Natural resource indicator and target revision process

Approved by Steering Committee: March 20, 2013

Introduction

What is the South Atlantic LCC?

A partnership of private, state, and federal organizations dedicated to conserving a landscape capable of sustaining the nation's natural and cultural resources for current and future generations. The 2-4 year mission of the South Atlantic LCC is to "design a shared blueprint for landscape conservation actions that sustain natural and cultural resources in the South Atlantic region"

Why are indicators needed?

Designing and evaluating the success of a shared blueprint for landscape conservation actions in the South Atlantic will require some specific measures of what success would look like for natural resources. The ecosystems of the South Atlantic are complex and indicators help inform us easily and quickly about the conditions of a system (e.g., Miles of fishable and swimmable streams). We cannot measure everything all of the time. Indicators are designed to integrate many ecological functions and represent other components of the system that are either too expensive or time consuming to model and measure.

How will this affect me?

Indicators and targets are your cooperative's shared measures of conservation success for the South Atlantic region. These measures in turn will lead to a shared vision for conservation action - a blueprint. Members of the Cooperative will seek to commit their resources in pursuit of the shared vision as represented by the Blueprint. It is not meant to replace what we each

currently do but to help facilitate the connections and identify how our actions add up to help shape the future of the South Atlantic region. Simply put, this work builds up to an implementable plan that demonstrates places and actions where each partner can apply their respective tools to accomplish something bigger than we could individually.

Indicators and targets are also the first step in generating new funding from non-traditional sources for implementing conservation. Broadly shared metrics of success and the Conservation Blueprint they will help create will be powerful tools for bringing new funding from private companies, individuals, foundations, and other non-traditional funding sources to the region.

Given these uses of the indicators and targets, it is particularly important to have a transparent process for testing and revising indicators. The testing and revision process described in this document may identify opportunities for integrating existing monitoring efforts, developing new collaborative monitoring programs, or jointly funding key research questions. The testing and revision process will also provide further assurances to the diverse organizations that will commit their resources in pursuit of the shared vision as represented by the Blueprint.

Definitions

The following definitions come from the most recently approved SALCC Natural Resource Indicator Process document

Objective

A goal with associated indicators and targets

Goal

Desired conservation outcome that is difficult to measure (e.g., Ecological Integrity of rivers and streams)

Indicator

A metric that is designed to inform us easily and quickly about the conditions of a system (e.g., Miles of fishable and swimmable streams). Used to measure progress toward a goal

Target

A measurable endpoint for an indicator (e.g., Maintain total miles of fishable and swimmable streams). Used to measure whether an indicator has reached the desired level.

An example indicator and target

Goal: Maintain ecological integrity of beaches and dunes ecosystem
Indicator: Number of successful loggerhead sea turtle nests (an indicator of overall habitat quality, human disturbance, and density of nest predators)
Target: 14,000 successful nests / year

This indicator and target will be used throughout the document to provide an example of how the testing and revision process will work. While the example indicator is an individual species, SALCC indicators can also be ecosystem processes (biotic or abiotic), species groups, or habitats.

Indicator testing process

Overview

The initial selection of a natural resource indicator for the SALCC is based on an assessment of ecological, practical, and social criteria by regional experts. During the first year after a natural resource indicator is selected, the cooperative will further investigate the indicator to ensure there are no major violations of the assumptions made during the initial assessment. For example, the team may assume it's possible to monitor an indicator based on existing efforts but an effort in the first year to collect and integrate that monitoring information could identify new and unexpected challenges.

During the second through fifth year after an indicator is selected, the cooperative will do a more detailed assessment of the assumptions made during the indicator selection. For example, after tracking changes in an indicator over a few years, a more detailed assessment may conclude that indicator is not primarily responding to the major landscape threats that the selection team have originally expected. The long term assessments can be thought of as completing the adaptive management cycle (e.g., plan, design, implement action, monitor/evaluate, change or not).

Current criteria for indicator selection

Ecological criteria
- Ability to represent a variety of organisms and ecological attributes within that habitat type throughout a major portion of the LCC
- Sensitivity to big landscape threats in the region while having predictable and limited sensitivity to other factors such as natural variations or disturbances (i.e., high signal to noise ratio)

Practical criteria

- Ease of monitoring with existing programs and resources
- Amount of overlap with existing plans and processes
- Ability to model indicator based on current data or existing projects

Social criteria

- Ability to resonate with the American public
- Ability to link with an economic value
- Level of interest by public land or water managers
- Level of interest by private land or water managers

Short term testing (first year of selection)

Ecological criteria

The SALCC Objectives Team will oversee a technical assessment of how well an indicator is representing other key ecosystem components and how closely it responds to major landscape scale threats. While the assessment will be technical, the results should be communicated in a way that is easily understood by a wide variety of audiences.

For our example indicator, variation in the number of successful loggerhead sea turtle nests (regionally and historically), would be compared to variation in other components of the ecosystem (e.g., overall beach area, beach mouse distributions). This would test how well it represents other ecosystem components. Then, variation in number of successful nests would be compared to regional variation and historic changes in major landscape threats (e.g., sea level rise, urban growth). This would test how closely it responds to major landscape scale threats.

