

North Coast Resource Partnership Project Performance and Monitoring Plan Guidelines

Introduction

As a condition of IRWM funding, each North Coast Resource Partnership (NCRP) project proponent will develop a Project Monitoring Plan (PMP) to track project performance throughout the implementation period and beyond, as part of the required Post-Performance Monitoring. The Project Completion Report will discuss project benefits achieved by the project completion date, in comparison to those originally proposed, as well as provide an initial accounting of benefits expected overtime. Additionally, Local Project Sponsors (LPS) shall submit Post-Performance Monitoring Reports to the State, via the Humboldt County administrative staff, annually for a total of 3 years, beginning 90 days after the first full year of operation. Project funding applications should include a budget for any costs of monitoring and assessment required during the construction/initial implementation of the project. Post-performance monitoring and assessment costs for efforts required after project completion will not be covered by IRWM funding.

Post-performance monitoring provides valuable data to the North Coast Resource Partnership and the State about the effectiveness of the IRWM program once the grant term has ended. The data collected will be used to evaluate the effectiveness of the North Coast IRWM Plan, also referred to as the NCRP Plan; improve the program over time; and help the NCRP better serve the needs of the North Coast Region.

Project Monitoring Plan Components

The Monitoring Plan should identify the project goals and anticipated benefits and describe what information will be collected to verify success, and methods used. It should describe the specific metrics, or performance indicators, that will enable LPS to show progress, identify problems, and quantify the ongoing benefits of the project. It should also include baseline conditions, where applicable, and a brief discussion of monitoring systems, methods, and frequency, as well as the location of monitoring points. An annotated Monitoring Plan is included with Exhibit B to help LPS develop an appropriate plan of action.

The Monitoring Plan will need to be updated if there is a significant scope change resulting from an amendment to the agreement. Importantly, Monitoring Plans must include the methods that will be used for the required three years of post-performance monitoring.

Project Effectiveness Reporting

In order to obtain relevant feedback for adaptive management at a programmatic level, the NCRP requires that LPS include within their monitoring plan specific measures to determine whether benefits expected through project implementation are realized. These benefits may take multiple forms—improved water supply reliability, decreased carbon emissions, increased carbon sequestration, increased instream flow, improved habitat, etc. and

will be derived from the project application by the LPS with assistance available from NCRP staff or the County of Humboldt. Each benefit claimed must have qualitative or quantitative targets that will be used to measure progress towards attainment. It is vital to determine appropriate and feasible measurement tools and targets as the monitoring plan is developed in order to ensure adequate measurement of project effectiveness in achieving stated benefits.

See Exhibit A for potential benefits and suggested units of measurement for each. LPS are strongly encouraged to use the metrics provided in Exhibit A during development of their Monitoring Plan to help ensure consistency of metrics used program-wide. These metrics will be synchronized with other reporting requirements and reported on a regular basis and will document physical benefits for each project as they accrue. Data will be quantitative and will include physical units of measure. Examples include acres of habitat restored, mg/L of sediment reduced instream, acre-feet of water supply produced per year, number of participants in workshops or programs, number of households with access to improved water supply reliability, etc.

Exhibit B provides an annotated project Monitoring Plan and annotated Post Performance Monitoring Report. Note that project performance monitoring processes are continually being refined—by both the state and NCRP—to best obtain the desired information while limiting the burden on LPS; the format provided in the examples may change over time.

Statewide Monitoring Requirements

The 2019 Integrated Regional Water Management (IRWM) Proposition I Grant Program Guidelines outline monitoring requirements per Water Code §79704 and §10920. Local project sponsors are solely responsible for complying with these requirements and must report on their completion and compliance in each Post-Performance Monitoring Report. These requirements include:

