REFINED DRAFT OBJECTIVE TOPICS AND METRICS

Revised 10/2013 Based on Public Comment ***Basin-Wide Feasibility Studies and Conservation Strategy***

CVFPP Goal	Objective Topics	Proposed Metrics	Revisions from May Technical Workshop	Justification
Improve Flood Risk Management	**1. People and Property at Risk –** Reduce flood risks to people and property within floodplains protected by the State Plan of Flood Control			
	1a. Urban Flood Protection	1) Annual probability of flooding (% probability) in urban areas		
		2) Risk to human life, health, and safety (%) in urban areas		
		3) Damages to property and infrastructure ($) in urban areas		
		4) Economic effects on regional economies ($, employment)	*Removed*	Regional economics is typically considered as part of economic effects analysis, as opposed to plan formulation.
	1b. Small Community Flood Risk Reduction	1) Annual probability of flooding (% probability) for small communities		
		2) Risk to human life, health, and safety (%) in small communities		
		3) Economic damages ($) to small communities		
		4) Number of small communities with 100-year flood protection		
		5) Number of nonstructural actions in small communities		
	1c. Rural-agricultural Area Flood Risk Reduction	1) Annual probability of flooding (%) in rural-agricultural areas		
		2) Risk to human life, health, and safety (%) in rural areas		
		3) Damages to property, crops, infrastructure ($) in rural areas		
		4) Potential miles of rural levee that are accessible under all weather conditions		
		5) Number of nonstructural actions implemented within rural-agricultural floodplains		
		6) Economic effects on regional economies ($, employment)	*Removed*	Regional economics is typically considered as part of economic effects analysis, as opposed to plan formulation.
	2. Flood System Flexibility – Improve the ability of the flood management system to adapt to changing conditions (hydrologic, social, political, regulatory, or ecological conditions)			
	2a. Flood System Flexibility	1) Increased peak flood volume (acre-feet) and flow (cfs) that can be accommodated in the flood management system (within channels, bypasses, floodplains, or reservoirs)	*Combined*	Various previous metrics on peak flood stage, flow, and frequency were combined.
		2) Ability to achieve similar results for metrics identified in 1a, 1b, and 1c under alternate future conditions (for example, achievements given 5%, 15%, and 30% increases in flood volume)	*New*	New potential metric for flexibility under alternative hydrologic conditions.
		3) Increase in ability to actively (versus passively) control the movement of flood flows through the flood management sytstem (ability to manage the timing and magnitude of flood peaks in real time, through operable features or control systems including dams, weirs, gates, etc.)	*Revised*	Metric revised to better describe/explain the desired outcome.
		4) Increased flood warning time (% or hours/days) to support real-time operational flexibility and/or flood preparedness		
	3. Flood System Resiliency – Improve the ability of the flood management system to continue to function and recover quickly after damaging floods			
	3a. Flood System Resiliency	1) Reduction in economic damages ($ or %) with added resiliency measures in place	*Revised*	Revised for clarity.
		2) Number of physical resiliency measures (levees that withstand overtopping, modifications to infrastructure to segment floodplains, modifications to critical facilities, etc.) implemented in high risk areas (areas with deep or rapid flooding, dense development, etc.)		
		3) Number of flood recovery plans in urban areas, and % of urban population covered by these plans.	*New*	Flood recovery plans contribute to flood system resiliency.
		4) Number of flood recovery plans in non-urban areas, and % of non-urban population covered by these plans.	*New*	Flood recovery plans contribute to flood system resiliency.
		5) Number of flood insurance policies within floodplains protected by the SPFC	*New*	Flood insurance contributes to flood system resiliency.
		6) Reduction in cost of post-flood recovery efforts ($ or %)	*Removed*	Difficult to use reduced recovery cost as a metric (1) without a benchmark or baseline to compare it to, (2) because recovery cost is highly dependent on the frequency/severity of an individual event, varying significantly, and (3) recovery costs are difficult to collect.
