

Lake Tahoe West Monitoring Plan Stakeholder Meeting Summary Notes July 27, 2020 at 2:00 – 4:00 pm PT

Attendees

Stakeholder Committee Members

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Dan Blood	Homewood Mountain Resort and Homewood High and Dry Marina	dblood@skihomewood.com
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Jack Landy	US Environmental Protection Agency	landy.jacques@epa.gov
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Lake Tahoe West Staff

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Consultant Team

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Jennifer Lam	Blue Earth Consultants, a Division of ERG	Jennifer.Lam@erg.com
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Meeting Materials

- Agenda

- Draft Monitoring Plan Outline (attached)
- Memo to Stakeholder Committee regarding Monitoring Plan Indicator Recommendation Process (attached)
- Full indicator list and rationale

Meeting Objectives

- Share progress and collect feedback on the draft outline and initial indicator list for the LTW Monitoring Plan.

Agenda

Welcome, Introductions, and Review Meeting Objectives

Sarah Di Vittorio reviewed the meeting objectives (see above) and agenda.

Monitoring Plan Progress and Goals

Jen Lam provided a presentation on the Monitoring Plan progress and goals.

- Monitoring Plan progress update:
 - Gathered feedback on the draft Monitoring Plan Goals and Guiding Questions from the Executive Team and Stakeholder Committees and revised.
 - Held several planning calls with the project Steering Committee.
 - Held two meetings with the Monitoring Team in February and March 2020.
 - Researched existing monitoring programs and conducted preliminary indicator feasibility assessment.
 - Held Monitoring Team breakout group calls to review, refine and update the preliminary indicator feasibility assessment and recommendations.
- LTW Monitoring Plan Goals:
 - Goal 1: Evaluate whether LTW is increasing social-ecological resilience.
 - Goal 2: Evaluate whether agencies are implementing the Landscape Restoration Strategy (LRS) as intended.
 - Goal 3: Evaluate the effectiveness of new or expanded management techniques.
 - Goal 4: Evaluate the performance of LTW modeling.
- Executive's Team Directions:
 - Cost effective and realistic-
 - Be cost-effective and implementable, *not* overly ambitious.
 - Do not reinvent the wheel-
 - Assess overlap in existing monitoring efforts.
 - Eliminate redundancy.
 - Integrate them with LTW.
 - Seek Executive Team direction-
 - Continue discussion with the Executive Team and others to narrow down monitoring goals and categories.

Monitoring Plan Draft Outline

Jen Lam walked through the LTW Monitoring Plan Draft Outline and then allowed time for a question and answer discussion. The key questions included: 1) What do you like about the current Monitoring Plan Outline? 2) What aspects of the current Monitoring Plan Outline do you not like and would like to change? 3) Do you think there are any elements missing from the Monitoring Plan Outline?

Discussion:

- Questions and feedback:
 - Is there an opportunity to integrate work from the Tahoe Central Sierra Initiative (TCSI) pillars of resilience? It could be helpful to integrate some aspects of the TCSI framework into this Monitoring Plan.
 - In the memo, it is difficult to track questions and indicators related to Goals 3 and 4. The table should directly track which questions/indicators address each Goal. The Monitoring Plan will need to show this clearly also.

High-Level Indicator Recommendation List

Jen Lam presented the recommended indicators associated with each Guiding Question and then allowed time for a question and answer discussion. The key discussion question was 1) Are there any gaps in indicators that need to be addressed? If so, what is the specific need and where/how can we get that data?

