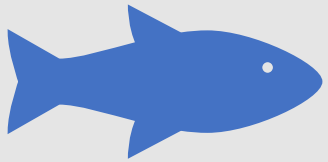
Supporting the Future of the Summer Flounder Fishery



Workshop 1

Welcome, Our vision, Introductions

Our Vision –

Proactive, hopeful approach to address opportunities and risks

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Co-development of fishery management strategies via…

Structured Decision Making & Management Strategy Evaluation…

A participatory, facilitated process to:

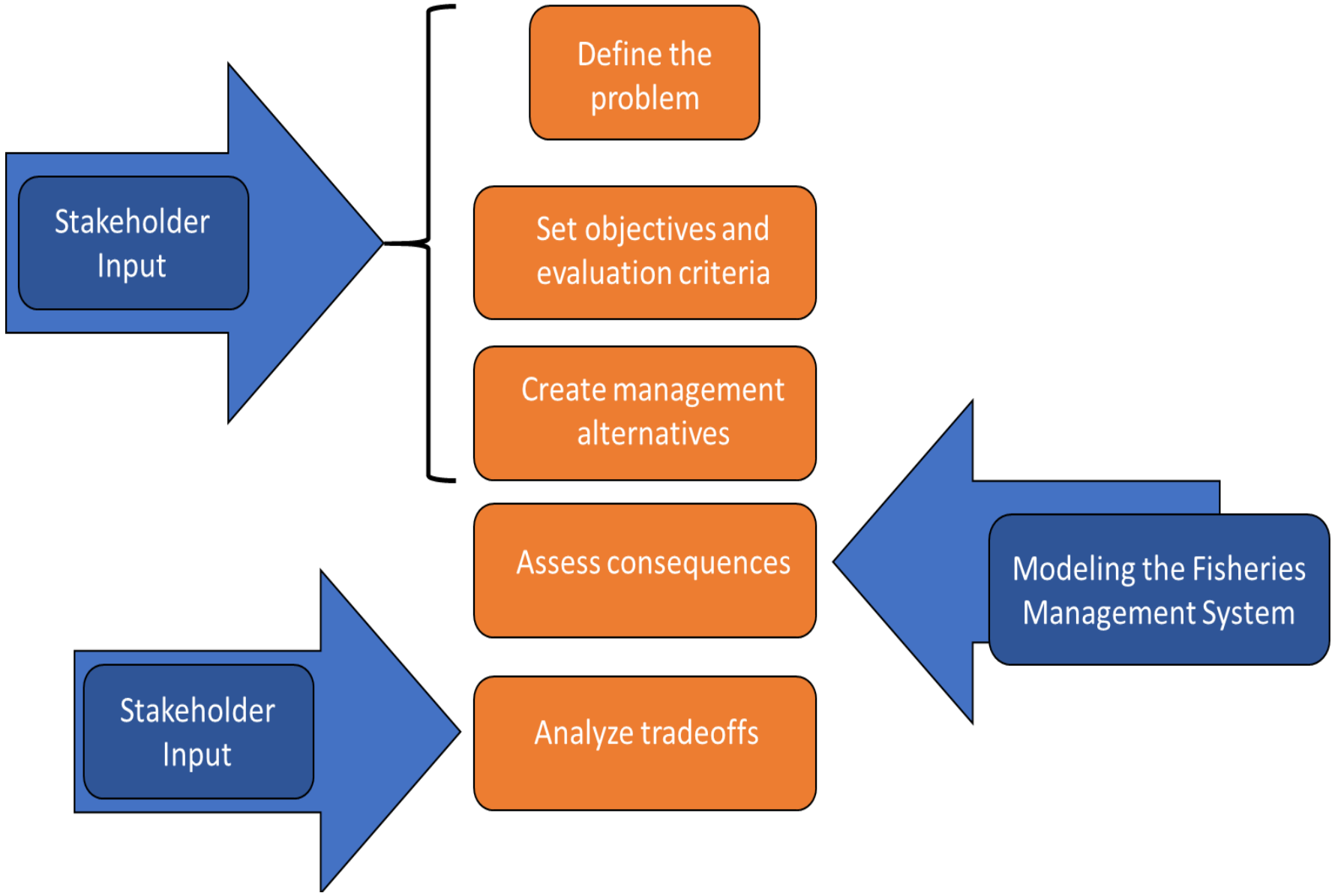
- define our **goal** for the process
- define **management decisions**
- identify **objectives** to consider
- suggest **management strategies**
- specify **model components**
- evaluate **trade-offs** between objectives

Respect

Responsibility

Empathy

Management strategy evaluation process *stakeholder participation*



Roles

Role	Vested or Neutral	Role in PrOACT Process					
		Problem Definition	Objectives	Alternatives	Consequences	Trade-offs & Optimization	Decision Selection
Champion	Vested	Yes	Yes	Yes	Guidance	Yes	Guidance
Facilitator	Neutral	Facilitation	Facilitation	Facilitation	Facilitation	Facilitation	Observer
Core Group Participant	Vested	Yes	Yes (Per DM)	Yes	Guidance	Yes (Per DM)	Guidance (Per DM)
System Expert	Neutral	Observer	Observer	Yes	Yes	Yes	Per DM
Decision Analyst	Neutral	Guidance	Guidance	Yes	Guidance	Yes	Guidance (Per DM)
Decision Maker (Council)	Vested	Yes	Yes	Yes	Observer	Yes	Yes

Expectations

- Decision outcomes
  - Decision 1 – what products will be produced from this process
  - Decision 2 – what recommendations are passed on from this process
  - Decision 3 – what changes (if any) are made to fishing regulations

Products

- Simulation Model
  - Fishery model
  - Management model
  - Implementation model
  - Fishery behavior model
- Decision Analysis

Recommendations

- Will depend on the results of this process
- Likely to include
  - Lessons learned for future decision processes
  - Set of objectives for the fishery and their importance
  - Relative performance of proposed management strategies
- May include
  - A recommended, or recommended set from which to select
    - A preferred management strategy

Workshops

Workshop 1: Participating in Management Strategy Evaluation: objectives, alternative management strategies, and simulation models

Workshop 2: Perspectives on the application of Management Strategy Evaluation to the summer flounder recreational fishery

Workshop 3: Bringing it all together: results, implications, and next steps.

Workshop 1 overview

Session 1 – This is happening

Understand the structure of the management strategy evaluation process.

