

Table 1 Related Actions and Performance Measures for Objective 1 (Strengthen Integrated Regional Water Management)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
1.1 The California Department of Water Resources (DWR), through active engagement with agencies, tribes, communities, and stakeholders, will complete the Strategic Plan for the Future of Integrated Regional Water Management (IRWM) in California in 2014.	Publish final IRWM Strategic Plan	DWR	Funded	
1.2 DWR and other State agencies should encourage and support regional water management groups to continue, enhance, and expand their regional collaboration and cooperation through IRWM to meet the water management challenges of population growth and climate change, and ensure public safety, environmental stewardship, and economic stability.	Actions undetermined. This will involve multiple agencies working together to enhance collaboration and cooperation in IRWM to support multi-benefit projects.	DWR, Cal EPA, RWMGs, Federal Agencies	Unfunded	X (possible)
1.3 DWR should continue to improve the efficiency and effectiveness of its future IRWM grant programs and processes in coordination with other State agencies and regional water management groups.	Actions undetermined. Review grant processes based on Stakeholder input.	DWR	Unfunded	
1.4 DWR and other State agencies should improve IRWM processes at all levels to encourage broad participation, support collaboration, and facilitate cooperation among stakeholders.	Actions undetermined. Work yet to be finalized. This will involve multiple agencies working together.	DWR, RWMGs	Unfunded	
1.5 DWR should perform a needs assessment for under-represented groups and develop strategies for better inclusion of those groups in IRWM.				
1.6 DWR and other State agencies should develop and support an IRWM education and awareness program to foster public support and facilitate informed decisions for sustainable water management.	Actions undetermined. Develop educational material and assistance to highlight IRWM values and successes.	DWR, RWMGs	Unfunded	
1.7 DWR and other State agencies should improve water management tools, provide technical assistance, and encourage innovation in the areas of collaboration, trade-off analyses, modeling, and data management.	Actions undetermined. Develop and provide additional improved tools.	DWR	Unfunded	
1.8 State government should align its statutes, regulations, programs, policies, and practices to support and strengthen IRWM.	Actions undetermined. Identify and support changes in laws and regulations to better align with IRWM without weakening existing regulatory protections.	DWR and Legislature	Unfunded	X (possible)

Table 2 Related Actions and Performance Measures for Objective 2 (Use and Reuse Water More Efficiently)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>2.1 State government should expand public information efforts to promote water conservation in both the urban and agricultural sectors to better inform all Californians about the importance and value of water and about ways to use water more efficiently. The expanded campaign should be designed with specific informational goals and objectives and should operate on a continuous basis in wet years as well as dry years. This campaign will assist local water suppliers and the State in achieving the 2020 urban water use targets.</p>	<p>A. DWR and ACWA prepare expanded “Save Our Water” campaign plan, including both traditional and social media forums. Use advertising industry measures and metrics to develop and achieve informational and educational goals.</p> <p>B. Conduct a series of annual regional and crop specific water management workshops in cooperation with California academic institutions, such as the University of California and California State University, and resource conservation districts to provide growers the latest information on new irrigation technology and practices.</p>	<p>DWR and ACWA</p>	<p>Partially Funded</p>	<p>Yes for additional funding</p>
<p>2.2 State government should establish a water-use-efficiency and alternative-water-supply science and technology program to accelerate the research, development, testing, pilot projects, and commercialization of promising new technologies and techniques to improve agricultural and urban water management and use efficiency. The program should conduct studies in all sectors of water use, including agriculture, municipal and industrial, and in the alternative water supply areas of municipal recycled water, gray water, stormwater capture, and desalination. The program’s level of sponsored research should match that of the State’s energy-use efficiency research programs.</p>	<p>A. Research program established.</p> <p>B. Quantity and quality of research similar to energy use efficiency programs.</p> <p>C. Research results in improved California water management.</p>	<p>DWR, SWRCB and others entities.</p>	<p>Unfunded</p>	
<p>2.3 The California Department of Water Resources (DWR), in cooperation with agricultural and urban water-use communities, should conduct a study to identify the barriers, costs, and technical assistance required to establish standard agricultural and urban wateruse classifications and data standards for water use reporting statewide. The standard classifications would provide more detailed and accurate reporting of California water uses, and allow for water supplier data to be more accurately aggregated at regional and statewide scales for the five-year updates of the California Water Plan.</p>	<p>A. DWR conducts the classification study, barriers, costs and potential solutions for implementation are identified.</p> <p>B. Standard classifications implemented.</p>	<p>DWR</p>	<p>Unfunded</p>	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>2.4 DWR should continue to work with the University of California and the California State University systems to refine irrigation strategies and systems that reduce the impact of extreme water shortage conditions (e.g., drought) on California’s agriculture. State government should provide more technical assistance to growers to improve on-farm irrigation efficiency, and should expand the California Irrigation Management Information System (CIMIS) network (including remote sensing technology, satellite imagery, etc.), mobile laboratory services, and other water management training and education programs.</p>				
<p>2.5 DWR, in cooperation with academic institutions, resource conservation districts, and independent crop advisors, should provide technical assistance to agricultural water suppliers and farmers to implement efficient water management practices (EWMPs) and to evaluate their agricultural water-use efficiency by applying the quantification methods (indicators) described in the 2012 DWR report to the Legislature, “A Proposed Methodology for Quantifying the Efficiency of Agricultural Water Use.” Agricultural water suppliers with irrigated acreage equal or greater than 25,000 acres should utilize these methods to quantify and report efficiency improvements in their agricultural water management plans (AWMPs).</p>				
<p>2.6 Agricultural and urban water suppliers should report water supply system leakage and spills in their water management plans. Agricultural suppliers should measure and report canal seepage and district outflows. Urban water suppliers should calculate and report unaccounted-for distribution system water.</p>	<p>Urban and agricultural water suppliers report distribution system leakage and spills and unaccounted for water in their 2015 water management plans.</p>	DWR	Partially Funded	X
<p>2.7 DWR, with the California Urban Water Conservation Council and the State Water Resources Control Board (SWRCB), should research, develop, and promote water rate structures that provide customers a water conservation price signal while maintaining needed infrastructure and revenue stability for the water utilities.</p>	<p>A. Provide financial and technical support to the CUWCC for the development of one or more computer-based tools that could be used by water supplier staff.</p> <p>B. Provide technical support for communicating the benefits of alternate water pricing strategies.</p>	DWR	Unfunded	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>2.8 To better educate customers on the appropriate use of water and to improve landscape irrigation efficiency, DWR should research new approaches for measuring landscape area to assist water suppliers in developing customer-specific water budgets. In addition to educational purposes, urban water suppliers should use water budgets to focus their water conservation rebates and programs on those customers using water excessively.</p>	<p>DWR helps identify cost effective landscape area measurement tools.</p>	<p>DWR</p>	<p>Unfunded</p>	
<p>2.9 State government should develop a 2030 Statewide Urban Water Use Efficiency Plan with the goal of further improvements in water use efficiency from the 20x2020 program. Accounting for population growth, the current 20x2020 program will keep the total volume of urban water use in 2020 at about the same as in the year 2000. The goal of the 2030 program should be to replicate the 20x2020 program success by keeping the total volume of statewide urban water use in 2030 at the same level as in 2020, achieved by further reducing per-capita urban water use.</p>				
<p>2.10 DWR, with the SWRCB and California Department of Public Health, should prepare a California Municipal Water Recycling Strategic Plan to guide expanded statewide use of recycled water to help sustain statewide water supplies. The strategic plan should include:</p> <ul style="list-style-type: none"> • Review and status of implementation of the 2003 Recycled Water Task Force findings. • Regional assessment and quantification of current and proposed recycled water capacities and demands. • Evaluation of better alignment of the appropriate level of treatment required for the planned recycled water use in agricultural and environmental applications to create more opportunities for recycled water use and reduce the energy required to produce recycled water. • Consideration of potential groundwater degradation issues and coordination with Salt and Nutrient Management Plan implementation. • Regional evaluation of barriers to additional recycled water use and proposing solutions, including indirect and direct potable reuse issues and opportunities, to support continued expansion of recycled water use. 	<p>A. Establish a stakeholder committee, including SWRCB, CDPH, water suppliers, organizations, and the public.</p> <p>B. Prepare a review and status of the 2003 Recycled Water Task Force findings and recommendations.</p> <p>C. Prepare regional assessments for each hydrologic region identifying regional strategies, such as institutional issues, costs, water quality, and markets.</p> <p>D. Compile identified barriers to expanding local and statewide recycled water use.</p> <p>E. Identify regional and statewide tools for local water suppliers to guide implementation of recycled water programs.</p> <p>F. Identify improved practices for implementing 'fit for use' measures into recycled water planning.</p> <p>G. Prepare final report (2015).</p>	<p>DWR</p>	<p>Unfunded</p>	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
2.11 All levels of government should establish policies and provide incentives to promote better urban runoff management and reuse. Urban and, where feasible, rural communities should invest in facilities to capture, store, treat, and use urban stormwater runoff, such as percolation to usable aquifers, underground storage beneath parks, small surface basins, in drains, or the creation of catch basins or sumps downhill of development. Depending on the source and application, captured stormwater may be suitable for use without additional treatment, or it may be blended to augment local supplies.	Implementation of low impact development increases significantly across the state	SWRCB	Partially Funded	

Table 3 Related Actions and Performance Measures for Objective 3 (Expand Conjunctive Management of Multiple Supplies)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>3.1 The California Department of Water Resource (DWR) and the State Water Resources Control Board (SWRCB) should implement a program to promote public education about groundwater.</p>	<p>A. By January 31, 2016, DWR and SWRCB will work with other State, tribal, local, and regional agencies and organizations to develop a program and materials for use in schools and other venues to teach groundwater concepts.</p> <p>B. Beginning on January 31, 2017, DWR and SWRCB will conduct regularly scheduled public events to explain the following:</p> <ul style="list-style-type: none"> • reasons for changes in availability of groundwater; • interconnection of surface water and groundwater; • benefits of recharging groundwater with surface water and recycled water; • importance of protecting groundwater quality and recharge areas; • reasons for developing a groundwater budget; • seasonal versus long-term changes in groundwater levels; and • potential impacts of climate change on groundwater resources. 	<p>DWR & SWRCB</p>	<p>Unfunded</p>	
<p>3.2 Improve collaboration, coordination, and alignment among State, federal, tribal, local, and regional agencies and organizations to help implement sustainable groundwater management by ensuring that data and tools are evaluated and shared, programs are coordinated, and duplication is minimized.</p>	<p>By January 31, 2017, and on an ongoing basis, DWR and the SWRCB will coordinate with State, federal, tribal, local, and regional agencies and organizations to conduct the following activities.</p> <p>A. Provide State incentives to local water management agencies to coordinate with tribes and other agencies for taking actions to ensure the long-term sustainability of groundwater supply and suitable water quality.</p> <p>B. Improve coordination among State, federal, tribal, and local agencies to:</p> <ul style="list-style-type: none"> • prevent conflicting rules or guidelines; and • provide timely regulatory approval. <p>C. Form an interagency task force to expedite environmental permitting process for the development, implementation, and operation of conjunctive management, recharge, groundwater cleanup, and water banking facilities when facility operations increase ecosystem services, and include predefined benefits/mitigation for wildlife and wildlife habitat.</p> <p>D. Establish a process led by SWRCB to simplify the water rights permitting process for water transfers designated for</p>	<p>DWR, SWRCB, & local permitting agencies</p>	<p>Unfunded</p>	<p>X</p>

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
	conjunctive management in which the recharged water is part of a groundwater management plan and is a beneficial use.			
<p>3.3 DWR, SWRCB, and the Governor’s Office of Planning and Research (OPR) should develop a statewide groundwater management planning Web site or portal to promote easy access to groundwater information, such as well completion reports; well drilling, construction, and abandonment standards; groundwater supply and demand; groundwater level and quality; land subsidence; groundwater recharge and conjunctive management; and groundwater management plans and basin studies.</p>	<p>DWR will coordinate with State, federal, tribal, local, and regional agencies and organizations to conduct the following activities.</p> <p>A. By January 31, 2016, DWR will prepare an estimate of additional resources needed to implement the required activities as well as the expected benefit of the action for improving management of groundwater in the state.</p> <p>B. By January 31, 2016, the Legislature will consider changes to Section 13752 of the California Water Code to improve public access to Well Completion Reports, while addressing key infrastructure security and private ownership concerns.</p> <p>C. If legislative efforts related to item B are successful, then by January 31, 2018, State agencies will work collaboratively with water agencies, local permitting agencies, and driller organizations to</p> <ul style="list-style-type: none"> • develop an on-line Well Completion Report submittal system; • digitize and make publically available existing Well Completion Reports to allow improved analysis of groundwater data; and • build upon efforts begun in 2012 to update well drilling, construction, and abandonment standards. <p>D. By December 31, 2018, DWR will work with SWRCB to implement a web-based Water Planning and Information Exchange (Water PIE) system that improves State-level integration of groundwater data and provides on-line access to</p> <ul style="list-style-type: none"> • groundwater supply and demand information; • groundwater level and quality data; • groundwater recharge and conjunctive management activities; • land subsidence information; • groundwater management plans; and • groundwater basin studies. 	<p>DWR, SWRCB, & OPR</p>	<p>Unfunded</p>	<p>X</p>
<p>3.4 DWR should build essential data to enable sustainable groundwater management by expanding and funding the California Statewide Groundwater Elevation</p>	<p>A. By January 31, 2015, the Legislature will consider amending the appropriate Water Code(s) to commit long-term, dedicated funding to the CASGEM Program established by SB 7x-6, and expand the scope of the program to implement monitoring,</p>	<p>DWR</p>	<p>Unfunded current</p>	<p>X (Fractured)</p>

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<p>Monitoring (CASGEM) Program with the purpose of maintaining baseline groundwater level data, funding and providing technical assistance to improve local groundwater management for long-term sustainability, and monitoring impacts of droughts on groundwater resources.</p>	<p>assessment, and maintenance of baseline groundwater levels data, including that for fractured rock aquifers in areas deemed important. The funding should be renewable in each five-year cycle ending in 8 and 3.</p> <p>B. By January 31, 2015, and renewable in each five-year cycle ending in 8 and 3, the State will continue funding for local groundwater monitoring and management activities, and feasibility studies that increase the coordinated use of groundwater and surface water by giving priority to projects that include filling regional and Statewide data gaps and conjunctive management conducted in accordance with an IRWM plan. Thus incentivize local water management agencies to implement groundwater monitoring programs to provide additional data and information needed to adequately characterize a groundwater basin, subbasin, aquifer or aquifers under the jurisdiction of the agency or adopted groundwater management plan.</p> <p>C. By January 31, 2018, fund, develop, and integrate with CASGEM a program for monitoring impacts of droughts on groundwater resources, including using information from remote sensing-based monitoring of land subsidence associated with increased groundwater extraction by water users due to surface supplies cutback under extremely dry conditions.</p>		<p>limited funding ends June 30, 2014</p>	<p>rock areas not currently in Water Code)</p>
<p>3.5 Under the CASGEM Basin Prioritization, DWR will improve understanding of California’s high priority groundwater basins by conducting groundwater basin assessment in conjunction with the California Water Plan five-year production cycle, identifying basins in decline with recognition of both short- and long-term aquifer health, assessing impacts of climate change, identifying management practices for sustainable groundwater management that will prevent waste and unreasonable use of groundwater, and reporting key findings to the Legislature.</p>	<p>By December 31, 2018, DWR will coordinate with State, federal, tribal, local, and regional agencies to utilize the CASGEM Basin Prioritization information to conduct the following groundwater basin assessment activities.</p> <p>A. Develop the initial and reoccurring schedule and scope for groundwater basin assessments that will allow data and information sharing under the CWP five-year production cycle.</p> <p>B. Use CASGEM and other data, reports, groundwater basin studies, and best available science to compile and evaluate new and existing groundwater supply and demand information, groundwater level and quality data, groundwater recharge and conjunctive management activities, surface water/groundwater interaction, groundwater management planning, and land subsidence information. The state should not duplicate information already being reported by local agencies who may be actively managing CASGEM high priority basins. The state should consult with agencies that have implemented</p>	<p>DWR</p>	<p>Unfunded</p>	<p>X</p>

