

# Progress report: C-3624 implementation – Technical Procedures Document

Ken Warheit  
Supervisor, Fish Health and  
Molecular Genetics Laboratory

March 17, 2022

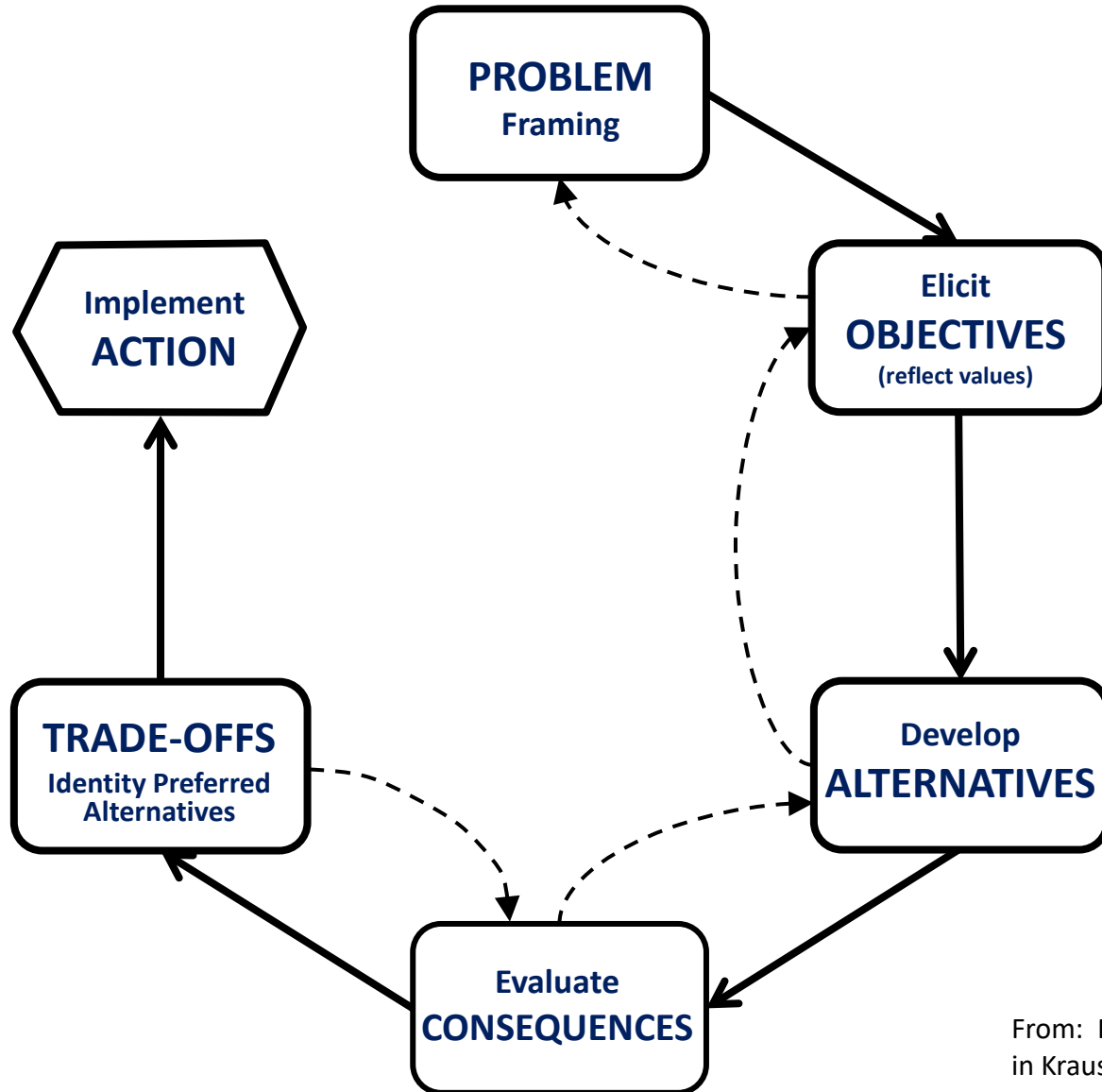


# C-3624. Policy Guideline #4

- Hatchery Management Plans (HMPs) developed for every anadromous salmon and steelhead program.
- HMPs reflect balance between minimizing genetic and ecological risks and providing ecological and societal benefits.
- Balance achieved through a structure decision-making process, including a science-based risk management framework
- SDM and risk analysis developed in the Technical Procedures Document (TPD).
- TPD or individual HMPs will require environmental review (SEPA)



