

## **Revised List of “Core Outcome Indicators”**

The following is a list of core outcome indicators that should guide the development of your Project Assessment and Evaluation Plan for State Water Board loan and grant funded projects. The purpose of this core list is to provide a menu of outcome indicators that can be used to guide selection of indicators for your specific project. General review of these core indicators should help you recognize which ones are appropriate for quantifying the outcomes of your project activities. This is not a comprehensive list. You may find that you can use one or more of these indicators to measure performance of your activities. In some cases, you will need to develop more specific indicators for your activities. For example, in one project, anthropogenic stressors and limiting factors to beneficial use recovery may be primarily due to specific pollutants, while in other projects, the stressors may be hydromodification or flow diversions. In any case, outcome indicators for the specific stressor(s) will have to be identified that enable you to compare environmental conditions before and after you implemented your project (e.g., indicators associated with pesticide toxicity or with altered flood peaks and timing, respectively).

### **A. Planning, Research, Monitoring and Assessment**

1. Number of characterized watershed land cover/land use categories.
2. Number and magnitude of anthropogenic stressors identified (including extent of hydromodification; known and suspected pollution source categories).
3. Peer-reviewed and adopted watershed assessment report or watershed management plan
4. Peer-reviewed and adopted long-term Monitoring Plan for TMDL or Nonpoint Source Program implementation.
5. Peer-reviewed and adopted long-term Restoration Plan for beneficial use recovery.
6. Adopted list of watershed-specific Best Management Practices (BMPs) and restoration practices.
7. Adopted conceptual models outlining hypothesized cause-effect relationships.
8. Peer-reviewed and adopted limiting factors analysis.
9. Peer reviewed and adopted source analysis.
10. Adopted analytical methods, bioassays, or tests.
11. Calibrated and validated forecasting models.
12. % of groundwater recharge areas, riparian and other critical habitat, routed drainage network, etc. mapped in watershed or drainage basin.

### **B. Education, Outreach, and Capacity-building**

1. % increase in community awareness.
2. % increase in community participation in watershed stewardship activities.
3. % increase in local government expertise, resources, and management tools (e.g. GIS capacity; SOPs; public-private partnership agreements; sustained funding sources for watershed health maintenance; building codes aligned with watershed goals, etc.)
4. % increase in landowners trained and certified in BMP implementation.
5. % of cities and counties within watershed, drainage basin, or project area having adopted the Ahwahnee Principles.

### **C. Habitat Restoration**

1. % increase in native habitat extent.
2. % decrease in invasive species cover.
3. Improvement in habitat condition or other biometric scores (e.g. CRAM, IBI).
4. % increase in sustained habitat maintenance and management agreements.
5. % increase in watershed functions and processes resembling reference conditions.

### **D. Pollutant Load Reduction**

1. Estimated or directly measured mass of a specific pollutant that BMP implementation prevented from reaching surface or groundwater (*required for 319(h)-funded projects*).
2. Reductions in peak flow or total runoff.
3. % decrease in pollutant use and/or discharge.
4. % increase in certified practices designed to result in reduction of pollutant inputs into listed water bodies.
5. % increase in benthic macroinvertebrate diversity.
6. % decrease in adverse effects biomarkers and targeted toxic samples (event-based water toxicity; sediment toxicity).
7. Reduction in event mean concentrations before and after BMP implementation.
8. Volume of runoff treated by structural BMPs compared to average runoff volume in project area.

### **E. Water Conservation, Reliability Enhancement, and Recycling**

1. % increase in recycled water use in watershed or project area.
2. % of groundwater recharge areas restored and/or protected in watershed or project area.
3. % decrease in acre-feet lost through accelerated runoff due to increases in effective drainage density and connectivity.
4. % anticipated reduction in water use by county, city, or project area based on adopted water conservation measures by jurisdiction within project area.
5. Number of retrofits implemented to enhance reservoir management flexibility for multiple objectives.
6. Acre-feet of subsurface storage increase in project area.
7. Volume of contaminated groundwater basins cleaned up.
8. % reduction in subsidence rates due to groundwater overdraft mitigation.
9. Increase in water availability for environmental restoration and enhancement.

### **F. Flood Attenuation and Floodplain Protection**

1. Number of floodplain acres protected from urban encroachment.
2. Miles of connected drainage reduced.
3. Acres of wetlands restored in watershed or project area.
4. Number of flood attenuation BMPs implemented.
5. Number of cities and counties within watershed, drainage basin, or project area with state-of-the-art building codes and land use ordinances with flood attenuation requirements (e.g. runoff retention, on-site storage and dry-season use, use of pervious pavement, infiltration enhancements, etc.)
6. Dredging and floodway maintenance costs avoided by integrated land use and water management decisions.