



MONITORING PLAN DEVELOPMENT PROCESS TEMPLATE

Step 1- Determine information needs:

- What types of information may be needed?
 - Overview of general conditions
 - Baseline inventory of specific factors
 - Re-inventory to assess changes and trends from previous inventory
 - Identify and quantify site-specific biophysical impacts
 - Identify and quantify places and times where opportunities for wilderness visitor experiences exceed thresholds.

- How will I use this information?
 - To aid in setting or monitoring thresholds or standards as part of a planning process (i.e. LAC or VERP, etc.)
 - To assist in determining the causes of deteriorating conditions
 - To evaluate the effectiveness of resource protection measures (i.e. education, regulations)
 - To identify and assign priorities for maintenance or restoration projects

- What is the scope and frequency of inventory?
 - Is a census or a survey needed and how often will a re-inventory be needed?
 - In general will a quick assessment provide the needed information or is a detailed method necessary.
 - For biophysical impacts is the location and quantity of impact sufficient or are specific condition measures (i.e. tree damage, campsite size, etc.) needed?
 - For social impacts is it enough to monitor where use is high or do we also need to know if visitor expectations are being met?

Step 2- Gain and Maintain support

The process to gain support should include:

- Meet with your decision maker to identify management issues

- Develop a draft monitoring program proposal

- Present the draft monitoring program proposal to your decision maker and gain approval for implementation

Maintaining support should include:

- Keeping your decision-maker informed of progress in developing the program
- Providing review and approval opportunities if needed
- Implementing the program as planned

- Presenting the results of monitoring with consequences and alternatives for management decisions

Step 3- Identify and Select Indicators

There are four criteria for identifying and selecting indicators. Indicators should be:

- Significant – important and relevant for the biophysical resource and the visitor experience and sensitive to change.
- Responsive – management could take action to improve the conditions being measured if needed.
- Credible – measurements are reliable, yielding the same result with a high degree of precision when measured by different people, and they are valid, meaning there is a direct relationship between the indicator and the resource management question.
- Feasible – efficient to measure, relatively low cost, and with minimal impact on both the biophysical resources and the visitor's experience.

Possible biophysical indicators may include:

- Campsite numbers, location, conditions
- Trail conditions
- Water quality
- Non-native invasive plant species
- Fish and wildlife
- Archaeological sites

Possible social indicators may include:

- Use levels, location, timing
- Type of use, group size
- Trail encounters
- Occupied campsites

Step 4- Select monitoring methods and develop protocols

There are two parts to this step: selecting monitoring methods and developing protocols.

Part A. Select monitoring methods

There are six basic considerations to take into account when selecting monitoring methods.

1. The amount and type of information needed.

2. Accuracy. The more accurate the method, the closer it will be to reflecting on-the-ground realities.
3. Precision. The more precise the method, the more it ensures exact techniques of data gathering can be replicated. If several people were to examine the same site, how similar would their estimates be?
4. Sensitivity. The more sensitive the method, the better it is in identifying response to change.
5. Visitor burden. Some methods are more intrusive and burdensome to visitor than others.
6. Resources required. Some monitoring methods require more staff, time, and funding than others.

Part B. Develop Protocols:

Protocols are the rules or procedures you will use in the implementation portion of the process to collect data. They specify how, where, and how often data will be collected. They articulate clear, standardized definitions for the data collectors, and specific procedures for training the workforce in data collection and recording.

The typical components of this process are:

- Review and use existing protocols where appropriate.
- Develop specific measurement techniques for each indicator if needed.
- Field-test and refine the specific practices and measurement techniques to be used. You may very well have to adapt the techniques in minor ways to different sorts of situations in terms of unique locations, use patterns, etc.

The development of protocols is driven by the indicators you want to use, the monitoring methods you select, and the techniques required to obtain the specific measurements. Document your protocols and convey them through manuals and training to ensure consistent data collection techniques are followed.

Step 5- Identify needed resources

To identify the necessary resources:

- 1) Examine the scope of the project
 - number of monitoring locations
 - frequency of return for re-inventory
 - travel time
 - other local factors
- 2) Calculate
 - how many people will be necessary
 - what period of time will the project require
 - what equipment is needed