ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
	ER		Hydrology			
	WQ		Geomorphology			
	WM		Habitat			
	WT		Biota			
	DL		Energetics/Nutrient Cycling			
	WU		Landuse & Resource Mgmt			
			Human Welfare			
1	DL	Delta Levees	Landuse & Resou	Levee Profiles using NAVD 88 vertical datum protocols - update and maintenance		
2	DL	Delta Levees	Landuse & Resou	Levee Cross Sections - PL-99 Criteria, 500 ft intervals		
3	DL	Delta Levees	Landuse & Resou	Levee maintenance quality inspections		
4	DL	Delta Levees	Geomorphology	channel-Bathymetric surveys - measure levee undercuting		
5	DL	Delta Levees	Landuse & Resou	levees-GIS database of levee profile and cross-section information		
6	DL	Delta Levees	Geomorphology	land surface elevation-Delta Island		
7	DL	Delta Levees	Geomorphology	land-Subsidence rates - islands, levees, land adjacent to levees		
8	DL	Delta Levees	Geomorphology	soils-Peat and organic - vertical & horizontal extent		
9	DL	Delta Levees	Hydrology	Groundwater levels/elevations-Delta Islands		
10	DL	Delta Levees	Geomorphology	soils-Peat and organic - gradation, organic matter content, moisture content, void ratio, compressability		
11	DL	Delta Levees	Hydrology	Bay/Delta Hydrodynamics-Sea level rise		
12	DL	Delta Levees	Human Welfare	Flood Fighting - Flood emergency response status		
13	DL	Delta Levees	Human Welfare	Flood Fighting - Coordinate with LMA's for acquisition of flood fighting assistance through mutual aid resources		
14	DL	Delta Levees	Human Welfare	Flood Fighting - Procuring and dispatching flood fighting materials		
15	DL	Delta Levees	Human Welfare	Flood Fighting - Coordinating levee inspections, high water monitoring, staking		
16	DL	Delta Levees	Human Welfare	Flood Fighting - Providing engineering and technical levee assessment		
17	DL	Delta Levees	Human Welfare	Flood Fighting - Providing environmental assessment		

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
18	DL	Delta Levees	Human Welfare	Flood Fighting - Disseminating data and information		
19	DL	Delta Levees	Human Welfare	Flood Fighting - Providing Delta Levee Program funding assistance		
20	DL	Delta Levees	Human Welfare	Flood Fighting - Providing coordination for ACOE funding and assistance under Public Law 84-99		
21	DL	Delta Levees	Geomorphology	land-Seismic source characterization		
22	DL	Delta Levees	Geomorphology	Ground motions in Delta		
23	DL	Delta Levees	Geomorphology	Levees-Mapping of probabilistic ground shaking, incorporating site effect including non-linear response of soil and peat		
24	DL	Delta Levees	Landuse & Resou	levees-ground failure - mapping of ground failure susceptibility of levees		
25	DL	Delta Levees	Landuse & Resou	levees-ground failure - mapping of ground failure potential of levees		
26	DL	Delta Levees	Geomorphology	Levees - Identification of critically vulnerable zones, assessment of restoration efforts		
27	DL	Delta Levees	Habitat	mitigation-terrestrial and aquatic habitat- site specific impacts due to levee improvements (includes borrow, staging and stockpiling areas, and haul routes)		
28	DL	Delta Levees	Habitat	mitigation-terrestrial and aquatic habitat- cumulative impacts due to levee improvements (includes borrow, staging and stockpiling areas, and haul routes)		
29	DL	Delta Levees	Hydrology	water-quality - impacts due to dredging or deposition of material in Delta waterways		
30	DL	Delta Levees	Biota	mitigation-terrestrial and aquatic species - site specific impacts associated with levee improvements (includes borrow, staging and stockpiling areas, and haul routes)		
31	DL	Delta Levees	Biota	mitigation-terrestrial and aquatic species - cumulative impacts associated with levee improvements (includes borrow, staging and stockpiling areas, and haul routes)		
32	DL	Delta Levees	Habitat	mitigation-compensatory mitigation for levee improvement,including mitigation banking - site specific and cumulative benefits		

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
33	ER	Bay-Delta productivit	Biota	Fish-Distribution and abundance		increase spatial sampling, American Shad, green and white sturgeon, striped bass
34	ER	Bay-Delta productivit	Biota	Fish-Diet/feeding success (gut fullness, prey wt.,freq. Occurrence)		Delta, brackish, polyhaline food chains
35	ER	Bay-Delta productivit	Biota	Fish-health (subset of spp.)		
36	ER	Bay-Delta productivit	Biota	Fish-bioaccumulation		Delta, brackish, polyhaline food chains
37	ER	Benthic Invertebrates	Biota	Invertebrates-Macroinvertebrate Fauna	Taxa richness, Shannon diversity index, ept taxa, ept index, Modified Hilsenhoff Biotic Index (HBI), Percent Dominant Taxon (PDT),	
38	ER	Benthic Invertebrates	Hydrology	water-Temperature		in relation to macroinvertebrates
39	ER	Benthic Invertebrates	Hydrology	water-PH		in relation to macroinvertebrates
40	ER	Benthic Invertebrates	Hydrology	water-Turbidity		in relation to macroinvertebrates
41	ER	Benthic Invertebrates	Hydrology	water-Conductivity		in relation to macroinvertebrates
42	ER	Benthic Invertebrates	Hydrology	flow-velocity		in relation to macroinvertebrates
43	ER	Benthic Invertebrates	Geomorphology	channel-substrate complexity		in relation to macroinvertebrates
44	ER	Benthic Invertebrates	Habitat	vegetation-canopy cover		in relation to macroinvertebrates
45	ER	Benthic Invertebrates	Biota	Algal community surveys		in relation to macroinvertebrates
46	ER	Delta Smelt	Biota	Fish-spawning delta smelt		
47	ER	Delta Smelt	Biota	Fish-delta smelt-larvae		
48	ER	Delta Smelt	Biota	Fish-delta smelt-juvenile		
49	ER	Delta Smelt	Biota	Fish-delta smelt-Adult		
50	ER	Fish X2	Biota	Zooplankton-		continued SFB Study, IEP WQ monitoring
51	ER	Fish X2	Biota	Invertebrate-Mysid abundance		continued SFB Study, IEP WQ monitoring
52	ER	Fish X2	Hydrology	Water-salinity		continued SFB Study, IEP WQ monitoring

