



Evaluating Ecosystem Services at the Site Level

These evaluations are centered on understanding the provision and condition of ecosystem services at priority biodiversity sites. These analyses are meant to evaluate the difference between the ecosystem services provided by a site in its current state compared to the services it could provide in feasible alternative state (that depends on the principal driving forces in the area, whether the ecosystem is already altered by unsustainable resource use, or even has natural or restored habitat with high biodiversity).

PARTICIPATORY PROCESS

These evaluations are unique in that they are one of the few methods for evaluating ecosystem services that – through all phases of the process -- involve the direct users of the services, those responsible for administering the conservation of the services, local and regional authorities, and researchers with pertinent information about the area.

This allows the relevant stakeholders to be informed during the full evaluation process, and participate in the collection and analysis of data. This contributes deeply to local actors' knowledge about their area's ecosystem services, making them participants and experts in future decisions regarding the conservation and management of the ecosystem that provide these services.

ALTERNATIVE STATE

During the evaluations, we consider the agents of change and threats to the site to define possible future "states" of the site. What will the state of the ecosystem be? What will the provision of ecosystem services be like? In our assessments we call it an "alternative future state" instead of a scenario, because in this type of assessment we measure the provision and status of ecosystem services as much in the present as in the future. While "scenarios" are based on models and projections more than on direct measurements of the services.

Unlike the models and projections that inform the “scenarios,” states are produced using direct measurements from the project, and provide the most plausible future for the site based on current management decisions and information gathered in the field.

THE EVALUATION

These participatory evaluations have four phases. The first phase lays out the objectives and reasons for carrying out an ecosystem services evaluation at the site. In this phase, the evaluation area is defined (for example, is it the entire WHSRN site, or just those areas of the WHSRN site that are part of a protected area?), the audience is determined (who will the results be communicated to after the evaluation is complete?), and possibilities for the site’s future are established.

In the second phase, a political and social analysis is conducted to outline the relevant actors at the site (including actors beyond just the direct users of the site). Through workshops with local users and other stakeholders, information is gathered to understand the recent status of ecosystem services at the site, and what could happen to those ecosystem services in the future.

The third phase focuses on how to measure the provision of ecosystem services in the field. Using the information collected in the second phase, the third phase defines what specific ecosystem services need to be measured, methods to measure them accurately, and what equipment and materials will be needed to do so. The scheme for collecting data in the field is designed and carried out, and the results are analyzed.

Finally, in the fourth phase, outreach materials are prepared to communicate the pertinent results to the public audience that was defined in the first phase.

AN EXAMPLE

The following is hypothetical example to illustrate the type of results that can be obtained by conducting a participatory, site-level assessment of ecosystem services.

Site (fictional): Wetlands of the South. Located within the Southern protected area.

Location: The South.

Threat: possibility of establishing a fishing company with international export operations.

Actors: fishermen, female bivalve harvesters, a local artisan cooperative, environmental authority in charge of the protected area, and researchers from the national university

Current Status: The site is a protected area where the local community has an allowance for the extraction and sustainable use of fishing resources.

Possible alternative (future) status: protected area with extraction of fishing resources ceded to the fishing company

Ecosystem services to be analyzed: global climate regulation, nature-based recreation, and harvestable goods (fish and wild honey)

Results of the analysis: If the fishing company is permitted to operate in the protected area, it will affect the mangrove ecosystem, fragmenting and degrading it due to the construction of the processing plant, the port for docking the boats that will carry the fishing load out of the region for export.

The fragmentation of the mangrove and the pollution caused by the construction would affect the beauty of the landscape, but this would not reduce the number of visitors because the fishing company will invest in promoting the area to attract tourists. Therefore the income generated from the entrance fee to the protected area and from selling handicrafts to tourists would not be affected.

The fragmentation and loss of mangrove would also reduce the contribution of this ecosystem to global climate regulation by 40%.

On the other hand, since fish collection by the fishing company is unsustainable, the availability of fish for consumption by local families would also decrease by 100%, thus affecting the economic income of the local community. In the long term, the fishing company would also be affected by the decreasing fishery.

Finally, with the reduction in mangrove habitat, fewer wild bee hives would be established, and the local community's collection of honey would decrease by 80%.

The following diagram shows the differences between the current state of the site and the alternative: the site's future if the fishing company were allowed to operate in the protected area.

