

Demonstration Reaches

A framework for rehabilitation monitoring

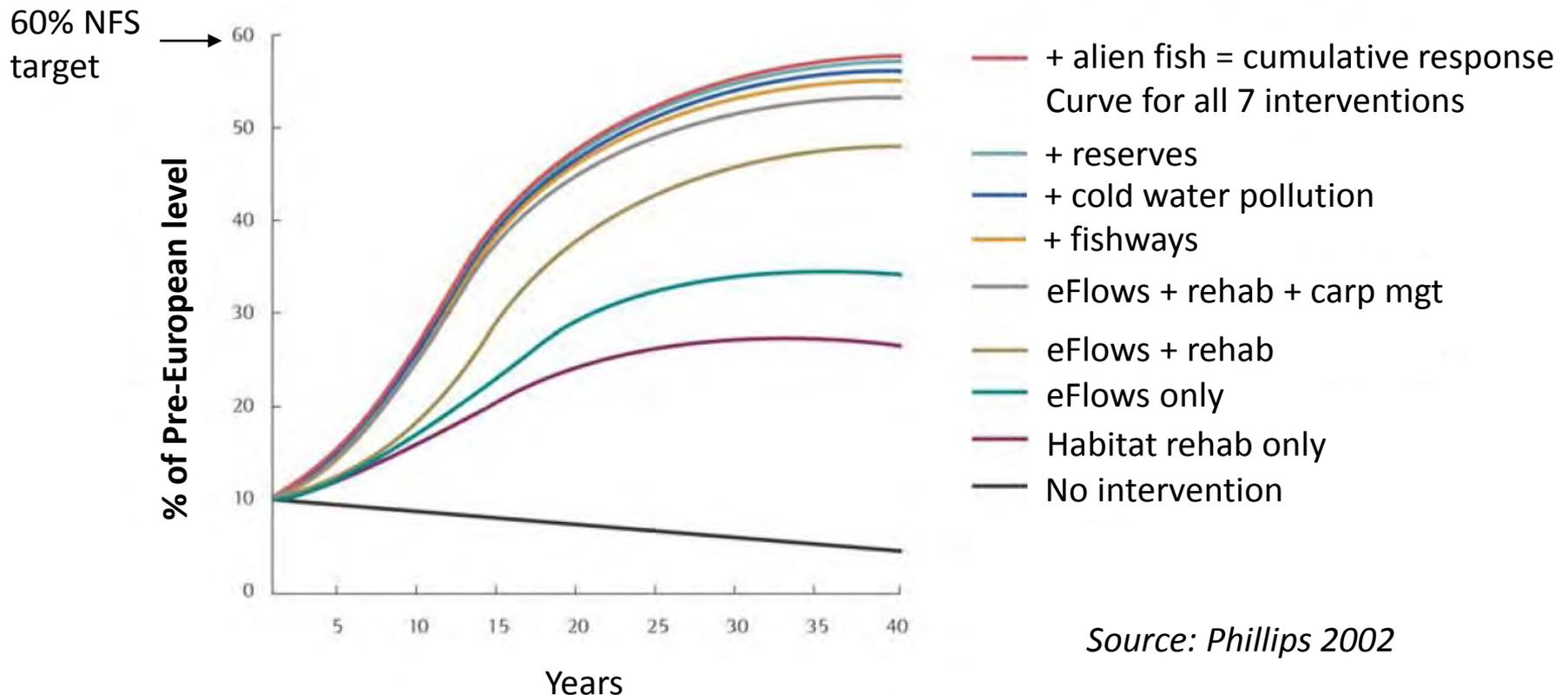


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What is a demonstration reach?

- Rehabilitation of the fish assemblage rather than individual species
- Simultaneous implementation of several key interventions



Source: Phillips 2002

What is a demonstration reach?