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	<p>successful conjunctive management programs for insights into specific problems or hurdles that, if removed, would increase the ability for multi-region cooperation to implement conjunctive management projects.</p> <p>C. Utilize local groundwater management agency information and data when available and develop detailed groundwater basin assessment reports by hydrologic region and groundwater basin with a special focus on high priority basins that currently are not actively managed. The assessment reports will</p> <ul style="list-style-type: none"> • characterize the groundwater basins; • identify basins in decline; • assess the sustainability of groundwater resources in terms of historical and existing trends; • evaluate anticipated impacts of climate change on groundwater resources using future scenario projections; and • with a special focus on basins where currently groundwater budgets and management practices have not been established, identify recommended incentives to establish basin-wide groundwater budgets and adaptive management practices which will promote sustainable groundwater quantity, quality, and the maintenance of groundwater ecosystem services. <p>D. Develop a summary report to California Legislature depicting the State of California’s Groundwater which will highlight key findings and recommendations associated with the groundwater basin assessments.</p>			
<p>3.6 DWR should convene a Statewide Groundwater Management Plan (GWMP) Advisory Committee to develop a GWMP Acceptance Process, evaluate and approve the completeness of existing GWMPs with a special focus on high-priority basins that currently are not actively managed, prepare a guidance document of groundwater best management practices, and develop improved standards for sustainable groundwater management by utilizing a public process.</p>	<p>In coordination with State, federal, tribal, local, and regional agencies, DWR will conduct the following activities.</p> <p>A. By January 31, 2015, the Legislature will consider amending the appropriate Water Code(s) to authorize DWR to evaluate and assess groundwater management and planning, improve standards for sustainable groundwater management, develop groundwater management and implementation guidance document, and assist local agencies to equip themselves to sustainably manage groundwater resources.</p> <p>B. By January 31, 2017, convene a Groundwater Management Plan (GWMP) Advisory Committee, composed of local and regional water supply and groundwater management entities throughout the state. With guidance from the GWMP Advisory</p>	<p>DWR</p>	<p>Unfunded</p>	<p>X</p>

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
	<p>Committee, conduct the following activities:</p> <ul style="list-style-type: none"> • carry out outreach to local and regional agencies to determine the best path for moving forward by better understanding where and what the needs are; • develop a GWMP Acceptance Process; • evaluate and approve the completeness of existing GWMPs using the GWMP Acceptance Process; • develop a groundwater management and planning and program implementation guidance document that will provide a clear roadmap for GWMP development and implementation based on groundwater best management practices; • identify tools and data sharing needed to improve groundwater management; and • develop a website for local agencies to upload and interested stakeholders to download groundwater management documents. <p>C. By January 31, 2018, with guidance from the GWMP Advisory Committee and utilizing a public process, develop improved standards and groundwater best management practices, which should include:</p> <ul style="list-style-type: none"> • GWMP verification and implementation; • goals, objectives, performance measures, and a clear description of additional management steps to be taken if performance measures are not met; • groundwater budgets to help understand the total inflow and outflow from the groundwater system; • addition of ecosystem services into Basin Management Objectives; • annual reporting of GWMP implementation activities and performance; • reporting of groundwater quantity and quality sustainability under current and future scenario projections; • impacts assessment (economic and environmental) under current and future scenario projections; and • online posting of GWMPs and annual reports with groundwater budgets. 			

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>3.7 State government and integrated regional water management (IRWM) groups should advance groundwater management within the framework of integrated water management by identifying and including the goals and objectives of local GWMPs in integrated regional water management plans; ensuring no transfer of impacts among regions; ensuring that regions accept responsibility for addressing risks resulting from climate change, population growth, and groundwater depletion; adopting stronger standards for local and regional groundwater management; and considering legislation to provide needed local and regional authority to effectively manage groundwater resources.</p>	<p>A. By January 31, 2015, encourage Integrated Regional Water Management Plans to identify and include the goals and objectives of local GWMPs.</p> <p>B. By January 31, 2017, the Legislature will consider enacting legislation to ensure that local and regional agencies have the incentives, tools, authority, and guidance to develop and enforce groundwater management plans that protect groundwater elevations and quality, as well as surface water-groundwater interaction regime and groundwater ecosystem services.</p> <p>C. By January 31, 2017, the Legislature will consider sponsoring legislation to define local and regional responsibilities and to give local and regional agencies the authority necessary to manage groundwater sustainably and ensure no groundwater basin is in danger of being permanently damaged by overdraft resulting from unsustainably operating or utilizing groundwater basins. The State will be provided authority to protect basins at risk of permanent damage, in the event that local authorized agencies have not made sufficient and timely progress to correct the problem, until such time that an adequate local program is in place.</p>	<p>DWR, SWRCB, IRWM groups, and local and regional agencies</p>	<p>Unfunded</p>	<p>X</p>
<p>3.8 DWR and SWRCB should review analytical tools currently being used and assist local agencies in developing improved tools to assess conjunctive management and groundwater management strategies.</p>	<p>By December 31, 2018, DWR and SWRCB, in collaboration with State, federal, tribal, local, and regional agencies will conduct the following activities.</p> <p>A. Develop a conjunctive management tool that will help identify conjunctive management opportunities (projects) and evaluate implementation constraints associated with</p> <ul style="list-style-type: none"> • availability of aquifer space; • availability of water for recharge; • available means to convey water from source to destination; • water quality issues; • environmental issues; • jurisdictional issues; • costs and benefits; and • potential interference between a proposed project and existing projects. <p>B. The State will incentivize local and regional agencies to develop or adopt analytical tools to support integrated</p>	<p>DWR & SWRCB</p>	<p>Unfunded</p>	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
	groundwater/surface water modeling and scenario analysis for assessing alternative groundwater management strategies as part of their IRWM planning activities.			
<p>3.9 Groundwater management authorities and collaboratives should increase local and regional groundwater recharge and storage to reduce groundwater depletion and enhance statewide water resource resiliency.</p>	<p>In coordination with State, federal, tribal, local, and regional agencies, the following activities will occur.</p> <ul style="list-style-type: none"> A. By January 31, 2015, under legislative directive and with guidance from the GWMP Advisory Committee, DWR and SWRCB will jointly review and recommend revised or new policies, regulations, and a timeline for implementing the action. B. By January 31, 2016, based on the recommendations by DWR and SWRCB, the Legislature will consider revising the Water Code to provide <ul style="list-style-type: none"> • disincentives to actions which cause groundwater basin overdraft resulting from unsustainably operating or utilizing groundwater basins; and • incentives to actions that increase recharge. C. By January 31, 2016, DWR will make public the groundwater recharge maps developed by local agencies as required by AB 359 and identify priority recharge areas in the state. D. By January 31, 2017 and on an ongoing basis, State agencies will work with federal, Tribal, local, and regional agencies on other actions to increase local and regional groundwater recharge and storage, including, <ul style="list-style-type: none"> • cataloging best science and technologies applied to groundwater recharge and storage; • improving interagency coordination and alignment; • aligning land use planning with groundwater recharge area protection; • completing rulemaking for groundwater recharge with recycled water; • identifying additional data and studies needed to evaluate opportunities for multi-benefit projects, such as capturing and recharging stormwater flows and other water not used by other users or the environment; and • identifying and evaluating local and regional opportunities to reduce runoff and increase recharge on residential, school, park, and other unpaved areas. 	DWR & SWRCB	Unfunded	X

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
	<p>E. By January 31, 2017 and on an ongoing basis, State agencies will work with federal, Tribal, local, and regional agencies to support a comprehensive approach to local and regional groundwater management by funding distributed groundwater recharge and storage projects that are identified in groundwater management plans and removing obstacles to implementation of such projects.</p>			
<p>3.10 DWR will complete the System Reoperation Study by 2015 to evaluate reoperation of the state’s existing water supply and flood management systems.</p>	<p>In collaboration with willing participants, DWR will complete a System Reoperation Study by 2015. The study will evaluate and document the potential options for reoperation of the State’s existing water supply and flood control systems to achieve the objectives of improved water supply reliability, flood hazard reduction, and ecosystem protection and enhancement. The reoperation options will focus on integrating flood protection and water supply systems, reoperating the existing water system in conjunction with effective groundwater management, and improving existing water conveyance systems.</p>	<p>DWR</p>	<p>Full</p>	<p>X</p>
<p>3.11 DWR and the U.S. Bureau of Reclamation will: 3.10.1 Complete the North-of-the-Delta Offstream Storage, Shasta Lake Water Resources, and Upper San Joaquin River Basin Storage investigations. 3.10.2 Complete the investigation of the further enlargement of the Los Vaqueros Reservoir. 3.10.3 Complete an investigation to raise B.F. Sisk Dam and enlarge San Luis Reservoir.</p>	<p>Progress on completing: (A) the North-of-the-Delta Offstream Storage, Shasta Lake Water Resources, and Upper San Joaquin River Basin Storage investigations by the end of 2015, (B) the investigation of the further enlargement of the Los Vaqueros Reservoir by the end of 2016, (C) the San Luis Reservoir expansion investigation by the end of 2016.</p> <p>The above projects will also:</p> <p>A. Evaluate the potential additional benefits of integrating operations of new storage with proposed Delta conveyance improvements, and recommend the critical projects that need to be implemented to expand the State’s surface storage.</p> <p>B. Identify the beneficiaries and cost share partners for the non-public benefits by 2015.</p> <p>C. Request funding from the water bond for the public benefits portion through the California Water Commission by 2016, if a State water bond passes in 2014.</p>	<p>DWR & USBR</p>	<p>Partially Funded</p>	<p>X</p>

Table 4 Related Actions and Performance Measures for Objective 4 (Protect and Restore Surface Water and Groundwater Quality)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>4.1 Protect and restore surface water quality by implementing strategies to protect the past, present, and probable future beneficial uses for all 2010-listed [CWA section 303(d)] water bodies by 2030.</p> <p>4.1.1 Implement a statewide strategy to efficiently prepare, adopt, and implement total maximum daily loads (TMDLs), which result in water bodies meeting water quality standards, and adopt and begin implementation of TMDLs for all 2010-listed water bodies by 2019.</p> <p>4.1.2 Manage urban runoff volume to reduce pollutant loadings, reduce wet weather beach postings and closures by 75 percent by 2020, eliminate dry weather beach closures and postings and, where applicable, promote stormwater capture and re-use for development of sustainable local water supplies.</p> <p>4.1.3 Take appropriate enforcement actions and innovative approaches as needed to protect and restore the beneficial uses of all surface waters.</p>				
<p>4.2 Protect and restore groundwater quality by improving and protecting groundwater quality in high-use basins by 2030.</p> <p>4.2.1 Communities should implement an integrated groundwater protection approach to improve and protect groundwater in high-use basins that:</p> <ul style="list-style-type: none"> A. Evaluate and regulate activities that impact or have the potential to impact beneficial uses. B. Recognize the effects of groundwater and surface water interactions on groundwater quality and quantity. C. Encourage and facilitate local management of groundwater resources. <p>4.2.2 State government should identify strategies to ensure that communities with contaminated groundwater have a clean and reliable drinking water supply, which may include remediation of polluted or contaminated groundwater, surface water replacement, and/or groundwater treatment.</p> <p>4.2.3 State government should implement the recommendations in the State Water Resources Control Board’s (SWRCB’s) Report to the Legislature on addressing issues associated with nitrate contaminated groundwater.</p> <p>4.2.4 The SWRCB and regional water quality control boards (RWQCBs) should help groundwater users and management authorities to maintain high-quality groundwater basins through application of the antidegradation directives using waste discharge requirements and the remediation of polluted or contaminated groundwater.</p> <p>4.2.5 Regional and local stakeholders should prepare salt and nutrient management plans for each groundwater basin/subbasin in California by 2016. These salt/nutrient management plans should be prepared as outlined</p>				

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<p>in the SWRCB's Water Quality Control Policy for Recycled Water, adopted May 14, 2009. The RWQCBs should incorporate salt and nutrient management plans into basin plans, where appropriate.</p>				
<p>4.3 Evaluate existing water quality protection and restoration, and the relationship between water supply and water quality, and describe the connections between water quality, water quantity, and climate change, throughout California's water planning processes.</p> <p>4.3.1 As part of the California Water Plan, the SWRCB should evaluate existing water quality problems in the state, prioritize the most pressing problems, and prepare policy recommendations to guide the State's water management activities, including protection and restoration of water quality through the integration of statewide policies and plans, regional water quality control plans (basin plans), and the potential effects of climate change on water quality and supply.</p> <p>4.3.2 RWQCBs should consistently organize basin plans to provide a clear structure that readily conveys key elements (e.g., beneficial uses, potential impacts of climate change, water quality objectives, goals for watersheds, plans for achieving those goals, and monitoring to inform and adjust the plans) and that fully integrates other water quality control plans such as the California Ocean Plan and Water Quality Control Plan for Enclosed Bays and Estuaries.</p> <p>4.3.3 RWQCBs should adopt basin plan amendments through a collaborative process that involves third parties and incorporates SWRCB requirements and stakeholder interests. An example is the Santa Ana RWQCB's Basin Plan amendment initiated with funding assistance from stakeholders as required in the SWRCB's Recycled Water Policy.</p> <p>4.3.4 State Government should continue to support efforts of the California Water Quality Monitoring Council to develop a centralized Geographic Information System (GIS) database (EcoAtlas) that displays watershed information, including watershed boundaries, TMDLs, monitoring data, water body types, assigned Beneficial Uses, wetlands, California Rapid Assessment Method scores, vegetation types, and other data. A key component of effective water quality planning is access to pertinent watershed information so that regulatory actions can strategically protect and improve watershed aquatic resources.</p>				
<p>4.4 To protect source water and safeguard water quality for all beneficial uses, State government should implement the recommendations from the following California Water Plan Resource Management Strategies found in Volume 3: pollution prevention, matching water quality to use, salt and salinity management, urban stormwater runoff management, groundwater/aquifer remediation, recharge area protection, municipal recycled water, drinking water treatment and distribution,</p>				

