. A lot of the actions I put 2's and 3's on are more suited to a long-range statewide plan than an immediate Delta fix. A good, early step would be to get rid of... i.e. set aside for now - the long rangers. Then on those that have some "core" values... find a way to set out the accomplishment and costs of those... You know my thoughts on that.

Sincerely

Stan Ryk

Jan 7, 1996