- Rehabilitation of the fish assemblage rather than individual species
- Simultaneous implementation of several key interventions
- Enhance public awareness
- Refining guidelines for the rehabilitation of rivers elsewhere in the Basin (i.e. adaptive management)

Effective monitoring and evaluation is an essential - not a luxury - requirement for their future use and success

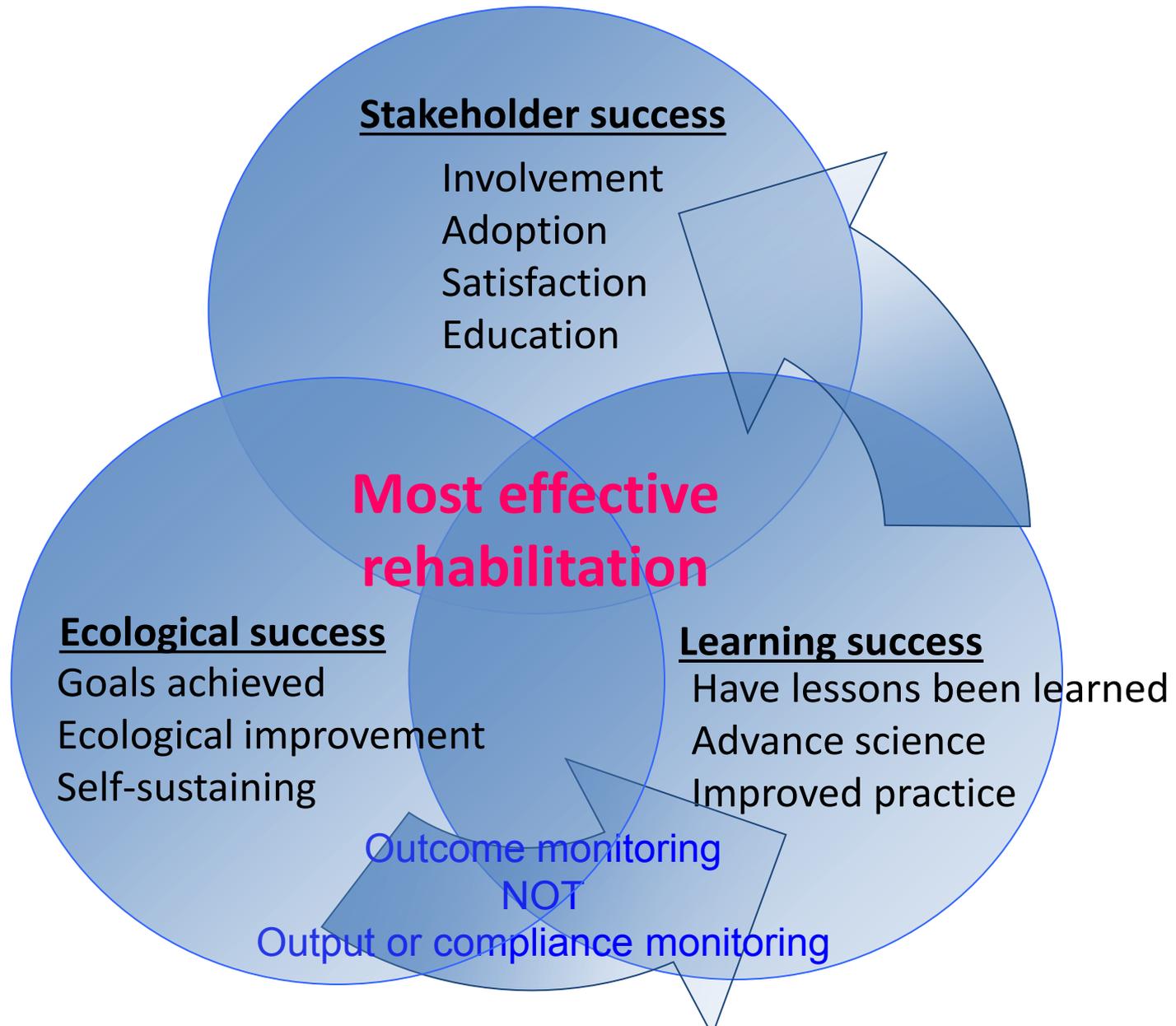
What has historically hampered good M&E?

