

Mekong River Commission

Ecological Risk Assessment Training Program

Monitoring & Assessment



To be covered

- Why needed
- What is involved in developing and carrying out a monitoring & assessment program

Objectives

- Objectives of ERA monitoring program should go beyond conventional WQ monitoring program
- Needs to measure condition and trends
- But must also inform evaluation process - 'how well did we do?'
- Also needs to feedback to influence the risk assessment (adaptive management)

Objectives

"To be actually used in decision-making, the monitoring results must be meaningful not (only) for biologists, but above all they must represent a societal and public interest"

(Adapted from Suter 1993 by Vos et al., 2000)

Should provide:

- information to assist with a *critical evaluation of the efficacy of the risk assessment process*,
- an **early warning capability** by providing evidence of undesirable trends or shifts from baseline conditions,
- an **early control capability** by informing the evaluation of the success or otherwise of policy, intervention, and or management actions,
- accurate and timely information about the **status of threatened assets** which is used for both feedback (to stakeholders) and feedout (to the general community).

Program objectives

- Ecological status and trends
- ERA assessment
- Management effectiveness
- Process improvement

Ecological status and trends

- **Why?**
 - To provide information on the current condition of the asset and how that condition is changing with time
- **What?**
 - BACI design
 - Other designs
- **Trend analysis**
 - conventional regression procedures
 - generalised additive models (GAMs)
 - nonparametric smoothing techniques (LOESS, Gaussian, and moving averages)

ERA assessment

- **Why?** To address the 'how did we do?' question
- **How?**
 - Hard assessment methods (e.g. data from BACI design experiment)
 - Soft analysis methods (e.g. use data from 'expert' and stakeholder opinion)

Management effectiveness

- **Why?** To ensure results from ERA are coupled with management objectives
- **How?**
 - Use contingency table

Assessment of management response	ERA assessment		Totals
	good	poor	
Effective			
Ineffective			
Totals			

Process improvement

- **Why?**
 - Assess the strengths and weakness of the decision-making process
 - Decision-making process will only be improved if have process to identify any gaps or flaws in process
- **How?**
 - Assessment of model inputs (are they relevant?)
 - Use 'expert' group to review
 - Individual ERA is one-off, but ERA process is on-going - therefore need constant refining & updatings