Discussion:

- Regarding question #9 (Have restoration treatments improved the stability of the forest carbon sink at the landscape scale?):
 - The recent contract with TRPA might help monitor the impact of restoration treatments on carbon at the basin scale.
- For examining wildlife habitat for #2 and #13, acres treated is not really an indicator of, “Has the quantity and condition of forest habitat been maintained or improved?”
 - Question #13 is focused on if business as usual has been expanded. The idea behind Question #2 is if habitat in general has increased. As a single indicator acreage is kind of meaningless, but in combination with other indicators it helps answer the question. As we further develop the indicators and Plan it will become clearer how they answer the questions.
- In several places it seems that indicators are focused on whether action is taken, not whether the action is actually beneficial or not. For example in #11, there does not seem to be other indicators for water quality besides just whether action was taken.
 - Some of the water quality monitoring will be completed as part of regulatory requirements. This Monitoring Plan does not incorporate regulatory requirements.
 - Some stakeholders recommended still including the regulatory information in the larger Monitoring Plan so readers would understand what all is being monitored.
 - Following the meeting, stakeholders are invited to send additional thoughts about critical indicators (like for water quality), to Jen or Sarah.
- For the indicator “linear feet of stream reach restored,” something more specific than what is currently defined by the EIP is needed. Right now, the EIP just tracks removal of nonnative fish.
- How will the pace and scale of restoration be rolled up? Right now there are multiple indicators, what is the process going to look like for taking multiple indicators and making an inference? It

is hard to tell if a critical indicator is missing if you do not know how the indicators are going to be interpreted.

- The Monitoring Team is still working on that process and will provide more information as it develops.
- The social acceptance indicator that looks at the number of objections or relevant comments to CEQA and NEPA actions is not a good indicator of social acceptance. Only a very specific and narrow population is tracking CEQA and NEPA actions.
 - Could the LTW team do online surveys? What are more effective indicators for social acceptance?
 - The LTW Team is balancing direction from Executives to avoid new data collection efforts and expense as far as possible, but we can flag the social acceptance indicator as important.
 - The LTW Team welcomes ideas for other potential indicators of social acceptance.
 - Who is the group that should be monitored? Visitors? Locals?
- Regarding questions #2 and #4, vegetation type indicator. What will be the data source for vegetation type?
 - The data source will be EVEG, until a better resource is available.
 - Some stakeholders recommend removing this indicator since EVEG is not very accurate. Others recommended keeping it in and explaining caveats.
 - The LTW noted that the Monitoring Plan will address data report frequency; some indicators are reported infrequently and the monitoring analysis will consider that.
- Suggestion to add an indicator to assess late seral conditions using Keith Slauson's methods from the modeling effort.
- For both wildlife habitat and seral conditions—has connectivity come up and is it an interest?
 - Connectivity did come up but the Monitoring Team did not end up including it. There are many ways to define connectivity. It's not clear what type of connectivity and how we would quantify it.
 - It could be as simple as distribution of habitat.
 - For distribution, how does one decide if distribution is moving in the right direction or not?
 - You can examine the quantity of habitat, and have an idea of how you would like to see the habitat distributed across the landscape.

Wrap Up and Next Steps

1. Stakeholders should send any additional thoughts and feedback to Jen Lam or Sarah Di Vittorio.
2. September 2020: Blue Earth/Monitoring Team will prepare for Executive Team meeting and provide status update of Monitoring Plan progress and updated proposed indicator list.
3. September 2020-October 2020: Develop Monitoring Plan Straw Proposal.

Appendix: Monitoring Plan Outline

- I. **Executive Summary**
- II. **Background**
 - a. LTW ecological and socioeconomic context
 - b. LTW purpose
 - c. Overview of LTW Landscape Restoration Strategy (including how the Landscape Restoration Strategy will guide and link to the Monitoring Plan) and the Landscape Resilience Assessment
 - d. Linkages and relevance of the Monitoring Plan to the broader Lake Tahoe region, particularly in relation to scalability and replicability
 - e. Summary description of plan development (with additional details in Appendices as needed)
 - i. Description of collaborative process used for goal and question development, refinement, and indicator selection and necessary data scale identification
- III. **Approach to Monitoring**
 - a. Monitoring principles (note that these will be based on the Executive Team guidance for a plan that is cost effective and realistic, does not reinvent the wheel, and is guided by Executive Direction)
 - b. Monitoring plan goals
 - i. Goal 1: Evaluate whether LTW is increasing social-ecological resilience
 - ii. Goal 2: Evaluate whether agencies are implementing the Landscape Restoration Strategy (LRS) as intended
 - iii. Goal 3: Evaluate the effectiveness of new or expanded management techniques
 - iv. Goal 4: Evaluate the performance of LTW modeling
 - c. Definitions
 - d. Types of Monitoring and their Purpose
 - i. Implementation
 - ii. Effectiveness
 - e. Adaptive Management
 - i. How monitoring information could be used to inform adaptive management of LTW restoration activities
 - ii. Overview of how adaptive management is tied to guiding questions and indicators (more details on specific indicators by guiding question in next section)
 - iii. Adaptive management in light of climate change considerations
 - iv. Potential technology changes that could inform future decision-making and indicator collection
 - f. Monitoring plan goals, associated guiding questions, and indicators
 - i. Goal 1: Social-Ecological Resilience
 - 1. Associated guiding questions and indicators
 - ii. Goal 2: Landscape Restoration Strategy Implementation
 - 1. Associated guiding questions and indicators