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ID	Pro-gram	Work Team	Parameter Classification	Parameter	Indicator	Comment
53	ER	Fish X2	Energetics/Nutrie	organic carbon input brackish estuary		continued SFB Study, IEP WQ monitoring
54	ER	Fish X2	Biota	microbial production		continued SFB Study, IEP WQ monitoring
55	ER	Fish X2	Biota	Fish-larval		continued SFB Study, IEP WQ monitoring
56	ER	Fluvial geomorpholog	Biota	Vegetation-riparian-stand attributes [spp,dbh,ht.,basal area, canopy gap fraction, distribution & %herbaceous cover}		
57	ER	Fluvial geomorpholog	Hydrology	Groundwater-levels		
58	ER	Fluvial geomorpholog	Hydrology	Groundwater-sources		
59	ER	Fluvial geomorpholog	Hydrology	Groundwater-movement		
60	ER	Fluvial geomorpholog	Hydrology	flow-flood frequency/inundation		
61	ER	Fluvial geomorpholog	Biota	Vegetation-riparian-growth and productivity		
62	ER	Fluvial geomorpholog	Biota	Birds-Species richness/diversity		
63	ER	Fluvial geomorpholog	Biota	Birds-Distribution		
64	ER	Fluvial geomorpholog	Biota	Birds-Abundance selected riparian spp.		
65	ER	Fluvial geomorpholog	Biota	Birds-Reproduction selected riparian spp.		
66	ER	Fluvial geomorpholog	Hydrology	flow-daily		
67	ER	Fluvial geomorpholog	Hydrology	water-temperature		
68	ER	Fluvial geomorpholog	Biota	Fish-Distribution larvae, juvenile, adult in floodplains		
69	ER	Fluvial geomorpholog	Biota	Fish-Condition in floodplains		
70	ER	Fluvial geomorpholog	Biota	Fish-Diet in floodplains		
71	ER	Fluvial geomorpholog	Hydrology	flow-stage/height		
72	ER	Fluvial geomorpholog	Hydrology	flow-depth		
73	ER	Fluvial geomorpholog	Hydrology	flow-velocity profiles		
74	ER	Fluvial geomorpholog	Hydrology	water-turbidity		
75	ER	Fluvial geomorpholog	Biota	Vegetation-cover		
76	ER	Fluvial geomorpholog	Hydrology	Flow-inflow rate		
77	ER	Fluvial geomorpholog	Hydrology	flow-vertical hydraulic gradient		
78	ER	Fluvial geomorpholog	Hydrology	water-temperature		
79	ER	Fluvial geomorpholog	Hydrology	water-dissolved oxygen		
80	ER	Fluvial geomorpholog	Geomorphology	sediment-substrate permeability		
81	ER	Fluvial geomorpholog	Habitat	Channel-habitat delineation, areal extent		
82	ER	Fluvial geomorpholog	Habitat	Floodplain inundated		
83	ER	Fluvial geomorpholog	Habitat	vegetation-Riparian habitat-delineation, areal extent		
84	ER	Fluvial geomorpholog	Habitat	channel-geometry		

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
85	ER	Fluvial geomorpholog	Hydrology	flow-surface elevations/stage-discharge curves		
86	ER	Fluvial geomorpholog	Geomorphology	sediment-composition and particle size distribution		
87	ER	Fluvial geomorpholog	Landuse & Resou	human activities near streams, riparian areas		
88	ER	Hydrodynamics	Hydrology	flow-height(stage) - rivers -time series		Current-DWR,USGS
89	ER	Hydrodynamics	Hydrology	flow-height(stage) - delta & bay-time series		Current-DWR,USGS,NOAA
90	ER	Hydrodynamics	Hydrology	Flow-River- time series	Delta inflow	Current-DWR, USGS
91	ER	Hydrodynamics	Hydrology	Flow-Tidal- time series	Delta outflow (combined measure)	Current-USGS
92	ER	Hydrodynamics	Hydrology	water-Salinity-specific conductance & temperature- Delta & Bay		Current (DWR, USBR, USGS)
93	ER	Hydrodynamics	Hydrology	water-Temperature (with Salinity) - Delta & Bay		Current (DWR, USBR, USGS)
94	ER	Hydrodynamics	Hydrology	sediment-Suspended - inflow into Delta		New+Current-USGS
95	ER	Hydrodynamics	Hydrology	sediment-Suspended- within Delta		New+Current-USGS
96	ER	Hydrodynamics	Hydrology	Flow-channel tidal flows		
97	ER	Hydrodynamics	Hydrology	Flow-export rates		
98	ER	Hydrodynamics	Hydrology	flow gate- operation timing		
99	ER	Hydrodynamics	Hydrology	flow barriers- installation and removal		
100	ER	Hydrodynamics	Hydrology	Bay/Delta Hydrodynamics-Historical- Current profiles,salinities, currents, drift movement, sea level, temp. conductivity, velocity profile, velocity & stage, turbidity, depth profile, chlorophyll a, CTD-OBF, -- Bay, Delta		Historical & recurring studies
101	ER	Hydrodynamics	Hydrology	Bay/Delta Hydrodynamics-Bottom salinity/temperature-axis of north channel of Delta & Bay	X2	New
102	ER	Hydrodynamics	Hydrology	Flux-fish divided by water velocity		New
103	ER	Hydrodynamics	Hydrology	Flux-zooplankton divided by water velocity		New
104	ER	Hydrodynamics	Hydrology	Flux-sediment divided by water velocity		New
105	ER	Hydrodynamics	Hydrology	Flow-diversions		New
106	ER	Hydrodynamics	Hydrology	Flow-changes due to set-back levees		New
107	ER	Hydrodynamics	Geomorphology	sediment-deposition-effect of habitat restoration & entrapment mechanisms		New
108	ER	Hydrodynamics	Hydrology	water-contaminant transport - effect of habitat restoration		New
109	ER	Hydrodynamics	Geomorphology	sediment-deposition	erosion & deposition coefficients	New

