



Roles of Research and Monitoring in Oregon's Adaptive Management Program

Independent Research and Science Team

Goals

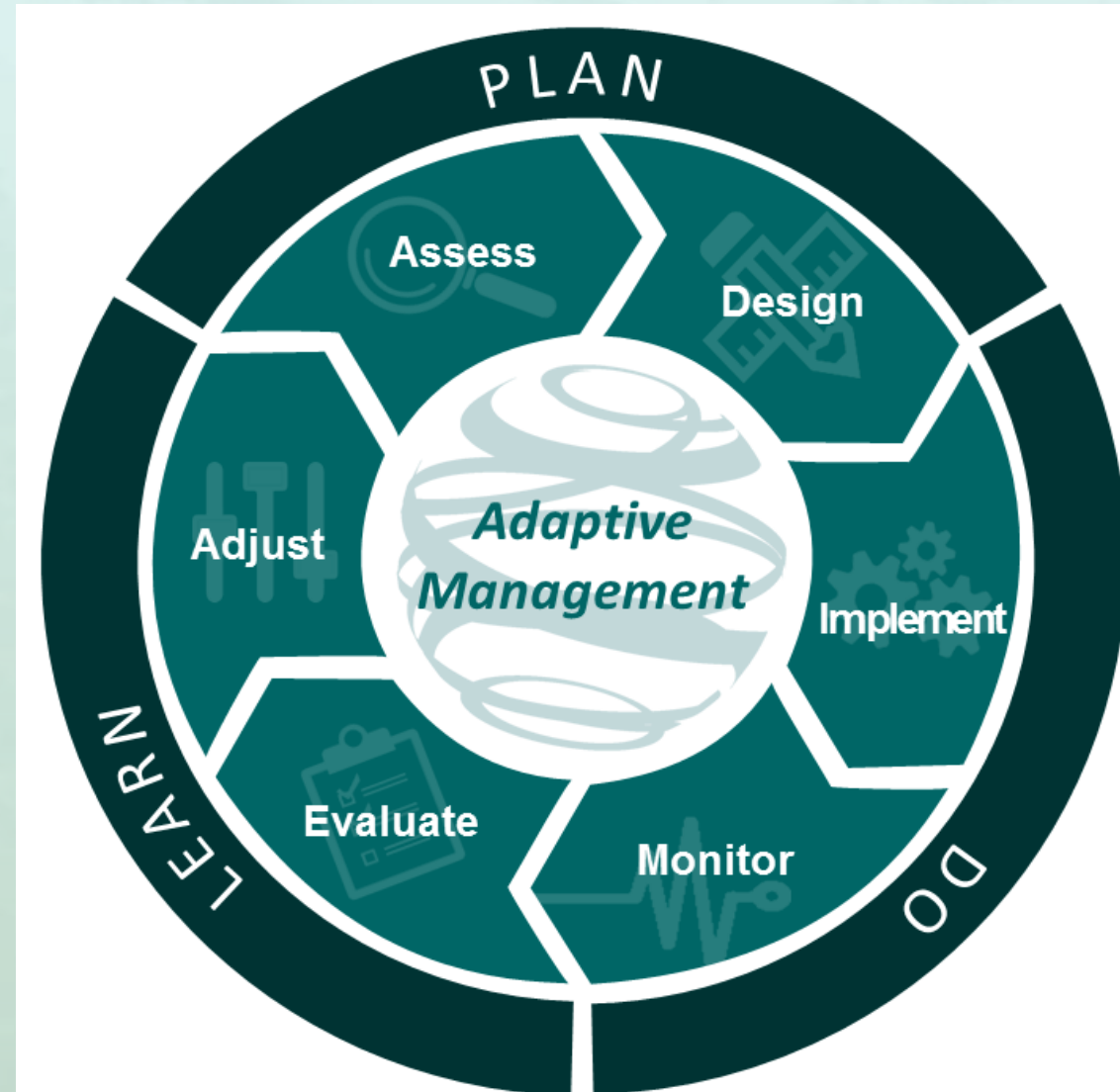
- A refresher on adaptive management
- Describe what a researchable question is.
- Distinguish between research and monitoring.
- Identify where AMPC's current questions fall in an adaptive management framework.
- Discussion:
How can the IRST best support the AMPC within the framework of the Oregon Adaptive Management Program?