- iii. Goal 3: Effectiveness of Management Techniques
 - 1. Associated guiding questions and indicators
- iv. Goal 4: LTW Modeling Performance
 - 1. *Notes: Though we have retained this as a goal, we decided to shift guiding questions under this goal to other relevant goals. There are no questions currently related to this goal, as it is likely that there may not be separate indicators related to this question; indicators for questions above are likely to relate to the goal and thus a separate set of questions and indicators may not be necessary.*

IV. **Monitoring Process and Schedule**

- a. Recommended sources of existing data to draw on (including existing monitoring programs and databases) for assessing the indicators by guiding question
 - i. Necessary scale of data for assessing indicators
- b. Suggested new monitoring activities needed to collect data related to the indicators by guiding question
 - i. Geographic scope of activities needed in relation to each indicator
 - ii. Proposed costs of data collection
- c. Suggested responsible parties for data collection for each indicator by guiding question
 - i. Party roles in relation to each indicator by guiding question
 - ii. Description of and plan for monitoring coordination among parties
- d. A proposed monitoring work plan and schedule, including frequency, data gathering process, data storage, and data synthesis

V. **Funding**

- a. Summary of potential strategies for funding post-project monitoring in long-term
 - i. How to build on existing programs and data
 - ii. Overview of funding options and needs to support collection of new data

VI. **Appendices**

- a. Participants in Monitoring Plan process and points at which they were engaged
- b. Feasibility criteria used to assess indicators
- c. Indicators considered but not included in the plan and rationale
- d. *Other Appendices TBD*

Memo

To: Lake Tahoe West Stakeholder Committees
Subject: **Monitoring Plan Indicator Recommendation Process**
From: Monitoring Plan Steering Committee
Date: July 20, 2020

Monitoring Plan Progress Update

Since the last Stakeholder Committee meeting on December 11, 2019, the Monitoring Plan Team, with help from Blue Earth Consultants, has made the following progress:

- Gathered feedback on the draft Monitoring Plan Goals and Guiding Questions from the Executive Team and Stakeholder Committees and revised.
- Held several planning calls with the project Steering Committee.
- Held a meeting with the Monitoring Team in February 2020 to review revised Guiding Questions, Monitoring Plan outline, feasibility criteria, and data collection framework.
- Researched existing monitoring programs and conducted preliminary indicator feasibility assessment.
- Held Monitoring Team breakout group calls to review, refine and update the preliminary indicator feasibility assessment and recommendations.

Remaining Key Milestones

- Webinars with Stakeholder and Executive Committees on indicator vetting and prioritization (July – September 2020)
- Monitoring Team meeting to discuss Monitoring Plan Straw Proposal (Fall 2020)
- Monitoring Team reviews DRAFT of Monitoring Plan (Winter 2020)
- Stakeholder and Executive Team Review of DRAFT Monitoring Plan (Winter 2020- Spring 2021)
- Finalize Monitoring Plan (Spring 2021)

Monitoring Plan Goals

1. Evaluate whether Lake Tahoe West is increasing social-ecological resilience
2. Evaluate whether agencies are implementing the LRS as intended
3. Evaluate the effectiveness of new and expanded management techniques
4. Evaluate the performance of Lake Tahoe West modeling

Executive Team Direction:

- **Cost effective and realistic.** Monitoring efforts must be cost effective and implementable – do not just add more to already-overambitious monitoring requirements.
- **Do not reinvent the wheel.** We should assess overlap in existing monitoring efforts, eliminate redundancy, and integrate them with LTW. LTW can lay the groundwork toward a more efficient basin-wide monitoring approach
- **Seek Executive Team direction.** We should have further discussion with the Executive Team and others to narrow down monitoring goals and categories.