<p style="text-align: center;">Related Actions</p>	<p style="text-align: center;">Performance Measures</p>	<p style="text-align: center;">Lead Entities</p>	<p style="text-align: center;">Funding Status</p>	<p style="text-align: center;">Legislation Required (X for Yes)</p>
<p>agricultural lands stewardship, ecosystem restoration, forest management, land use planning and management, sediment management, and watershed management.</p>				
<p>4.5 The California Department of Public Health (CDPH) will continue to implement its Small Water System Program Plan to assist small water systems (especially those serving disadvantaged communities) that are unable to provide water that meets primary drinking water standards.</p> <p>4.5.1 CDPH will share the Small Water System Program Plan with relevant federal tribal, State, regional, and local agencies, as well as stakeholders, to foster additional opportunities for funding, coordinate construction projects in communities, and to assist in local and regional planning efforts.</p> <p>4.5.2 CDPH will utilize GIS tools to identify large water systems in close proximity to targeted small water systems, and conduct targeted outreach to these large water systems to encourage them to consolidate the small systems into their service area.</p> <p>4.5.3 CDPH will work with stakeholders to identify obstacles to consolidation (including financial, legal and local issues) and develop possible actions to address these obstacles.</p> <p>4.5.4 CDPH will participate in statewide planning efforts to address the water infrastructure needs of small water systems. CDPH should seek input from other states and the federal government on innovative, successful efforts to address the needs of small water systems, and should share its results on implementation of its Small Water System Program Plan.</p>				

Table 5 Related Actions and Performance Measures for Objective 5 (Practice Environmental Stewardship)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>5.1 Governments and the private sector should work together to create and maintain a network of protected reserve areas across the state that builds on existing conservation investments, and provides refuge areas and migration corridors that allow species to adjust to conditions associated with climate change. The network should include river corridors that connect high elevations to valleys and reestablish natural hydrologic connections between rivers and their historic floodplains (California Natural Resources Agency 2009). The California Natural Resources Agency should support and develop the following:</p> <p>5.1.1 Establish and maintain a comprehensive, inter-jurisdictional inventory of current conservation areas and candidate high-priority conservation areas to coordinate future conservation efforts.</p> <p>5.1.2 Work with partners at landscape scales to maximize use of existing conservation programs (e.g., easement, management, mitigation), particularly the conservation titles of the Farm Bill, the private lands programs focused on endangered species, and other federal and State private-lands incentive programs to conserve private lands of high conservation value, to enhance habitat values, and maintain working inland water landscapes under climate change.</p> <p>5.1.3 Identify species and habitats particularly vulnerable to transition under climate change (e.g., cool-water to warm-water fisheries) and develop management strategies and approaches for adaptation.</p> <p>5.1.4 Support or create funding sources to develop and utilize models and monitoring data to identify and map high-priority inland water areas/watersheds (i.e., refugia) for conservation by using information on species distributions (current and projected), habitat classification, land cover, and geophysical settings (including areas of rapid change and slow change).</p> <p>5.1.5 Identify and address conflicting management objectives within and among federal, State, and tribal conservation agencies and private landowners, and seek to align policies and approaches.</p>	<p>A. Cumulative number of acres protected in each eco-region.</p> <p>B. Connectivity score of areas protected in each eco-region.</p> <p>C. Percentage completion of a tracking system of lands that are a priority for protection.</p>	<p>Natural Resources Agency</p>	<p>Partially Funded</p>	
<p>5.2 All agencies that own and operate water and flood management systems should include actions in their respective natural resource management plans that restore natural processes of erosion and sedimentation in rivers and streams and increase the quantity, diversity, quality, and connectivity of riverine and floodplain habitats. Local planning activities, including integrated regional water management (IRWM), urban water management plans, watershed management plans, natural community conservation plans, habitat conservation plans, and other water resource or floodplain focused planning efforts, should include</p>	<p>A. Number of acres of riparian and floodplain habitat restored annually.</p> <p>B. Number of acres of floodplain and upper watershed forest restored annually.</p>			

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>objectives to meet these goals.</p> <p>5.2.1 Re-establish one million acres of contiguous natural riparian, wetland, and floodplain habitat that is subject to periodic flooding for at least 50 percent of the river miles in the regions. This can contribute to Assembly Bill 32 greenhouse gas reduction goals through enhanced carbon sequestration. IRWM and regional flood management plans that incorporate corridor connectivity and restoration of native aquatic and terrestrial habitats to support increased biodiversity and resilience to a changing climate should receive additional credits in State government water and flood grant programs. (See objectives 1, 2, and 6)</p>	<p>C. Annual increase in number of plans that offer additional credits for habitat corridor connectivity and restoration.</p> <p>D. Percentage achievement of overall one-million acre goal.</p>			
<p>5.3 State and federal governments should encourage, prioritize, and identify financing for actions to protect, enhance, and restore at least one million acres of upper watershed forests and meadows that act as natural water and snow storage. These actions should include efforts to reduce the risks and impacts of catastrophic wildfire. This measure improves water supply reliability, protects water quality, safeguards high-elevation habitats, and supports carbon sequestration and forest-based economies. (See objectives 1, 3, and 4.) (Association of California Water Agencies 2013; California Air Resources Board 2008)</p>	<p>A. Number of acres newly protected or treated for fire risk each year.</p> <p>B. Percentage achievement of protecting, enhancing, and restoring one-million acres of upper watershed forests and meadows.</p>			
<p>5.4 Governments and the private sector should develop and support programs that pay private landowners and managers to protect and improve habitat and nature’s water-related services, including flood protection, water quality, groundwater recharge and storage, reversal of land subsidence, prevention of large wildfires, shading of rivers and streams, and reduced soil erosion.</p>	<p>Number of acres newly enrolled each year; total acreage enrolled.</p>		Unfunded	
<p>5.5 Governments and the private sector should work to incorporate the economic value of nature’s goods and services into natural resource management decisions. Such recognition should include development of ways to measure and report the economic value of those services and the financial return from investment in their protection and enhancement.</p>	<p>A. Number of economic metrics developed for nature’s goods and services.</p> <p>B. Number of State programs (e.g., grants, mitigation, CEQA guidelines) that incorporate metrics.</p>	Natural Resources Agency	Unfunded	
<p>5.6 Federal, tribal, State, and local agencies should provide greater resources and coordinate efforts to control invasive species and prevent their introduction. (California Department of Fish and Game 2007)</p>	<p>Progress toward decreasing trends in the number, abundance, and distribution of invasive species.</p>			

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>5.7 State and federal government should work with dam owners/operators, tribes, and other stakeholders to evaluate opportunities and technologies to reintroduce anadromous fish to upper watersheds. Re-establishment of anadromous fish upstream of dams may provide additional flexibility in providing cold water downstream in conjunction with water and flood systems reoperation strategies. State and federal governments should develop funding sources to support partnerships in constructing fish passage at dams and to assist removal of obsolete dams that pose a public safety and/or ecological risk.</p>	<p>Number of evaluations completed each year.</p>		<p>Partially Funded</p>	
<p>5.8 State, federal, and local government should identify and prioritize protection of lands of San Francisco Bay and the Delta that will provide the habitat range for tidal wetlands to adapt to and shift with sea level rise. A climate change resilient San Francisco Bay and Delta should include creating greater flood capacity by construction of setback levees on islands and removal of strategic island levees that also creates opportunities for tidal wetland and riparian restoration. Such lands and actions can help maintain estuarine ecosystem functions and act as storm buffers, protecting people and property from flood damages. (San Francisco Estuary Partnership 2007)</p>	<p>A. Number of acres of potential tidal wetland identified and prioritized for protection each year. B. Total acreage so enrolled.</p>			
<p>5.9 State government should prioritize, expand, and support Delta islands and Suisun Marsh subsidence reversal and land accretion projects to help reestablish equilibrium between land and estuary elevations. Sediment-soil accretion is a cost-effective, natural process that can help sustain the Delta and Suisun Marsh ecosystem, and reduce communities' risks from flooding, as well as sequester carbon and restore estuarine ecosystem functions.</p>	<p>A. Number of acres newly enrolled in subsidence reversal projects each year. B. Total acreage so enrolled.</p>			
<p>5.10 State and federal government should fund natural resource protection agencies to continue work to determine fishery needs and provide funds for water right holders to meet those needs.</p>	<p>A. Progress towards developing statewide priorities for flow studies. B. Progress towards completing flow criteria for high priority watersheds. C. Amount of funding spent or made available to purchase water rights. D. Progress towards meeting target conditions for fish in priority streams. E. Progress towards meeting population targets for fish affected by these programs.</p>			

Table 6 Related Actions and Performance Measures for Objective 6 (Improve Flood Management Using an Integrated Water Management Approach)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>6.1 Agencies at all levels should utilize integrated water management (IWM) principles that consider flood risk, mitigation, and protection of natural floodplain functions for planning and implementing flood management projects. Collaborate with planners, engineers, scientists, regulators, and other stakeholders to identify flood risk reduction and floodplain restoration strategies that can be used in local and regional planning efforts, such as integrated regional water management plans, general plans, regional economic and transportation plans, resource conservation plans, floodplain management plans, and others. This should include best management practices (BMPs) for coastal zones, alluvial fans, headwaters, and riverine floodplains in urbanized and non-urbanized areas.</p>	<p>Number of flood management plans and projects utilizing IWM principles completed.</p>	<p>State, federal, and local agencies</p>	<p>Partially Funded</p>	
<p>6.2 State government should periodically update the 2013 <i>California's Flood Future Report: Recommendations for Managing the State's Flood Risk</i> (California's Flood Future), which further advances the recommendations developed as part of the original California's Flood Future effort.</p>	<p>California's Flood Future Update</p>	<p>DWR</p>	<p>Partially Funded</p>	
<p>6.3 Local agencies should work together in regions to develop regional flood risk assessments to evaluate potential adverse impacts of flooding on life, property, infrastructure, the environment, and the economy. The risk assessments should be developed through regional collaboration among local, state and federal stakeholders, and based on a consistent methodology, appropriate to the region, for flood risk assessment. This assessment should include a determined acceptable level of flood risk for people, property, and the environment within the region. The flood risk assessments should include a set of digital maps for planning and communication of flood risk to agencies, the public, elected officials, and other stakeholders.</p>	<p>Population, total area, and number of regions covered by initiated or completed flood risk assessments with digital maps</p>	<p>Local agencies</p>	<p>Unfunded</p>	
<p>6.4 State government should develop comprehensive economic evaluation guidance for flood risk assessment and other flood management activities. The economic evaluation guidance should include methods to evaluate ecosystem services and other IWM benefits and should be adaptable to different areas of the state.</p>				

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>6.5 Local agencies should work together regionally to develop regional flood risk management plans based on regional risk assessments and define short-term and long-term goals, objectives, actions, and associated implementation strategies for reducing flood risk, as well as define opportunities to enhance natural floodplain functions and provide other IWM benefits. These plans should reflect a collaborative, stakeholder-based process addressing the unique regional and statewide interests, critical needs, and priorities. These plans should address, as appropriate: the locally identified level of flood protection; flood risk and flood damage reduction and mitigation strategies, including natural floodplain function; operations and maintenance; and local, regional and state IWM strategies.</p>	<p>Population, total area and number of regions covered by initiated or completed regional and statewide floodplain management plans</p>	<p>Local agencies</p>	<p>Partially Funded</p>	<p>Potentially</p>
<p>6.6 State government should work with federal and local agencies to develop a statewide flood management investment approach. This approach would evaluate short- and long-term financing needs, as well as available investment strategies, and should lay out potential future investment alternatives for flood management statewide. This action will also be informed by the outcomes of Objective 17.</p>	<p>Completion of statewide flood management investment approach</p>	<p>State (DWR)</p>	<p>Partially Funded</p>	
<p>6.7 State government should take appropriate action to facilitate revenue generation and support regional flood risk management. This includes an evaluation of existing financing mechanisms and legal frameworks to facilitate the development of regional flood-risk reduction financing.</p>	<p>White paper review of financial mechanisms and potential legislation changes</p>	<p>State (DWR)</p>		<p>Potentially</p>
<p>6.8 State government should collaborate with planners, engineers, scientists, regulators, and other stakeholders to develop BMPs for land use planning that achieve flood risk reduction and protection of natural floodplain functions. BMPs should be developed for local planning (e.g., general plans, land use regulations) that is conducted by cities and counties and for regional planning (e.g., sustainable communities strategies and blueprint plans) that is conducted by regional planning agencies. Land use planning BMPs should be developed for coastal zones, alluvial fans, headwaters, and riverine floodplains in urbanized and non-urbanized areas.</p>	<p>Initiation or completion of best management principles; number of workshops with land use planning stakeholders</p>	<p>State (DWR)</p>		
<p>6.9 State government should work with federal and local agencies to develop a comprehensive regional vulnerability analysis approach and set of regional adaptation strategies for climate change impacts on flood risk and floodplain ecosystems.</p>	<p>Climate change adaptation strategies for flood risk</p>	<p>State (DWR)</p>		