- Water quality monitoring data shall be collected and reported to the State Water Resources Control
 Board (SWRCB) in a manner that is compatible and consistent with surface water monitoring data
 systems or groundwater monitoring data systems administered by the SWRCB (Water Code §79704)
 such as the California Environmental Data Exchange Network (https://www.ceden.org/) and the
 Groundwater Ambient Monitoring and Assessment Program (https://www.waterboards.ca.gov/gama/).
- Projects that collect watershed monitoring data shall collect and report the data in a manner consistent
 with the Department of Conservation's statewide watershed monitoring program (Water Code
 §79704). See the California Watershed Assessment Manual at (http://cwam.ucdavis.edu/).
- Water Code §10927 requires various entities, including local agencies that are managing all or part of a groundwater basin pursuant to Water Code §10750, to assume responsibilities for groundwater elevation monitoring and reporting, as required by Water Code §10920 et seq. More information about requirements is provided on the California Statewide Groundwater Elevation Monitoring (CASGEM) program website (https://water.ca.gov/Programs/Groundwater-Management/Groundwater-Elevation-Monitoring--CASGEM).

For further information or questions, please contact:

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EXHIBIT A. METRICS TO EVALUATE PROJECT PERFORMANCE

POTENTIAL BENEFIT	SUGGESTED UNITS			
Enhancement of Beneficial Uses				
Enhancement of Beneficial Uses	Number of downstream water bodies affected			
Enhancement of Beneficial Uses	Water body names and volumes			
Enhancement of Beneficial Uses	Percentage of each water body affected			
Enhancement of Beneficial Uses	Beneficial uses affected by project			
Enhancement of Beneficial Uses	Change in beneficial use activity expected for the affected portion of each water body			
Enhancement of Beneficial Uses: Sport Fishing	Increase in sport fishing days per year*			
Enhancement of Beneficial Uses: Water Contact Recreation	Increase in open days per year*			
Enhancement of Beneficial Uses: Wildlife Habitat	Acres of riparian habitat restored per year			
Water Supply				
Increased Instream Flow for Environmental Purposes	Increased fishery flow rate in cubic feet per second (cfs)*			
Increased Instream Flow for Agricultural Purposes	Gallons per year; Gallons per minute; Acre-feet per year			
Increased Instream Flow for Municipal Purposes	Gallons per year; Gallons per minute; Acre-feet per year			
Change in Timing and Volume of Instream Flow	Cubic feet per second (cfs) over a particular period (document evidence of scarcity during this period)			
Increased Water Supply Reliability	Water supply produced, saved, or recycled acre-feet per year (AFY); Number of household customers; Reduction in frequency of water shortages* (e.g., once in five years, once in ten years); Reduction in magnitude of shortage* (e.g., 10% reduction, 20% reduction)			
Water Quality				
Constituent Concentration	Reduction in mg/L*			
Sediment Reduction	Tons per year*			
Decreased Water Temperature	Change in maximum daily temperature, by day*			
Increased Dissolved Oxygen (DO)	Avoided project; Change in DO concentration*			
Bacteria/ Contaminant Reduction	Avoided project; Change in bacteria/contaminant concentration*			
Additional Water Quality Projects Avoided	Avoided projects			
Avoided Water Treatment Costs	Gallons per year; Acre-feet per year and the estimated cost of treatment per unit			
Avoided Culvert Failures	Number of culvert failures avoided and estimated average cost of each culvert failure			

POTENTIAL BENEFIT	SUGGESTED UNITS		
Flood Damage Reduction See also Flood Control	Reduction in acres inundated seasonally/annually. *		
Other Ecosystem Services Be	nefits		
Fishery Improvement See also Increased Instream Flow for Environmental Purposes; Habitat Restoration	Increased fishery flow rate in cubic feet per second (cfs)* Number of fish per year; Percent population increase*; Density (fish/m²)		
Increased Quantity or Quality of Recreation or Public Access	Number of recreation days, by type of activity		
Improved Fish Passage See also Fishery Improvement; Increased Instream Flow for Environmental Purposes; Habitat Restoration	Number of fish per year; Percent population increase*; Density (fish/m²)		
Habitat Restoration See also Fishery Improvement; Increased Instream Flow for Environmental Purposes	Acres of habitat restored		
Species Protection	Number of species benefited		
Invasive Plant Removal	Acres of habitat improved		
Flood Control See also Flood Damage Reduction	Number of acres and type of land protected from inundation; Change in flood probabilities*		
Reduction in Shellfish Closures	Number of days per year of reduced closures*; Change in quantity of commercial shellfish production*; Change in shellfish-related recreation days*		
Decreased Operation and Maintenance Costs	Project specific		
Avoided Costs of Road Maintenance	Miles of road and estimated costs of road maintenance per mile		
Enhanced Firefighting Capabilities	Area protected per year; Avoided costs associated with other sources of water*; Avoided costs of delays associated with responding to fires*		
Reduced Risk of Wildfire	Amount of fuel load reduced; predicted reduction in annual fire risk*		
Community and Social Benefits			
Education or Technology Benefits	Number of people reached; Description of effects of technology (e.g., saved labor, better accuracy, etc.)		
Avoided Public Water Resources Conflicts	Describe the conflict(s) and quantify if possible		
Social Health and Safety	Describe the effects		
Other Social Benefits	Number of people		