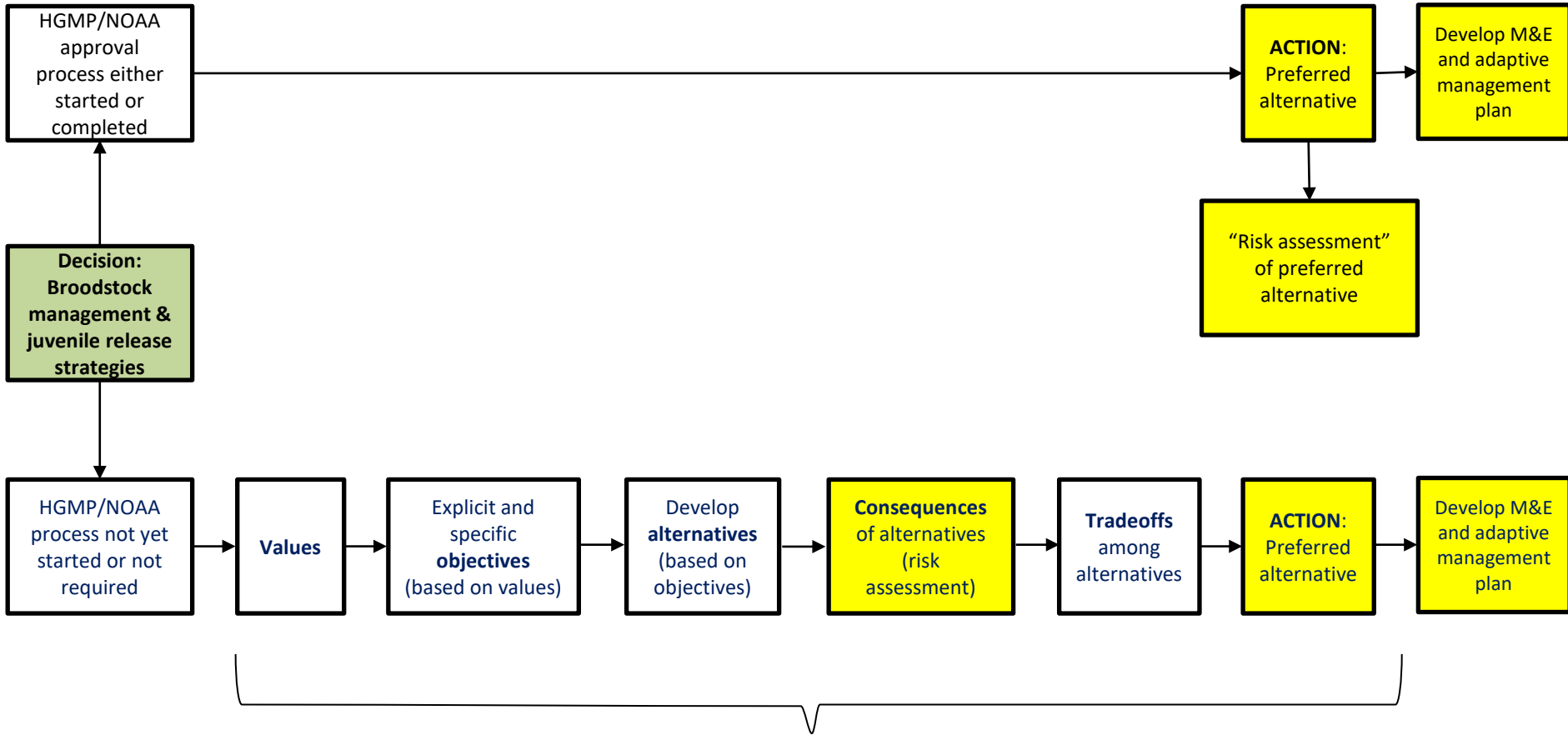
# Structure Decision making (PrOACT)