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>6.10 State government should create and coordinate statewide and regional environmental regulatory working groups to improve and streamline regulatory review processes that will address critical flood-risk reduction projects, flood system maintenance, flood emergency response, and floodplain restoration (See Objective 16). State and federal environmental regulatory agencies, in collaboration with regional stakeholders, should take actions to streamline regulatory review while recognizing the unique differences among geographical regions of the State.</p>	<p>A. Number of regions with working groups and number/ types of environmental permitting processes reviewed, number and type of activities approved under the new processes with historical comparison.</p> <p>B. Regional and/or statewide guidance for water quality and ecosystem restoration.</p> <p>C. Number of regions and list of regulatory agencies engaging in baseline data sharing.</p> <p>D. Number of regions and list of agencies adopting a regional mitigation database and mitigation bank.</p> <p>E. Permitting Guidebook.</p>	<p>State (DWR)</p>		
<p>6.11 State government should develop a comprehensive set of materials and tools to assist public agencies in obtaining accurate information on flood risk and floodplain conditions and increase public awareness of flood risks and potential IWM solutions in that region. State government should develop regional and statewide indicators of flood risk and floodplain conditions and create online regional and statewide flood risk and floodplain information resources for government agencies and for the public. These resources should include regional maps with information on flood risk and floodplain conditions and indicators; outreach and communication tools, including tailored outreach materials as needed to meet the unique needs of each region; and materials that clarify the roles and responsibilities of local, state, tribal, and federal agencies in flood risk reduction and floodplain restoration efforts, including emergency response.</p>	<p>Catalog of floodplain maps; library of outreach materials; regional outreach materials</p>	<p>State (DWR)</p>	<p>Partially Funded</p>	
<p>6.12 State government should increase support for flood emergency preparedness, response, and recovery programs to reduce flood risk by identifying data and forecasting needs; conducting statewide flood emergency management (EM) exercises; working with locals to improve flood EM plans; and supporting increased coordination between flood</p>	<p>Number of exercises and pre-planning meetings with locals; List of agencies and type of staff attended meetings</p>	<p>State (DWR)</p>	<p>Partially Funded</p>	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
EM responders, planners, facility managers, and resource agencies (see Objective 8).				
<p>6.13 In June 2012, the Central Valley Flood Protection Board adopted the first Central Valley Flood Protection Plan (CVFPP). Prepared by the California Department of Water Resources, the plan presents a long-term vision for improving integrated flood management in the Central Valley and achieving a more flexible, resilient, and sustainable flood management system over time. In implementing this vision, State government should take the following actions consistent with the goals of the CVFPP:</p> <p>6.13.1 Update the CVFPP in years ending in 2 and 7.</p> <p>6.13.2 Continue to work with local and regional entities and the federal government to plan and refine physical improvements to the State Plan of Flood Control.</p> <p>6.13.3 Periodically update the Flood Control System Status Report, which provides information on the current status and conditions of State Plan of Flood Control facilities.</p> <p>6.13.4 Continue to develop criteria and guidance to assist local cities and counties in demonstrating an urban level of flood protection consistent with State law.</p> <p>6.13.5 Continue to develop policies, guidance, and funding mechanisms to implement flood management projects by using an IWM approach in the Central Valley.</p> <p>6.13.6 Continue to develop guidance and take actions to support wise management of floodplains and residual flood risks present in floodplains protected by the State Plan of Flood Control.</p>	Completion of Central Valley Flood Protection Plan and Flood Control System Status Report Updates ULOP guidance published.	State (DWR)	Full	
<p>6.14 In May 2013, the Delta Stewardship Council adopted the Delta Plan. The Delta Plan was developed to guide State and local agencies to help achieve the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. To support the implementation of the Delta Plan, the following flood-related actions should be taken:</p> <p>6.14.1 The Legislature should establish a Delta Flood Risk Management Assessment District with fee authority (including over State infrastructure).</p> <p>6.14.2 The Legislature should fund State agencies to evaluate and</p>	Legislation implemented; TM evaluating floodway and bypasses and set-back levee alternatives;	Multiple	Unfunded	X

<p style="text-align: center;">Related Actions</p>	<p style="text-align: center;">Performance Measures</p>	<p style="text-align: center;">Lead Entities</p>	<p style="text-align: center;">Funding Status</p>	<p style="text-align: center;">Legislation Required (X for Yes)</p>
<p>implement a bypass and floodway on the San Joaquin River near Paradise Cut.</p> <p>6.14.3 The Legislature should require adequate levels of flood insurance for residences, businesses, and industries in flood-prone areas.</p> <p>6.14.4 The Legislature should consider statutory and/or constitutional changes that would address the State’s potential flood liability.</p> <p>6.14.5 State government should evaluate whether additional areas both within and upstream of the Delta should be designated as floodways and should include the consideration of the anticipated effects of climate change in these areas.</p> <p>6.14.6 State government should develop criteria to define locations for future setback levees in the Delta and Delta watershed.</p> <p>6.14.7 State and local agencies and regulated utilities that own and/or operate infrastructure in the Delta should prepare coordinated emergency response plans to protect the infrastructure from long-term outages resulting from failures of the Delta levees. The emergency procedures should consider methods that also would protect Delta land use and ecosystem.</p> <p>6.14.8 U.S. Army Corps of Engineers (USACE) should consider a variance that exempts Delta levees from the USACEs’ levee vegetation policy.</p>				

Table 7 Related Actions and Performance Measures for Objective 7 (Manage the Delta to Achieve the Coequal Goals for California)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>7.1 State or local public agencies undertaking covered actions must file certifications of consistency with the Delta Stewardship Council. Certifications of Consistency must include detailed findings that demonstrate how the covered action is consistent with all the policies of the Delta Plan.</p>	<p>The number of covered actions filed with the Delta Stewardship Council</p>	<p>State and local agencies</p>	<p>unfunded</p>	
<p>7.2 Provide a more reliable water supply for California by implementing the following:</p> <p>7.2.1 All water suppliers should fully implement applicable water efficiency and water management laws, including urban water management plans; the 20 percent reduction in statewide urban per capita water usage by 2020; agricultural water management plans; and other applicable water laws, regulations, or rules.</p> <p>7.2.2 The California Department of Water Resources (DWR), in consultation with the Delta Stewardship Council, the State Water Resources Control Board (SWRCB), and others, should develop and approve guidelines for the preparation of a water supply reliability element as part of the update of an urban water management plan, agricultural water management plan, integrated water management plan, or other plan that provides equivalent information about the supplier’s planned investments in water conservation and water supply development. The expanded water supply reliability element should include the details recommended in the Delta Plan. Water suppliers that receive water from the Delta watershed should include an expanded water supply reliability element in their water management plans, starting in 2015.</p> <p>7.2.3 DWR and the SWRCB should establish an advisory group with other state agencies and stakeholders to identify and implement measures to reduce impediments to achievement of statewide water conservation, recycled water, and stormwater goals. This group should evaluate and recommend updated goals for additional water efficiency and water resource development.</p> <p>7.2.4 DWR, the SWRCB, the California Department of Public Health (CDPH), and other agencies, in consultation with the Delta Stewardship Council, should revise State grant and loan ranking criteria to be consistent with Water Code section 85021 and to provide a priority for water suppliers that includes an expanded</p>	<p>A. Identify number of urban and agricultural water suppliers that certify that they have adopted and are implementing supply planning, conservation, and efficiency measures required by State law by 2015, meeting the standards and deadlines established by code.</p> <p>B. DWR has developed and published guidelines for the preparation of an expanded Water Supply Reliability Element.</p> <p>C. DWR and SWRCB have established an advisory group and identified impediments to achievement of statewide water conservation, recycled water and stormwater goals and have evaluated and recommended update goals, including an assessment of how regions are achieving their proportional share of these goals</p> <p>D. State grant and loan ranking criteria have been revised</p> <p>E. BDCP is completed and DWR and the Bureau of Reclamation have received required take permits</p> <p>F. DWR has completed the development and initiated implementation of an integrated statewide system for water use reporting in coordination with other state agencies.</p>	<p>Local agencies</p> <p>DWR</p> <p>DWR, SWRCB</p> <p>DWR, DPH, SWRCB, others</p> <p>DWR</p> <p>DWR</p>	<p>Unfunded (all)</p>	

<p>Related Actions</p>	<p>Performance Measures</p>	<p>Lead Entities</p>	<p>Funding Status</p>	<p>Legislation Required (X for Yes)</p>
<p>water supply reliability element in their adopted urban water management plans, agricultural water management plans, and/or integrated regional water management (IRWM) plans.</p> <p>7.2.5 DWR and the U.S. Bureau of Reclamation (USBR) will complete the Bay Delta Conservation Plan (BDCP) (both the Habitat Conservation Plan/Natural Communities Conservation Plan and the Environmental Impact Report/Environmental Impact Statement), a 50-year ecosystem-based plan designed to restore fish and wildlife species in the Delta in a way that protects California’s water supplies while minimizing impacts to Delta Communities and farms. Upon adoption of BDCP and receiving the necessary permits by the regulating agencies, DWR and the USBR will implement the 22 proposed conservation measures in BDCP to help wildlife and reverse the decline of native fish populations in the Delta.</p> <p>7.2.6 DWR, in coordination with the SWRCB, CDPH, California Public Utilities Commission (CPUC), California Energy Commission (CEC), USBR, California Urban Water Conservation Council, and other stakeholders, should develop a coordinated statewide system for water use reporting. Water suppliers that export water from, transfer water through, or use water in the Delta watershed should be full participants in the database.</p> <p>7.2.7 DWR, in consultation with the SWRCB, and other agencies and stakeholders, should evaluate and include in the next and all future California Water Plan updates information needed to track water supply reliability performance measures identified in the Delta Plan, including an assessment of water efficiency and new water supply development, regional water balances, improvements in regional self-reliance, reduced regional reliance on the Delta, and reliability of Delta exports, and an overall assessment of progress in achieving the coequal goals.</p> <p>7.2.8 Immediately provide financial incentives and technical assistance through the IRWM Plans and Local Groundwater Assistance Program to improve surface water and groundwater monitoring and data management.</p>	<p>G. DWR has modified the California Water Plan update to include specified categories of information to be tracked.</p> <p>H. Funds are available in the IRWMP and LGAP programs for surface water improvement and GW data management</p>	<p>DWR</p> <p>DWR</p>		

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>7.3 Water quality in the Delta should be maintained at a level that supports, enhances, and protects beneficial uses identified in the applicable SWRCB or regional water quality control board (RWQCB) water quality control plans.</p> <p>7.3.1 The SWRCB should update the Bay-Delta Water Quality Control Plan objectives as follows:</p> <p>A. By June 2, 2014, adopt and begin to implement updated flow objectives for the Delta, which are necessary to achieve the coequal goals.</p> <p>B. By June 2, 2018, adopt, and as soon as reasonably possible, implement flow objectives for high-priority tributaries in the Delta watershed that are necessary to achieve the coequal goals.</p> <p>7.3.2 The SWRCB and RWQCBs should work collaboratively with DWR, California Department of Fish and Wildlife (DFW), and other agencies and entities that monitor water quality in the Delta to develop and implement a Delta Regional Monitoring Program that will be responsible for coordinating monitoring efforts so Delta conditions can be efficiently assessed and reported on a regular basis.</p> <p>7.3.3 DFW and other appropriate agencies should prioritize and implement actions for non-native invasive species from the <i>Conservation Strategy for Restoration of the Sacramento–San Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin Valley Regions</i> (California Department of Fish and Game 2011).</p>	<p>A. The SWRCB adopts Delta flow objectives by June 2, 2014.</p> <p>B. The SWRCB adopts flow objectives for the major tributaries in the Delta watershed by June 2, 2018</p> <p>C. A Delta regional water quality monitoring program is developed.</p> <p>D. The Department of Fish and Wildlife and other appropriate agencies prioritize the list of “State 2 Actions for Nonnative Invasive Species.”</p>	<p>SWRCB</p> <p>SWRCB</p> <p>SWRCB, RWQCB</p> <p>DFW</p>	<p>Unfunded (all)</p>	

Table 8 Related Actions and Performance Measures for Objective 8 (Prepare Prevention, Response, and Recovery Plans)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>8.1 Communities in floodplains should consider the consequences of flooding and should develop, adopt, practice, and regularly evaluate formal flood emergency preparedness, response, evacuation, and recovery plans (see Objective 6).</p> <p>8.1.1 State government should assist disadvantaged communities located in floodplains to prepare for and recover from flood emergencies.</p>		Local and State Agencies		
<p>8.2 The California Department of Water Resource (DWR) should review scientific literature and climate change models to evaluate if water suppliers should plan for more than three consecutive dry years as currently required for the water shortage contingency section of urban water management plans. DWR, working through a public process, could include any recommended changes in its Report to the Legislature on the Status of the 2015 urban water management plans.</p>		DWR		
<p>8.3 Following the official end of the current drought and as part of the “after action” drought evaluation, DWR will update the California Drought Contingency Plan, which includes:</p> <ul style="list-style-type: none"> A. Articulation of a coordinated strategy for preparing for, responding to, and recovery from drought. B. Assessment of state drought contingency planning and preparedness. C. Description of State government’s role and responsibilities for drought preparedness. D. Identification of needed improvements for drought monitoring and preparedness. E. Identification of measures to mitigate the economic, environmental, and social risks and consequences of drought events. F. Assessment of and adaptation to the impacts of drought under existing and future conditions, including climate change. G. Identification of needed improvements to real-time surface water and groundwater monitoring programs. H. Identification of needed research in drought forecasting. I. Identification of needed research of the indices and metrics for assessing the levels of drought. 		DWR		

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
8.4 DWR will work with the California Governor's Office of Emergency Services (Cal OES) to develop preparedness plans to respond to other catastrophic events, such as earthquakes, wildfires, chemical spills, facility malfunctions, and intentional disruption, which would disrupt water resources and infrastructure.				
8.5 Cal OES, Governor's Office of Planning and Research, and the California Natural Resources Agency should lead an effort to update the State Emergency Plan and State Multi-Hazard Mitigation Plan to strengthen consideration of climate impacts to hazard assessment planning, implementation priorities, and emergency responses.	A. Update the State Emergency Plan by 2015. B. Update the State Multi-Hazard Mitigation Plan by 2014	Cal OES		
8.6 Cal OES, DWR, and the Delta counties should work together to develop a catastrophic flood response plan for the Delta region. This plan should support an integrated response within the Delta and increase communication efforts between stakeholders and federal, State, tribal, local, and private agencies.	Complete first phase of the Northern California Flood Response Plan by 2014.	Cal OES & DWR		
8.7 Cal OES will work with appropriate agencies to update the San Francisco Bay Area Catastrophic Earthquake Response Plan and incorporate lessons learned from the 2013 Golden Guardian exercise.	Complete San Francisco Bay Area Catastrophic Earthquake Response Plan by 2013	Cal OES & FEMA		

Table 9 Related Actions and Performance Measures for Objective 9 (Reduce the Carbon Footprint of Water Systems and Water Uses)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
9.1 State government should provide cap-and-trade funding to make water and wastewater conveyance, treatment, and distribution/collection systems more energy efficient.				
9.2 The California Department of Water Resources (DWR), the State Water Resources Control Board (SWRCB), and other State agencies should continue to leverage State funding sources with local funding for implementation of regional water management plans, including water and energy efficiency projects and climate change mitigation and adaptation activities.				
9.3 DWR, SWRCB, and other State agencies should provide incentives to increase water conservation and energy efficiency in agricultural and food processing sectors, industrial processes, and residential and commercial buildings and landscaping.				
9.4 DWR, SWRCB, the California Energy Commission, and other State agencies should update and implement new water-related energy conservation measures and energy efficiency standards for water use.				
9.5 The SWRCB and other State agencies should support resource-recovering wastewater treatment projects.				
9.6 DWR, SWRCB, and other State agencies should work with non-governmental carbon registries to develop standardized methodologies and protocols to enable the collection of accurate and comparable data on embedded energy and carbon in water systems.				
9.7 State government should evaluate the appropriate relationship between ratepayer and public financing of greenhouse gas (GHG) emissions reduction projects in the water and wastewater sectors.				
9.8 State government should support local agency models for pricing and rate structures that promote water use efficiency while ensuring stabilization of local agency finances and affordability for low-income households.				
9.9 DWR, SWRCB, and other State agencies should support local groundwater management that contributes to enhanced water quality and water supply reliability while reducing the energy intensity of groundwater pumping.				

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
9.10 The SWRCB and the regional water quality control boards should modify their policies, permits, and monitoring guidelines to reflect regional climate change scenarios and other best-available climate science.				
9.11 State government should facilitate partnerships between local water, wastewater, and energy utilities to further implement joint water-energy programs, including model programs of efficient landscape and agricultural irrigation.				
9.12 State government should increase its role in developing policies, providing financial incentives, and employing regulatory alignment to reduce the carbon footprint of water systems and water uses.				
9.13 State government should conduct an independent peer review of the existing, water-related AB 32 Scoping Plan measures, to determine the real GHG emissions reductions achieved to date and assess the technical feasibility and cost-effectiveness of those measures.				
9.14 State government should promote water-energy conservation outreach and education.				