- Inadequate funding
- Insufficient lead times – lack of pre-intervention data
- Difficulties in implementing reliable designs in river systems – e.g. finding controls, defining reference condition, sampling in large rivers
- Inertia or resistance to adopt new approaches to monitoring in freshwater systems
- Lack of accord and communication between different interest groups regarding what constitutes effective river rehabilitation

Parody of views – Cullen 1990

- **Engineers** don't care if it works – as long as they think it does
- **Scientists** don't care if it works or not - as long as they understand why
- **Managers** don't know unless someone bothers to tell them
- **Planners** don't care if it works or not because they know how it should have turned out
- **Freudian psychiatrists** believe that all involved in demonstration reaches are repressing latent psychosexual desires

How do we assess effective rehabilitation?



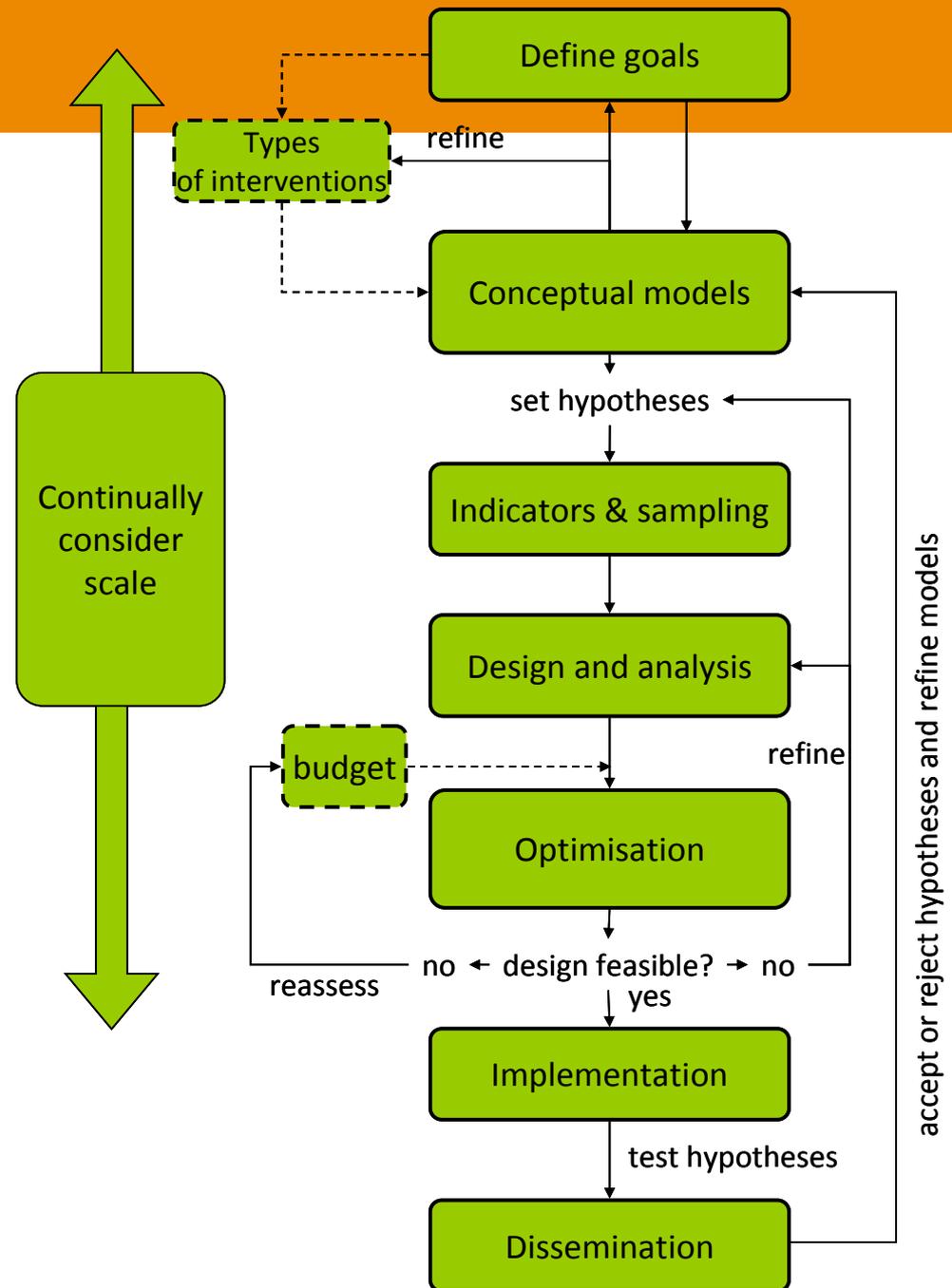