From: Runge et al. 2013.  
in Krausman and Cain (eds)



# TPD - Workflow



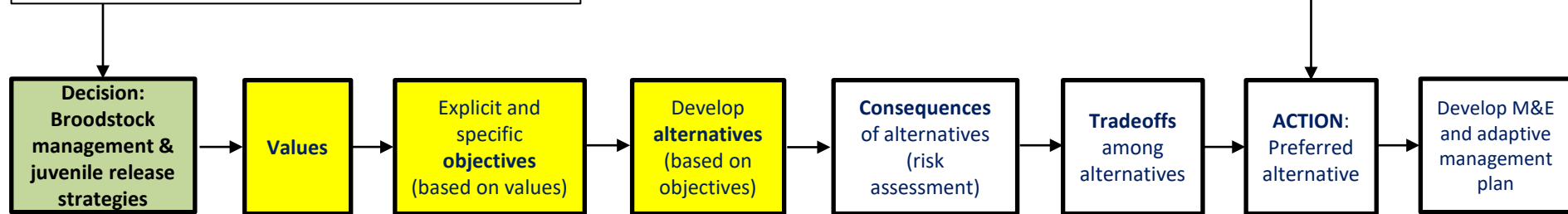
Decision making process and risk assessment



# Decision Making & Risk Assessment

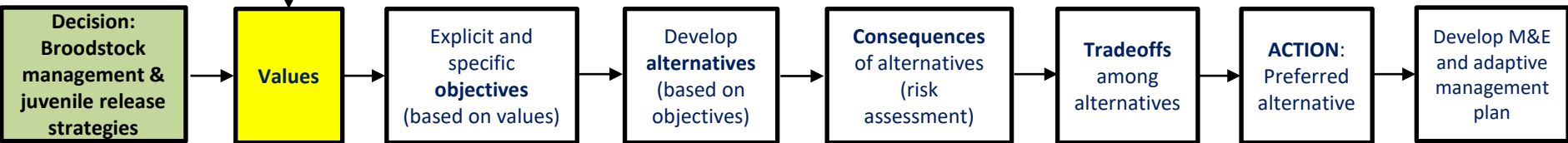
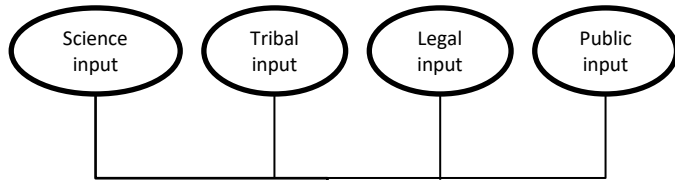
## Decision:

1. Number of fish released from hatchery (alternatively, number of returning adult fish)
2. Release strategy (location, timing and method)