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
110	ER	Hydrodynamics	Geomorphology	sediment-resuspension	erosion & deposition coefficients	New
111	ER	Hydrodynamics	Hydrology	Flow-channel - velocity & stage		New & Current
112	ER	Hydrodynamics	Geomorphology	channel-Bathymetric measurements in channels		New & Current
113	ER	Hydrodynamics	Geomorphology	channel-Movement of large bars		New & Current
114	ER	Hydrodynamics	Hydrology	Bay/Delta Hydrodynamics-Shallow water hydrology - Currents, CTC w/OBS, bathymetry, chlorophyll		New
115	ER	Hydrodynamics	Hydrology	Bay/Delta Hydrodynamics-Horizontal Current Patterns in Bay/Delta - from model		Current-USGS & NOAA
116	ER	Hydrodynamics	Hydrology	Bay/Delta Hydrodynamics-3D hydrodynamic model of Bay & Delta	maps of tidal & net currents, X2, and gravitational circulation	New
117	ER	Resident fish	Biota	Fish-Distribution juvenile & adult		
118	ER	Resident fish	Biota	Fish-relative abundance		
119	ER	Resident fish	Biota	Fish-Condition (length,wt.,anomalies)		
120	ER	Resident fish	Biota	Fish-Growth rate		
121	ER	Resident fish	Biota	Fish-Diet (some spp., life stages)		
122	ER	Resident fish	Biota	Fish-Lamprey spawning (w/ salmon)		
123	ER	Resident fish	Hydrology	water-temperature		
124	ER	Resident fish	Hydrology	water-dissolved oxygen		
125	ER	Salmon	Biota	Fish-Salmon-annual escapement surveys	Salmon adult abundance	Current-CAMP; New - Bear, Calaveras, Consumnes, Dry Creek Basin
126	ER	Salmon	Biota	Fish-Steelhead-annual escapement surveys		Current-CAMP; New - Stanislaus, Yuba, Feather, American
127	ER	Salmon	Biota	Fish-Salmon-Evaluate New Methods of Estimating Escapement - Counting Weirs, Hydroacoustics, etc.		
128	ER	Salmon	Biota	Fish-Salmon-Scales & Otoliths - determine age composition	Salmon age composition	
129	ER	Salmon	Biota	Fish-Steelhead-Scales & Otoliths - determine age composition	Steelhead age composition	
130	ER	Salmon	Biota	Fish-Salmon-running time from delta to spawning grounds		
131	ER	Salmon	Biota	Fish-Steelhead-running time from delta to spawning grounds		
132	ER	Salmon	Biota	Fish-Salmon-pre-spawning mortality through early November		

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
133	ER	Salmon	Biota	Fish-Salmon-Carcass surveys - CWT tag reports & number of adults examined for CWT tags		
134	ER	Salmon	Biota	Fish-Salmon-Percentage of hatchery fish in escapement		
135	ER	Salmon	Biota	Fish-Salmon-percentage of straying from San Joaquin to Sacramento basin		
136	ER	Salmon	Hydrology	Bay/Delta Hydrodynamics-Delta water export rates relative to flow in the SJ River and in Delta Qwest in mid-october		
137	ER	Salmon	Biota	Fish-Salmon-Percent straying relative to delta water export rates		
138	ER	Salmon	Hydrology	water-Dissolved Oxygen in mid-October in the San Joaquin River near Stockton		
139	ER	Salmon	Biota	Fish-Salmon-Delays in adult migration in San Joaquin River		
140	ER	Salmon	Biota	Fish-Salmon-Delays in adult migration relative to DO in San Joaquin River near Stockton in mid-October		
141	ER	Salmon	Biota	Fish-Salmon-Reduced egg viability relative to migration delay in San Joaquin River near Stockton		
142	ER	Salmon	Hydrology	water-Dissolved Oxygen relative to decomposition of algal biomass produced from upstream of Mossdale		
143	ER	Salmon	Landuse & Resou	wastewater-Nutrient loading near Stockton from sewage, canneries effluent, urban runoff, dairy farms		
144	ER	Salmon	Hydrology	water-Dissolved Oxygen in October near Stockton relative to nutrient loading from sewage, canneries effluent, urban runoff, dairy farms		
145	ER	Salmon	Hydrology	water-Undissociated ammonia levels in mainstem of SJ River near Stockton in mid-October		
146	ER	Salmon	Biota	Fish-Salmon-Delay in migration relative to undissociated ammonia levels in mainstem of SJ River near Stockton in mid-October		

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ID	Pro-gram	Work Team	Parameter Classification	Parameter	Indicator	Comment
147	ER	Salmon	Biota	Fish-Salmon-Delay in migration in the SJ River and Delta relative to sport fishery harvesting rates		
148	ER	Salmon	Hydrology	Water-temperatures from the beginning of adult upmigration to the end of outmigration near the dam, river mouth, and middle of spawning and rearing reaches.		
149	ER	Salmon	Habitat	vegetation-Riparian forest width, height, density relative to water temperature		
150	ER	Salmon	Biota	Fish-Salmon-Redd distributions among and between riffles and other spawning habitat, particularly in reference to the location and size of hydraulic controls. Redd distribution will be used as a preliminary indicator of spawning habitat quality.		
151	ER	Salmon	Biota	Fish-Salmon-Redd distribution & superimposition relative to water temperatures during early spawning	Spawning Habitat Quality	
152	ER	Salmon	Biota	Fish-Salmon-Redd stranding rates and spawning disruption relative to flow changes		
153	ER	Salmon	Habitat	Salmon-Spawning habitat restoration projects monitoring-- elements will include redd distribution, intragravel D.O. levels, intragravel water temperature, substrate permeability, vertical hydraulic gradient, and streambed elevation.		
154	ER	Salmon	Biota	Fish-Salmon-juvenile distribution vs streambed complexity		
155	ER	Salmon	Geomorphology	channel-Streambed complexity		
156	ER	Salmon	Biota	Fish-Salmon-juvenile survival and growth relative to benthic macroinvertebrate production, zooplankton abundance, terrestrial invertebrate abundance, organic sediment		
157	ER	Salmon	Biota	Invertebrates-Benthic macroinvertebrate production		
158	ER	Salmon	Biota	Zooplankton-abundance		
159	ER	Salmon	Biota	invertebrates-Terrestrial invertebrate abundance		
160	ER	Salmon	Geomorphology	sediments-organic		