Practical criteria

The SALCC Monitoring Team will oversee the collection and synthesis of monitoring information to produce an estimate of the current and past state of the indicator across the LCC. The SALCC Conservation Design Team will oversee modeling efforts to predict the future state of the indicator based future change information (urban growth, climate, sea level rise, etc.).

For our example indicator, the monitoring team will oversee the collection and synthesis of loggerhead sea turtle nesting data throughout the South Atlantic and predict current and past numbers of successful nests. The conservation design team will then oversee modeling efforts to predict the future number of successful nest in the face of future change (e.g., the number of successful nests in 2050).

Social criteria

The SALCC Implementation Team will do a brief follow up assessment of any major assumptions about social criteria documented during indicator selection. The biggest assumption violations in the first year; however, will likely occur in the ecological and practical criteria. Social criteria tend to be easier to capture through the current SALCC process of surveys and interviews.

For our example indicator, the implementation will briefly check into any major assumptions about social criteria used to chose the number of successful loggerhead sea turtle nest as an indicator.

Long term testing/assessment (2 - 5 years after selection)

Ecological criteria

The SALCC Objectives Team will oversee a longer term assessment of key assumptions about how well an indicator is representing other key ecosystem components and how closely it responds to major landscape scale threats.

For our example indicator, there may be some key assumptions that need to be tested over a longer period. For example, climate change may result in new beach species communities and it may take a longer term effort to test how well the number of successful loggerhead sea turtle nest would represent the integrity of those new communities.

Practical criteria

The SALCC Monitoring Team will oversee the regular updating and synthesis of monitoring information to produce an estimate of the current and past state of the indicator across the LCC. The SALCC Conservation Design Team will oversee the regular updating of modeling efforts to predict the future state of the indicator based future change information (urban growth, climate, sea level rise, etc.) Monitoring Team and Conservation Design Team work together to identify how often indicator should be evaluated/updated (protocol design)

For our example indicator, this means regularly updating the number of successful loggerhead sea turtle nests in the area and predicting what that number will be in the future.

Social criteria

After the indicator has been in use by the LCC for at least a year, the SALCC Implementation Team will oversee a reassessment of the social criteria. This will provide a more accurate assessment of the social criteria as individuals will have more experience using the indicators in practice

For our example indicator, individuals involved in implementing conservation actions in beaches and dunes will participate in a reassessment of how well the number of successful loggerhead

sea turtle nests are resonating with public land/water managers, private land/water managers, and members of the public.

Target testing process

Overview

The initial selection of a target for a SALCC natural resource indicator is based on an assessment of predefined criteria by regional experts. During the first year after a target is selected, the cooperative will further investigate the indicator to ensure there are no major violations of the assumptions made during the initial assessment. For example, the team may assume it's possible to achieve a conservation target but an effort in the first year to model the conservation effort need to reach that target in the face of future change could identify new and unexpected challenges.

During the second through fifth year after a target is selected, the cooperative will do a more detailed assessment of the assumptions made during the indicator selection. For example, a sensitivity analysis done in the conservation design may show that while a target is achievable, it may be so high that is having too large of an effect on the overall conservation design.

Criteria for selecting targets for each indicator

- Amount of overlap with existing plans and processes
- Potential to achieve the target
- Capacity to monitor the target
- [In the future] Amount of overlap with cultural and socioeconomic goals

Short term testing (first year of selection)

All criteria

The SALCC Monitoring Team will oversee the collection and synthesis of monitoring information to produce an estimate of the how close the LCC is now to reaching the target. The SALCC Conservation Design Team will oversee modeling efforts to predict how much conservation effort will be needed to reach the target in the face of future change (urban growth, climate, sea level rise, etc.)

For our example indicator, this would involve assessing how close the region is now to 14,000 successful loggerhead sea turtle nests / year and forecasting what it might take to reach 14,000 successful nests / year across the entire region.

Long term testing (2 - 5 years after selection)

All criteria

The SALCC Monitoring Team will oversee the regular updating and synthesis of monitoring information to produce an estimate of the current and past state of the indicator across the LCC. The SALCC Conservation Design Team will oversee a sensitivity analysis to determine how strongly the target is influencing the overall conservation design.

For our example indicator, this would involve regularly updating the assessment of how close the region is now to 14,000 successful loggerhead sea turtle nests / year. The sensitivity analysis would test the impact of changing the number of targeted nests on the SALCC overall conservation design. This analysis may find that while 14,000 successful nests is achievable most of the conservation design is devoted to achieving that number at the expense of other key ecosystem elements.

Indicator and target revision process

Yearly revision cycle

Revising indicators and targets

Each year, the SALCC objectives team will review the results of the short and long term testing of indicators and targets and the overlap of indicators with all adjacent LCCs. Where testing suggests an indicator or target needs to be removed, modified, or added, the team will seek further input from the other SALCC teams and the web community. The team will then send recommended changes to indicators and targets (if any) to the SALCC steering committee for final approval.

Revising the revision process

Each year, the SALCC objectives team will review the overall revision process. The team will seek input from the other SALCC teams and the web community and make a recommendation on what changes (if any) are needed. This recommendation would be sent to the SALCC steering committee for final approval. The intention is to start with a yearly revision cycle but is likely to shift to a longer interval/cycle (every 2-3 years) in the future.