# Decision Making & Risk Assessment VALUES

## Decision maker(s) responsibility



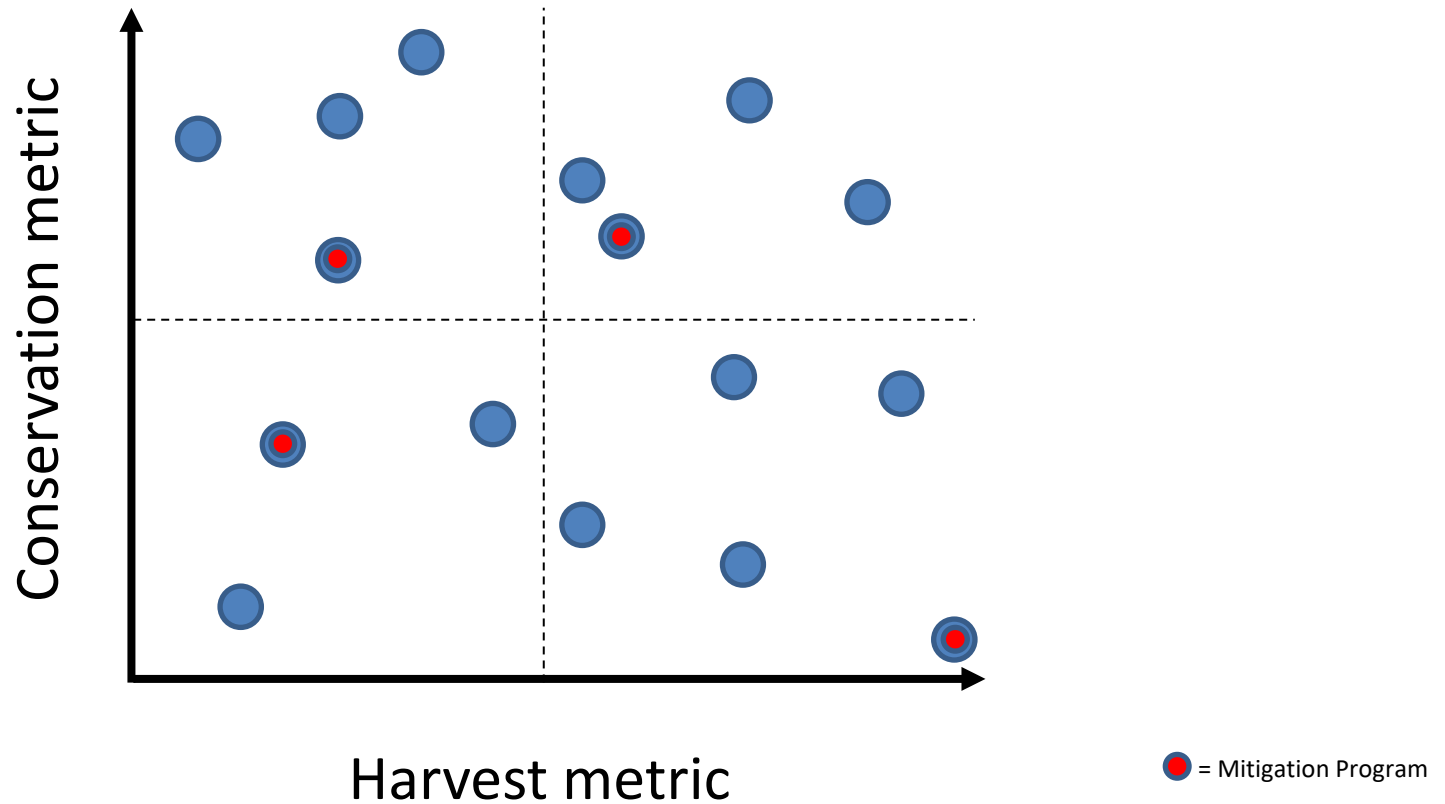
Include  
Harvest benefits

Include  
Hatchery designations?