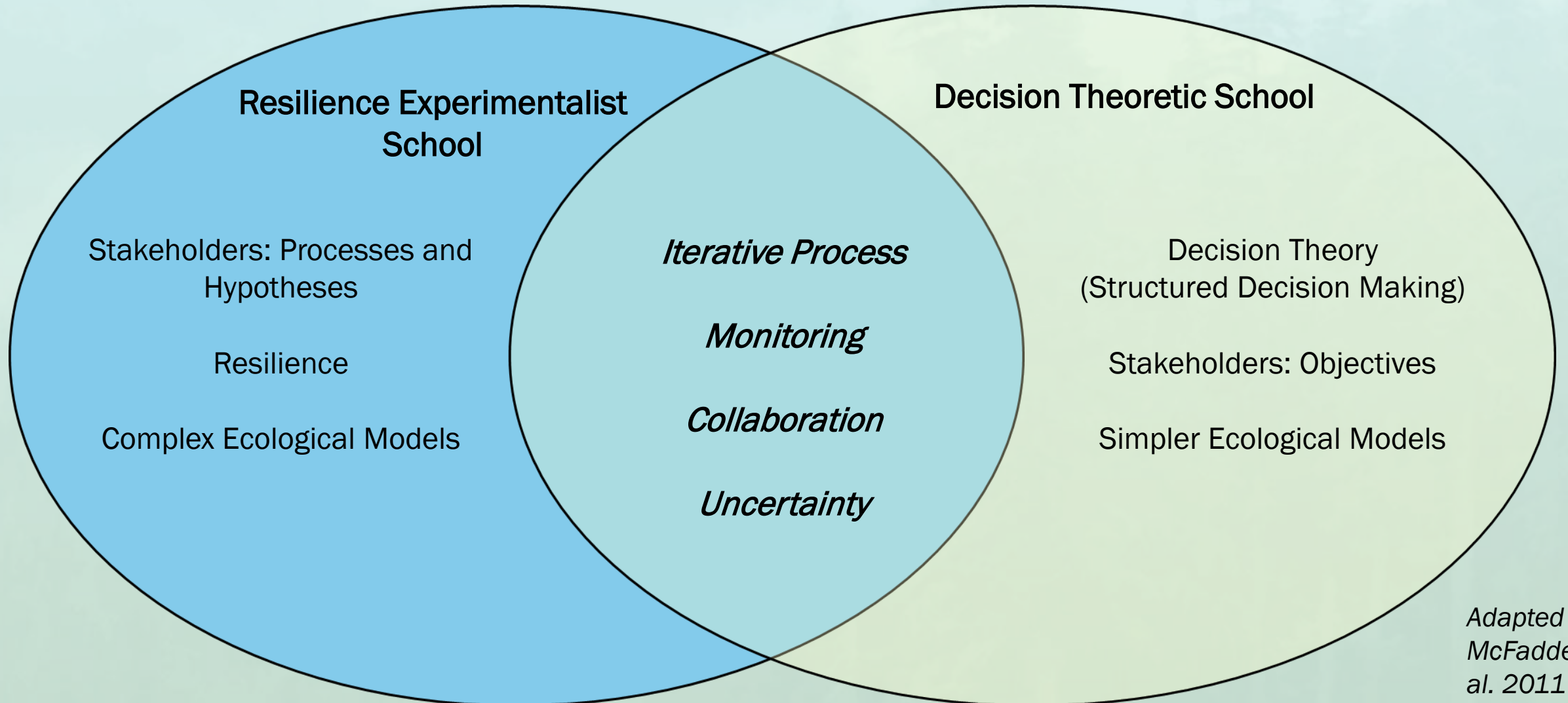
Adaptive Management

Adaptive Management is an Iterative Learning Process (*Learning by Doing*).

The "best" choice is not obvious, and it would differ if uncertainty about it was resolved. In other words, there are potentially big gains from more information.