Develop a common understanding of the decision

Understand how to provide objectives and alternatives

Prep for Session 2

1. Create your list of objectives
   a. Identify measurable attributes
2. Create your list of alternatives
   a. Identify strategies

Session 2 – July 14th

Develop prototype objectives and alternatives

Examine how simulation results inform fishery management

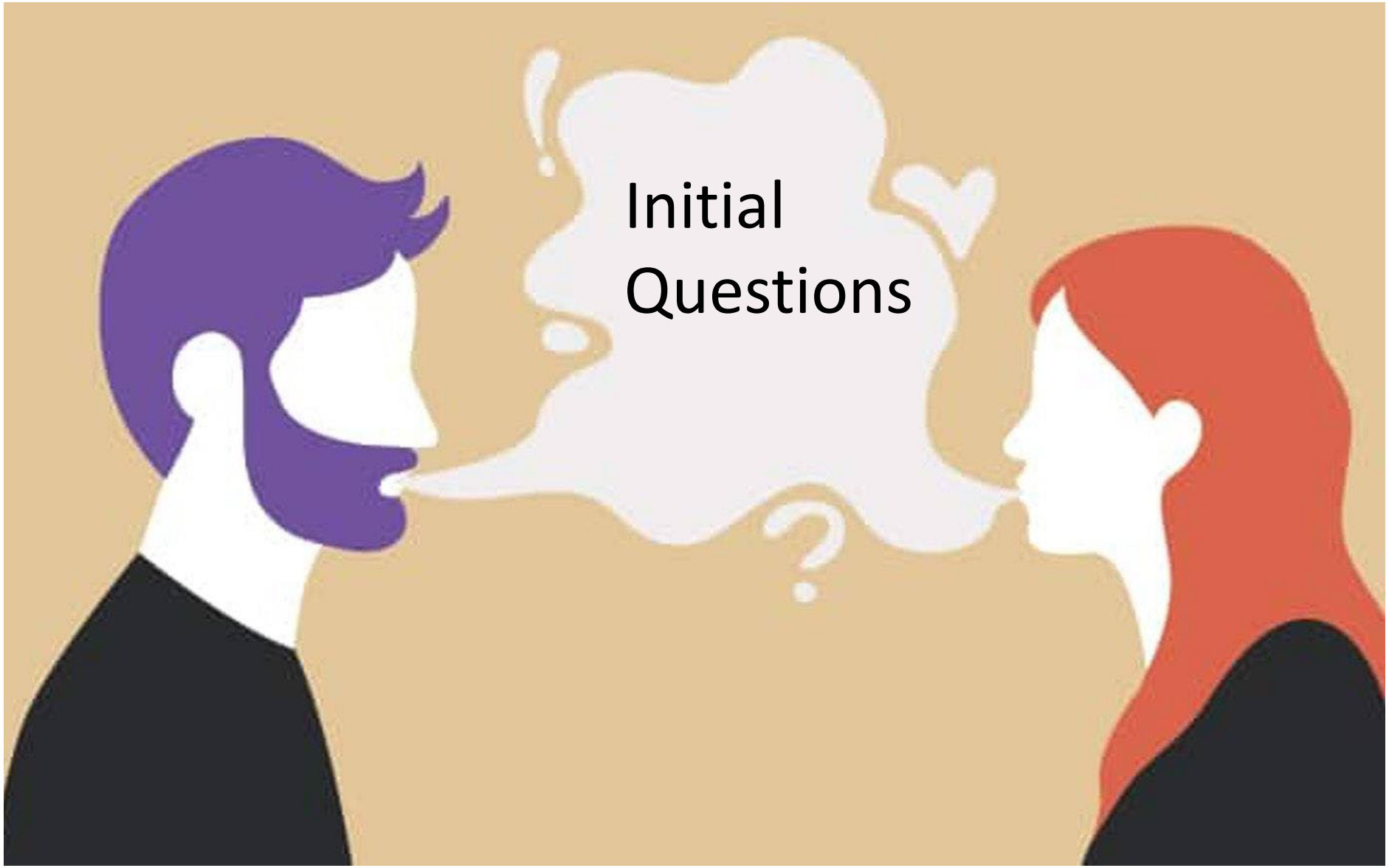
Workshop 1 interaction

Webex

- If possible, camera on please
- Raise hand to speak
- or type comments and questions in the chat
- Message Brandon with technical issues

Notes

- Kaili and Annabelle will lead
  - Everyone’s responsibility
    - Live action note taking


Initial
Questions

WELCOME

"Amazing person,
I'd like to introduce you to
another amazing person."

Introductions

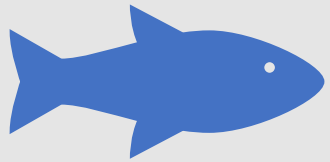
3 minutes each

- Who you are, how you prefer to be addressed
- Your decision statement
- Your summer flounder story; why that decision statement
- Any other pertinent information you would like to share about yourself