- Conservation
- Mitigation
- Fishery Supplementation

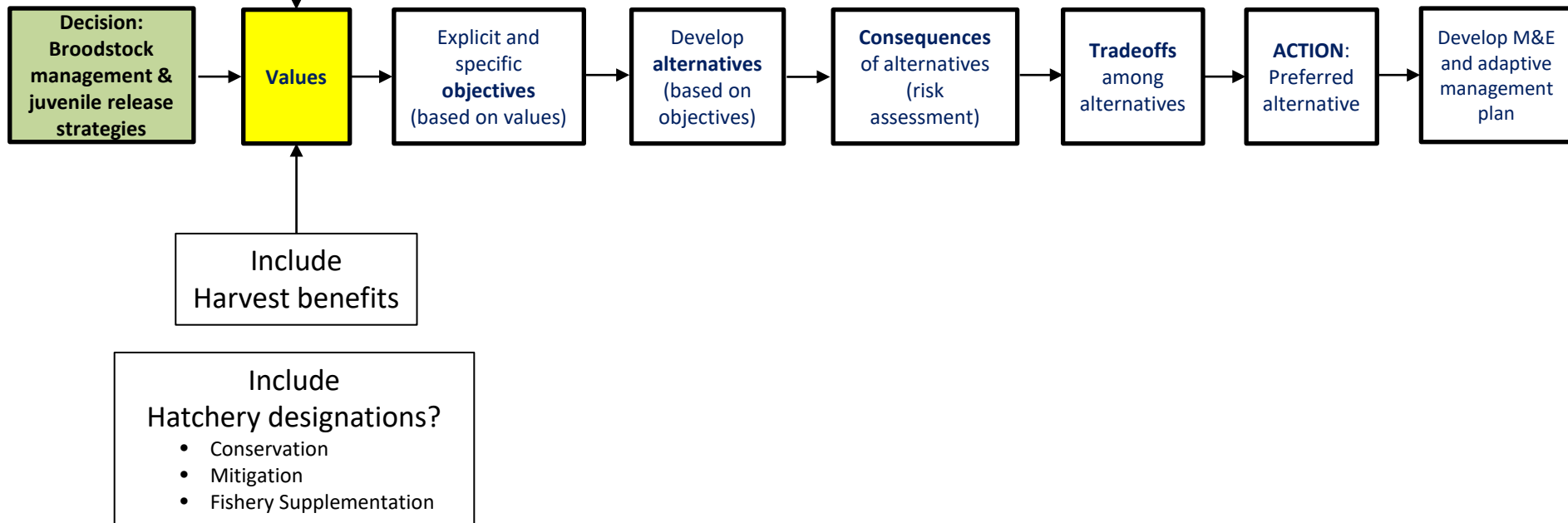
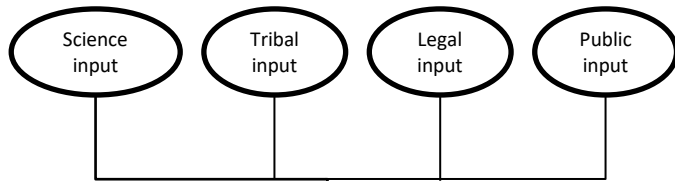