Table 10 Related Actions and Performance Measures for Objective 10 (Improve Data, Analysis, and Decision-Support Tools)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>10.1 The California Department of Water Resources (DWR) should form an integrated water management (IWM) technical committee to improve communication, cooperation, and collaboration among and between technical experts and government agency decision-makers related to data collection, management, and exchange and analytical tool development and applications. The committee should be comprised of DWR, State Water Resources Control Board, California Department of Public Health, California Public Utilities Commission, Delta Stewardship Council, California Energy Commission, U.S. Bureau of Reclamation, U.S. Army Corps of Engineer’s Hydrologic Engineering Center, California Council for Science and Technology, University of California, California State University, and other interested State and federal agencies, and should work in partnership with the California Water and Environmental Modeling Forum, California Urban Water Conservation Council, regional water management groups (IRWMs), and interested California Native American Tribes, local agencies, non-governmental organizations, and stakeholders.</p>				
<p>Improve Water Data and Information To improve water data and information, DWR should take the following actions, in coordination with the IWM technical committee described under Related Action 10.1:</p>				
<p>10.2 Establish standards and protocols for data collection and management that facilitate sharing of information among agencies and modeling studies. This would include identifying and cataloging existing water data for California; creating a water data dictionary; and developing standards and metadata for water data monitoring, collection, and reporting.</p>	<p>A. Develop project charter. B. Inventory of existing water data for California. C. Developed water data dictionary. D. Develop standards and metadata for water data monitoring, collecting, and reporting.</p>	<p>DWR or research collaborative</p>	<p>Unfunded</p>	
<p>10.3 Develop a strategic plan for data management that prioritizes long-term improvements in the monitoring network, supports risk-based decision-making, and that identifies adequate resources for long-term maintenance of, and access to, water management information.</p>	<p>A. Develop project charter. B. Criteria for prioritizing term improvements in the monitoring network.</p>	<p>DWR or research collaborative</p>	<p>Unfunded</p>	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>10.4 Improve drought planning and preparation by:</p> <p>10.4.1 Developing drought metrics (indicators) with the goal of providing early detection and determination of drought severity.</p> <p>10.4.2 Developing and improving monitoring of key Indicators of regional water vulnerabilities.</p> <p>10.4.3 Improving the system of stream gauging for the purpose of managing water resources in low-flow conditions and improving the accuracy of seasonal runoff and water supply forecasts.</p> <p>10.4.4 Improving groundwater monitoring and assessment by providing technical and financial support to develop real-time monitoring of groundwater data.</p> <p>10.4.5 Expanding the existing surface water and groundwater monitoring networks, where needed.</p>	<p>A. Develop project charter.</p> <p>B. Percent completion of items 10.4.1 to 10.4.5.</p>	DWR	Partially Funded	
<p>10.5 Develop a strategy and implementation plan for measuring, compiling, and reporting water use and water quality data. The accurate measurement of water use and water quality, as well as the timely publication and broad distribution of the resulting data, will facilitate better water planning and management, especially in the context of managing aquifers more sustainably. These enhancements will also facilitate the development of more accurate water budgets.</p>	<p>A. Develop project charter.</p> <p>B. Inventory of existing water data for California.</p>	DWR or research collaborative	Unfunded	
<p>10.6 Sponsor science-based, watershed adaptation research and pilot projects to address water management and ecosystem needs, improve aquatic species and habitat monitoring, and develop an accessible and standardized database for reporting watershed and headwater conditions.</p>	<p>A. Develop project charter.</p> <p>B. Develop criteria for selecting research and pilot projects.</p>	DFW	Unfunded	
<p>Improve Data and Information Exchange To improve data and information exchange, DWR should take the following actions, in coordination with the IWM technical committee described under Related Action 10.1:</p>				
<p>10.7 Develop the Water Planning Information Exchange (Water PIE) to facilitate sharing data and networking existing databases among federal, State, tribal, regional, and local agencies and governments; nonprofit organizations; and citizen monitoring efforts. The Water PIE data framework will help improve analytical capabilities and develop timely surveys of statewide land use, water use, and estimates of future implementation of resource management strategies. Potential beneficiaries of the Water PIE include urban water management plans, agricultural water management plans, groundwater management plans, integrated regional water management plans, and the California Water Plan.</p>	<p>A. Develop project charter.</p> <p>B. Develop business requirements for Water PIE.</p> <p>C. Complete Pilot Project for Water PIE.</p> <p>D. Inventory of existing water data for California.</p>	DWR	Partially Funded	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
10.8 Support establishment of an open, organized, and documented quantitative representation of the state's intertidal water system to serve as a common and standardized data platform for model development and analysis by federal, State, tribal, regional, and local water planners.	A. Develop project charter. B. Inventory of existing analytical tools and water data for California.	DWR or research collaborative	Partially Funded	
10.9 Implement Shared Vision Planning or similar collaborative modeling approaches to integrate tried-and-true planning principles, systems modeling, and collaboration into a practical forum for making more informed and durable water resources management decisions.	A. Develop project charter. B. Develop facilitation plan.	DWR	Partially Funded	
<p>Improve Analytical Tools To develop and use analytical tools more effectively, DWR should take the following actions, in coordination with the IWM technical committee described under Related Action 10.1:</p>				
10.10 Expand the Central Valley Planning Area-based analytical tool and scenario studies developed during the California Water Plan Update 2013 to assess future vulnerabilities and management responses in the other hydrologic regions for California Water Plan Update 2018. The regional analytical tools and analyses should include evaluation of water supply reliability, water efficiency and new water supply development, regional water balances, improvements in regional self-reliance, reduced regional reliance on the Delta, and reliability of Delta exports. Over time, these tools should be enhanced to include metrics for water quality, economics, flood exposure, public safety, energy, and environmental factors by which to evaluate a greater number of the resource management strategies identified in Volume 3 of California Water Plan Update 2013.	A. Develop project charter. B. Number of DWR Planning Areas represented within the future scenario analysis. C. Number of resource management strategies represented within the future scenario analysis.	DWR	Partially Funded	
10.11 Develop a shared conceptual understanding, analytical framework, and quantitative description of how California watersheds and water management systems are represented in analytical tools at different spatial and temporal scales for use by federal, State, tribal, regional, and local agencies and organizations.	A. Develop project charter. B. Inventory of watershed hydrologic features and water management strategies that are represented within analytical tools.	DWR or research collaborative	Unfunded	
10.12 Support the California Water and Environmental Modeling Forum in updating its 2000 modeling protocols and standards to provide more current guidance to water stakeholders and decision-makers, as well as their technical staff, as models are developed and used to solve California's water and environmental problems.	Develop project charter.	CWEMF	Unfunded	

Table 11 Related Actions and Performance Measures for Objective 11 (Invest in Water Technology and Science)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>11.1 Federal, State, tribal, regional, and local governments; non-governmental organizations, California research and academic institutions, and private applied research and innovation initiatives should work together to identify, prioritize, and fund applied research projects with a goal to commercialize new water technologies and advance cost and energy-efficient emerging tools and technologies. The California Council for Science and Technology (CCST) should play a leadership role to facilitate collaboration among the above-mentioned organizations and entities to encourage fuller implementation of existing, effective water technologies — in support of more integrated, aligned, and sustainable water management.</p>				
<p>11.2 Advance new water technology to improve Data Management and Modeling by implementing the following actions:</p> <p>11.2.1 Development and implementation a standardized protocol and implementation plan for water use and water quality monitoring and reporting necessary for sustainable California water planning and management.</p> <p>11.2.2 Develop a standardized protocol and guidelines for distributed data storage and retrieval for database managers with all data linked to the appropriate metadata.</p> <p>11.2.3 Development of effective interactive data portals, such as the California Department of Water Resources’ (DWR’s) Water Planning Information Exchange (Water PIE) and UC Davis’s Hobbes, should continue with a high priority.</p> <p>11.2.4 Support the maintenance of current modeling protocols and standards that provide guidance to water stakeholders and decision-makers, as well as their technical staff, as models are developed and applied to solve California’s water and environmental problems. The California Water and Environmental Modeling Forum should continue to have a major role in this important effort.</p>	<p>A. Status of development and implementation strategy.</p> <p>B. Status of development and compliance with protocol.</p> <p>C. Status of development of database portal.</p> <p>D. Degree of support for monitoring of model protocols.</p>	<p>Resources Agency & CalEPA , Health and Human Services, Public Utilities Commission, Energy Commission, Bureau of Reclamation, USEPA and other stakeholders.</p>	<p>All partially funded, except 11.2.2 is unfunded</p>	<p>Yes, for all sub-actions</p>
<p>11.3 Advance new water technology to improve both in situ (on-site) and remote sensing for data acquisition by implementing the following actions:</p> <p>11.3.1 Coordinate in situ sensing and remote sensing systems more closely and expand existing monitoring networks (both in situ and remote) using mature wireless-sensor technology to improve the</p>	<p>A. Availability of translation software.</p> <p>B. Numbers of technology fairs held.Means of effectively transfer technology that does not orphan important technology is in use.</p> <p>C. Number of landbased radar</p>	<p>Resources Agency, CalEPA, DWR, Governor’s Office</p>	<p>Unfunded</p>	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>spatial and temporal resolution of measurements of hydrometeorological variables.</p> <p>11.3.2 Develop practicable mechanisms for closer coordination between the scientific and technical experts that develop, operate, maintain, and use in situ sensor networks and remote sensing instruments, when this coordination can appreciably enhance the value of both data collection efforts.</p> <p>11.3.3 Adapt satellite sensor output to operational use, where it is demonstrated that the satellite readings represent mature technologies and are being produced on an ongoing basis, making them reliable sources of information for water-resources decision-making over the long term. Examples of this include snow-covered areas and albedo products (http://www.nohrsc.noaa.gov/nh_snowcover/), the UC Irvine real-time, high-resolution Satellite precipitation (http://hydiss.eng.uci.edu/gwadi/), and global drought information (http://drought.eng.uci.edu/).</p> <p>11.3.4 Increase use of airborne sensor platforms as a compliment to satellite platforms for sustaining data acquisition, providing a gap-fill between satellite missions, and as a cost-effective strategy for collecting data that is of high value but for limited regions at limited times (e.g., snow water resources).</p> <p>11.3.5 Provide opportunities and incentives for meaningful partnerships between the National Aeronautics and Space Administration, universities, State and local agencies, and non-governmental organizations and the private sector to accelerate development and testing of new remote sensor capabilities, including accurately measuring chemical and physical attributes of freshwater bodies from unmanned aerial vehicles (drones).</p> <p>11.3.6 Increase investments in capacity building for use of remote sensing in water resources management applications and decision-making processes, and increase outreach and communication to inform the water resources management community of potential use and application of satellite data, as well as their limitations.</p> <p>11.3.7 Develop standardized strategies and protocols for quantifying uncertainty in measurements, and communicating the uncertainty to models or decision-making processes that ingest the measurements.</p>	<p>systems deployed.</p> <p>D. Status of development of protocol.</p> <p>E. Status of development of sensors.</p> <p>F. Development of remote sensing capability for freshwater chemical and physical parameters.</p> <p>G. Number of inexpensive local remote sensors in use.</p> <p>H. Number of drones routinely used.</p> <p>I. Number of public/private partnerships.</p>	<p>(GoBiz), NOAA, NASA, DOE Labs & University Research</p>		

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>11.4 Advance new water technology to improve efficiencies for the water-energy nexus by implementing the following actions:</p> <p>11.4.1 Employ smart grid technologies for water and energy conservation, management, and renewable energy technologies for water treatment and transport processes.</p> <p>11.4.2 Further integrate water and energy planning and research at the statewide level by enhancing and expanding the efforts by the State’s key water and energy management agencies that have made important strides in identifying areas where water and energy planning can be integrated.</p> <p>11.4.3 Develop analytical methods and tools to help incorporate water-energy nexus considerations in local and regional water and energy plans and assessments, and energy and emission reduction benefits into water conservation and alternate supply analysis.</p> <p>11.4.4 Develop and utilize multiple benefit analysis to determine cost-effectiveness of investments both in water and energy systems.</p> <p>11.4.5 Develop analytical methods and tools to help evaluate the water demands of energy technologies in the planning process for energy systems and encourage the use of water-efficient cooling technologies in thermoelectric power facilities.</p>	<p>A. Percentage of connections with automatic and advanced metering technology installed.</p> <p>B. Percent of energy for water uses from renewable sources in 2020.</p> <p>C. Percent of organic residual treatment processes providing bioenergy in 10 years.</p> <p>D. Level of self monitoring incorporated into POU and POE devices</p>	<p>DWR, PUC, CEC, SWRCB, CDPH</p>	<p>Unfunded</p>	
<p>11.5 Advance new water technology by implementing the following actions:</p> <p>11.5.1 Further develop and deploy more robust general-purpose membranes with an emphasis on lower cost and energy-efficient use and those that remove contaminants not now efficiently removed (e.g., boron, contaminants of emerging concern), for use in seawater desalination, brackish water treatment, and wastewater and water reuse applications, and recovery of beneficial salts and minerals for reuse.</p> <p>11.5.2 Continue developing energy recovery technologies for application to membrane separation technologies.</p> <p>11.5.3 Further develop and deploy smart control technologies to ensure more dependable operation of treatment facilities, including water/wastewater treatment facilities that are remotely located (distributed treatment).</p> <p>11.5.4 Further develop and deploy advanced water-treatment technologies capable of efficient removal from water of pharmaceuticals and personal care products (PPCPs) and emerging organic contaminants (EOCs).</p>	<p>A. Number of cost effective low energy use membranes developed and in use.</p> <p>B. Number of I high pressure RO applications fitted with energy recovery devices</p> <p>C. Level of advancement of remotely controlled small water treatment units</p> <p>D. Level of advancement of membrane separation technology in remote communities.</p> <p>E. Level of deployment of brine disposal technologies.</p> <p>F. Number of wastewater cleanup</p>	<p>DWR, SWRCB, CEC, CDPH</p>	<p>Actions are partially funded or unfunded.</p>	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>11.5.5 Deploy brine disposal technologies, already used outside of California, on a larger scale for brine disposal into marine environments and inland areas.</p> <p>11.5.6 Further develop and deploy wastewater cleanup and recycling technologies focused on producing water for drinking, irrigation, processing, groundwater recharge, and other uses.</p> <p>11.5.7 Develop technologies to reduce chemical use and increase energy efficiency, such as engineered wetlands for wastewater treatment and ecosystem enhancement.</p> <p>11.5.8 Develop and deploy anaerobic digestion technology that converts manure produced by confined animal operations into a stabilized fertilizer with a considerable fraction of the nitrogen in the inorganic form.</p> <p>11.5.9 Continue development of disinfection technologies for water that provide better disinfection efficiency for waterborne human pathogens while not creating additional public health or environmental hazards.</p> <p>11.5.10 Improve technologies for residential point-of-use (POU) and point-of-entry (POE) treatment.</p>	<p>technologies developed and deployed.</p> <p>G. Number of new innovative sites using engineered wetlands and meadows for wastewater treatment.</p> <p>H. Number of biological based water and wastewater treatment units deployed in small communities.</p> <p>I. Number of small water treatment units being operated remotely using smart control technology.</p>			
<p>11.6 Advance new water technology to improve watershed management by implementing the following actions:</p> <p>11.6.1 Improve watershed data and performance modeling, including improvements in the cost and efficiency of data acquisition and modeling, and by providing real-time and continuous watershed data (including surface and groundwater data) to enhance scenario-planning analysis capabilities.</p> <p>11.6.2 Conduct groundwater recharge area mapping and develop related spatial data and models to identify groundwater recharge opportunities.</p> <p>11.6.3 Expand the scientific and engineering knowledge base needed for more effective floodplain restoration to promote wetlands development, aid groundwater recharge, provide suitable habitat for aquatic and terrestrial species, and provide a trap for nutrients and sediment.</p>	<p>A. Status of development of modeling software and major models.</p> <p>B. Status of improved surface and groundwater data collection.</p> <p>C. Number of groundwater recharge sites developed and implemented.</p>	<p>DWR, SWRCB, Resources Agency, CalEPA & Applicable Federal Agencies</p>		
<p>11.7 Advance new water technologies to improve agricultural water use efficiency by implementing the following actions:</p> <p>11.7.1 Improve the cost effectiveness and accuracy of on-farm and district-level water measurement devices (flow rate and volume)</p>	<p>A. The level of adoption of cost effective water measurement and soil moisture sensing technology.</p> <p>B. The percentage of high efficiency</p>	<p>DWR, CDFA</p>		

