

Alaska Hatchery Research Program: Making Decisions



Bill Templin
Division of Commercial Fisheries
Alaska Department of Fish and Game
Alaska Board of Fisheries Hatchery Committee
October 14, 2023

Teasing Out Mechanisms Driving Productivity Differences

- Correlating patterns and mechanisms
 - Timing of spawning
 - Location within stream
 - Fishery prosecution
- Grandparent RRS
- Historical/contemporary genetic structure (PWS)
- Ongoing: Fine-scale homing & modeling interactions
- Soon: whole genome sequences

Teasing Out Mechanisms Driving Productivity Differences

Many generations
(e.g. genetic)

One generation
(e.g. non-genetic)



Relaxation of natural selection

Spawning ground familiarity

Epigenetics

Genetic drift

Run timing-associated variables

Broodstock incompatibility

- Fishery prosecution
- Spawning ground competition
- Straying fish delays
- Temporal sampling biases

Mate selection

Application of Science to Make Decisions

The AHRP is providing valuable biological information for understanding the interaction between hatchery and wild pink and chum salmon.

- Scientifically answerable questions
- Appropriate study design

However, more than biology must be considered when making decisions about salmon resources:

1) Biological, 2) Social, 3) Economic, and 4) Cultural

The interface of science and policy is where scientific knowledge is incorporated into belief/value systems to provide a bridge for decision making.

Application of Science to Make Decisions

Useful Questions for the Science – Policy Dialogue

Science



**Policy / Human
Dimensions**

1. Does an event occur?
2. How often and to what extent?
3. Does the event have an effect?
4. Is the effect harmful?
5. Would addressing the harm cost more than it would benefit?

Observe

Measure/
Experiment

Compare to
standard

Collate/
Evaluate

Application of Science to Make Decisions

Useful Questions for the Science – Policy Dialogue

Science



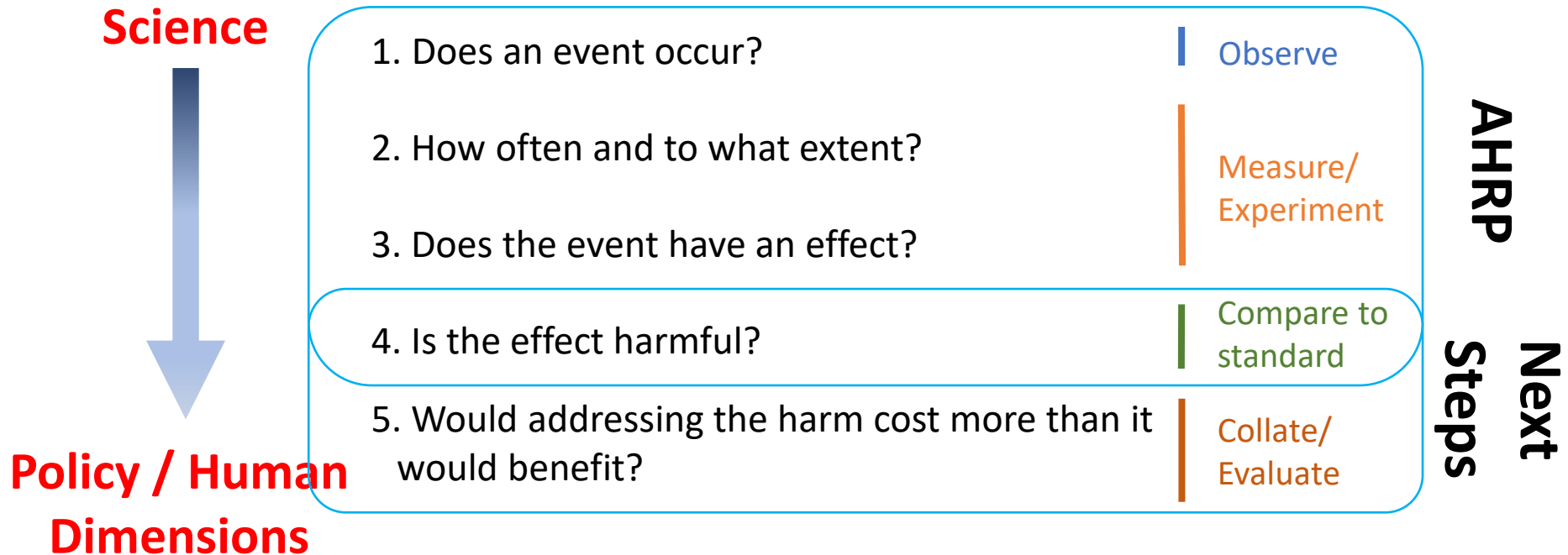
Policy or
Human
Dimensions

Example: PWS pink salmon hatchery fish spawning in streams

1. Are hatchery pink salmon spawning in streams in Prince William Sound? **Yes**
2. Which streams have spawning hatchery pink salmon and how many are present? **Almost all streams (0% - 90%), but more in streams near hatcheries; Sound-wide 5% – 15%**
3. Does the presence of spawning hatchery pink salmon have an effect on wild pink salmon populations? **Yes; they spawn together. What is the effect? and the mechanism?**
4. Is the effect of hatchery-origin pink salmon spawning with wild pink salmon harmful? **Maybe; What is meant by harmful? And how do you measure it?**
5. Would the cost to reduce hatchery-origin pink salmon spawning in streams outweigh the benefit from reducing the interaction? **Maybe; What is the cost and the benefit? And how do they relate?**

Application of Science to Make Decisions

Useful Questions for the Science – Policy Dialogue



Next steps will be an **ADF&G-led collaborative process** that uses science to inform policy decisions for sustainable management of salmon.

Questions?