Monitoring Plan Draft Outline (attached Word Doc)

The Draft Monitoring Plan Outline summarizes the Lake Tahoe West (LTW) Landscape Restoration Strategy and provides an overview of how the Landscape Restoration Strategy will guide and link to the Monitoring Plan. The outline also summarizes the monitoring approach and Monitoring Plan goals, including highlighting the monitoring principles as directed by the Executive Team. Our discussion on 7/27 will focus on the following questions:

- What do you like about the current Monitoring Plan Outline?
- What aspects of the current Monitoring Plan Outline do you not like and would like to change?
- Do you think there are any elements missing from the Monitoring Plan Outline?

High-level Indicator Recommendation List (full list in attached Excel)

The Monitoring Team and Blue Earth developed and vetted a thorough list of proposed indicators for the Monitoring Plan. The Monitoring Team vetted (and is continuing to vet) the indicators with the following key questions in mind:

- Does the indicator comprehensively inform the related Guiding Question?
- Will it be cost effective and realistic to implement monitoring?
- Is there an existing data source or monitoring program for the proposed indicator?
- Is the scale of available data sufficient to accurately inform the proposed indicator and question?

Indicators are ranked on tiered scale: Tier 1 – Recommend, Tier 2 – Recommend with caveats, Tier 3 – Do not recommend (*see attached spreadsheet for full indicator list and rationale*). The initial vetting process produced a list of 32 Tier 1 indicators to move forward for a final vetting process (Table 1). Guiding Questions and recommended indicators may continue to be refined through the development of the Monitoring Plan. During the Straw Proposal development and the Draft Plan phase, additional detail and context will be provided as to how an indicator will answer the associated guiding question. Please note that the current proposed list of Tier 1 indicators will likely not be the final list of indicators as there is further vetting and data collection to be completed.

Table 1. Tier 1 Indicators by Guiding Question

Guiding Question Theme	Guiding Question	Potential Tier 1 Indicators <i>32 indicators (14 repeat indicators)</i>
Fire Management	1. Are fires occurring on the landscape in ways that achieve desired outcomes?	Area burned/fire severity (patch size, soil, vegetation)
		Mean condition class (mean fire return interval departure condition class)
		Seral stage
		Horizontal heterogeneity
Wildlife habitat	2. Has the quantity and condition of forest habitat been maintained or improved?	Acres treated within existing late seral habitat (outside) of Protected Activity Centers
		Seral stage
		Cover of tall trees
		Horizontal heterogeneity
		Vegetation type
Landscape function	3. Has function of streams, meadows, and riparian habitat improved or maintained?	Conifer encroachment in meadows
		Aquatic organism passage (condition)
		Instances of use of early detection rapid response invasive species actions
	4. Has the structure of streams, meadows, and riparian habitat improved or maintained?	Trees per acre
		Area burned/fire severity (patch size, soil, vegetation)
		Seral stage
		Vegetation type
		Horizontal heterogeneity
Social acceptance	5. Has the local and regional social acceptance of treatment (e.g., smoke impacts of prescribed fire, impacts to recreation areas, mechanical treatment impacts) increased?	# of objections or relevant comments to CEQA and NEPA actions
Economic and recreation opportunities	6. Is the quality and quantity of recreation activities or opportunities being enhanced as a result of restoration efforts in the area?	Overall level of satisfaction with recreation experience Miles of road and trail network restored (including stream crossing structures)
	7. Is the quality and quantity of and opportunity for regional economic opportunities related to restoration work and impacts on surrounding communities increasing?	Volume of dimensional lumber and biomass produced from treatments/pile burns and utilized for energy