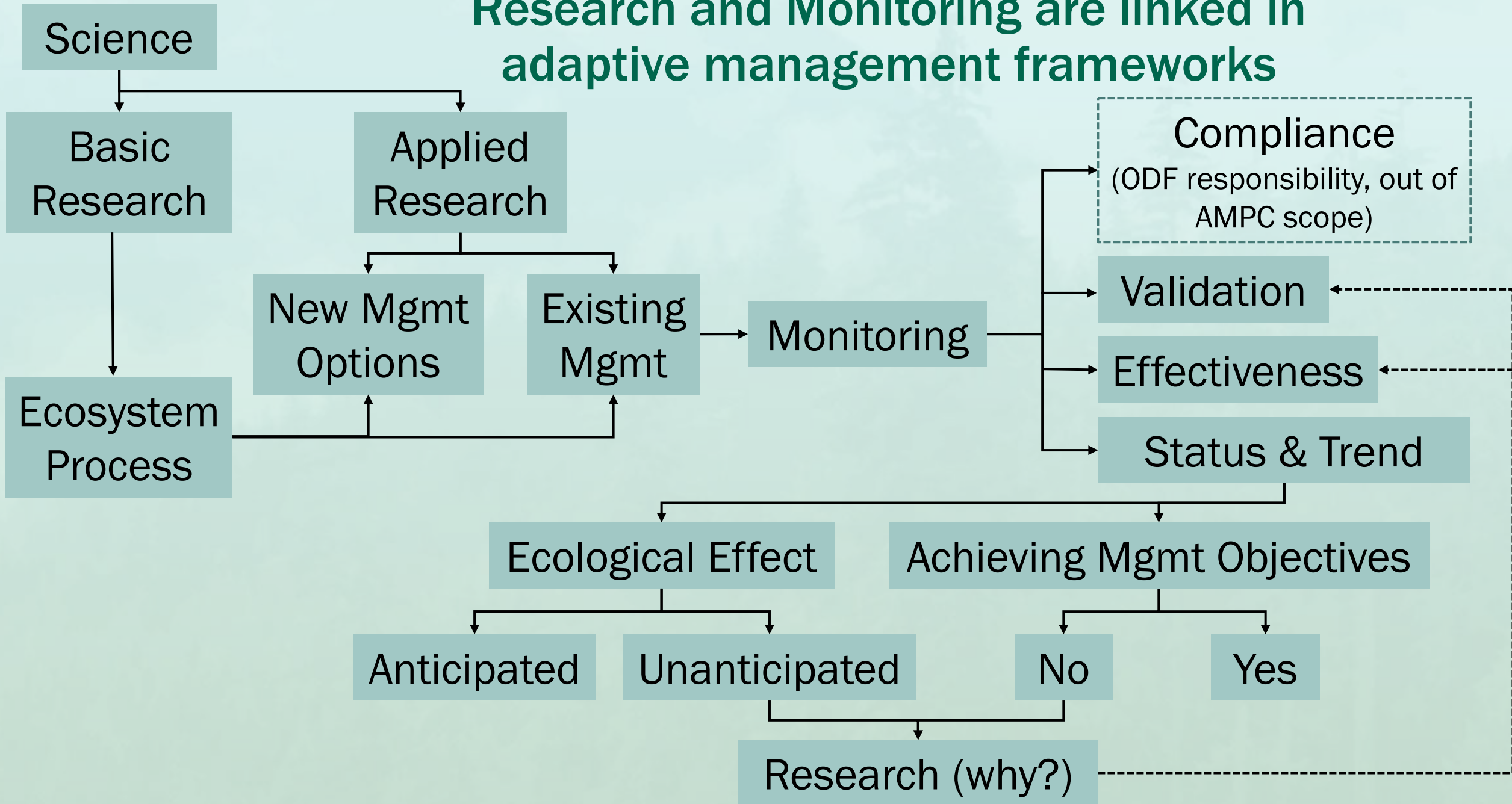


Two Schools of Adaptive Management



Adapted from
McFadden et
al. 2011

Research and Monitoring are linked in adaptive management frameworks



Science is both a way to learn about the world and the body of information and knowledge that results. Science can be either basic or applied and includes both research and monitoring.

Science depends on researchable questions

- An effective researchable question is specific enough to be quantified and tested through analysis.
- Guides the development of either research or monitoring efforts.
- Poor researchable questions use terms that cannot be quantified, or that can be interpreted differently by different individuals.
 - Avoid terms such as resilience, healthy, effective, or natural.



What is a researchable question?

A non-specific researchable question:

What is the health of riparian forests over time?

A specific researchable question:

How do canopy cover, air temperature, soil moisture, and downed wood change over time in managed compared with unmanaged riparian forests?

What is Research?