# Hatchery Designations



# Decision Making & Risk Assessment VALUES

## Decision maker(s) responsibility

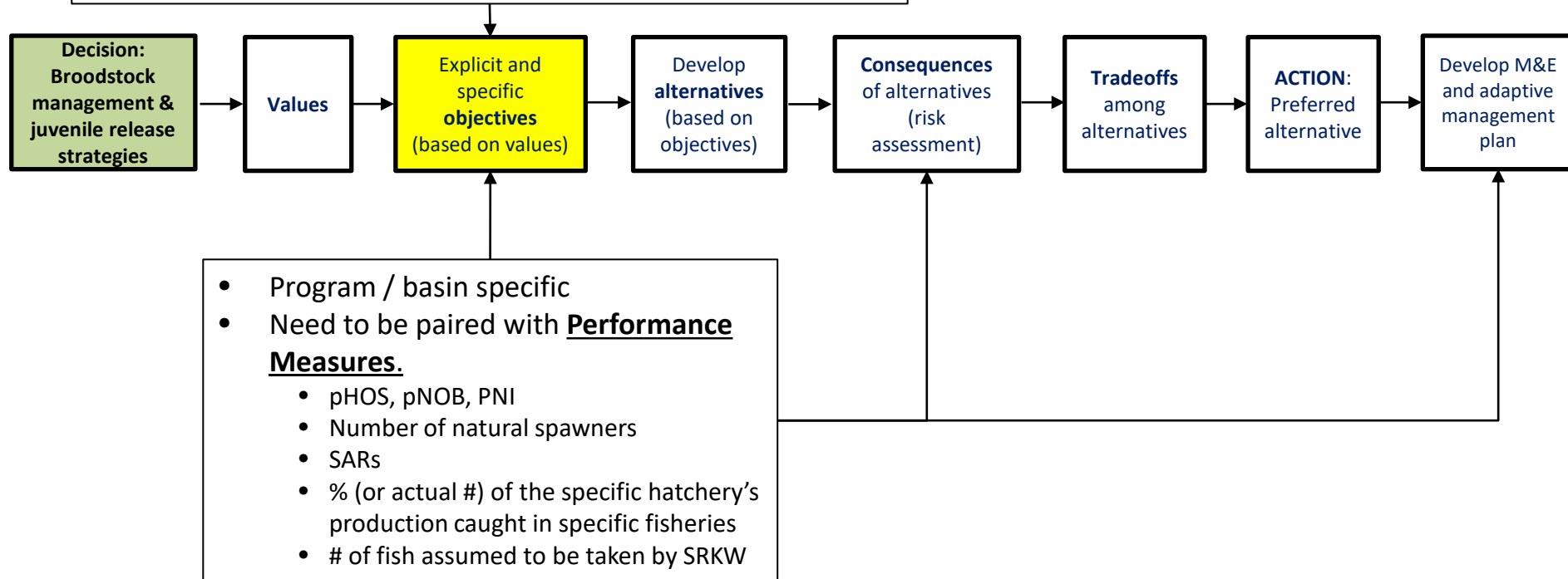




# Decision Making & Risk Assessment

## OBJECTIVES

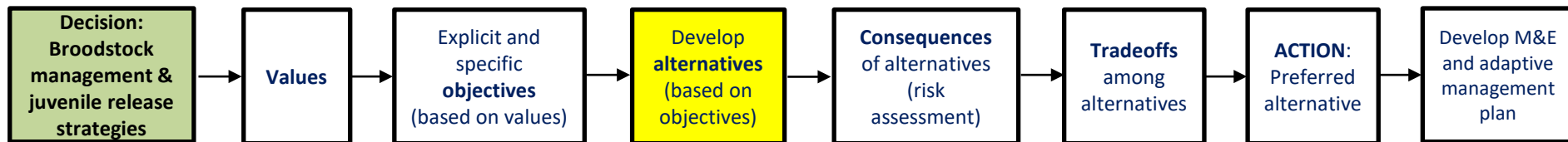
- Specific and concise statements about desired future states.
- Must capture all things that matter when evaluating alternatives
- Not targets
- Examples:
  - Increase numbers of fall Chinook caught in tribal and recreational fishery
  - Reduce hatchery influence on the genetic structure of natural spawning populations



# Decision Making & Risk Assessment

## ALTERNATIVES

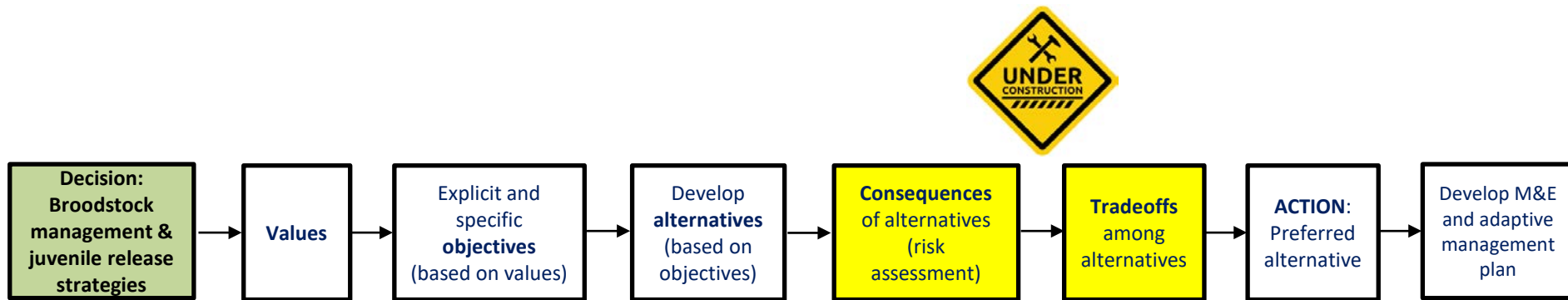
Fall Chinook	A1	A2	A3
Forks Creek	0.35M	3.50M	0.40M
Nemah	3.30M	3.30M	3.30M
Naselle	0.80M	5.00M	5.00M



- **Alternatives are value/objectives-focused**
- **More than one alternative is needed**
  - Few things in nature are absolute
  - Value judgements become explicit
  - Alternatives provide a basis for assessing relative value
  - Range of alternatives should be exhaustive
- **Alternatives must be complete (address all aspects of the Problem) and comparable (address same assumptions, condition, environment)**