M&E framework – aim, scope, audience

- Design logical framework to assist in the detection of ecological response in demonstration reaches
- Not a prescriptive M&E plan, rather a framework with which to develop a rigorous M&E plan
- Underpinned by good science and aligned with the specific reporting needs of managers
- A certain degree of prior knowledge in ecological monitoring is assumed

M&E framework

Know what decisions must be made and in what order

Remain pragmatic during the process, there is no such thing as a perfect monitoring design

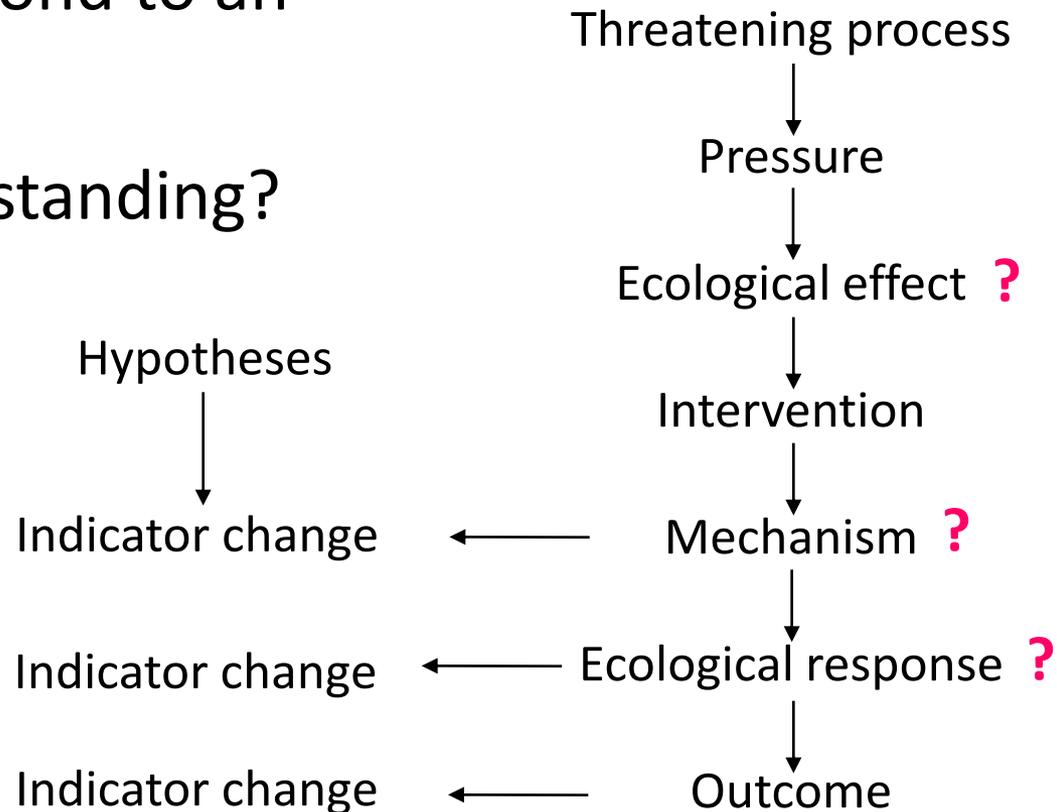


Types of monitoring

- The framework promotes a combination of: ***condition*** and ***intervention***-based monitoring
- Condition-based:
 - trends through time at the whole-of-reach scale
 - Cannot determine underlying causes
- Intervention-based:
 - Associated with specific interventions
 - May involve a multiple lines of evidence approach (e.g. fishways)