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ID	Pro-gram	Work Team	Parameter Classification	Parameter	Indicator	Comment
161	ER	Salmon	Biota	Fish-Salmon-juvenile growth & lipid storage vs water temperature		
162	ER	Salmon	Biota	Fish-Salmon-Evaluate screw trap efficiency & alternate methods of estimating juvenile salmon & steelhead outmigration		
163	ER	Salmon	Biota	Fish-Salmon-Fry emigration vs channel structural complexity		
164	ER	Salmon	Geomorphology	channel structural complexity		
165	ER	Salmon	Biota	Fish-Salmon-Juvenile maturity at out-migration versus water temperature		
166	ER	Salmon	Biota	Fish-Salmon-smoltification timing vs. water temperature		
167	ER	Salmon	Biota	Fish-Salmon-juvenile outmigration timing vs. water flow pulsing		
168	ER	Salmon	Hydrology	flow-pulsing		
169	ER	Salmon	Biota	Fish-Salmon-smolt survival - versus streamflow, water temperature, diversions - mark & recapture, radio tagging		
170	ER	Salmon	Biota	Fish-Salmon-ocean harvest		
171	ER	Salmon	Hydrology	Bay/Delta Hydrodynamics-ocean currents - el Nino, surface temperatures		
172	ER	Salmon	Biota	Fish-salmon-ocean prey abundance		
173	ER	Steelhead	Biota	Fish-steelhead-hatchery marking number &rates		Current Program - USFWS,CDFG,DWR
174	ER	Steelhead	Biota	Fish-steelhead & salmon-adult scale & otolith collection & analysis	stock identification, habitat use, life history, age & growth	Current- CDFG
175	ER	Steelhead	Hydrology	water-strontium concentration in steelhead spawning streams		Current- CDFG
176	ER	Steelhead	Biota	Fish-steelhead & salmon-juvenile scale & otolith collection & analysis		Current- CDFG
177	ER	Steelhead	Biota	Fish-steelhead-angler survey-CWT tags, cut heads, scale samples		Current- CDFG-IFD (Sac & SJ),EBMUD (Mokelumne)
178	ER	Steelhead	Biota	Fish-salmonid-juvenile - screw traps, identifed, weighed, measured, mark-recapture	timing of emigration, relative abundance of 4 salmon runs & steelhead relative to baseline conditions, cohort survival, steelhead smolts	Current Program -CDFG-ESD, CDFG-R2, S.P. Cramer (Stanislaus), USFWS-CAMP

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ID	Pro-gram	Work Team	Parameter Classification	Parameter	Indicator	Comment
179	ER	Steelhead	Biota	Fish-salmonid-juvenile-river-wide beach seining	spatial & temporal distribution of juvenile salmon and steelhead runs, emigration timing	Current Program - USFWS
180	ER	Steelhead	Habitat	channel-morphology vs number of salmonids	salmonid rearing habitat evaluation	Current- CDFG-ESD, DWR
181	ER	Steelhead	Habitat	sediment-substrate-sampling-bulk,permeabiliby, water temperature, DO,		Current- CDFG-ESD, EBMUD (Mokelumne)
182	ER	Steelhead	Biota	Fish-steelhead-post-spawning adult - screw traps	emigration rates	Current - CDFG-ESD
183	ER	Steelhead	Hydrology	water-temperature-Feather River		Current- Feather River - DWR
184	ER	Steelhead	Habitat	channel-changes & vegetation map before & after flooding - Feather River	Flooding effects on salmonid habitat	Current- Feather River - DWR
185	ER	Steelhead	Biota	Fish-salmonid-stranding rates of juvenile salmonids - Feather River		Current- Feather River - DWR
186	ER	Steelhead	Biota	Fish-salmon & steelhead-juvenile- trawling	Delta emigration rates	Current Program - USFWS
187	ER	Steelhead	Biota	Fish-screen sampling at CVP & SWP	Fish Screening effects - Number salvaged & lost by species	Current - USBR, CDFG
188	ER	Steelhead	Habitat	channel-River habitat vs fish assemblage, usage with seasonal, flow and temporal changes		Current - Mokelumne-EBMUD
189	ER	Steelhead	Biota	Fish-community surveys		Current - Mokelumne-EBMUD
190	ER	Steelhead	Biota	Fish-Steelhead-Redd surveys		Current - Mokelumne-EBMUD
191	ER	Steelhead	Biota	Fish-steelhead/rainbow trout, juvenile chinook salmon - Dietary analysis		Current - Mokelumne-EBMUD
192	ER	Steelhead	Biota	Fish-salmonid-population density & emigration - mark & recapture	population density & emigration	Current - Mokelumne-EBMUD
193	ER	Steelhead	Biota	fish-fish ladder video monitoring-species, size, sex	emigration past fish ladder (Woodbridge Dam)	Current - Mokelumne-EBMUD
194	ER	Steelhead	Biota	Fish-Salmonid-juvenile & adult - screw trap	index of natural river production (Woodbridge Dam)	Current - Mokelumne-EBMUD
195	ER	Steelhead	Biota	Fish-steelhead/rainbow trout allelic testing	allelic variation in hatchery steelhead	Current - Mokelumne-EBMUD
196	ER	Steelhead	Biota	Fish-steelhead-rainbow trout-presence/absence of adipose fin clips	Distribution of steelhead in Central Valley	New-Record in all projects
197	ER	Steelhead	Biota	Fish-steelhead-rainbow trout-life stage ranking	life stage development, temporal & spatial aspects of smoltification	New-Record in all projects