POTENTIAL BENEFIT	SUGGESTED UNITS	
Climate Change Mitigation		
Carbon Emissions Reductions from Reduced Electricity Use	Reduction in emissions of CO_2 equivalent (CO_2E) per year, in tons* Reduced electricity use per year in kWh* To calculate emissions for the project area, go to https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid	
Carbon Emissions Reductions from Other Reduced Energy Use	Reduction in emissions of CO ₂ equivalent (CO ₂ E) per year, in tons*. Reduced energy use per year (e.g., gallons of diesel fuel)*. To calculate emissions reductions from different energy sources, go to http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results	
Carbon Sequestration	Number of trees planted, by type; Tons of CO ₂ sequestered per year The Tree Carbon Calculator may be used to estimate carbon dioxide sequestration from tree planting projects: http://www.fs.fed.us/ccrc/tools/ctcc.shtml	

^{*}When benefits are presented as change in pre-project conditions, such as percentage decrease in number of beach closures, energy consumption, average daily stream temperature, etc., baseline conditions MUST BE provided. For example: pre-project, the beach is closed an average of 3 weeks per year, or average energy use is 178 kWh/month, or the average daily stream temperature over the last 3 years is 22°C.

EXHIBIT B. MONITORING PLAN

Grantee: County of Humboldt Implementing Agency: [Subgrantee/Project Sponsor] [See grant agreement] **Funding Grant Source/Round:** Agreement No.: [See grant agreement] Project Title: [Enter title as written on the Agreement and/or original application] [Enter in decimal degrees] **Project Location:** Latitude [Enter in decimal degrees] Longitude Date of Report: [Date submitted] Report No.: [Enter report submittal years #1, #2 or #3] **Expected Project Completion Date:** [See footnote 1] **Submitted by:** [Enter contact person and email]

Note: Significant changes to the scope of work (approved via grant agreement amendment) will require that Section III, IV, and V of this Monitoring Plan be updated, as applicable.

I. Short project description (per the Agreement and/or original application language).

[Copy project description from the Work Plan included in the Agreement or the description included in the original application.]

II. List the project benefits per the original application language.

Add additional rows, as needed.

[Entries in the table below should list the benefits <u>originally proposed</u>. Indicate whether the benefit will be a One-Time or Ongoing (one-Time Benefits are generally achieved within the grant term and cannot be reasonably tracked on an ongoing basis).]

PROJECT BENEFITS SUMMARY TABLE			
Benefits Claimed in Project Application	One- Time Benefit	Ongoing Benefit	
	Ente	r "X"	

¹ Enter expected completion date as written in project schedule included with the Agreement.

Project Benefits Tracking

Use the Project Application to enter the required information into the Benefit Tables below.

One-Time Benefits

One-time benefits cannot be reasonably quantified on an ongoing basis. Examples include benefits resulting from education or replacement of certain equipment.

III. List any one-time benefits that will result from this project.

Add additional benefit tables, as needed.