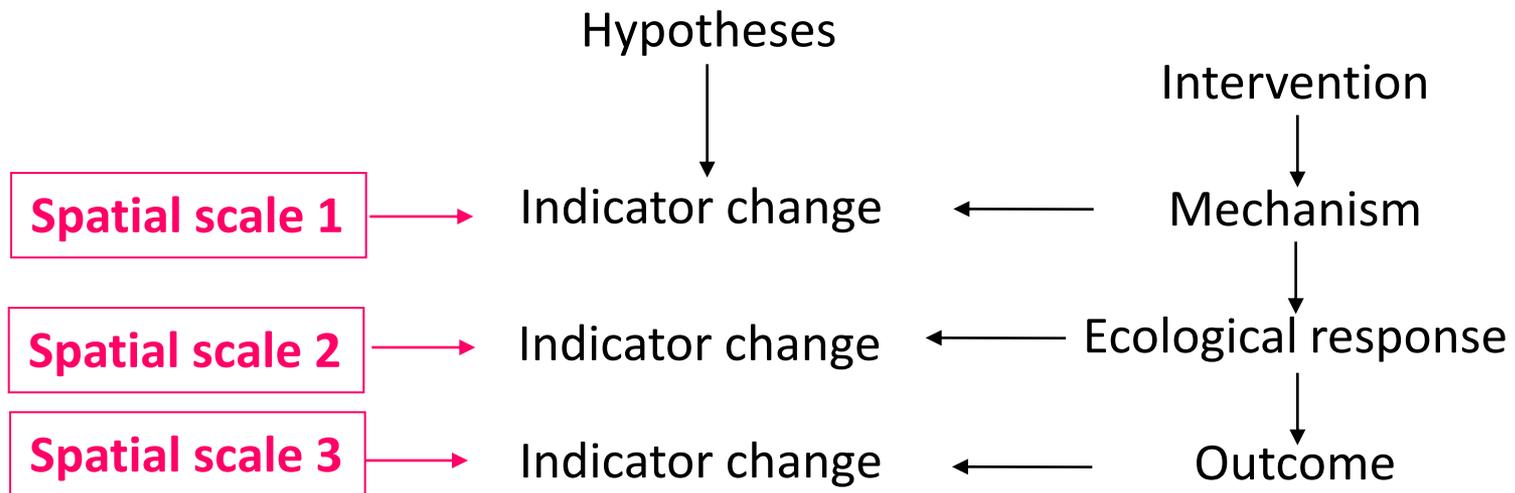
Conceptual models

- Fundamental for effective resource management
- Show how we believe a system will respond to an intervention/s
- Scientists grandstanding?
- Avoid 'one-size-fits-all' approach