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>and soil moisture-sensing technologies to increase water management data accuracy and control and help quantify the efficiency of agricultural water uses.</p> <p>11.7.2 Develop higher water-efficient irrigation system technologies to help optimize water- and energy-use efficiency, and enable water district deliveries on a real-time basis to maximize on-farm water use efficiency and support drip/micro irrigation methods.</p> <p>11.7.3 Develop and improve technologies for irrigation scheduling, including remote sensing, weather-based, and/or crop/soil-based technologies.</p> <p>11.7.4 Develop cost-effective irrigation system monitoring platforms for evaluating irrigation performance criteria in real time, including both water and energy.</p> <p>11.7.5 Develop the data necessary for identifying opportunities for shared use of water supplies (e.g., water exchanges between agricultural and urban users) and opportunities for local groundwater treatment (primarily salts) as a new or alternate water source for irrigation.</p> <p>11.7.6 Continue the development of drought-resistant and/or salt-tolerant plant varieties.</p>	<p>irrigation systems in use.</p> <p>C. The level of adoption of advanced technologies for irrigation scheduling.</p> <p>D. The level of development of irrigation performance monitoring platforms.</p> <p>E. The percentage of water districts that supply water based on customer demand.</p> <p>F. The number of acres or volume of water that provides a local environmental co benefit.</p> <p>G. The number of transfers or the volume of water transferred between water suppliers or water users.</p> <p>H. Identification and testing of performance monitoring platforms.</p>			
<p>11.8 Advance new water technology to improve urban water use efficiency by implementing the following actions:</p> <p>11.8.1 Promote the continued development of Advanced Metering Infrastructure (AMI) to provide multiple benefits to utilities and their customers, including near real-time water use information and the quicker identification of leaks, thereby promoting more efficient water use (e.g., individual apartments, remote access to water use data).</p> <p>11.8.2 Incorporate the best available plumbing codes in the development of plumbing code and efficiency standards for low-flow appliances and fixtures, such as toilets, clothes, and dish washers in the home, as well as low-flow cleaning technologies in the commercial and industrial sectors.</p> <p>11.8.3 Improve the measurement accuracy of outdoor landscape area and its related water use to help improve the efficiency of residential and commercial outdoor water use.</p> <p>11.8.4 Continue development of the technologies necessary to improve commercial/ residential stormwater management with benefits of reduced pollution and runoff and often increased local groundwater recharge.</p>	<p>A. Percentage of water connections using advanced metering and submetering technology.</p> <p>B. Level of implementation of efficient plumbing code and appliance water standards.</p> <p>C. The percentage of water districts implementing water loss analysis and repair programs.</p> <p>D. Percentage of low water use landscapes.</p>	<p>DWR, PUC, CEC, SWRCB, CDPH, CDFA</p>		

Table 12 Related Actions and Performance Measures for Objective 12 (Strengthen Tribal/State Relations and Natural Resources Management)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>12.1 State government, in collaboration with California Native American Tribes, should, where it is within the State’s authority, address tribal water rights, including tribal water rights dating back to time immemorial; federally reserved water rights; jurisdiction; and trust responsibilities, including individual allotments, by:</p> <p>12.1.1 Convening a task force to articulate a consistent State policy and protocol that recognizes tribal water rights in all aspects of water planning, including supply, timing, flows, quality, and quantity.</p> <p>12.1.2 The U.S. Bureau of Indian Affairs and the State Water Resources Control Board (SWRCB), in collaboration with California Native American Tribes, developing joint training on State, federal, and tribal water rights, including trust responsibilities, the implications for different tribal trust lands (reservations, rancherias, and individual allotments) and jurisdiction.</p>				
<p>12.2 State government should write legislation and contracts in a way that enables California Native American Tribes to be a lead agency and directly receive and manage State funding (as fiscal agent or otherwise) for water planning and management.</p>				
<p>12.3 The California Department of Fish and Wildlife and California Native American Tribes will develop and initiate pilot projects to develop resource management plans, characterized by the integration of Traditional/Tribal Ecological Knowledge and western science. This will include identifying existing examples of partnerships and launching pilot projects.</p>				
<p>12.4 State agencies should use Tribal Ecological Knowledge to inform their work and decisions, including establishing baseline resource conditions and developing options to share information in ways that protect specific details about cultural resources.</p>				
<p>12.5 State agencies, in collaboration with California Native American Tribes, should develop and conduct trainings for agencies on tribal sovereignty, trust responsibilities, cultural awareness/sensitivity, and Traditional/Tribal Ecological Knowledge by developing a curriculum with a tribal working group, establishing consistent training protocols for all agencies, and initiating trainings.</p>				

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
12.6 State and federal agencies, in coordination with California Native American Tribes, should identify, coordinate, and provide technical training for California Native American Tribes, to increase technical capacity – including, but not limited to, basic training modules (e.g., Basic Inspector Academy, geographic information systems, small water systems operations, such advanced technologies as LiDAR and satellite imagery) – and establish criteria and protocols for ensuring training vendors preferred by California Native American Tribes are utilized.				
12.7 State agencies should engage tribal communities in compiling and developing climate change adaptation and resilience strategies that will mitigate climate impacts to their people, waterways, cultural resources, or lands.				
12.8 The SWRCB should, in collaboration with California Native American Tribes, propose a statewide beneficial use definition that respects and acknowledges cultural and subsistence use of water and this definition should be adopted in statewide water quality control plans.				
12.9 State agencies and California Native American Tribes should utilize and implement communication strategies, protocols, and procedures that are developed and/or implemented by California Native American Tribes, including but not limited to the Tribal Communication Plan, U.N. Declaration on the Rights of Indigenous Peoples, 2013 Tribal Water Summit Guiding Principles and Goals, and tribal memoranda of understanding.				
12.10 State agencies, in collaboration with California Native American Tribes, should enhance tribal outreach, communication, coordination, collaboration, and the work of tribal liaisons by identifying and implementing strategies to strengthen tribal involvement in State outreach and engagement approaches; clarify tribal liaison roles and responsibilities; and identify options for creating a statewide network of tribal liaisons to address multiple aspects of tribal concerns (e.g. legal, policy and local conditions).				
12.11 State agencies should engage in meaningful consultation by encouraging and moving toward earlier involvement by California Native American Tribes (at the design/planning stages); initiating consultation for programmatic decisions as well as project-level decisions; understanding individual California Native American Tribes' protocol for consultation, adjusting timelines to allow adequate time to bring items before tribal councils and leaders; conducting meetings on tribal lands; and documenting tribal comments.				

Table 13 Related Actions and Performance Measures for Objective 13 (Ensure Equitable Distribution of Benefits)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>13.1 Ensure implementation of the policy goals of California Water Code Section 106.3 (Assembly Bill [AB] 685), which state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.</p> <p>13.1.1 State agencies should ensure that the goals established by the policy — safe, clean, affordable and accessible water adequate for domestic uses — are reflected in agency planning.</p> <p>13.1.2 State agencies should give preference to actions that advance the policy and strive to avoid taking actions that adversely affect the human right to water.</p> <p>13.1.3 State agencies should track actions undertaken to promote the policy and make information relevant to the human right to water available to the public.</p> <p>13.1.4 Governor’s Office of Planning and Research (OPR) should provide access to resources defining public participation best practices to State agencies, through its local government roundtable and the OPR Web site. State agencies should implement best practices, within available resources, for public participation in agency decision-making by California’s diverse population.</p> <p>13.1.5 State agencies should facilitate access by rural and urban disadvantaged communities (DACs) and California Native American Tribes to state funds for water infrastructure improvements.</p> <p>13.1.6 State agencies should ensure the effectiveness of accountability mechanisms protecting access to clean and affordable water.</p> <p>13.1.7 In consultation with State agencies, OPR should provide guidance and/or guidelines to inform and assist State agencies in implementing California Water Code Section 106.3 (AB 685).</p> <p>13.1.8 State agencies are encouraged to review their policies, regulations, and funding criteria for consistency with California Water Code 106.3 (AB 685).</p>				
<p>13.2 Increase environmental justice (EJ) and DAC participation in State agency water-related planning, programs, processes, and projects.</p> <p>13.2.1 The California Department of Water Resources (DWR) and the other California Water Plan (CWP) State Agency Steering Committee members should incorporate EJ issues of precautionary applications, cumulative health impact reductions, public participation, community capacity building and communication, and meaningful participation in current and future CWP Update processes and other programs.</p>				

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>13.2.2 DWR grant and loan recipients should demonstrate participation by DACs and vulnerable populations and their advocates to seek their participation in water planning programs, including the CWP update and integrated regional water management (IRWM) plans and other local water planning processes.</p>				
<p>13.3 Support financial mechanisms to facilitate improved and sustainable wastewater removal systems.</p> <p>13.3.1 The State Water Resources Control Board (SWRCB) and DWR should establish incentives for substandard septic or small wastewater systems to connect with municipal, regional, or other upgraded wastewater systems.</p> <p>13.3.2 Local and regional agencies should be encouraged to establish introductory, then graduated, wastewater rates to allow a period of adjustment for new and affordable rates.</p> <p>13.3.3 DWR, the California Department of Public Health (CDPH), SWRCB, the California Public Utilities Commission (CPUC), and other State agencies should evaluate and create a consistent metric for water affordability.</p>				
<p>13.4 Remove barriers to local and regional funding for water projects conducted to support DAC and EJ communities.</p> <p>13.4.1 The SWRCB, CDPH, DWR, and other State agencies should work with DACs and vulnerable populations and their advocates to review State government funding programs and develop or revise guidelines that make funding programs more accessible to DACs and EJ communities.</p> <p>13.4.2 The SWRCB, CDPH, DWR, and other State agencies should implement and expand technical assistance programs developed in collaboration with DAC/EJ communities and their advocates to provide them with resources, expertise, and information leading to more successful access to funding.</p>				
<p>13.5 Provide incentives for the consolidation, acquisition or improved management of small water systems.</p> <p>13.5.1 CDPH should establish incentives for large water systems to consolidate with small water systems or others without access to safe drinking water.</p> <p>13.5.2 CDPH should encourage drinking water providers and other governmental and non-governmental entities to conduct outreach and education for customers and shareholders regarding proposed consolidations.</p> <p>13.5.3 CDPH should support efforts to improve licensing and training options for small water system operators.</p>				

<p style="text-align: center;">Related Actions</p>	<p style="text-align: center;">Performance Measures</p>	<p style="text-align: center;">Lead Entities</p>	<p style="text-align: center;">Funding Status</p>	<p style="text-align: center;">Legislation Required (X for Yes)</p>
<p>13.6 CDPH should continue to implement its Small Water System Program Plan to assist small water systems (especially those serving DACs) that are unable to provide water that meets primary drinking water standards.</p> <p>13.6.1 CDPH should share the Small Water System Program Plan with relevant federal, State, and local agencies, as well as stakeholders, to foster additional opportunities for funding, coordinate construction projects in communities, and assist in local and regional planning efforts.</p> <p>13.6.2 CDPH should utilize geographic information system (GIS) tools to identify large water systems in close proximity to targeted small water systems, and conduct targeted outreach to these large water systems to encourage them to consolidate the small systems into their service area.</p> <p>13.6.3 CDPH should work with stakeholders to identify obstacles to consolidation (including financial, legal, and local issues) and develop possible actions to address these obstacles.</p> <p>13.6.4 Relevant State agencies should cooperate with local agencies in efforts to specifically determine and address the water infrastructure needs of individual domestic well users and small water systems with less than 15 connections.</p> <p>13.6.5 CDPH should seek input from other states and the federal government on innovative, successful efforts to address the needs of small water systems, and should share its results on implementation of its Small Water System Program Plan.</p>				
<p>13.7 State and federal agencies should coordinate to better address water-related problems in DACs and vulnerable populations.</p> <p>13.7.1 State and federal agencies should coordinate to better collect and maintain data on EJ communities and DACs.</p> <p>13.7.2 The SWRCB, CDPH, DWR, and other State and federal agencies should coordinate their review of current monitoring and regulatory programs to identify and address gaps in available data and monitoring programs that affect DACs and vulnerable populations.</p> <p>13.7.3 CDPH, DWR, and SWRCB should initiate more data collection, study, and analysis to develop options, recommendations, strategies, and programs to assist DACs.</p>				

