Key Terms

Estimation

The aggregation of field data into measures of resource attributes. Examples include means, variances, and correlation coefficients computed with sample data. Multiple estimators are always available for any resource attribute, and the choice of which particular estimator to use is based on statistical features such as bias and precision.

Experimentation

The imposition of treatments on subjects or experimental units for the explicit purpose of learning about treatment effects by observing outcomes. Ideally experimentation involves random allocation of treatments to experimental units, replication of treatments, and the use of controls for comparative purposes.

Experimental management

The use of management interventions for the purpose of understanding the effects of management. Interventions are used as experimental treatments, ideally (but infrequently) in the context of randomization, replication, and experimental control.

Hypothesis

A suggested but unconfirmed assertion or explanation of observed patterns. Hypotheses can take many forms, for example, a hypothesized magnitude of a resource attribute or a mathematical relationship between attributes. Hypotheses are tested by comparison against field data.

Management by experiment

An approach to management that recognizes management interventions as experiments, by means of which understanding can be enhanced as management proceeds through time.

Management action

An action affecting a managed system, taken as a result of a management decision. In the context of natural resources, management actions typically influence the status of resources or the processes that control resource dynamics.

Management alternative

A potential management action. In sequential management, a management action is selected at each point in time from an identified set of management alternatives. The set of management alternatives constrains and influences the choice of a management strategy.

Management decision

A decision to take a management action. In adaptive management, decision making typically is driven by management objectives, with active stakeholder involvement. Adaptive decision making takes into account both the current status of resources and the level of understanding about them.

Key Terms

Management option

Used interchangeably with management alternative.

Management strategy

A prescription of management actions pursuant to management objectives. In the context of adaptive management, a management strategy describes time-specific management actions to be taken, conditional on current resource status and the level of understanding about resource dynamics. Management strategies often are expressed in terms of resource thresholds, on either side of which a different action is to be taken.

Model

Any representation, whether verbal, diagrammatic, or mathematical, of an object or phenomenon. Natural resource models typically characterize resource systems in terms of their status and change through time. Models imbed hypotheses about resource structures and functions, and they generate predictions about the effects of management actions.

Objective

A desired outcome or performance measure that expresses stakeholder values and serves to guide natural resource decision making and evaluation of success.

Stakeholders

Individuals and organizations (e.g., managers, scientists, private citizens, nongovernmental organizations) with a vested interest in a shared enterprise. Interests can include an expectation of received benefit, a perceived threat, a prior investment of time and/or resources, or values shared with others associated with the enterprise. Active engagement of stakeholders promotes the successful implementation of adaptive management.

Threshold

The limiting value of a resource attribute that triggers a change in management actions. Management strategies often include thresholds, such that one action is specified for resource values less than the threshold and a different action is specified for larger resource values.