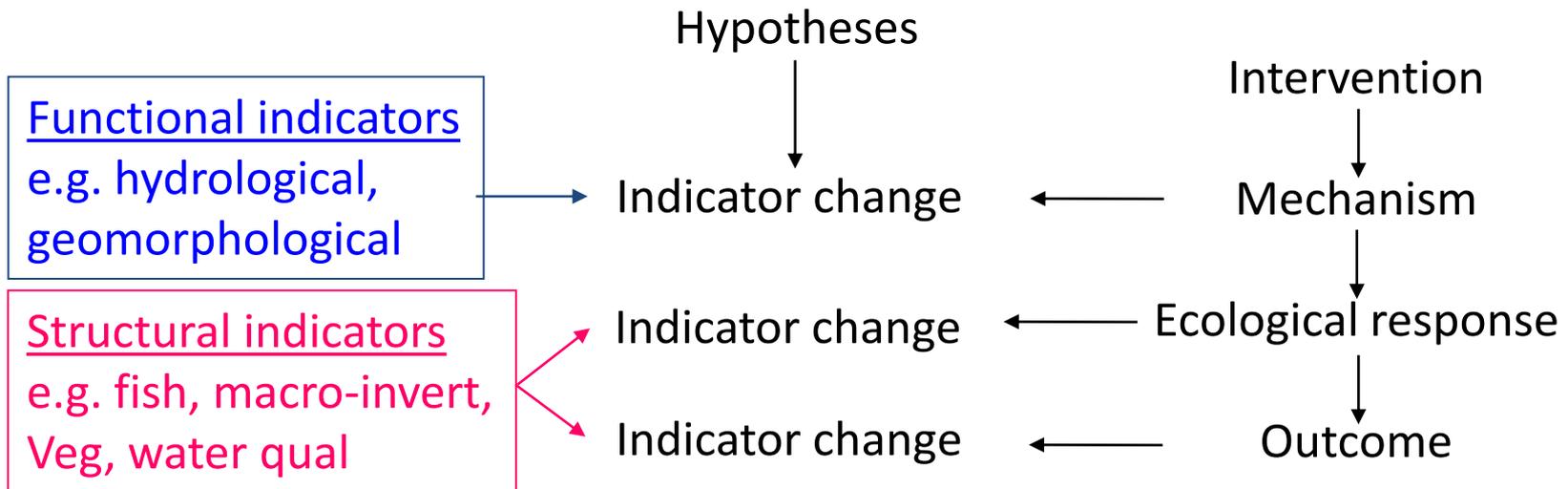
Size does matter

- Consider spatial scale from the outset
- Multi-scalar approaches are best



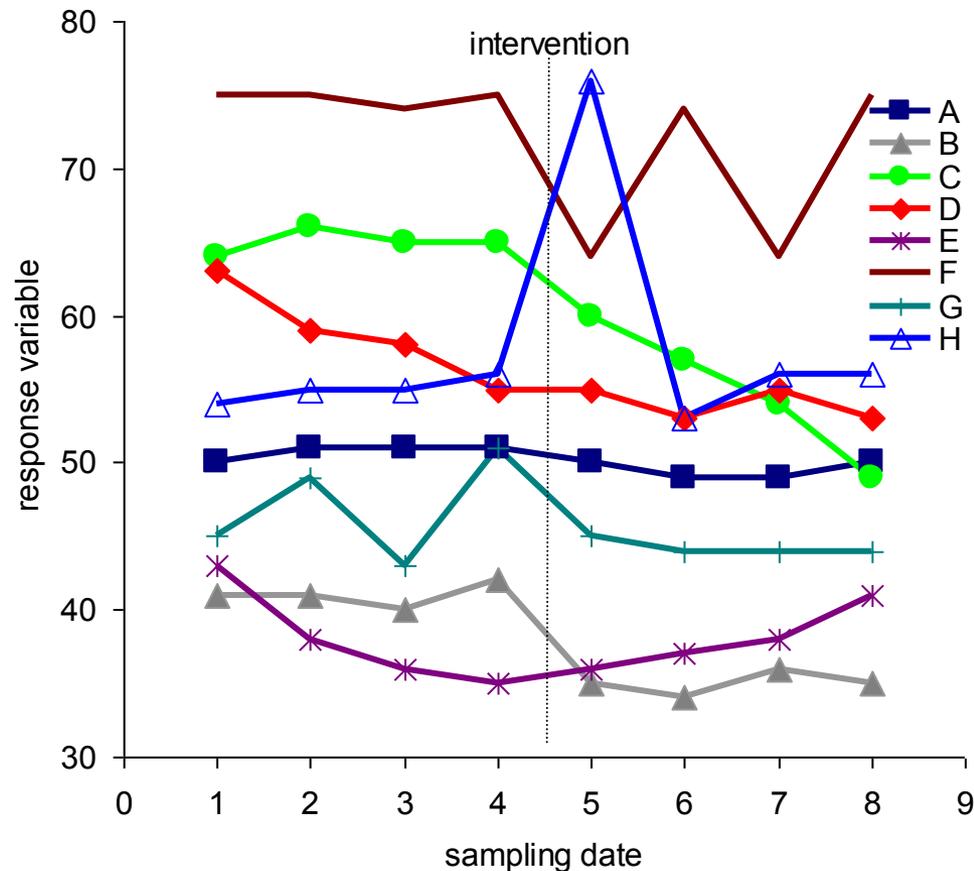
Indicator choice is important

- Consider a multi-disciplinary approach to indicator selection



Indicator choice is important

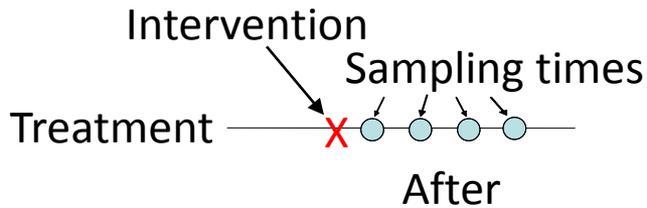
- Indicators respond differently, consider time lags and trajectories of response