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
198	ER	Steelhead	Biota	Fish-steelhead-spawning escapement-upper sacramento		New
199	ER	Steelhead	Biota	Fish-steelhead-distribution & emigration timing		New-San Joaquin
200	ER	Steelhead	Biota	Fish-steelhead-degree of straying between basins		New
201	ER	Steelhead	Biota	Fish-steelhead-degree of straying within basins		New
202	ER	Steelhead	Habitat	habitat availability below dams-steelhead		New
203	ER	Steelhead	Habitat	microhabitat usage below dams-steelhead		New
204	ER	Steelhead	Hydrology	water-Temperature-Rivers		
205	ER	Steelhead	Hydrology	water-Temperature-Reservoirs		
206	ER	System Productivity	Meteorology	air-wind-speed, direction		
207	ER	System Productivity	Meteorology	air-temperature		
208	ER	System Productivity	Meteorology	precipitation		
209	ER	System Productivity	Meteorology	air-relative humidity		
210	ER	System Productivity	Meteorology	sunlight		
211	ER	System Productivity	Hydrology	water-salinity		
212	ER	System Productivity	Hydrology	water-temperature		
213	ER	System Productivity	Hydrology	water-light attenuation		
214	ER	System Productivity	Geomorphology	sediment-suspended/water clarity		
215	ER	System Productivity	Hydrology	flow-total daily inflow		
216	ER	System Productivity	Hydrology	flow-diversions		
217	ER	System Productivity	Hydrology	flow-net tidally averaged		
218	ER	System Productivity	Hydrology	water-pH		
219	ER	System Productivity	Hydrology	water-dissolved oxygen		
220	ER	System Productivity	Hydrology	water-nutrients		
221	ER	System Productivity	Hydrology	water-nutrients organics		
222	ER	System Productivity	Hydrology	water-organic carbon /BOD		
223	ER	System Productivity	Biota	Phytoplankton-biomass	chlorophyll a , phaeopigments	
224	ER	System Productivity	Biota	phytoplankton-primary productivity		few stations to validate model
225	ER	System Productivity	Biota	phytoplankton-species composition		
226	ER	System Productivity	Biota	Microbial Communities-bacterial counts, biomass, metabolic rate		periodic measurements-Pilot study
227	ER	System Productivity	Biota	Zooplankton-Mesozooplankton Communities-Spp. Abundance,biomass,length/life stage		
228	ER	System Productivity	Biota	Zooplankton-Macrozooplankton Communities-Spp. Abundance, biomass, size composition		w/ larval fish sampling
229	ER	System Productivity	Biota	Zooplankton-Microzooplankton Communities-Abundance and biomass		Pilot study

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ID	Pro-gram	Work Team	Parameter Classification	Parameter	Indicator	Comment
230	ER	System Productivity	Biota	Zooplankton-gelatinous-spp. Abundance		w/ predation studies
231	ER	System Productivity	Biota	Zooplankton-secondary production		Pilot study
232	ER	System Productivity	Geomorphology	sediment-composition and grain size		
233	ER	System Productivity	Geomorphology	sediment-Total organic carbon		
234	ER	System Productivity	Geomorphology	sediment-total nitrogen		
235	ER	System Productivity	Geomorphology	sediment-total sulfide or hydrogen sulfide		
236	ER	System Productivity	Geomorphology	sediment-un-ionized ammonia		
237	ER	System Productivity	Geomorphology	sediment-pH		
238	ER	System Productivity	Biota	Invertebrate-Benthic fauna-spp. composition and abundance		
239	ER	System Productivity	Biota	Invertebrate-Benthic fauna-biomass		
240	ER	System Productivity	Biota	Invertebrate-Benthic fauna-size distribution dominant spp.		
241	WM	Watershed Mgmt	Geomorphology	land-topographic/geologic characterization watersheds		
242	WM	Watershed Mgmt	Meteorology	Precipitation (amounts, form)		
243	WM	Watershed Mgmt	Meteorology	precipitation-Snowpack/snowmelt dynamics		
244	WM	Watershed Mgmt	Geomorphology	sediment-production, background rates		
245	WM	Watershed Mgmt	Hydrology	flow-total discharge		
246	WM	Watershed Mgmt	Hydrology	flow-peak flows (timing, duration, depth flooding)		
247	WM	Watershed Mgmt	Hydrology	flow-runoff,infiltration, evapotranspiration		
248	WM	Watershed Mgmt	Hydrology	Groundwater-discharge & recharge		
249	WM	Watershed Mgmt	Hydrology	flow-diversions and withdrawals		
250	WM	Watershed Mgmt	Geomorphology	sediment-deposition/mobilization dynamics		
251	WM	Watershed Mgmt	Geomorphology	sediment-suspended,bedload,solute load		
252	WM	Watershed Mgmt	Geomorphology	sediment-floodplain, bank, channel deposits		
253	WM	Watershed Mgmt	Geomorphology	sediment-particle size distribution		
254	WM	Watershed Mgmt	Hydrology	sediment-impounded delivery and types		
255	WM	Watershed Mgmt	Habitat	habitat-spatial extent and configuration		
256	WM	Watershed Mgmt	Biota	habitat occupance by taxa		
257	WM	Watershed Mgmt	Biota	Species-rare,special concern-population dynamics		rare spp, special concern and spp. Rel. mgt
258	WM	Watershed Mgmt	Landuse & Resou	presence and type of activity/habitats		
259	WM	Watershed Mgmt	Geomorphology	soils-soil stability and erosive resistance	Number/extent/type ofLandslides, area of bare soil/slope class	
260	WM	Watershed Mgmt	Geomorphology	channel and bank stability and erosive resistance	Number/extent/type ofLandslides, area of bare soil/slope class	