- Develops NEW knowledge to answer questions not well understood in the broader scientific literature.
- Is designed to answer “why”, “what”, and “how” questions.
- May include development of new tools, methods, or approaches to answer questions as well as new insights.
- Requires development of a **clear hypothesis (e.g., researchable question)** that is explored with transparent approaches:
 - Basic
 - Applied

Types of Research

- Basic Research:
 - Explores fundamental relationships to understand how systems work.
 - Researchable question: How do amphibians interact with riparian habitat across life stages?
- Applied Research:
 - Generally has a direct application.
 - Researchable question: Do amphibians use riparian management zones as movement corridors?

What is Monitoring?

- Relies on insights from basic and applied research but does not generally develop new knowledge by asking “why” questions.
- Provides feedback for adaptive management.
- Addresses researchable questions through a variety of approaches:
 - Compliance
 - Effectiveness
 - Validation
 - Status & trend

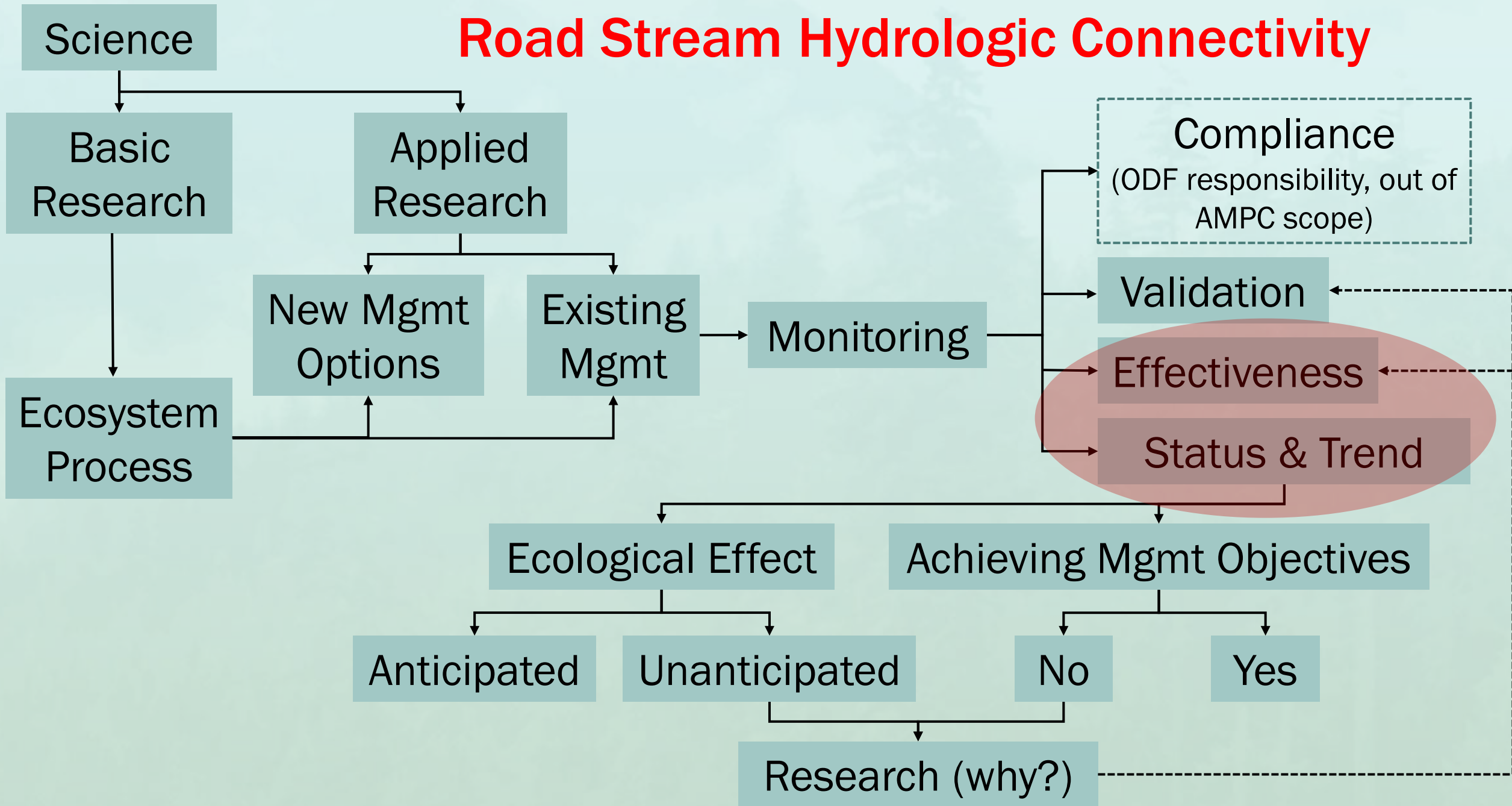
Types of Monitoring

- Compliance – are we doing what we said we would?
 - Researchable question: Are riparian buffers being implemented as described in rule?
- Status and trend – evaluates how conditions are changing from baseline.
 - Researchable question: Are the characteristics of riparian buffers (e.g. canopy cover) changing over time?
- Effectiveness – links to specific management actions to evaluate if objectives have been achieved.
 - Researchable question: Are riparian buffer prescriptions providing shade sufficient to maintain desired water temperatures for target amphibians?
- Validation – articulates and validates underlying assumptions.
 - Researchable question: Are the assumed relationships between stream temperature and riparian buffer characteristics accurate?