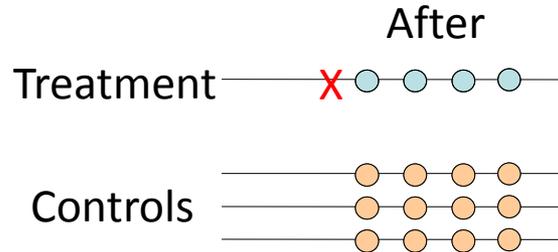
How long to monitor for?

- Likely to be different for different indicators
- Be explicit and realistic about the timeframes you assign to different monitoring questions
- Prepare to assign indicators to two broad timeframes:
 1. A **3-5 year** period that corresponds to the typical duration of funding cycles and contracted works programs; and
 2. A longer-term timeframe of **5-15 years** relevant to the detection of mid to long-term ecological responses aligned with the reaches 'whole-of-life plan'

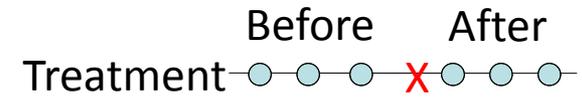
Types of design



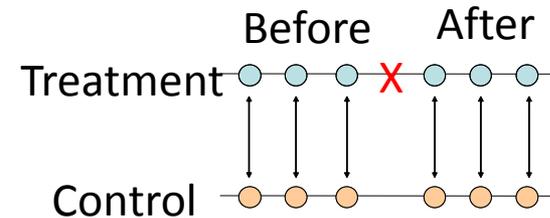
a) Intervention only



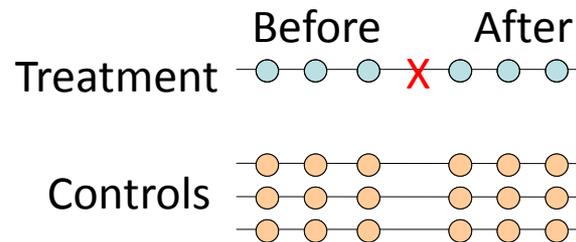
b) Control-intervention



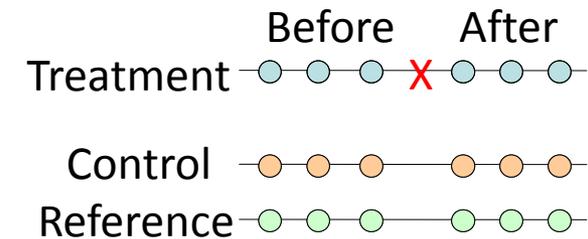
c) Before-After Intervention



d) BACIP design with a single treatment location and control location



e) Asymmetrical MBACI design with a single treatment location



f) Full rehabilitation model with control and reference reaches

Analytical techniques

A monitoring program deficient in design is unlikely to be rescued, regardless of the number and complexity of statistical methods that are applied

***But there are many options available –
so seek biometric support!***

Transparency in reporting

- Manage expectations
- Be explicit and realistic about the goals and report against these
- We can often learn more from failures than successes
- Ensure results are disseminated outside of the immediate stakeholders

Where to now?

- MDBC's IWG has a clear stance on demo reach M&E
 - 50% MDBC investment in demo reaches goes to M&E
 - Scientific panel to assist in the development of M&E plans



IWG are go!

Where to now?

Do we adequately understand how effective different interventions are in demo reaches?

- Can we place more confidence in some more than others?
- Which should receive priority investment?
- Which are high risk?
- Often ecological models used to justify actions are at the wrong scales, outdated or weren't sufficiently articulated in the first place
- Look beyond rehabilitation studies to models on ecosystem response and fish dynamics
- Need to consolidate information
- Evidence based approach - where evidence is lacking or models are only tentatively accepted, M&E has a direct role to play in clarifying uncertainty

Where to now?

- A centralised repository for demonstration reach outcomes – consolidated reporting