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ID	Pro-gram	Work Team	Parameter Classification	Parameter	Indicator	Comment
261	WM	Watershed Mgmt	Biota	Vegetation-upland land cover and structure		
262	WM	Watershed Mgmt	Biota	vegetation-riparian structure		
263	WM	Watershed Mgmt	Habitat	Vegetation-horizontal cover and vertical structure by community type, physiognomic category & species		
264	WM	Watershed Mgmt	Energetics/Nutrie	detritus & debris		
265	WM	Watershed Mgmt	Hydrology	water-temperature		
266	WM	Watershed Mgmt	Hydrology	water-turbidity		
267	WM	Watershed Mgmt	Landuse & Resou	impoundments		
268	WM	Watershed Mgmt	Hydrology	water-water use practices		
269	WM	Watershed Mgmt	Landuse & Resou	roads and roadbuilding		
270	WM	Watershed Mgmt	Landuse & Resou	agriculture-practices		
271	WM	Watershed Mgmt	Landuse & Resou	logging and practices		
272	WM	Watershed Mgmt	Landuse & Resou	Agriculture-grazing and mgt. Practices		
273	WM	Watershed Mgmt	Landuse & Resou	wildfire/fire supression		
274	WM	Watershed Mgmt	Landuse & Resou	mining		
275	WM	Watershed Mgmt	Landuse & Resou	urbanization		
276	WM	Watershed Mgmt	Biota	introduced species		
277	WM	Watershed Mgmt	Hydrology	water-toxics and pollutants		
278	WM	Watershed Mgmt	Geomorphology	sediment-toxics and pollutants		
279	WM	Watershed Mgmt	Hydrology	water-solutes-production,background rates		
280	WM	Watershed Mgmt	Biota	vegetation-tree size distribution population dynamics		
281	WM	Watershed Mgmt	Biota	harvest of wild & introduced species		
282	WM	Watershed Mgmt	Landuse & Resou	recreational land use		
283	WM	Watershed Mgmt	Landuse & Resou	watershed improvement practice		
284	WM	Watershed Mgmt	Landuse & Resou	point sources of sediments and contaminants		
285	WM	Watershed Mgmt	Hydrology	groundwater-wetland storage, stream-bank storage		
286	WM	Watershed Mgmt	Hydrology	flooding regime		
287	WM	Watershed Mgmt	Geomorphology	channel-incision in meadows & swales		
288	WM	Watershed Mgmt	Geomorphology	channel-morphology & migration		
289	WM	Watershed Mgmt	Biota	carbon pools, dynamics, fixation		
290	WM	Watershed Mgmt	Biota	vegetation-productivity, biomass,		
291	WM	Watershed Mgmt	Biota	detritus-composition,transport-terrestrial, soil, aquatic, wetland		
292	WM	Watershed Mgmt	Geomorphology	soils-oxidation of peat & soil organic matter		
293	WM	Watershed Mgmt	Biota	terrestrial and aquatic communities-trophic structure		
294	WM	Watershed Mgmt	Habitat	wetlands & seasonally wet environments-aerial extent		
295	WM	Watershed Mgmt	Human Welfare	social & economic values related to agriculture practices		
296	WM	Watershed Mgmt	Human Welfare	social & economic values related to water use practices		
297	WM	Watershed Mgmt	Human Welfare	social & economic values related to habitat extent & species diversity		
298	WM	Watershed Mgmt	Human Welfare	social & economic values related to harvest of wild species		

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
299	WM	Watershed Mgmt	Human Welfare	social & economic values related to habitation/urbanization		
300	WM	Watershed Mgmt	Human Welfare	social & economic values related to flood & wildfire hazard		
301	WM	Watershed Mgmt	Human Welfare	social & economic values related to recreation		
302	WM	Watershed Mgmt	Human Welfare	social & economic values related to community involvement in watershed management		
303	WQ	Contaminants	Hydrology	water-dissolved & total trace elements/metals		
304	WQ	Contaminants	Hydrology	water-dissolved & total organics		
305	WQ	Contaminants	Hydrology	water-toxicity invertebrates, algal & fish		expand sampling spatially & temporally
306	WQ	Contaminants	Geomorphology	sediment-trace elements & metals		
307	WQ	Contaminants	Geomorphology	sediment-organics		
308	WQ	Contaminants	Geomorphology	sediment-toxicity		current monitoring inadequate-extend spatially, test spp.
309	WQ	Contaminants	Biota	Fish-bioaccumulation metals/trace elements		
310	WQ	Contaminants	Biota	Fish-bioaccumulation organics		
311	WQ	Contaminants	Biota	Fish-Condition Indices		
312	WQ	Contaminants	Biota	Invertebrate-Bivalve-bioaccumulation metals/trace elements		
313	WQ	Contaminants	Biota	Invertebrate-Bivalve-bioaccumulation organics		
314	WQ	Contaminants	Biota	Invertebrates-Condition Indices [clams,crustaceans]		
315	WQ	Contaminants	Biota	Phytoplankton-exposure effects		w/habitat and stressors
316	WQ	Contaminants	Biota	Zooplankton-exposure effects		w/habitat and stressors
317	WQ	Contaminants	Biota	Invertebrates-Benthic-exposure effects		w/habitat and stressors
318	WQ	Contaminants	Biota	Invertebrates-Condition Indices [clams,crustaceans]		w/habitat and stressors
319	WQ	Contaminants	Biota	Fish-exposure effects		w/habitat and stressors
320	WQ	Contaminants	Landuse & Resou	mercury-NPDES discharges		
321	WQ	Contaminants	Hydrology	flow-episodic events		
322	WQ	Contaminants	Hydrology	flow-		
323	WQ	Contaminants	Biota	Birds(piscivorous) eggs/reproduction:OCs, Hg		
324	WQ	Contaminants	Human Welfare	Human health risk assessment-Hg, Se		
325	WQ	Contaminants	Human Welfare	Mitigation of Se inputs to ducks, crabs, fish		
326	WQ	Contaminants	Geomorphology	sediment-Se concentration and speciation		lower SJR and S. Delta
327	WQ	Contaminants	Biota	Fish-reproductive tissue--selenium		lower SJR and S. Delta
328	WQ	Contaminants	Biota	Birds--Waterfowl eggs--selenium		lower SJR and S. Delta
329	WQ	Contaminants	Hydrology	water-ambient surface water for pesticides		Expand spatially, algal and fish spp., TIEs
330	WQ	Contaminants	Landuse & Resou	agriculture-pesticide management effectiveness		
331	WQ	Contaminants	Biota	Invertebrates-Benthic-community analysis		w/ sediment toxicity