Break

- Please return in 5 minutes
- We will restart at 6:35

Supporting the Future of the Summer Flounder Fishery



Workshop 1

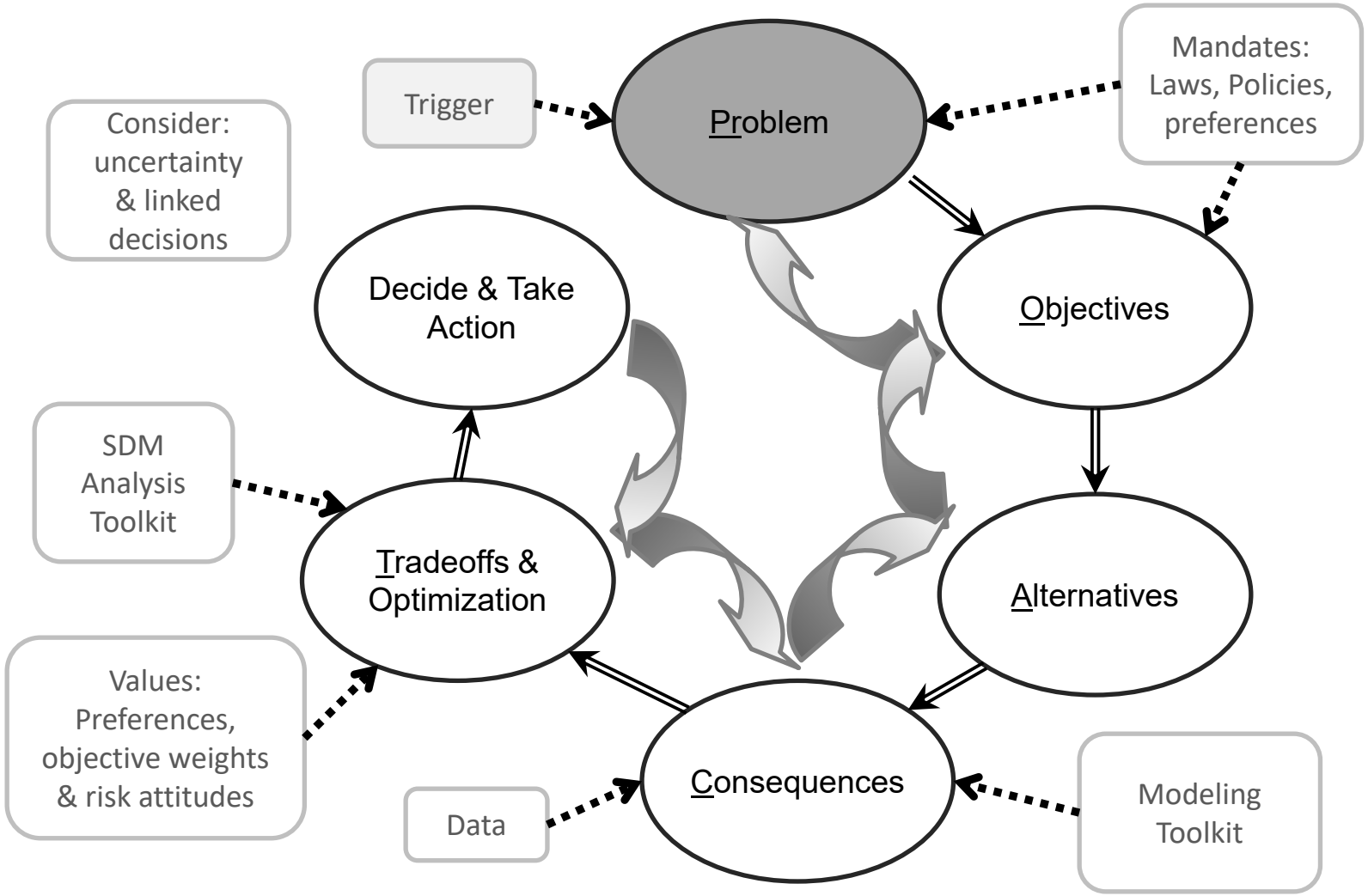
Problem Definition – Developing Our Decision Statement

PROBLEMS

No Matter how Great and Destructive your Problems May Seem Now,
Remember, You've Probably only Seen the Tip of Them.

www.despair.com

Structured Decision Making – PrOACT Loop



Decision Frame

Decision Making is Values Driven

Problems are not simply technical or scientific

Decision statements reflect societal values such as:

- Use scientific knowledge
- Account for…
  - Economic impacts
  - Political implications
  - Cultural norms

Problem Definition & Decision Framing

- 1st and arguably the most important task
- Sets bounds on the problem by identifying spatial, temporal, organizational, legal, and other relevant bounds
- Determines which:
  - objectives are relevant
  - alternatives are available
- Provides a shared, explicit understanding of the problem

What Defines a Problem: Decision Framing

- Why does the decision need to be made?
- What is the decision?
- Scope, Frequency, and Timing?
- Are there constraints?
- Single or multiple objectives?
- Uncertainty?

Decision Framing is Hard

It’s worth taking the time to get it right…

“A good solution to a well-posed decision problem is almost always a smarter choice than an excellent solution to a poorly posed one.” ~ Ralph Keeney

“Never enough time to do it right… always enough time to do it over” ~ Anon.

Problem Definition Steps & Crafting a Decision Statement

1. Define the decision

   What resource allocation will occur?

2. Solve the right problem
3. Frame of the problem
4. Develop the problem statement
5. Revise as needed

   Almost always needed!

   “Decide” … “Who, …” … [action]

Working Time
Craft a Shared Decision Statement

1. 15 min - In breakout rooms
   - Create a single decision statement
   - Combines your initial decision statement with your fellow participants' statements
   - Write your shared decision statement in the notes
   - If time address background, scope, and framing to put the decision in context
2. 15 min – Full core group
   - Create a single decision statement
   - Combines each group's decision statement into a decision statement for the full group

Mental Checklist:

- **Tractability**
  - Is the problem tractable, can progress be made, will actions have effects or should effort be focused elsewhere?
- **Trigger Sentence**
  - why is it a problem now? Why focus on this rather than …
  - Why this problem, how important is it?
- **Decision Maker**
  - Who decides? Defines the perspective of the decision.
  - If multiple decision makers, what process will be used to actually select an alternative
- **Stakeholders**
  - who is involved, who's objectives do we care about?
  - What are the roles of the stakeholders
- **Classify the problem**:
  - Uncertainty
  - # of objectives
  - How often (repetition)
- **Boundaries of the problem, Scope**
  - Geography
  - Social realm – who of the public might be affected
  - Legal
  - Time frame (of the consequences)
  - Time frame (how long you have to decide)
  - Economy, budget
- **Linked decisions**
- **Objectives**:
  - Fundamental
- **Alternatives**:
  - Main strategies available
- **Background/context**
  - Legal, ethical, political or other constraints
- **Clear and precise prose**
  - Use unbiased languages

Good Problem Definition Process:

Think broadly, question assumptions, and consider the objectives

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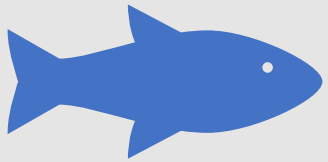
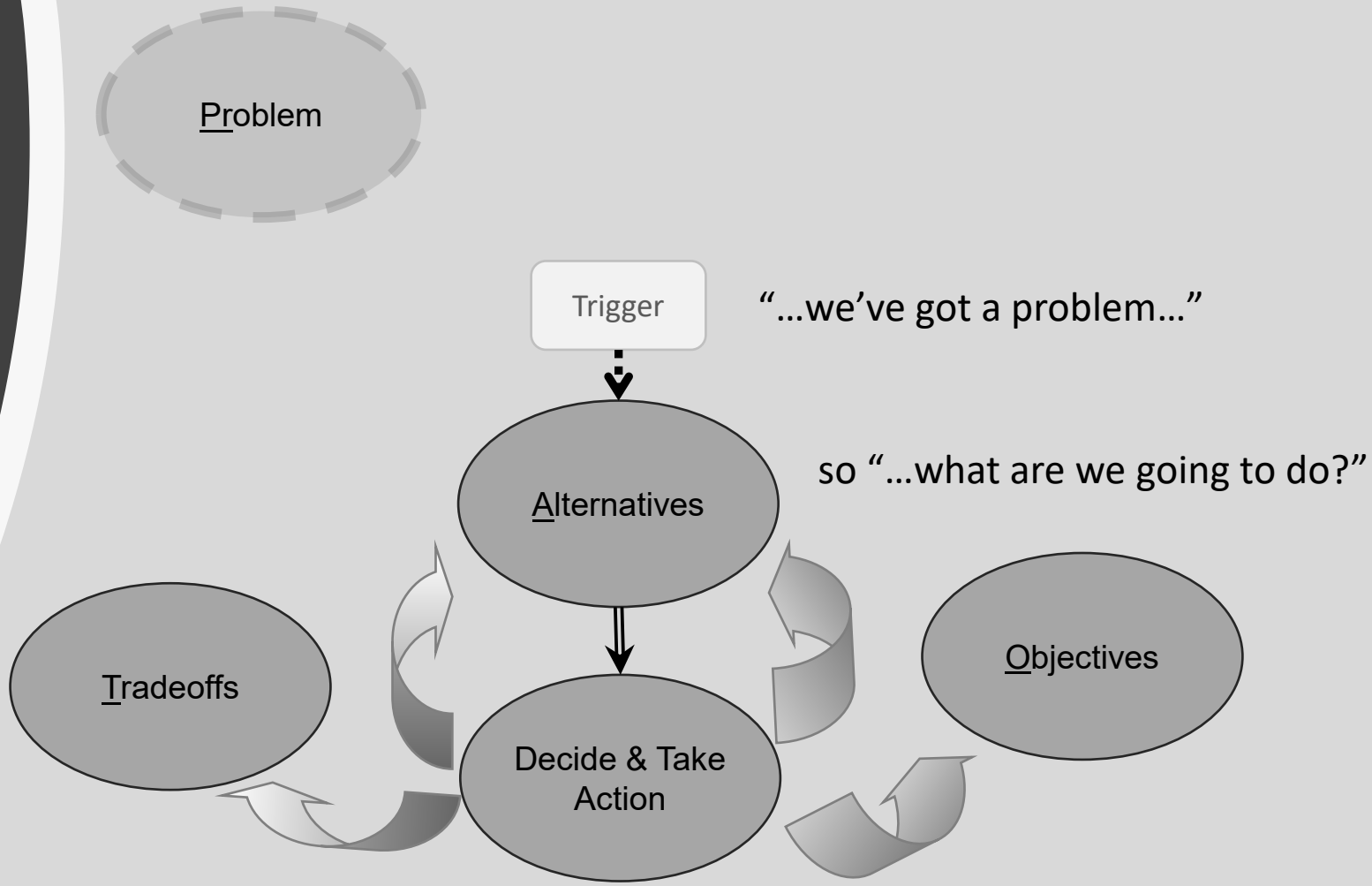


Workshop 1 Why This Process? The Benefits of…

Structured Decision Making (SDM) and Management Strategy Evaluation (MSE)

Why Structured Decision Making?

Fallible common decision process



- Assuming the problem has defined itself
- Moving straight into Alternatives

Why Structured Decision Making?

Fallible common practice & Biases

Generic Biases:

- Priming
- Simplification
- Rationalization

Specific Biases:

- Statistics
- Economics

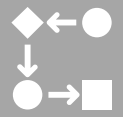
Fallible common practice:

- Anchoring
- Availability
- Representativeness

What makes decisions hard?

Sometimes you don’t know all the possible alternatives

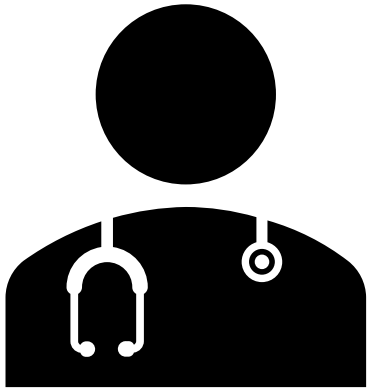
The objectives may be complex or contradictory, or in dispute



The system dynamics may be poorly known

Even knowing all the other components, the solution (optimization) may be difficult to figure out

Prescriptive Decision Making



- What makes a decision good?
  - The process by which it was generated,
  - Due to luck, both good and back luck the ultimate outcome may not reflect the quality of the decision
- Can’t always control outcomes
  - You can fully control the process
  - So, use a process that is expected to perform better than other processes

Why Structured Decision Making?

Process is:

Deliberate, Replicable,

Transparent, Iterative

Problem decomposition

Address issues one at a time

Separate science and policy

Recombine for decision making

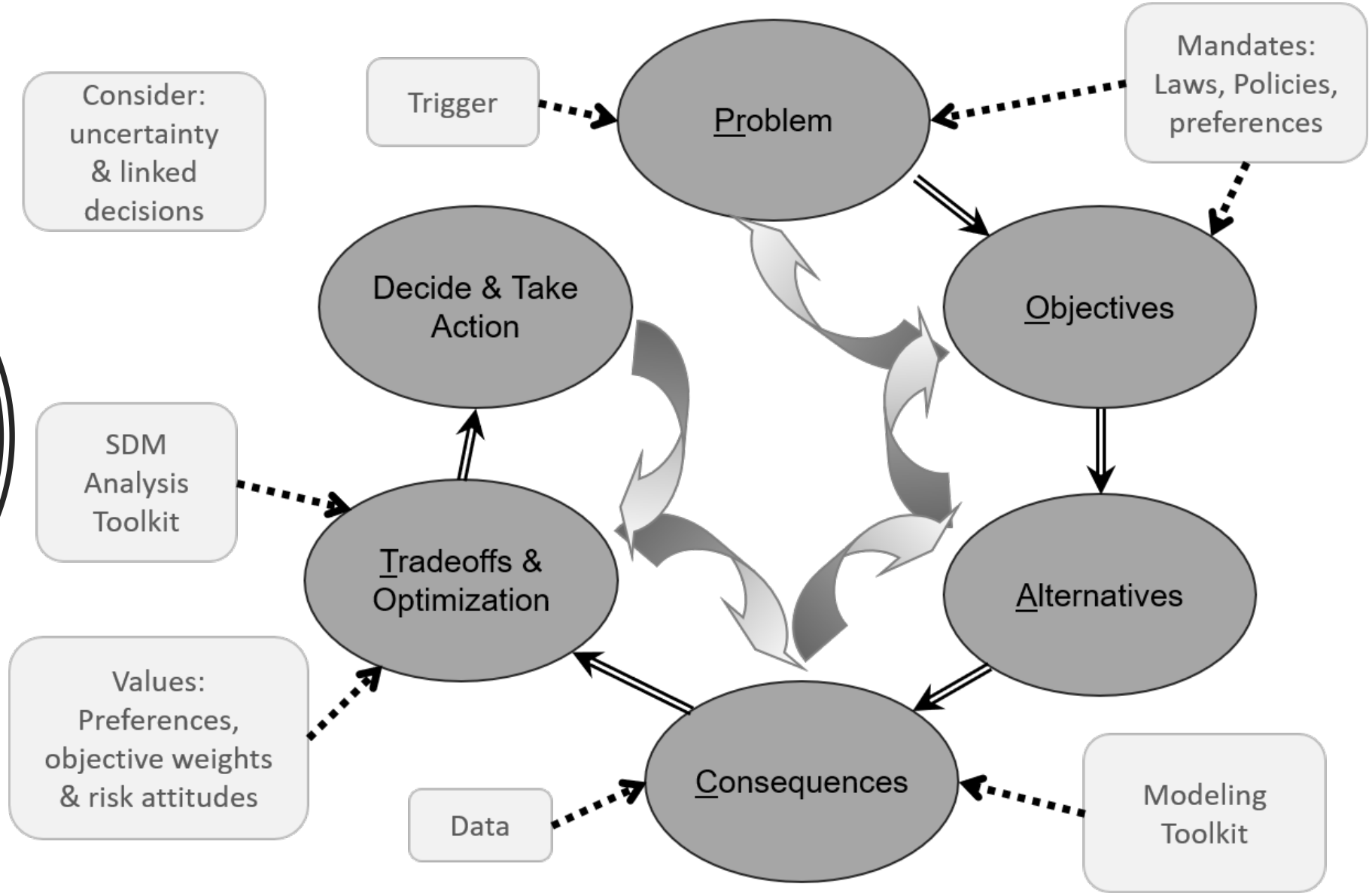
Values-focused

Values (objectives) discussed before alternatives and analysis

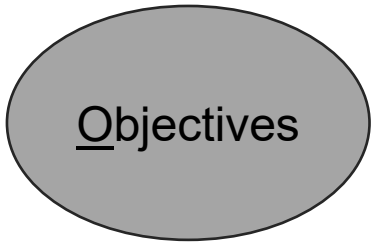
Compatible with many analytical tools

Addresses uncertainty

What is Structured Decision Making?



Providing Input on Management Objectives



Objectives (what do you want?)

- ID values to achieve
  - e.g., I want a successful trip (fundamental objective)
  - e.g., I want a catch per trip (means objective – quantifiable)
- Metrics
  - Quantitative measure of achievement
  - Used to compare the performance of alternative management actions
    - e.g., spawning stock biomass
    - e.g., Catch and catch stability

Providing Input on Management Strategies

Alternatives

Strategies (What can we do?)

- ID possible strategies to evaluate
  - What should management do to achieve your objectives?
  - Be realistic, but creative and complete
- Examples
  - Constant catch or fishing rate
  - Threshold or ramped harvest control rule

How does our current harvest control rule perform?

What if we reduce harvest when abundance is low?

Providing Input on Model Components

Consequences

- Assist model development
  - Evaluate model representation
  - Identify missing elements
- Important Unknowns
  - Data gaps
  - Variability in the system
  - Unresolved system complexity
    - Multiple models
      - Differing plausibility

Trade-offs

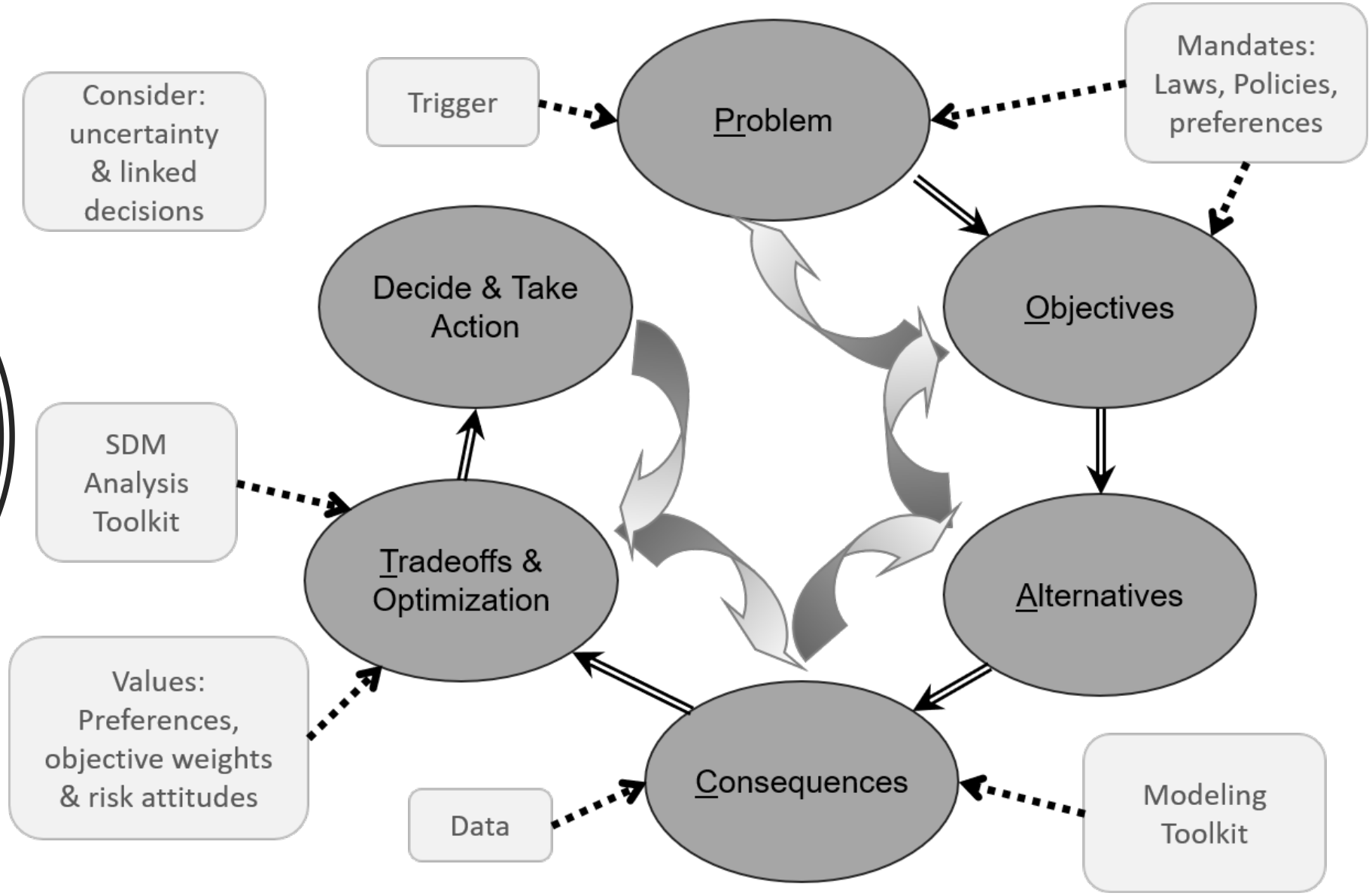
Providing Input on Trade-offs

- Evaluate management strategies
- What tradeoffs or compromises are you willing to make?
- Weigh trade-offs
  - Combining apples and oranges
  - E.g., I prefer apples to oranges by 3:1