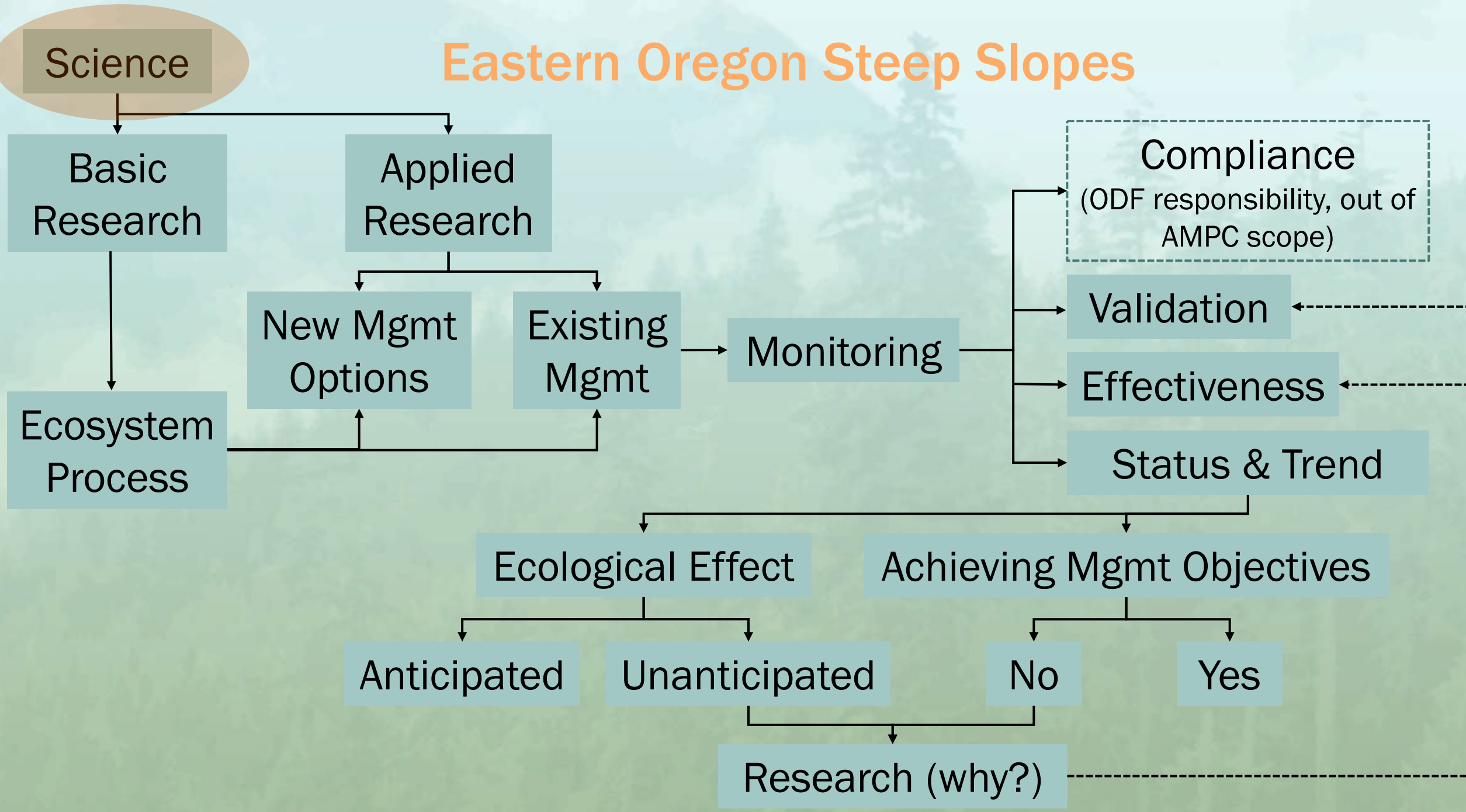


**AMPC's Current Research & Monitoring Questions
in an
Adaptive Management Framework**

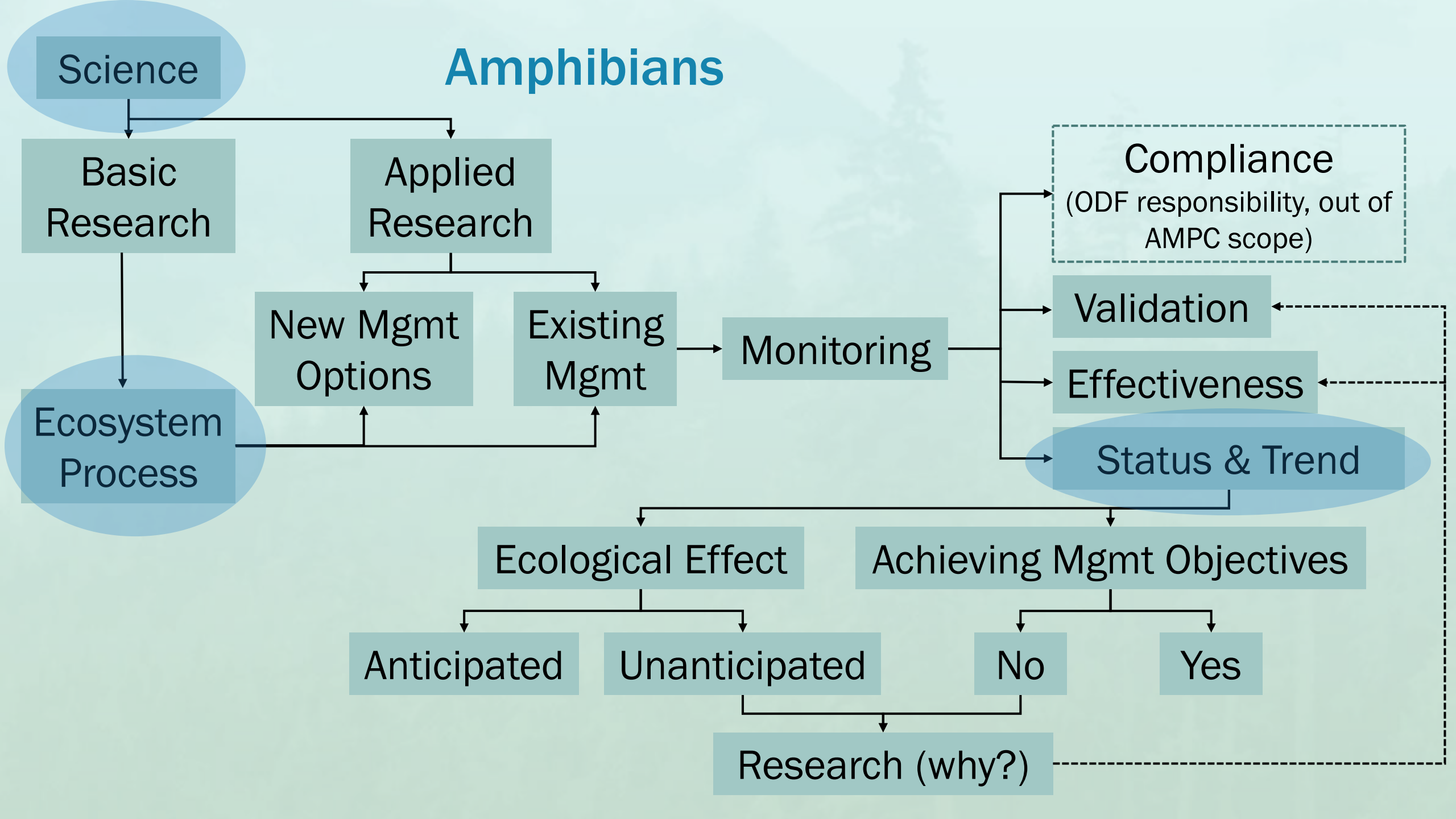
Road Stream Hydrologic Connectivity



Eastern Oregon Steep Slopes



Amphibians





Discussion:
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