	Example	
Desired Outcome Proposed improvements to baseline/pre-implementation conditions	Proposed improvements to [Desired Outcome represents a <u>measurable</u> improvement as opposed to an action that may result in an improvement 1	
Output Indicators Actions taken to achieve desired outcome	[Output Indicators are the <u>directly related</u> actions taken to achieve the Desired Outcome.]	Will host a series of 5 demonstration workshops on use of soil moisture meters
Outcome Indicators Target measurement that indicates the desired outcome has been achieved	[Outcome Indicators provide a threshold at which it can be reasonably agreed the Desired Outcome has been achieved, thereby demonstrating success.]	A total of 250 workshop participants

ONE-TIME BENEFIT 2			
Desired Outcome Proposed improvements to baseline/pre-implementation conditions			
Output Indicators Actions taken to achieve desired outcome			
Outcome Indicators Target measurement that indicates the desired outcome has been achieved			

Ongoing Benefits

Ongoing benefits will be tracked for a minimum of 3 years post-construction.

IV. List the ongoing benefits that will result from this project.

Add additional benefit tables, as needed. Where applicable, the monitoring plan for each benefit should include quantitative metrics.

	ONGOING BENEFIT I Example					
Desired Outcome Proposed improvements to baseline/pre-implementation conditions	[Desired Outcome represents a <u>measurable</u> improvement as opposed to an action that may result in an improvement.]	Decrease use of instream flow for irrigation during dry season (May through September).				
Output Indicators Actions taken to achieve desired outcome	[Output Indicators are the <u>directly related</u> actions taken to achieve the Desired Outcome.]	Install grey water tanks for irrigation on three farms.				
Outcome Indicators Target measurement that indicates the desired outcome has been achieved	[Outcome Indicators provide a threshold at which it can be reasonably agreed the proposed Desired Outcome has been achieved, thereby demonstrating success.]	Average Acre Feet of recycled water use as follows: May: 0.3-0.5 AF/acre x 235 acres = 94 AF June: 0.6-0.8 AF/acre x 235 acres = 164.5 AF July: 0.7-1.0 AF/acre x 235 acres = 199.75 AF Aug: 0.5-0.7 AF/acre x 235 acres = 141 AF Sept: 0.3-0.5 AF/acre x 235 acres = 94 AF Estimated Total = 693.25 AF				
Measurement Tools & Methods Quantitative means of measuring Outcome Indicators	[This section should describe the measurement protocol and units of measure that will be used to quantify the Outcome Indicators. Describe the source of the data and include the name of the person, position, or entity responsible for collecting and reporting it.]	Amount of recycled water use per month (determined by monthly water bill, assumes total usage is constant over time; project partners/beneficiaries provide data)				
Baseline Conditions* Pre-project conditions of Outcome Indicators	[Cite the sources of data used to establish the baseline. Baseline conditions should ideally rely on years of carefully collected data by reputable organizations. Where this data is lacking, the Project Sponsor is responsible for establishing their own baseline prior to construction.]	An average of 1,200 AF/year of water diverted from the Russian River during the dry season (May-Sept.) from 2014-2016 (based on landowner survey conducted in early 2017).				
Monitoring Frequency Description of how often each Outcome Indicator will be measured	[Indicate how often the Monitoring Locations will be visited and measured to determine whether the Outcome Indicator has been achieved/is being maintained.]	Monthly monitoring (reported annually) on each of the three farms that receive a water tank.				
Monitoring Locations Description of where each Outcome Indicators will be measured coordinates and a map, if appropriate.] [Describe the monitoring locations with as much precision as possible. Include GPS River Organ		Sunny Acres (38.809°, -123.005°) River Organics (38.801°, -123.002°)	Blue Oak Farm (38.800°, -122.999°) [Attach Map of Monitoring Locations.]			

^{*}The Baseline Conditions row should be completed when Outcome Indicators are presented as change (e.g. percent in/decrease) in the pre-project implementation conditions. Additional information can be included in section XIII.