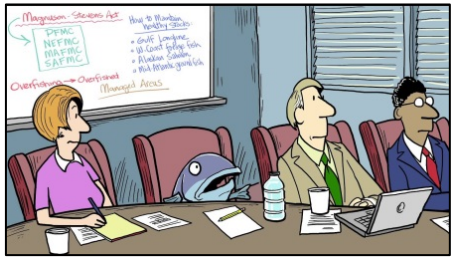
Catch stability from year to year is more important than total catch

I would rather reduce harvest for 3 years than close the fishery for 1 year

What is Structured Decision Making?



What to Expect from the Process



Managers implement an action.

Finding a best “optimal” action - **difficult**

Success as everyone defined it may not be achievable

Definitions of success may differ, we may value tradeoffs differently

- What actions are unacceptable
  - Eliminate obviously bad options (sometimes easier)
- Is there an acceptable management action?
  - A satisfactory option given compromise and tradeoffs

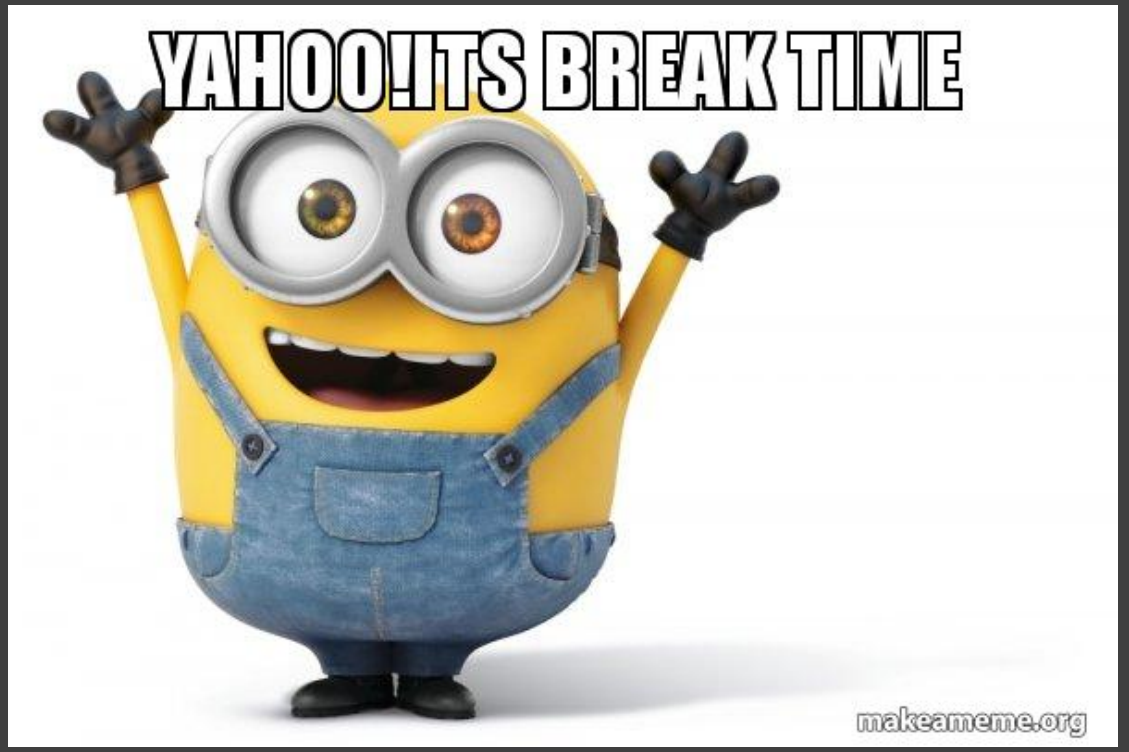
The decision may still be difficult or contentious, but this process helps

Values-focused; Problem Decomposition

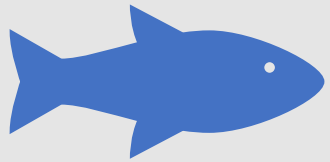
- Structured, explicit
- Transparent, more easily communicated
- Clarity about what was considered in the decision and why