	4. Wise Floodplain Management – Wisely manage floodplains protected by the SPFC to manage and address residual risks, particularly in areas of deep or rapid flooding			
	4a. Wise Floodplain Management	1) Total acres or % of floodplains with flood-compatible land uses preserved (through easements or other means)		
		2) Number of land-use plans consistent with State guidance related to floodplain risks and functions (e.g., Urban Level of Protection Criteria, Office of Planning and Research guidance, "Implementing California Flood Legislation into Local Land Use Planning: A Handbook for Local Communities," etc.)	*Revised*	Revised for clarity and measurement consistency.
		3) Number of nonstructural actions implemented within SPFC floodplains for the purpose of residual risk management (e.g., flood emergency preparedness plans, early warning systems, easements or zoning changes, etc.)	*Revised*	Revised for clarity.
		4) Number of flood emergency preparedness plans in urban areas, and % of urban population covered by these plans.	*New*	Emergency preparedness plans contribute to addressing residual risks.
		5) Number of flood emergency preparedness plans in non-urban areas, and % of non-urban population covered by these plans.	*New*	Emergency preparedness plans contribute to addressing residual risks.

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Promote Ecosystem Functions	**5. Ecosystem Processes –** Improve and enhance natural dynamic natural hydrologic and geomorphic processes			
	5a. Inundated Floodplain	1) Total amount (acres, expected annual habitat (EAH) units) with sustained spring and 50-percent frequently activated floodplain		
		2) Total amount of expected annual inundated floodplain habitat (acres)		
	5b. Riverine Geomorphic Processes	1) Natural Bank—total length (miles)		
		2) River Meander Potential—total amount (acres)		
	6. Habitats – Increase and improve quantity, diversity, quality, and connectivity of riverine aquatic and floodplain habitats			
	6a. Shaded Riparian Aquatic (SRA) Cover	1) Shaded Riverine Aquatic Cover and Bank and Vegetation Attributes of SRA Cover—total length (miles)		
		2) Total length and % of bank affected by flood projects that incorporate SRA attributes		
	6b. Riparian	1) Habitat Amount—total amount and total amount on active floodplain (acres)	*Revised*	Revised to include floodplain connectivity.
		2) Habitat Connectivity -- median patch size (acres)	*Revised*	Median patch size was sufficient for reflecting connectivity and data was available to support measurement.
	6c. Marsh	1) Habitat Amount—total amount and total amount on active floodplain (acres)	*Revised*	Revised to include floodplain connectivity.
		2) Habitat Connectivity - median patch size (acres and perimeter-to-area ratio)	*Removed*	A habitat connectivity metric related to marsh was not required.
	6d. Floodplain Agriculture	1) Habitat Amount—total amount (acres) of floodplain agriculture providing habitat for target species	*Revised*	Modified text to tie to the targeted species plans.
	7. Species – Contribute to the recovery and stability of native species populations and overall biotic community diversity			
	7a. Threatened and Endangered Target Species	Metrics specific to 17 targeted species are currently under development		
	8. Stressors – Reduce stressors related to the development and operation of the flood management system that negatively affect important species			
	8a. Revetment	1) Revetment Removed to Increase Meander Potential and/or Natural Bank (without negatively affecting flood safety)—total length (miles)		
	8b. Levees	1) Levees Relocated to Reconnect Floodplain or Improved to Eliminate Hydraulic Constraints on Restoration (where consistent with flood risk management)—total length (miles)		
		1) Miles and acres of flood channel with flood flow capacity that allows for riparian forest and safe conveyance of flood flows	*Revised*	Revised for for clarity and simplicity.
	8c. Fish Passage Barriers	1) Number of fish passage barriers within the flood management system that are modified or removed	*Revised*	Modified the metric to include "number of barriers modified".
	8d. Invasive Plants	1) Invasive Plant-Dominated Vegetation --total area reduced (acres)	*Revised*	Revised to reflect desired reduction in invasives (versus total acreage).
	8e. Diversions	1) Number of diversions screened or removed	*Removed*	Diversions are outside the scope of the CVFPP and BWFS.