# Decision Making & Risk Assessment CONSEQUENCES



## Consequences – comparing alternatives:

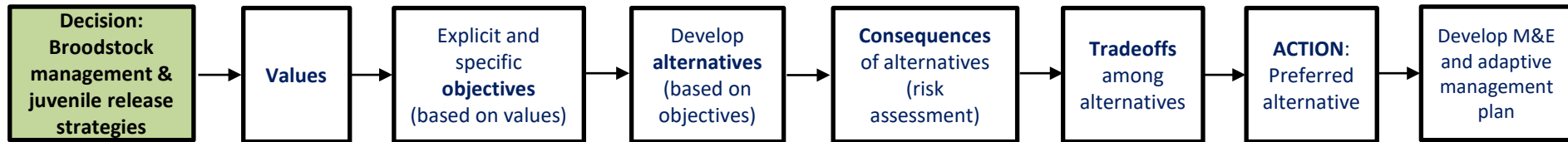
- Refer back to objectives
- Make use of performance measures
- Estimate future states through modelling
  - Risks and benefits
- Explicit about uncertainty
  - Risk tolerance
  - Monitoring and Adaptive Management

## Tradeoffs

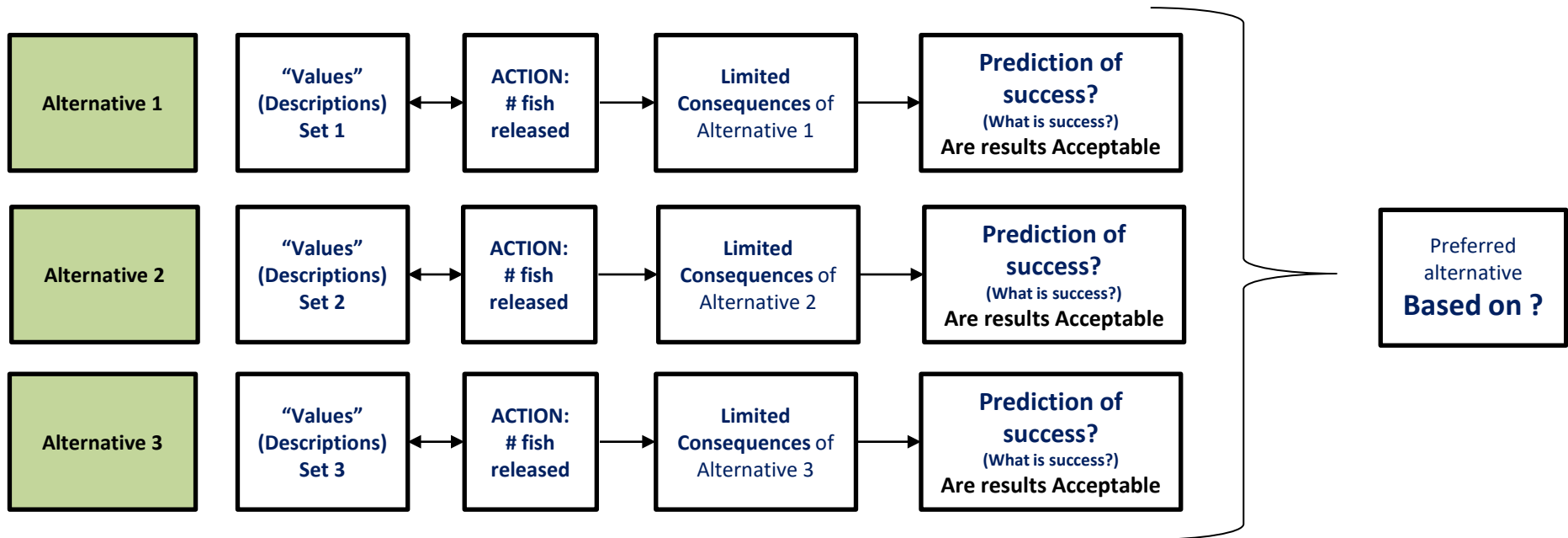
- Alternatives do not address all objectives equally



# TPD vs. WBP Alternative Analysis



*TPD process is based on values and achieving explicit objectives*



# QUESTIONS