Break

- Please return in 5 minutes
- We will restart at 8:03



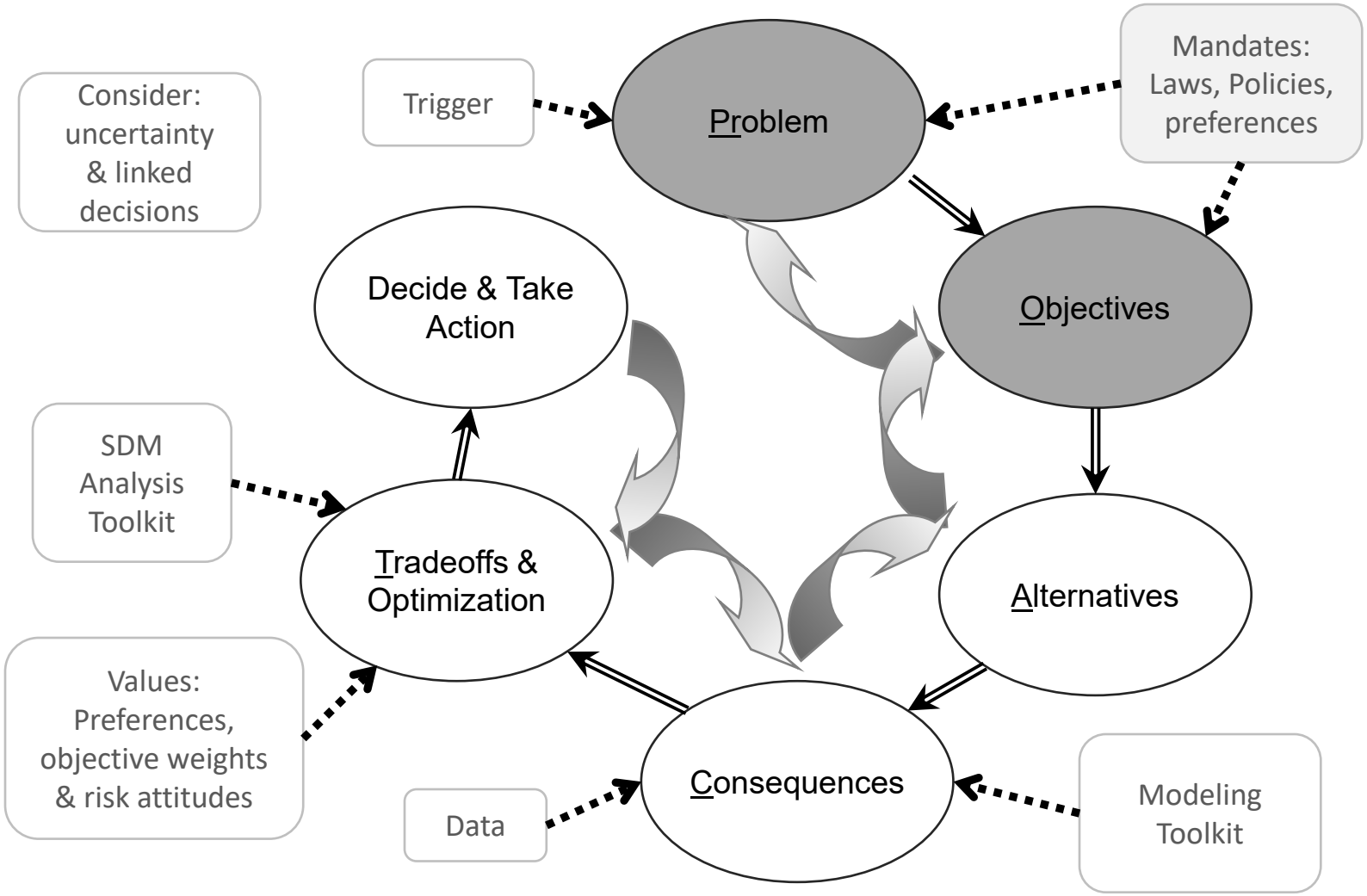
Supporting the Future of the Summer Flounder Fishery



Workshop 1

Objectives

Structured Decision Making – PrOACT Loop



Why Objectives?

Objectives are what you really care about

Well defined objectives are critical in order to:

- *Create alternatives*
- *Compare alternatives*
- *Choose pertinent information*
- *Explain your decision to others*

All structured decision making steps build from here

Common Fishery Management Objectives

Benefits

- Resource objectives
  - Abundance
  - Distribution
  - Diversity
- Resource use objectives
  - Catch
  - $
  - Recreational enjoyment
- Social/cultural objectives
  - Distribution of benefits
  - Cultural legacy

Costs

- $
- Time
- Human resources

Recipe for Good Objectives

1. Articulate concerns and wishes
2. Convert concerns to objectives
3. Structure objectives
   a. *Classify objectives*
   b. *Distinguish fundamental and means objectives*
   c. *Create objectives hierarchy*
4. Create measurable attributes for each objective
5. Repeat as needed

Recipe for Good Objectives

1. Concern – “Ending a trip without a catch is unsatisfying”
2. Convert to objective –

“I want a catch per trip” This is a target, <u>not</u> an objective

“maximize the chance of a catch per trip” - objective

3. Structure objectives

Means objective (means to a satisfying experience)

4. Create measurable attribute

% of a catch per trip

Recipe for Good Objectives

Convert concern to objective –

Direction + Thing you want

- Direction
  - maximize (I want more of…)
  - minimize (I want less of…)
- Thing you want
  - description of what you value

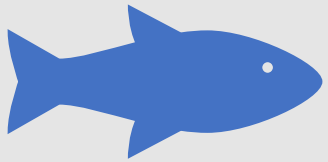
Recipe for Good Objectives

Create measurable attribute – how to assess success

- What is the unit of measurement?
  - E.g., Celsius or Fahrenheit for warmth of something

Be as direct and descriptive as possible

Supporting the Future of the Summer Flounder Fishery



Workshop 1

Alternatives

Good alternatives require…

- *Imagination*
  - Don’t consider only ‘practical’ alternatives
  - Think about alternatives from many perspectives

- *Creativity*
  - Expand range of possibilities
  - Avoid preconceived limitations