Table 14 Related Actions and Performance Measures for Objective 14 (Protect and Enhance Public Access to the State’s Waterways, Lakes, and Beaches)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>14.1 Respect and Protect. State government will respect and vigorously protect waterways, lakes, and beaches for beneficial public use.</p> <p>14.1.1 The state will support the regulatory responsibilities of the California Coastal Commission (beach access), Bay Conservation and Development Commission (San Francisco estuary access), State Water Resources Control Board (SWRCB) (water quality and supply), State Lands Commission (navigation), California Department of Fish and Wildlife (DFW) (inland fisheries), and others that protect beneficial uses such as fishing, boating, and other public access rights.</p> <p>14.1.2 State conservancies — such as the Sacramento-San Joaquin Delta Conservancy, Tahoe Conservancy, and Sierra Nevada Conservancy — should acquire and/or protect sensitive landscapes, such as key watershed lands and wetlands, flood conveyance zones, riparian woodlands, and vernal pools with important natural resource and scenic values, and significant beneficial public uses. The conservancies, including the State Coastal Conservancy, should protect and/or acquire land to maintain public access to waterways, lakes, and beaches.</p> <p>14.1.3 The State should protect recreational resource values threatened by the effects of climate change by using strategies of reinforcement, adaption, and/or retreat as feasible.</p> <p>14.1.4 As water resources are developed, flood management facilities are envisioned, and sea level rise is accommodated, State government, including, but not limited to, the California Department of Water Resources (DWR) and the California Department of Transportation, should protect and minimize impacts on cultural and recreational uses.</p>	<p>A. By July 1, 2015, and annually thereafter, State agencies should report on successful efforts to protect beneficial public use, and barriers to fully meeting these responsibilities.</p> <p>B. By July 1, 2015, the State Lands Commission, collaborating with other agencies, should provide an online searchable database of legal public access locations to waterways, lakes and beaches.</p> <p>C. By July 1, 2015, State conservancies should collaborate on land acquisition priorities and climate change adaptation and mitigation strategies.</p>	<p>CCC, BCDC, SWRCB, SLC, CDFW, State Conservancies.</p>		
<p>14.2 Research and Planning. State government should engage in statewide research and planning to meet California’s unmet and growing demand for safe public access to waterways, lakes, and beaches.</p> <p>14.2.1 State government, such as California Department of Parks and Recreation (California State Parks) and DWR, should document and regularly report on the water-dependent recreational trends of California’s growing population, the public health and economic benefits of recreational activities, and threats to the tourism and lifestyle benefits of California’s water-dependent recreational infrastructure.</p> <p>14.2.2 State agencies, such as California State Parks and DWR, should report on the feasibility of incorporating public access facilities into each water resources development and flood management infrastructure project, watershed protection efforts, and environmental restoration projects</p>	<p>A. Every 5 years, California State Parks and DWR should report on statewide water-dependent recreation trends and demand.</p> <p>B. Annually, beginning July 1, 2014, DWR should report on all State agency expenditures to provide the SWP’s public benefits, as well as the source of those funds.</p> <p>C. By July 1, 2014, DWR should establish a state, federal and local agency Proposed Water</p>	<p>CSP, DWR, SCC, BCDC</p>	<p>All partially funded, except Perf. Measure “B” is fully funded, and Perf. Measure “D” is unfunded.</p>	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>funded by the State and federal governments. Consider multi-benefit projects that increase waterfront accessibility, create more inclusive access opportunities, support commercial and recreational fishing, encourage economic revitalization, promote excellence and innovation in urban design, enhance cultural and historic resources, and are resilient to a changing climate. Plan to include, where feasible, levee crown widening in levee improvement projects to accommodate multi-purpose recreational trails and bike lanes.</p> <p>14.2.3 State conservancies, such as the State Coastal Conservancy, Bay Conservation and Development Commission, and California State Parks should collaborate with local agencies to systematically plan to reinforce, adapt, and/or relocate recreational opportunities threatened by sea level rise and transportation or wastewater infrastructure adaptations.</p> <p>14.2.4 California State Parks should lead comprehensive recreation resource planning of the state’s inland waterways, engaging the public, recreation providers, policymakers, advocacy groups, and public officials. Consider facilities that provide opportunities for the top outdoor recreation activities identified in the <i>Survey of Public Opinions and Attitudes on Outdoor Recreation in California</i>, especially those benefiting disadvantaged communities.</p>	<p>Project Recreation Coordinating Committee to meet at least quarterly, to provide guidance on incorporating public access facilities in new projects.</p> <p>D. By July 1, 2014, DPC and SSJDC should establish a multi-agency Delta and Suisun Marsh Recreation and Tourism Coordinating Committee to provide guidance on enhancing water-dependent recreation.</p> <p>E. By July 1, 2016, SCC and BCDC should prepare a comprehensive report on SLR threats to existing public access, with potential management actions.</p> <p>F. By July 1, 2016, CSP should prepare a public access plan for navigable inland waterways.</p>			
<p>14.3 Enhance. All State agencies with public access responsibilities should, in concert with local agencies, enhance safe public access by providing water-dependent recreational facilities and programs that support beneficial uses, and/or improve the social and economic sustainability of federally funded and State-funded infrastructure, watershed protection and environmental restoration projects.</p> <p>14.3.1 State agencies, including DWR, California State Parks, and all state conservancies, should facilitate and/or construct water-dependent recreation projects that spur the economic development of disadvantaged communities, provide environmental stewardship benefits, enhance natural resource values, protect or relocate existing recreational opportunities, and meet the regional demand for healthy outdoor recreation opportunities for all Californians, especially children.</p> <p>14.3.2 The Delta Protection Commission and Sacramento-San Joaquin Delta Conservancy should encourage partnerships between other State and local agencies, local landowners, and business people to expand water-dependent recreation and tourism in the Delta and Suisun Marsh, while minimizing adverse impacts on non-recreational landowners. Use California State Parks’ <i>Recreation Proposal for the Sacramento-San Joaquin Delta and Suisun Marsh</i> and the Delta Protection Commission’s</p>	<p>A. By July 1, 2016, state agencies should update State grant criteria to fund public access enhancement in watershed protection, flood management and water resources development projects unless demonstrated infeasible.</p> <p>B. By July 1, 2015, DWR will secure adequate, on-going funding to provide SWP public access facilities commensurate with demonstrated demand.</p> <p>C. Annually, beginning July 1, 2015, CSP should report on the location of all new waterfront public access facilities constructed with State funds.</p> <p>D. By July 1, 2017, state agencies</p>	<p>DWR, CSP, Conservancies</p>	<p>All partially funded, except Perf. Measure “D” is unfunded.</p>	

<p style="text-align: center;">Related Actions</p>	<p style="text-align: center;">Performance Measures</p>	<p style="text-align: center;">Lead Entities</p>	<p style="text-align: center;">Funding Status</p>	<p style="text-align: center;">Legislation Required (X for Yes)</p>
<p><i>Economic Sustainability Plan</i> as guides.</p> <p>14.3.3 As California’s population increases, State agencies, such as DWR, DFW, and California State Parks, should increase water-dependent recreation opportunities on existing public land, where feasible. State government should also pursue acquisition opportunities that provide open space and public access to water features, such as the ocean, lakes, rivers, streams, and creeks, where demand exceeds supply.</p> <p>14.3.4 State agencies should prioritize construction of water-dependent recreation facilities identified in integrated regional water management (IRWM) plans; active-use facilities, such as multi-use trails for equestrians, hikers, walkers, and bikers, which improve public health; boating trails; facilities that mitigate or adapt to climate change; facilities that increase the safety of anglers, swimmers, and boaters; and facilities that provide environmental education, such as water conservation and water quality information.</p>	<p>should apply for at least six National Water Trail program designations.</p>			
<p>14.4 Promote. All State agencies with waterfront public access responsibilities should cooperate with local agencies, businesses, and the general public to promote healthy outdoor recreation, resource-based tourism, and environmental stewardship to benefit public health and welfare, improve the environment, and grow the economy commensurate with protection of public property rights.</p> <p>14.4.1 All State conservancies, DWR, DFW, and California State Parks should improve outreach and education to children and in disadvantaged communities that will improve public health, support California’s outdoor lifestyle, and promote wise use of water resources.</p>	<p>A. By July 1, 2015, the SNC should develop and implement a Sierra Nevada Sustainable Tourism and Recreation Strategy to promote sustainable water-dependent recreation.</p> <p>B. By July 1, 2015, California State Parks should convene a state agency task force to develop an education and outreach campaign to promote water-dependent recreation state-wide. The task force should recommend public-private partnership funding mechanisms to implement the campaign.</p> <p>C. By July 1, 2016, State agencies should implement the education and outreach campaign to promote water-dependent recreation state-wide.</p>	<p>SNC, CSP, State agencies</p>	<p>All unfunded</p>	

Table 15 Related Actions and Performance Measures for Objective 15 (Strengthen Alignment of Land Use Planning and Integrated Water Management)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>15.1 State Government should provide additional regulatory and financial incentives to developers and local governments to plan and build using compact and sustainable development patterns.</p> <p>15.1.1 Regulatory incentives include further streamlining of California Environmental Quality Act (CEQA) review for infill projects and further reductions in brownfields liability for innocent purchasers.</p> <p>15.1.2 Financial incentives include developing criteria for State grant and funding programs that incentivize compact and sustainable development.</p>	<p>A. Inventory state regulatory and financial incentives to develop base data for future assessment of enhanced incentives.</p> <p>B. Number of expanded or new regulatory and financial incentives.</p>	OPR	Partial	
<p>15.2 The Governor’s Office of Planning and Research (OPR) should provide guidance and financial incentives for integration of integrated water management (IWM) considerations in general plan updates and Sustainable Communities Strategy (SCS), including both substantive and planning process guidance.</p>	<p>State issuance of guidance and financial incentives.</p>	OPR	Unfunded	
<p>15.3 Local governments should integrate relevant IWM considerations into their general plan updates. IWM considerations relevant to land use planning include water supply, water quality, flood risk management, agricultural land stewardship, and climate policies (mitigation and adaptation).</p>	<p>Number of General Plan updates with effective integration of IWM issues. “Effective integration” means substantial treatment of IWM issues, either in existing General Plan elements or a new optional Water Element.</p>	Local governments	Partial	
<p>15.4 The Strategic Growth Council should provide guidance and financial incentives for regional planning agency integration of relevant IWM considerations into SCSs, transportation blueprint plans, and other regional plans.</p>	<p>State issuance of guidance and financial incentives.</p>	Strategic Growth Council	Partial	
<p>15.5 Regional planning agencies should integrate IWM considerations into their SCSs, transportation blueprint plans, and other regional plans.</p>	<p>Percent (or Number) of regional planning agencies meaningfully integrating IWM issues in their regional plans.</p>	Metropolitan Transportation Organizations (MPOs) and Councils of Government (COGs)	Unfunded	

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
15.6 Local governments should ensure that urban water management plans inform and reflect integrated regional water management (IRWM) plan preparation and implementation, to further IWM integration in local land-use planning that promotes compact and sustainable development.	Number of UWMPs reflecting IRWMPs effective integration of local land use planning for compact and sustainable development.	Local Governments	Partial	
15.7 Local governments should implement specific land-use planning and regulatory measures to reduce flood risks, consistent with IWM principles and best management practices (BMPs) for land use planning. 15.7.1 Measures include preservation of existing floodplains, aquifer recharge areas, and alluvial fans; restoration of natural floodplain functions; and design measures to increase post-flood resiliency. See Objective 6, Related Action 6.8 regarding the process for developing land use planning BMPs.	Number of General Plan updates and local flood management regulations with meaningful policies to reduce flood risks, consistent with IWM principles and DWR best practices.	Local Governments	Partial	
15.8 The California Department of Water Resources (DWR) should assist local governments and developers with implementing the <i>Integrating Water and Land Management: A Suburban Case Study and User-Friendly, Locally Adaptable Tool</i> , which calculates life-cycle water infrastructure costs for different development patterns.	Number of local governments and developers using the Tool in their planning decisions.	DWR	Partial	
15.9 State government should evaluate the effectiveness of the 2007 flood management legislation in achieving coordination of land use planning, flood planning, and natural resources. State government should recommend changes to existing laws and their implementation to increase their effectiveness as appropriate.	Issuance of report evaluating effectiveness of 2007 flood legislation.	DWR	Unfunded	X
15.10 State government, in collaboration with local government, non-governmental organizations, and stakeholders, should evaluate the effectiveness of SB 610 and SB 221 in coordinating land use and water supply planning, and recommend changes to existing laws and their implementation, as appropriate.	Issuance of report evaluating effectiveness of SB 610 and SB 221.	DWR	Unfunded	X
15.11 State government should invest in innovation and technology for assessment of land use, water supply, and flood conditions to further integrate water management and land use. 15.11.1 State government should provide funding, technical information, and BMPs, and publicize accurate and relevant water resources information for use by local governments and developers. State government could serve as an information clearinghouse for regional water supply, water quality, flood management, agricultural land stewardship, and climate change vulnerability	Number innovations in technology for land use and integrated water management.	DWR	Partial	

<p style="text-align: center;">Related Actions</p>	<p style="text-align: center;">Performance Measures</p>	<p style="text-align: center;">Lead Entities</p>	<p style="text-align: center;">Funding Status</p>	<p style="text-align: center;">Legislation Required (X for Yes)</p>
<p>information that local governments can use in preparing general plans and evaluating development applications.</p>				
<p>15.12 Agricultural Land Stewardship should be considered for plans and projects that affect agriculture.</p> <p>15.12.1 State government should provide leadership on promoting a common approach for State agencies with regard to plans and projects affecting water management and agriculture that takes into consideration the multiple uses of the land, including agricultural production, flood protection, habitat conservation and restoration, and water supply benefits.</p> <p>15.12.2 Plans and projects affecting water management and agricultural lands should consider developing an agricultural land stewardship plan and as appropriate use the toolbox of agricultural land use strategies identified in the agricultural land stewardship resource management strategy.</p> <p>15.12.3 State government should work with others to assure that State and federal funding criteria consider incorporating agricultural land stewardship strategies for land use plans and projects affecting agricultural lands.</p>				

Table 16 Related Actions and Performance Measures for Objective 16 (Strengthen Alignment of Government Processes and Tools)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>16.1 To advance integrated water management (IWM), federal, State, tribal, and local government agencies should strengthen alignment among their data, plans, programs, policies, and regulations. More specifically, they should:</p> <p>16.1.1 Collaborate to develop consistent policies for advancing IWM at a regional scale, and use a broad and diverse mix of administrative tools to implement their policies, including technical assistance and data support; financial incentives; and State funding, guidelines, and regulations.</p> <p>16.1.2 Adopt the “Strengthening Agency Alignment for Natural Resource Conservation” Resolution (April 2013) vision, goals, and principles, developed with extensive input from 42 federal and State agencies, including multiple Water Plan State Agency Steering Committee members, among others.</p> <p>16.1.3 Utilize the best practices and tools recommended in the “Strengthening Agency Alignment for Natural Resource Conservation” Resolution.</p> <p>16.1.4 Participate on the Biodiversity Council’s Interagency Alignment Team.</p>	<p>A. State agency policy statements for strengthening alignment</p> <p>B. Agency list of administrative tools being used</p> <p>C. Participation on CBC Interagency Alignment Team</p>	<p>Water Plan State Agency Steering Committee</p>	<p>n/a</p>	<p>No</p>
<p>16.2 State government should more effectively coordinate the work of multi-agency collaboratives, and utilize them to align and implement State water policies and promote IWM. This should include developing and maintaining a shared and easily accessible interagency inventory/repository of processes and tools for strengthening government agency alignment. Examples of multi-agency collaborative include, but are not limited to, the Strategic Growth Council, California Biodiversity Council, Delta Stewardship Council, Ocean Protection Council, Water Plan State Agency Steering Committee, Conservancies and Resource Conservation Districts, California Council on Science & Technology, and California Landscape Conservation Cooperative.</p>	<p>A. State government water planning calendar</p> <p>B. Inventory of companion State and federal plans</p> <p>C. Inventory of State water data collection programs and databases</p> <p>D. Inventory of water-related collaboration venues and public processes</p> <p>E. Inventory of water-related State Listserves and electronic newsletters, etc.</p>	<p>California Biodiversity Council’s Interagency Alignment Team</p>	<p>n/a</p>	<p>No</p>
<p>16.3 State government agencies should hire, assign, or train staff with collaboration and conflict resolution knowledge, skills, and abilities (KSA), whose primary job is to work with other federal, State, tribal, regional, and local agencies, organizations, and communities to improve interagency communication, cooperation, collaboration, and alignment.</p>	<p>A. Standard collaboration and conflict resolution KSA language for duty statements</p> <p>B. Agency hires with standard collaboration and conflict</p>	<p>Cal-HR</p>	<p>n/a</p>	<p>No</p>