	ONGOING BENEFIT 2
Desired Outcome Proposed improvements to baseline/pre-implementation conditions	
Output Indicators Actions taken to achieve desired outcome	
Outcome Indicators Target measurement that indicates the desired outcome has been achieved	
Measurement Tools & Methods	
Quantitative means of measuring Outcome Indicators	
Baseline Conditions*	
Pre-project conditions of Outcome Indicators	
Monitoring Frequency	
Description of how often each Outcome Indicator will be measured	
	Attach a map of monitoring locations to this Monitoring Plan.
Monitoring Locations Description of where each Outcome Indicator will be measured	
*The Deceline Condition	

^{*}The Baseline Conditions row should be completed when Outcome Indicators are presented as change (e.g. percent in/decrease) in the pre-project implementation conditions. Additional information can be included in section XIII.

V.	How will the project be maintained (e.g. irrigation, pest management, weed abatement)?
VI.	What will be the frequency and duration of proposed maintenance activities?
VII.	Are there any special environmental considerations (e.g. resource agency requirements, permit requirements, CEQA/NEPA mitigation measures)?
VIII.	Who is responsible for collecting the samples (i.e. who is conducting monitoring and/or maintenance)?
IX.	How, and to whom, will monitoring results be reported (e.g. paper reports, online databases, public meetings)?
X.	What adaptive management strategies will be employed if problems are encountered during routine monitoring or maintenance?
XI.	What is the anticipated life of the project?

XII. Will data on surface or groundwater water quality or groundwater elevation (including chemical, physical, or biological data) be collected as part of this project? If so, discuss how the data will be collected and confirm that it will be submitted to the State via the California Environmental Data Exchange Network (CEDEN) or the California Statewide Groundwater Elevation Monitoring (CASGEM) System, as required.

[Include unequivocal confirmation that water quality data will be submitted, as required. Briefly explain the process of its collection and submission.]

XIII. Include baseline monitoring data/graphs and baseline monitoring photos in this section, if applicable.

[In addition to baseline monitoring data, graphs, and photos: Use this section to expand on the Baseline Conditions row(s) in the Ongoing Benefit tables in section IV.]

EXHIBIT B. POST PERFORMANCE MONITORING REPORT

Grantee: Co	unty of Humbo	ldt					
Implementing Ag	gency:	[Subgrantee	e/Project Sponsor]				
Agreement No.:	[See grant agreemen		Funding Gro	ant Source/Round:	[See grant ag	reement]	
Project Title:	[Enter title	e as written o	on the Agreement	and/or original appli	cation]		
Project Location	: Latitude	[Enter in	decimal degrees]	Longitude	[Enter in deci	mal degrees]	
Date of Report:	[Date sub	mitted]	Report No.:	[Enter I-3]	Project Com	oletion Date:	[See footnote [†]]
Time Period of t	his Report:	[See foots	note ²]		Submitted by:	[Enter contact	person and email]
Monitoring Plan updated following amendment executed (enter amendment # and date):		_ [. 0		scope changes result xecution dates of am			onitoring plan must be itoring plan update.]

I. Post-Performance Reports Schedule: [Copy schedule included in Project Completion Report.]

PPR I	PPR 2	PPR 3

II. Short project description (per the Agreement and/or original application language).

[Copy project description from the Work Plan included in the Agreement or the description included in the original application. If applicable, briefly explain any changes to what was <u>originally proposed</u> (e.g. amendments).]

III. List the project benefits per the original application language.

[Entries in the table below should list the benefits <u>originally proposed</u>. If a benefit was effectively eliminated through an amendment it should be noted here, although it will not be tracked in the Monitoring Plan Tables below. Additional benefits resulting from the project but not included in the Monitoring Plan should be noted here as well.]

PROJECT EFFECTIVENESS MONITORING TABLE					
Benefits Claimed in Project Application	Tracked in Monitoring Plan Table (y/n)	If no, state reason (e.g. an unanticipated benefit not included in the Grant Application)			

¹ In this context, the project completion date is the date on the Notice of Completion. Check with your NCRP grant manager if you are unsure of which date to use.

² Time period should cover a full 12 months; the time period of the first report will begin with the Project Completion Date.

IV.	List and/or explain any differences between the expected versus actual project benefits in
	meeting IRWM priorities as stated in the original IRWM Implementation Grant
	application.

[Many projects will achieve the benefits originally proposed. However, if this is not the case, explain. Were the original benefits overestimated? Are the benefits more difficult to quantify than expected? Did a change in the scope of work affect the project benefits?]