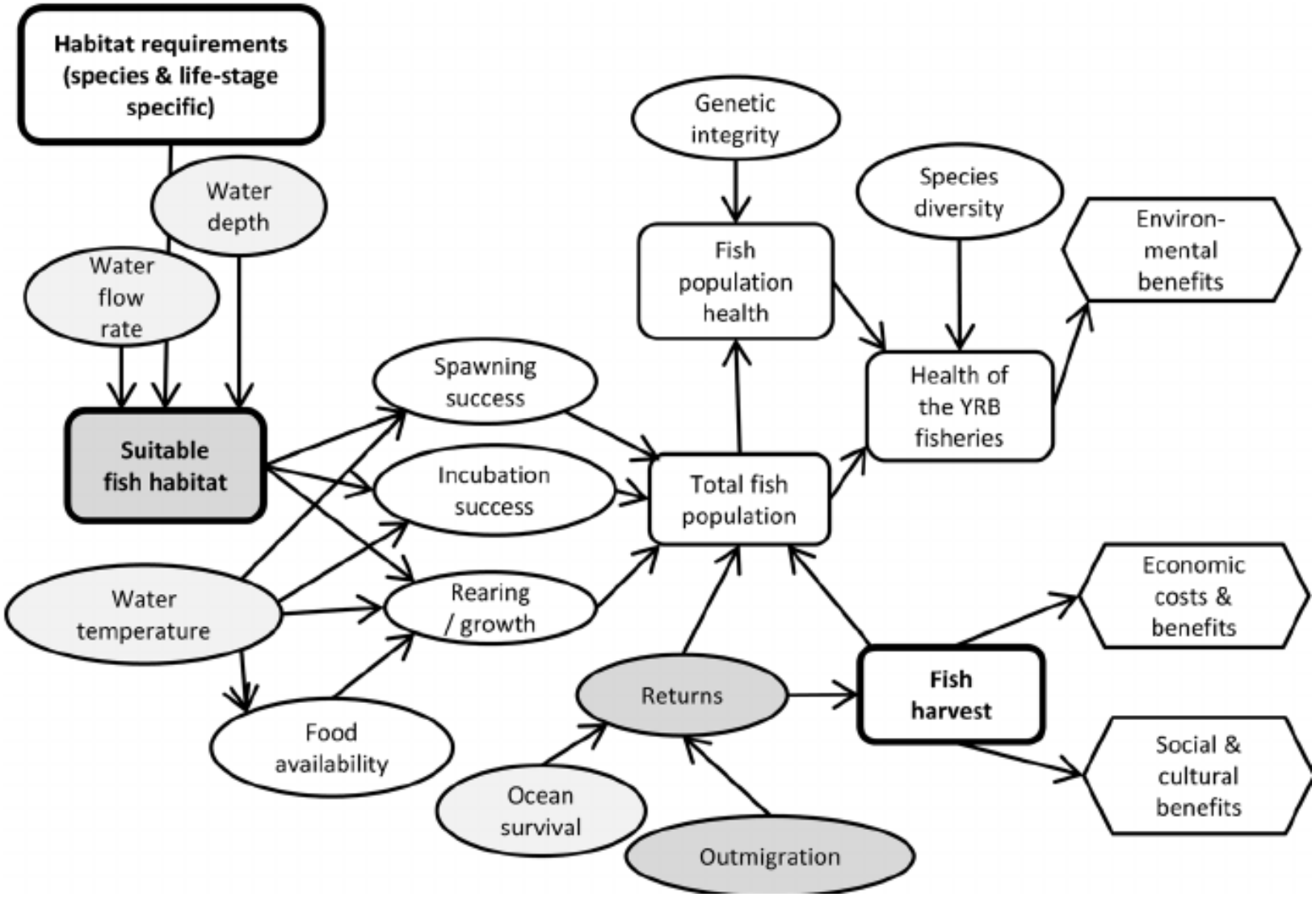
Approaches to generating alternatives

1. Focus on fundamental objectives
   - How to achieve an objective
2. Address conflicting objectives
   - How to achieve multiple objectives
3. Challenge apparent constraints
4. Consider the system
5. Create portfolios or strategies
6. Revisit objectives

3. Challenge apparent constraints

- Avoid anchoring
- Identify real vs. perceived constraints
- Expand scope and scale
- Assess feasibility & efficacy later

4. Consider the system
Use a conceptual model



5a. Create alternative portfolios

- Combination of individual actions with elements being discrete or continuous actions (e.g., set of research projects, funding allocation)
- *Each portfolio represents one alternative (e.g., stock portfolios)*
- The consequences (benefits) from a portfolio may be greater or lesser than the sum of its constituent parts
- *Constraints limit number of possible portfolios (e.g. total budget for allocation across projects)*

5b. Create alternative strategies

- Based on themes -- Strategy Tables
  - List management options (alternatives) in columns under each theme in order of intensity by rows
  - Select coherent set to be a strategic portfolio

- Based on alternative hypotheses about limiting factors -- Influence Diagrams
  - Influence diagrams to visualize alternative paths linking outcomes with different management ‘means’
  - Boxes & arrows link action strategies to objectives

Like building a sandwich

Reuben
BLT
Cuban
Italian

Strategy Table example: Endangered spp. recovery

Strategy Themes:	Habitat protection	Predator control	Enhance population	Monitor
Alternatives:	Status quo	Status quo Harvest	None	None
	Ban logging in critical habitat	Increase harvest; reduce predators by 10%	Maternity pens	Basic monitoring
	Develop linkage corridors	Increase harvest; reduce predators by 50%	Captive breeding	Enhanced monitoring
			Translocate	

http://structureddecisionmaking.org

Strategy Table example: Endangered spp. recovery

Strategy: "Maintain Pop."	**Habitat protection**	**Predator control**	**Enhance population**	**Monitor**
Alternatives:	Status quo	Status quo Harvest	None	None
	Ban logging in critical habitat	Increase harvest; reduce predators by 10%	Maternity pens	Basic monitoring
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http://structureddecisionmaking.org

Strategy Table example: Endangered spp. recovery

Strategy: "On The Go"	**Habitat protection**	**Predator control**	**Enhance population**	**Monitor**
Alternatives:	Status quo	Status quo Harvest	None	None
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Strategy Table example: Endangered spp. recovery

Themes→ ↓Strategies	Habitat protection	Predator control	Enhance population	Monitor
Maintain Pop.	Status quo	Status quo Harvest	None	Enhanced monitoring
On The Go	Develop linkage corridors	Increase harvest; reduce predators by 10%	Translocate	Basic monitoring
Increase Pop.	Ban logging in critical habitat	Increase harvest; reduce predators by 50%	Captive breeding	Enhanced monitoring

http://structureddecisionmaking.org

6. Revisit objectives

- Clarify and revise objectives
- Reconsider fundamental & means objectives
- Examine (and re-examine) values for missing objectives

Good alternatives…

- Address the future, not the past
- *Are unique (distinct)*
- Are creative; encompass a broad range of actions
- *Are financially, legally, & politically reasonable*
- Can actually be implemented by a decision maker
- *Address all objectives*

Workshop 1 overview

Session 1 – This is happening

Understand the structure of the management strategy evaluation process.

Develop a common understanding of the decision

Understand how to provide objectives and alternatives

Prep for Session 2

1. Create your list of objectives
   a. Identify measurable attributes
2. Create your list of alternatives
   a. Identify strategies

Session 2 – July 14th

Develop prototype objectives and alternatives

Examine how simulation results inform fishery management

Workshop 1 overview

<u>Prep for Session 2</u>

1. Create your list of objectives
   a. Identify measurable attributes
2. Create your list of alternatives
   a. Identify strategies

Create first lists by June 28th

virtual work session?

Review Questionnaire and Regional Workshop responses

Submit revised lists by July 11th

virtual work session?

Tips for creating objectives

- Consider your wish list
- Imagine your emotions in good and bad scenarios
- Ask for suggestions
- See Ch 3 from Smart Choices
- See Ch 5 from Give Yourself a Nudge
- Be patient with yourself
- Look to analogous decisions

Tips for creating alternatives

Create first; evaluate later

Imagine you're an omnipotent decision maker

See Ch 4 from Smart Choices

See Ch 6 from Give Yourself a Nudge

Be patient with yourself

Look to analogous decisions

Resources

Brandon: bmuffley@mafmc.org

Jonathan: jonathan.cummings@gmail.com

Books: Smart Choices and Give Yourself a Nudge

MAFMC Website: https://www.mafmc.org/actions/summer-flounder-mse

Google Drive:

Core Group Folder: https://drive.google.com/drive/folders/1UWmEI9uIc2AZ3iZQY7S5SfzpivX8UcdB

Agenda: https://docs.google.com/document/d/1X6KeWFhJo6tnSoM5_WY8KmQEUNV54poH/edit#

Notes: https://docs.google.com/document/d/1wRyg9EPKBVT5lWj0VVp7w0-0EYYLUoGfQjpmrK_w7Pc/edit