Guiding Question Theme	Guiding Question	Potential Tier 1 Indicators <i>32 indicators (14 repeat indicators)</i>
Cultural resources	8. Has the quality, quantity, and opportunity for use of culturally valued resources increased (e.g., plants of cultural importance to the Washoe Tribe, economic opportunities for the Washoe)?	# of agreements and activities engaging the Washoe Tribe
Carbon sequestration	9. Have restoration treatments improved the stability of the forest carbon sink at the landscape scale?	Net forest carbon sequestration (i.e. flux)
	10. Is biomass from treatments being utilized to minimize carbon emissions?	Harvested wood product carbon stock
Water quality	11. Are restoration activities contributing to or helping obtain Total Maximum Daily Load (TMDL) goals?	Acres with less than 70% ground/vegetation cover
Restoration implementation		12. Is pace and scale of restoration increasing?
	Miles of road and trail network restored (including stream crossing structures)	
	Aquatic organism passage (improved)	
	Acres of forest thinning (by type, e.g., mechanical, hand, cable yarding, aerial)	
	Acres of meadow restored	
	Miles of road and trail network restored (including stream crossing structures)	
	Linear feet of stream reach restored	
	Acres of prescribed fire used per year	
	Modification or removal of barriers for native aquatic organism passage	
	Acres of managed natural ignitions	
	Instances of use of early detection rapid response invasive species actions	
	Volume of dimensional lumber and biomass produced from treatments/pile burns and utilized for energy	
	Acres of aspen treated	
	Slopes	
# of projects that involve cross-jurisdictional collaboration		
Acres treated within existing late seral habitat of Protected Activity Centers		
Acres of restored land with clumpy-gappy restoration patterns		
Horizontal heterogeneity		
Acres of thinning on slopes 30%+ by type (e.g., mechanical, hand, cable yarding, aerial)		
Acres of managed natural ignitions		
		Number of rills or gullies on the hillslope

Guiding Question Theme	Guiding Question	Potential Tier 1 Indicators <i>32 indicators (14 repeat indicators)</i>
	14. What are the erosion effects of mechanical thinning treatments on 30-50% slopes?	Acres with less than 70% ground/vegetation cover
Wildlife habitat	15. Have there been changes (e.g., abundance level, reproductive activity) to the owl populations in Protected Activity Centers that have been treated?	Location and detection of species presence within the PAC
Fire management	16. What is the effect of LTW prescribed fire activities in areas without prior thinning?	Area burned/fire severity (patch size, soil, vegetation)
		Trees per acre
		Horizontal heterogeneity
	17. What are the benefits of expanded use of prescribed fire and managed natural fires?	Acres of restored land with clumpy-gappy restoration patterns
		Area burned/fire severity (patch size, soil, vegetation)
		Trees per acre
		Horizontal heterogeneity

Next Steps

- **July - August 2020:** Monitoring Team/Steering Committee conducts scale review for current list of proposed Tier 1 indicators to determine:
 - Does the scale of identified data sources for proposed indicators sufficiently inform the indicators and comprehensively answer the Guiding Questions?
 - If the scale of identified data sources is currently insufficient to answer the Guiding Question, what is the scale of data needed? How will the Monitoring Plan achieve this scale?
- **September 2020:** Blue Earth/Monitoring Team will prepare for the Executive Team meeting and provide a status update of Monitoring Plan progress and an updated proposed indicator list
- **September - October 2020:** Blue Earth will develop for the Monitoring Team a Straw Proposal outlining:
 - Recommended data sources for informing the indicators, organized by guiding question
 - Suggested new monitoring activities needed in order to collect data related to the indicators and the geographic scope of activities needed
 - Proposed costs of data collection
 - Suggested responsible parties for data collection and analysis for each indicator, as well as overall custodian of plan
 - Proposed monitoring schedule and process for annual monitoring, data gathering, and synthesis
 - Detailed plan describing the process by which monitoring information could be used to inform adaptive management of LTW restoration activities
 - Proposal for how to fund post-project monitoring in the long-term