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
332	WQ	Contaminants	Hydrology	water-organochlorines		mass budget studies
333	WQ	Contaminants	Geomorphology	sediment-organochlorines		mass budget studies
334	WQ	Contaminants	Meteorology	air-organochlorines source loading		mass budget studies
335	WQ	Contaminants	Meteorology	air-Mercury deposition		
336	WQ	Contaminants	Hydrology	water-Mercury inc. methyHg		
337	WQ	Contaminants	Geomorphology	sediment-resuspension mercury		
338	WQ	Sacramento	Hydrology	water-trace elements and metals		
339	WQ	Sacramento	Hydrology	water-TDS		
340	WQ	Sacramento	Hydrology	water-total suspended solids		
341	WQ	Sacramento	Hydrology	water-TOC		
342	WQ	Sacramento	Hydrology	water-turbidity		
343	WQ	Sacramento	Hydrology	water-hardness and alkalinity		
344	WQ	Sacramento	Hydrology	water-pH		
345	WQ	Sacramento	Hydrology	water-conductivity		
346	WQ	Sacramento	Hydrology	water-temperature		
347	WQ	Sacramento	Hydrology	water-dissolved oxygen		
348	WQ	Sacramento	Hydrology	water-nutrients		
349	WQ	Sacramento	Hydrology	water-pesticides		
350	WQ	Sacramento	Hydrology	water-pathogens		
351	WQ	Sacramento	Hydrology	water-aquatic toxicity		
352	WQ	Sacramento	Geomorphology	sediment-toxicity		
353	WQ	Sacramento	Biota	Invertebrates-Benthic-assessment		
354	WQ	Sacramento	Biota	Algal community-assessment		
355	WQ	Sacramento	Biota	Fish-tissue Hg, PCBs, chlorinated insecticides		
356	WQ	SJ Basin	Hydrology	flow-		
357	WQ	SJ Basin	Hydrology	flow-stage		
358	WQ	SJ Basin	Hydrology	water-temperature		
359	WQ	SJ Basin	Hydrology	water-Conductivity		
360	WQ	SJ Basin	Hydrology	water-pH		
361	WQ	SJ Basin	Hydrology	water-dissolved oxygen		
362	WQ	SJ Basin	Hydrology	water-nutrients		
363	WQ	SJ Basin	Hydrology	water-alkalinity		
364	WQ	SJ Basin	Hydrology	water-major ions		
365	WQ	SJ Basin	Geomorphology	sediment-suspended		
366	WQ	SJ Basin	Biota	Vegetation-bioassessment		
367	WQ	SJ Basin	Biota	Invertebrates-bioassessment		
368	WQ	SJ Basin	Biota	Fish-bioassessment		
369	WQ	SJ Basin	Hydrology	water-THMFP		
370	WQ	SJ Basin	Hydrology	water-pathogens		

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
371	WQ	SJ Basin	Hydrology	water-TOC		
372	WQ	SJ Basin	Hydrology	water-bromides		
373	WQ	SJ Basin	Hydrology	water-trace elements		
374	WQ	SJ Basin	Hydrology	water-metals		
375	WQ	SJ Basin	Hydrology	water-dissolved pesticides		
376	WQ	SJ Basin	Hydrology	water-suspended pesticides		
377	WQ	SJ Basin	Hydrology	water-VOC		
378	WT	Water Transfers	Geomorphology	aquifer-thickness and degree of confinement		
379	WT	Water Transfers	Geomorphology	aquifer-regional & local mapping of hydrogeologic boundaries		
380	WT	Water Transfers	Geomorphology	aquifer-boundary delineation using water chemistry characteristics		
381	WT	Water Transfers	Hydrology	groundwater-levels - existing wells, paired new wells,	Groundwater levels	New & Current - DWR, USBR, USGS
382	WT	Water Transfers	Hydrology	flow-stream stage and discharge	Streamflow quantity	
383	WT	Water Transfers	Hydrology	water deliveries-surface		
384	WT	Water Transfers	Hydrology	net infiltration (precipitation + applied water - return flow - ET)		
385	WT	Water Transfers	Hydrology	Groundwater-quality - major inorganic ions, nutrients, DOC, pesticides, VOC, metals and trace elements, bacteria, radionuclides, field measurable parameters	Groundwater quality and temperature	Current - STORET, CDPR, DHS, DWR,RWQCB,USGS
386	WT	Water Transfers	Landuse & Resou	Land use vs. groundwater quality		
387	WT	Water Transfers	Geomorphology	Land subsidence - land surface altitude	Subsidence	
388	WT	Water Transfers	Geomorphology	Aquifer-compaction		
389	WT	Water Transfers	Human Welfare	water transfers-Third party effects		
390	WT	Water Transfers	Landuse & Resou	agriculture-Crop patterns and irrigated acreage	Crop patterns and irrigated acreage	
391	WT	Water Transfers	Human Welfare	employment-Agricultural employment	agricultural employment	
392	WT	Water Transfers	Human Welfare	rural businesses sales and employment	rural businesses sales and employment	
393	WT	Water Transfers	Human Welfare	Population	population	
394	WT	Water Transfers	Human Welfare	water transfers-history		
395	WT	Water Transfers	Human Welfare	Income	county tax collection and expenditures	
396	WT	Water Transfers	Hydrology	water-Streamflow quality and temperature	Streamflow quality and temperature	
397	WT	Water Transfers	Hydrology	Reservoirs-Surface Water Reservoirs Storage	Surface Water Reservoirs Storage	

