



Key Considerations in Monitoring Program Design

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LIMITATIONS

UNTIL YOU SPREAD YOUR WINGS,
YOU'LL HAVE NO IDEA HOW FAR YOU CAN WALK.

Key Monitoring Program Design Considerations

1. Preparation & Planning

2. Selection of Sampling Designs

3. Implementation Realities:

- Resources
- Balancing and integration multiple sampling designs

Key Consideration 1, Prep & Planning

A) Know and clearly express all the questions you must answer.

B) Know how the data/info. is going to be used.

C) Know how “good” (reliable) the data & information need to be.

Reliability should be related to the importance of the decision and can be expressed as confidence boundaries.

Defining your reliability needs requires the **extraordinary and rarely observed** step of linking the data user to the program design process.

Key Consideration 1, Prep & Planning

D) Design a monitoring program based on what you need (what it takes to answer the questions).

Don't limit your program design by anchoring it to the resources you currently have or had in the past.

Resources can be created/found.

Key Consideration 1, Prep & Planning

- E) Know all the resource classes and any distinct sub-classes to be monitored including population sizes and have a feel for heterogeneity.
- F) Determine the level of monitoring coverage needed for each class and sub-class.

Key Consideration 1, Prep & Plan, Recap

- A) Know the Questions.
- B) Know how the data/info. is to be used.
- C) Know how “good” the data/info. has to be.
- D) Know the resources including, sub-classes, population sizes, heterogeneity.
- E) Determine your coverage needs for each class.

Challenges in Preparation & Planning

Knowing the questions, resources, confidence and coverage needs is not as easy as it may seem and may require:

- Separating out research questions from the routine monitoring questions
- GIS work such as ID and classification of populations & areas of interest
- Agreement on definitions, sub-classes, coverage needs

The complexity and time required to plan a good monitoring program will be compounded by the amount of information required, the number of collaborators, program considerations & entrenched thinking.

KEYS TO SUCCESSFUL PROGRAM PLANNING

- 1) Get at least some information
(don't settle for guesses)
- 2) Don't take no for an answer to questions that must be answered.
- 3) BE METHODICAL

R7 Fish Tissue Monitoring Network Design

Resource class & sub-class	Population Size estimate	Significant Public Profile/Use	Significant Fishing Pressure	Monitoring Coverage Needed	Monitoring Design	Year to Sample
Big Rivers	500 miles 50 segmts.	Y	Y	Represent all segmts.	Targeted-Represent	annual
Non-wade	25 streams 2500 miles	Y	Y	Census of streams	Census	annual
Wadeable Streams	25,000 miles	N	Y	Represent All miles	probability	2007
Small/int. streams	100,000 miles	N	N	None	N/A	N/A
Urban lakes	hundreds	Y	Y	Represent	Probability	2009
Lg public lakes (A)	75	Y	Y	Census	Annual census	annual
Med Public lakes (B)	300	Y	Y	Census	Rotating census	2008
Small public, private (C)	10,000	N	Y	represent	probability	2008

Key Consideration 2, Choosing a Monitoring Design

DESIGN	PROS	CONS
<p>Census All sites are sampled</p>	<p>Answers both 305 and 303</p>	<p>Expensive and not practical if the population is large</p>
<p>Probability Sites are selected at random to represent a population</p>	<p>-Efficient to represent a large pop. w/a small sample (305b) -Known confidence for results -Predicts size of 303d & provides some of the 303(d) sites</p>	<p>-Does not ID all impaired WB's for 303d -Sites require inventory & recon -Logistical problems accessing remote sites</p>
<p>Targeted-Representative Sites are selected by BPJ or other means to represent an area or population</p>	<p>- Can usually be implemented simply and efficiently</p>	<p>-Assumptions are necessary -No guarantee sites are representative -Work required to develop and implement targeting methodology -Does not ID all impaired WB's for 303d</p>
<p>Targeted Sites are selected via determinative methods usually to investigate known or suspected problems / areas</p>	<p>Well suited to 303(d). Can provide some 303(d) sites if targeting methods work.</p>	<p>-Does not provide 305(b) answer - Work required to develop and implement targeting methodology -Used alone, does not provide data to validate the targeting method.</p>

Key Consideration 3, Implementation Realities

1) Preparation, planning and **coordination** are the keys to designing and implementing a successful monitoring program especially, to utilizing multiple monitoring designs.

2) **Integration**: The designs for 305(b) and 303(d) can provide complementary assessment results but the data should not be integrated. Integration should be discussed only relative to coordination of sampling logistics (and school bussing).

Key Consideration 3, Implementation Realities

3) Implementation requires **resources** and resources can be created/found How?

- Be willing to go to bat for them and, have “bullet proof” program rationale
- Eliminate existing program inefficiencies
- Know what existing data is saying
- Be creative about finding solutions & partners



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