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>16.3.1 California Department of Human Resources (Cal-HR) should convene an interagency working group to develop standard language describing collaboration and conflict resolution KSAs for use in duty statements where this core competency is a minimum qualification.</p> <p>16.3.2 State agencies should include this standard KSA language in duty statements for staff and management classifications to promote State agency collaboration and alignment, and they should require incumbents in these classifications to complete facilitation training.</p> <p>16.3.3 State agencies should be encouraged to build internal support, provide necessary training, and provide clear direction to staff to meet the objective of improving, aligning, and transforming processes and administrative tools.</p>	<p>resolution KSAs</p> <p>C. Collaboration and conflict resolution training class curricula</p> <p>D. Number of Training class participants</p>			
<p>16.4 Federal and State government agencies should use a more inclusive, collaborative, and outcome-based approach for setting consistent and aligned water policies and regulations that are regionally appropriate. More specifically, they should:</p> <p>16.4.1 Recognize regional and local diversity by assisting, enabling, and empowering regional water collaboratives, such as Regional Water Management Groups (IRWM) and Resource Conservation Districts, to determine how State water policies are implemented in their planning regions and/or watersheds.</p> <p>16.4.2 Focus on intended and regionally appropriate outcomes (goals and objectives) when setting water policies, regulations, guidelines, and resource management plans for California. Agencies should establish performance measures/indicators to evaluate progress toward achieving desired outcomes, and include an adaptive management approach as a part of regulatory compliance.</p> <p>16.4.3 Provide a voluntary program for regional collaboratives, such as Regional Water Management Groups (IRWM) and Resource Conservation Districts, to develop an implementation and monitoring plan that describes the resource management strategies (actions) the group will implement to achieve the regulations' intended outcomes in their planning regions and/or watersheds, as appropriate for their local conditions and resources.</p> <p>16.4.4 Utilize voluntary, outcome-based and system-scale (watershed and ecosystem) approaches for regulatory and permitting processes, and engage project proponents collaboratively, earlier and more often during the process.</p> <p>16.4.5 The California Department of Water Resources (DWR) and other State agencies should survey regional collaboratives, such as Regional</p>	<p>A. Examples of outcome-based regulations</p> <p>B. Examples of performance measures/ indicators</p> <p>C. Examples of regional implementation plans</p> <p>D. Regional technical assistance survey results</p> <p>E. Project permit process duration</p>	<p>Water Plan State Agency Steering Committee</p>	<p>Partial – additional funding and staff may be needed to work with more regional collaboratives earlier and more often during the regulatory and/or permitting process</p>	<p>No</p>

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>Water Management Groups (IRWM), to determine what technical assistance they need to facilitate collaboration and support change in regulatory approaches.</p>				
<p>16.5 State government should convene regulatory working groups, in collaboration with federal, tribal, and local governments, to improve and streamline regulatory review and permitting processes for implementing IWM projects more expeditiously. These regulatory working groups should take the following actions in collaboration with regional stakeholders, while recognizing the unique differences among California’s geographical regions:</p> <p>16.5.1 Identify critical resource needs of regulatory agencies necessary to adequately implement regulatory programs and proposed regulatory alignment actions to support IWM, including science, tools, data, policy, guidance, and agency personnel.</p> <p>16.5.2 Maximize the use of existing mechanisms such as habitat conservation plans and natural community conservation plans.</p> <p>16.5.3 Review and streamline permit processes to improve efficiency and reduce costs, delays, inconsistencies, and associated adverse impacts, and develop regional permitting processes for recurrent actions and operation and maintenance activities.</p> <p>16.5.4 Develop and adopt region-specific guidance on ecosystem restoration, water quality improvement, and environmental stewardship strategies to expedite review.</p> <p>16.5.5 Develop and adopt specific guidance to expedite emergency response and public safety projects for high-risk areas.</p> <p>16.5.6 Evaluate and adjust regulatory staff assignments to improve regulatory review and permitting processes at a regional scale, facilitate earlier staff involvement in planning phases for complex projects, and identify resource gaps.</p> <p>16.5.7 Compile, maintain, and utilize regional knowledge bases (data, information, and science), including information on endangered species, sensitive habitat, water quality, and other baseline information.</p> <p>16.5.8 Develop and maintain regional environmental mitigation databases and mitigation banks to address the varying mitigation requirements among multiple regulatory programs and agencies in each region and across regions.</p> <p>16.5.9 Develop a multi-agency permitting guidebook that includes a description of the relevant permits, permit applications, and permitting guidance for common and more routine IWM projects.</p>	<p>A. Number of regions with working groups and number/ types of environmental permitting processes reviewed, number and type of activities approved under the new processes with historical comparison</p> <p>B. Regional and/or statewide guidance for water quality and ecosystem restoration</p> <p>C. Number of regions and list of regulatory agencies engaging in baseline data sharing</p> <p>D. Number of regions and list of agencies adopting a regional mitigation database and mitigation bank</p> <p>E. Regional permitting guidebooks</p>	<p>Options -- Strategic Growth Council, CBC Interagency Alignment Team, or Water Plan State Agency Steering Committee</p>	<p>Partial – some existing resources may be reallocated; new funding would be required for additional regulatory agency staff</p>	<p>No</p>

Table 17 Related Actions and Performance Measures for Objective 17 (Improve Integrated Water Management Finance Strategy and Investments)

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>17.1 Regional and local entities should continue investing in integrated water management (IWM) activities, based on regional and local conditions, goals, priorities, and solutions. Reliable and effective water-finance planning should continue at the regional and local levels in partnership with State government. Locally sponsored initiatives will continue to be a cost-effective approach for planning and implementing IWM innovation and infrastructure (green and grey) to provide multiple benefits to their respective jurisdictions. Regional and local investments should be augmented and amplified with federal and State public funding.</p>	<p>A. Regional and local expenditures, using: a) investment categories defined in “IWM Activities” section of Chapter 7, and b) data from “Existing Funding (Component 3)” related action.</p> <p>B. Type and quality of IWM benefits produced, using benefit types defined in “IWM Scope and Outcomes” section of Chapter 7.</p>	<p>Regional Water Management Groups, Cities, Counties, Water and Flood Districts, Resource Conservation Districts</p>	<p>Partial and often unreliable funding</p>	<p>No</p>
<p>17.2 State government should continue to provide incentives for regional IWM (IRWM) activities that achieve State goals or provide broad public benefits. This includes assisting regions technically and financially to develop and implement their IRWM plans and/or help achieve State government goals and interests. State government should continue to enhance incentives for regional activities and invest in infrastructure (green and grey) that provides a public benefit <i>and</i> would not otherwise be cost effective.</p>	<p>A. State government expenditures for regional and local incentives, using investment categories defined in “IWM Activities” section of Chapter 7.</p> <p>B. Type, location, and quantity of IWM benefits produced, using benefit types defined in “IWM Scope and Outcomes” section of Chapter 7.</p>	<p>DWR, SWRCB, DPH</p>	<p>Full — Funded through about 2018, when existing bonds will be fully allocated</p>	<p>Yes — new bond (also requires voter approval), new general fund appropriations, or other</p>
<p>17.3 State government should improve and facilitate access to federal and State public revenue sources.</p> <p>17.3.1 State government should develop a central online resource catalog to describe different funding programs, potential IWM revenue sources, and a how-to guide explaining how to apply for funding from these programs.</p> <p>17.3.2 State government should provide guidance and assistance to local agencies on how to apply for funding that includes technical and financial assistance, as well as training for regions that do not have the capacity or resources to apply for funding or manage grants.</p> <p>17.3.3 State government should inventory federal funding sources and provide guidance for partnering with, or leveraging, federal funding.</p>	<p>A. Resource catalog developed and deployed? (Y or N)</p> <p>B. Training and assistance program developed and deployed? (Y or N)</p>	<p>DWR, DPH, SWRCB</p>	<p>Partial</p>	<p>No</p>

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>17.4 The governor and the Legislature should broaden the ability of (and create guidelines and limitations for) public agencies to partner with private agencies, entities and organizations for IWM investments.</p> <p>New policies are required to overcome the following limitations that have restricted their use:</p> <ul style="list-style-type: none"> • Private financing rates are generally higher due to tax effects. Local bond financing options would typically be tax exempt for the bondholder and therefore have lower interest rates. • The prohibition of their use for State government projects restricts public-private partnerships (P3s) to local projects. 	<p>New legislation developed? (Y or N)</p>	<p>DWR</p>	<p>Unfunded</p>	<p>Yes</p>
<p>17.5 State government should develop a more reliable, predictable, and diverse mix of finance mechanisms and revenue sources to continue to invest in IWM innovation activities and infrastructure (green and grey) that have broad public benefits, including, but not limited to, General Funds and General Obligation bonds. An important role of State government is to invest in innovation activities having broad public benefits that include improving State water governance, improving water planning and public engagement, strengthening government agency alignment, enhancing information technology (data and analytical tools), advancing water technology and science, and investing in infrastructure (green and grey). These activities should be conducted in collaboration with the ongoing regional and local innovation activities.</p> <p>Finance mechanisms used for these IWM innovation activities should:</p> <ul style="list-style-type: none"> A. Improve cost effectiveness, efficiencies, and accountability. B. Avoid stranded costs and funding discontinuity. C. Leverage funding across State government agencies. D. Increase certainty of desired outcomes. E. Enable prioritization based on shared funding values, defined principles, goals, objectives, and criteria. 	<p>A. Magnitude and variability of State funding over time using:</p> <ul style="list-style-type: none"> i. Historical expenditure methods and (additional) data presented in Update 2013 ii. Investment categories defined in "IWM Activities" section of Chapter 7. 	<p>Governor and Legislature</p>	<p>Unfunded</p>	<p>Yes — new bond (also requires voter approval), new general fund appropriations</p>
<p>17.6 State government should reduce planning and implementation time frames and costs associated with IWM activities by clarifying, aligning, and reducing redundancies among State government agencies' policies, incentive programs, and regulations.</p> <p>17.6.1 Develop the scope and methodology and prepare a Return on State Government Investment report card through the California Water Plan update collaborative process (5-year interval) that would track</p>	<p>A. ROI report card developed? (Y or N)</p> <p>B. New methods for leveraging funding more efficiently and effectively developed (Y or N)?</p>	<p>IWM Finance Alignment Group — DWR, SWRCB, CA Dept. of F&W</p>	<p>Unfunded</p>	<p>Yes, to Implement IWM alignment group recommendations</p>

Related Actions	Performance Measures	Lead Entities	Funding Status	Legislation Required (X for Yes)
<p>the occurrence of benefits/value derived from State government investments (and leveraged local investments) by using specific criteria and sustainability indicators.</p> <p>17.6.2 Convene an interagency IWM finance alignment group that includes State planning, resource management, and regulatory agencies to identify and implement finance policies, procedures, and protocols for the enhancement of State government transparency, accountability, flexibility, and cost efficiencies. This finance alignment group would recommend ways to reduce duplication and fragmentation among State government agencies' policies, incentive programs, regulations, and budgets.</p>				
<p>17.7 The California Water Plan Update 2018 process will refine and advance the eight components of the Finance Planning Framework as described in the "Next Steps" section of Chapter 7, "Finance Planning Framework." Future work will cover each component of the Framework in the following ways:</p> <p>A. IWM Scope and Outcomes (Component 1) — Revisit, clarify, and adapt the scope of IWM to changing conditions and priorities.</p> <p>B. IWM Activities (Component 2) — Develop more specificity regarding the types and levels of activities that State government should invest in with a clearer nexus to the types of anticipated benefits.</p> <p>C. Existing Funding (Component 3) — Continue to compile and synthesize data that tracks historical water-related expenditures across federal, State, and local governments in California.</p> <p>D. Funding Reliability (Component 4) — Work with the State Agency Steering Committee to identify where potential funding gaps exist between the State IWM activities described in component 2 and existing funding levels and sources. Collaborate with regional water management groups to do the same for regional and local IWM activities.</p> <p>E. State Role and Partnerships (Component 5) — Continue to clarify and elaborate on the future role of State government to support a more specific description and estimate of future costs.</p> <p>F. Future Costs (Component 6) — Estimate future funding demands by (a) launching IRWM, city, county, and special district data pull; and</p>	<p>A. IWM scope and outcomes discussed and updated (Y or N)?</p> <p>B. Types of IWM activities specified (Y or N)?</p> <p>C. Data identified, acquired, updated (Y or N)?</p> <p>D. Method developed and deployed (Y or N)?</p> <p>E. Description of future role of State government advanced, made more clear or more specific?</p> <p>i. Local and regional survey developed and deployed?</p> <p>ii. Method developed and data collection?</p> <p>F. Finance DSS developed?</p>	<p>DWR</p>	<p>Partial — Existing Water Plan Program funding will have to be redirected from other Water Plan activities.</p>	<p>No</p>

<p style="text-align: center;">Related Actions</p>	<p style="text-align: center;">Performance Measures</p>	<p style="text-align: center;">Lead Entities</p>	<p style="text-align: center;">Funding Status</p>	<p style="text-align: center;">Legislation Required (X for Yes)</p>
<p>(b) work with State Agency Steering Committee to estimate the funding demand for existing and future IWM activities.</p> <p>G. Funding, Who and How (Component 7) — Continue to collaborate with stakeholders and federal, State, tribal, and local governments to investigate and develop solutions that address the facts and findings detailed in Chapter7 “Finance Planning Framework”. This work will include, but is not limited to:</p> <ul style="list-style-type: none"> i. Funding methods that provide a consistent financing framework for State government investments in IWM. ii. A prioritization method and rationale for apportioning IWM investment by the categories and subcategories developed in the California Water Plan Update 2013 Finance Planning Framework (i.e., Innovation and Infrastructure activities). iii. Methods for enhancing stewardship of State government monies at both statewide and regional scales, including strategies to improve the transparency and accountability of State fund disbursements and their outcomes. iv. Achieve the improvements described in Related Action 17.5. <p>H. Trade-Offs (Component 8) — State government should develop a Decision Support System (DSS) to provide guidance and leadership for defining uncertainties of future costs, benefits, prioritization, and other tradeoffs. The DSS would inform prioritization of State government expenditures, estimation of expected IWM benefits, and methods for apportioning costs across investors and financiers. It also includes developing a clear and consistent methodology for identifying and quantifying public benefits associated with the entire range of IWM activities.</p>				