V. Summarize any additional costs and/or benefits deriving from the project since its completion, if applicable.

[Examples of additional costs include maintenance costs, monitoring costs, or costs associated with environmental compliance. "Original Cost(s)" should be filled in when the additional cost was included as a line item in the project budget. If applicable and quantifiable, the value of additional benefits can be included here as well.]

Component/Benefit	Original Cost(s)	Additional Cost(s)	Short Explanation of Additional Cost(s)

VI. Was data on surface or groundwater water quality (including chemical, physical, or biological data) or groundwater elevation collected as part of this project? If so, discuss how the data was collected and confirm that it was submitted to the State via the California Environmental Data Exchange Network (CEDEN) or the California Statewide Groundwater Elevation Monitoring (CASGEM) System, as required.

[Include unequivocal confirmation that water quality data was submitted, as required. Briefly explain the process of its collection and submission.]

Ongoing Project Benefits Tracking

Use the Monitoring Plan to enter the required information into the Benefit Tables below. Add additional benefit tables, if needed. Ongoing benefits will be tracked for a minimum of 3 years post-construction.

VII. List the ongoing benefits that will result from this project.

[Ongoing benefits are those that can be monitored over the useful life of the project or at least over the 3 years following Project Completion. Because the IRWM program is designed to support projects that will confer benefits for many years to come, the majority of project benefits should fall into this category.]

	Example	
Desired Outcome Proposed improvements to baseline/pre-implementation conditions	[Desired Outcome represents a <u>measurable</u> improvement as opposed to an action that may result in an improvement.]	Improve drinking water quality by decreasing manganese concentration.
Output Indicators Actions taken to achieve desired outcome	[Output Indicators are the <u>directly related</u> actions taken to achieve the Desired Outcome.]	Install a new 200,000-gallon bolted steel tank and 10,000 linear feet of distribution lines.
Outcome Indicators Target measurement that indicates the desired outcome has been achieved	[Outcome Indicators provide a threshold at which it can be reasonably agreed the Desired Outcome has been achieved, thereby demonstrating success.]	The manganese concentration leaving the treatment unit total will average 0.05 mg/L.
Measurement Tools & Methods Quantitative means of measuring Outcome Indicators	[This section should describe the measurement protocol and units of measure used to quantify the Outcome Indicators. Describe the source of the data and include the name of the person, position, or entity responsible for collecting and reporting it.]	A sampling tap will be installed on the new tank. Samples will be taken by the Water Quality Technician and will be tested for manganese at a professional testing lab.
Baseline Conditions* Pre-project conditions of Outcome Indicators	[Cite the sources of data used to establish the baseline.]	Wells that supplied the City have been out of service due to high manganese levels.
Monitoring Frequency Description of how often each Outcome Indicator will be measured	[Indicate how often the Monitoring Locations were visited and measured to determine if the Outcome Indicator has been achieved/is being maintained.]	Samples will be taken monthly and reported to SWRCB Division of Drinking Water as part of monthly and annual drinking water reporting.
Monitoring Locations Description of where each Outcome Indicator will be measured	[Describe the locations monitored with as much precision as possible. Include GPS coordinates and a map, if appropriate.]	Monitoring will occur at the City's Water Treatment Plant (coordinates listed on pg. 1).
Results	[Results should include discussion of whether the Desired Outcome was achieved either through the Output Indicators listed (or some other means) and how this is demonstrated by the Outcome Indicators. Graphs, photos, and additional information can be included in the final section of this report, if appropriate.]	Sample results averaged 0.03 mg/L in the last year, with a range of $0.015 - 0.042$ mg/L.

^{*}The Baseline Conditions row should be completed when Outcome Indicators are presented as change (e.g. percent in/decrease) in the pre-project conditions.

VIII. Provide any additional information relevant to or generated by the continued operation or
monitoring of the project. Include monitoring data/graphs and monitoring photos in this
section, if applicable.

[This section can be used to expand on the Results sections of the tables above or to provide other additional information relevant to the project.]