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Improve Operations & Maintenance	**9. Long-term Cost of O&M –** Reduce the long-term cost of SPFC O&M through more sustainable physical conditions and improved facility reliability			
	9a. Cost of O&M	1) Reduction in long-term O&M costs ($ or %)		
		2) Reduction in long-term repair costs ($ or %)		
		3) Reduce conflicts between ecosystem processes and flood system maintenance	*Revised*	Revised for clarity.
	10. Consistent and Efficient O&M Practices – Develop SPFC maintenance practices that reduce costs, improve system performance, and promote ecosystem functions			
	10a. Efficiency and Consistency	1) Reduction in long-term O&M costs ($ or %)		
		2) Improved system performance or reliability		
		3) Reduce the number of unauthorized high and medium risk encroachments	*New*	Ongoing efforts by Board related to encroachments and associated pending legislation.
Improve Institutional Support	**11. Collaboration and Regional Governance –** Increase collaboration among flood managers, regulatory agencies, conservation planners, non-governmental organizations, agricultural and other interests			
	11a. Collaboration and Governance	1) Miles of river corridor within the SPFC Systemwide Planning Area that are covered by (a) completed Habitat Conservation Plans and/or Natural Community Conservation Plans, or (b) signed planning agreements for such plans.	*Combined*	Corridor managmeent planning involves the engagement of multiple agencies and stakeholders across a broad array of issues.
		2) Reduction in the total number of SPFC maintaining entities (either through consolidation or formation of maintenance partnerships)	*Revised*	Revised for simplicity.
	12. Sustainable Funding – Improve the long-term sustainability of flood management funding			
	12a. Funding	1) Increase in long-term funding (a) diversity (number and type of funding sources or mechanisms in place, including general funds, bonds, assessments, etc.), and (b) consistency (annual average funding), allocated to SPFC flood management activities (including flood system improvements, operations and maintenance, emergency preparedneses and response, ecosystem functions, and floodplain management).	*Combined*	Two basic aspects of "sustainable funding" that were reflected in the metrics: the number of different mechanisms available (having a more diverse funding portfolio would help make funding reductions in any one area of the portfolio less harmful), and consistency over time (less fluctuation in funding over time, such that a more consistent funding stream could be relied upon).
	13. Information and Tools – Improve the quality and availability of information and tools that inform flood management, and educate the public on their individual flood risk			
	13a. Information and Tools	1) Number of datasets or tools available to agencies and the public, and web-based usage of those data/tools	*Revised*	Datasets/tools should also be available to agencies to assist with planning and implementation.
		2) Funding ($) invested in public education and community-based training programs about flood risks, preparedness, and safety	*New*	There is a public educational component to information and tools.
	14. Project Approvals – Improve the efficiency of project implementation and success of conservation and mitigation			
	14a. Project Approvals	1) Reduction in administrative and mitigation costs associated with permitting SPFC flood management activities (improvement projects and O&M activities)	*Combined*	Revised for clarity.
		2) Reduced time to acquire permits (average days/project or reduction in average time for approvals)	*Revised*	Revised for clarity.
		3) % of total acres covered by regional or programmatic permitting mechanisms	*Revised*	The percent of total acres is more informative than actual acres.
		4) Total acres acquired for advance mitigation purposes	*Revised*	Revised for clarity.
		5) Advance mitigation acres and credits applied toward projects	*New*	Application of mitigation credits is good metric related to project approvals.
Promote Multi-Benefit Projects	**15. Integrated Water Management –** Promote design of multi-benefit projects that integrate other resource needs (ecosystem, water supply, recreation, etc.), where feasible			
	15a. Multi-benefit Projects	1) Project funding allocated to different purposes (flood management, ecosystem functions, water supply, etc.) ($ and % of total funding)		
		2) Number of multi-benefit flood management projects implemented		
		3) Number of projects that integrate and/or complement the integrated water management objectives of other projects/programs	*Removed*	Number of projects is not a good indication of integration.