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
398	WT	Water Transfers	Hydrology	Reservoirs-Surface Water Reservoirs quality and temperature	Surface Water Reservoirs quality and temperature	
399	WT	Water Transfers	Human Welfare	Agriculture-Number and size of farms	Number and size of fams	
400	WT	Water Transfers	Human Welfare	Agriculture-Value of agricultural output	Value of agricultural output	
401	WT	Water Transfers	Human Welfare	employment-labor force and unemployment	labor force and unemployment	
402	WU	Water Use Efficiency	Landuse & Resou	Agriculture-Use Efficiency-water management plans- percent completed, percent endorsed (certified)	Agricultural water management plans- percent completed, percent endorsed (certified)	
403	WU	Water Use Efficiency	Landuse & Resou	Agriculture-Use Efficiency-improvement on-farm thru EWMP implementation	Water use efficiency - Ag.-improvement on-farm thru EWMP implementation	
404	WU	Water Use Efficiency	Landuse & Resou	Agriculture-Use Efficiency-improvement in district thru EWMP implementation	Water use efficiency - Ag.-improvement in district thru EWMP implementation	
405	WU	Water Use Efficiency	Landuse & Resou	Agriculture-Use Efficiency- improvement in region thru EWMP implementation	Water use efficiency - Ag.-improvement in region thru EWMP implementation	
406	WU	Water Use Efficiency	Landuse & Resou	agriculture-reduction in applied water	agricultural applied water reduction	
407	WU	Water Use Efficiency	Landuse & Resou	Agriculture-reduction in groundwater depletion	Agricultural groundwater depletion reduction	
408	WU	Water Use Efficiency	Landuse & Resou	Agriculture-Irrigation Efficiency	Irrigation Efficiency	
409	WU	Water Use Efficiency	Landuse & Resou	Agriculture-land use surveys, water source, crop, irrigation method by crop, distribution uniformity		
410	WU	Water Use Efficiency	Landuse & Resou	Agriculture-Use Efficiency-land, soil, water use survey of Delta-annual		
411	WU	Water Use Efficiency	Landuse & Resou	Agriculture-Eto-Real-time Eto for Delta lowlands		
412	WU	Water Use Efficiency	Landuse & Resou	agriculture-Farm Irrigation amount, scheduling, & distribution uniformity for determining efficiency		
413	WU	Water Use Efficiency	Landuse & Resou	agriculture-Surface & subsurface drainage water reuse estimates		
414	WU	Water Use Efficiency	Landuse & Resou	Agriculture-Acreage by irrigation methods and WUE - Annual		
415	WU	Water Use Efficiency	Landuse & Resou	Agriculture Length of canals and laterals vs. irrigation methods	Estimate seepage & evaporation losses	
416	WU	Water Use Efficiency	Landuse & Resou	Agriculture-EWMPs-documentation	EWMPs- which are implemented	

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
417	WU	Water Use Efficiency	Landuse & Resou	Agriculture-Environmental and 3rd party impacts of conservation measures-documentation	Environmental and 3rd party effects of water use efficiency improvements	
418	WU	Water Use Efficiency	Landuse & Resou	agriculture-crop rotational and fallowing sequences		
419	WU	Water Use Efficiency	Landuse & Resou	Agriculture-CIMIS - Eto, soil moisture, salinity, irrigation methods, planting & harvest dates	Crop water use - annual review and updating coefficients	
420	WU	Water Use Efficiency	Landuse & Resou	Urban-water management plans - percent completed, quality	Urban water management plans - percent completed, quality	
421	WU	Water Use Efficiency	Landuse & Resou	Urban-BMPs-Assessment-number & type implemented, costs & benefits	BMP- Number & type implemented	
422	WU	Water Use Efficiency	Landuse & Resou	Urban-applied water reduction	Urban applied water reduction	
423	WU	Water Use Efficiency	Landuse & Resou	Urban-groundwater depletion reduction	Urban groundwater depletion reduction	
424	WU	Water Use Efficiency	Landuse & Resou	Population-within water service area boundaries	Population within water service area boundaries	
425	WU	Water Use Efficiency	Landuse & Resou	urban-water use-gross per capita water use by customer class, water district, hydrologic region	gross per capita water use by customer class, water district, hydrologic region	
426	WU	Water Use Efficiency	Landuse & Resou	Urban-water use data by customer class and per capita-annual update		
427	WU	Water Use Efficiency	Landuse & Resou	urban-irrigated landscape acreage surveys-annual	Estimate water use efficiency	
428	WU	Water Use Efficiency	Landuse & Resou	urban-Eto data for surveyed landscapes & applied water data-annual estimate	Estimate water use efficiency	
429	WU	Water Use Efficiency	Landuse & Resou	urban-Commercial Industrial and Institutional customer data -Annual		
430	WU	Water Use Efficiency	Landuse & Resou	urban-Interior water use data - Annual	changes in single & multi-family water use	
431	WU	Water Use Efficiency	Landuse & Resou	urban-water use efficiency-annual estimates of seasonal and peak water use from water agency -		
432	WU	Water Use Efficiency	Landuse & Resou	recycling-wastewater discharge	amounts of wastewater available for recycling	Current-National Pollutant Discharge elimination System
433	WU	Water Use Efficiency	Landuse & Resou	recycling-local water recycling project - costs, benefits, planned & actual yeilds	costs of recycling water	Current-USBR,SWRCB,DWR

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ID	Program	Work Team	Parameter Classification	Parameter	Indicator	Comment
434	WU	Water Use Efficiency	Landuse & Resou	recycling-individual water reclamation projects	recycled water use and distribution	Current-RWQCBs
435	WU	Water Use Efficiency	Landuse & Resou	recycling-quality of source water & resulting recycled water	quality of source water available for recycling & quality of recycled water	Current-DHS
436	WU	Water Use Efficiency	Landuse & Resou	recycling-Quantity of wastewater collected and treated	amounts and quality of water recycled	
437	WU	Water Use Efficiency	Landuse & Resou	recycling-Amounts of recycled water produced and used in suppliers service area	recycled water use and distribution	
438	WU	Water Use Efficiency	Landuse & Resou	recycling-recycled water use benefits	recycled water use benefits	

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