

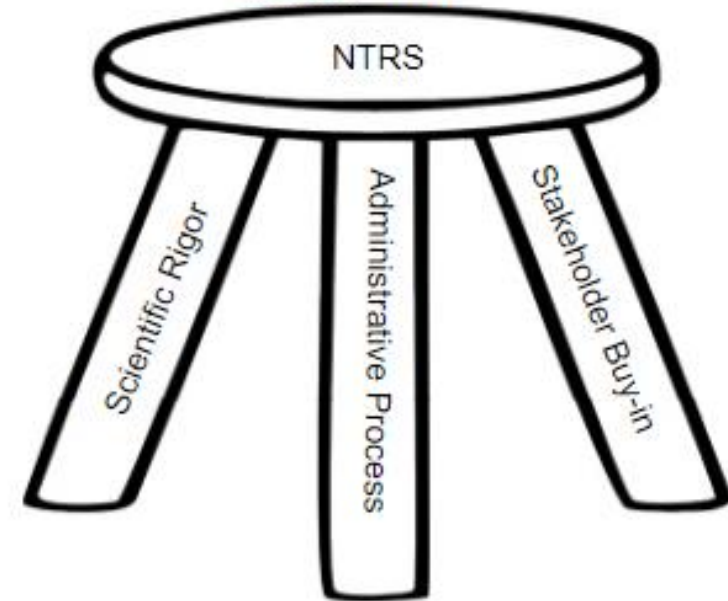
An Overview of Structured Decision Making for Reclamation & the Service

CWEMF

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Bottom Line – Up Front

- Establish all three legs of the stool...
 1. Scientific Rigor – SDM
 - **Science Integration Team**
 2. Stakeholder Buy-In – SDM
 - **Validate others** by valuing their opinions, data, expertise, and experience
 3. Administrative Process – Open, Transparent, Competitive process (GSD)
 - Maintain stakeholder participation by showing them ***on the ground projects getting done***
- Find, Establish, and Support Key Persons in the Process
 - Science Mentor¹
 - Science Coordinator²
 - The Cadre³ that won't let it die or wither away or veer off into something else
 - Representatives of the Contractors/Cooperators/Grantees/Tribes/State/NGOs
 - Administrative staff – Contract Managers & Project Managers

¹ Science Mentor – a facilitator that provides SDM guidance and knowledge

² Science Coordinator – A scientist with skills to organize a diverse group and summarize conclusions

³ The Cadre – A tightly knit group of zealots who are active in advancing the interests of a revolutionary party (The TRUE believers)



— BUREAU OF —
RECLAMATION



Background & Basics

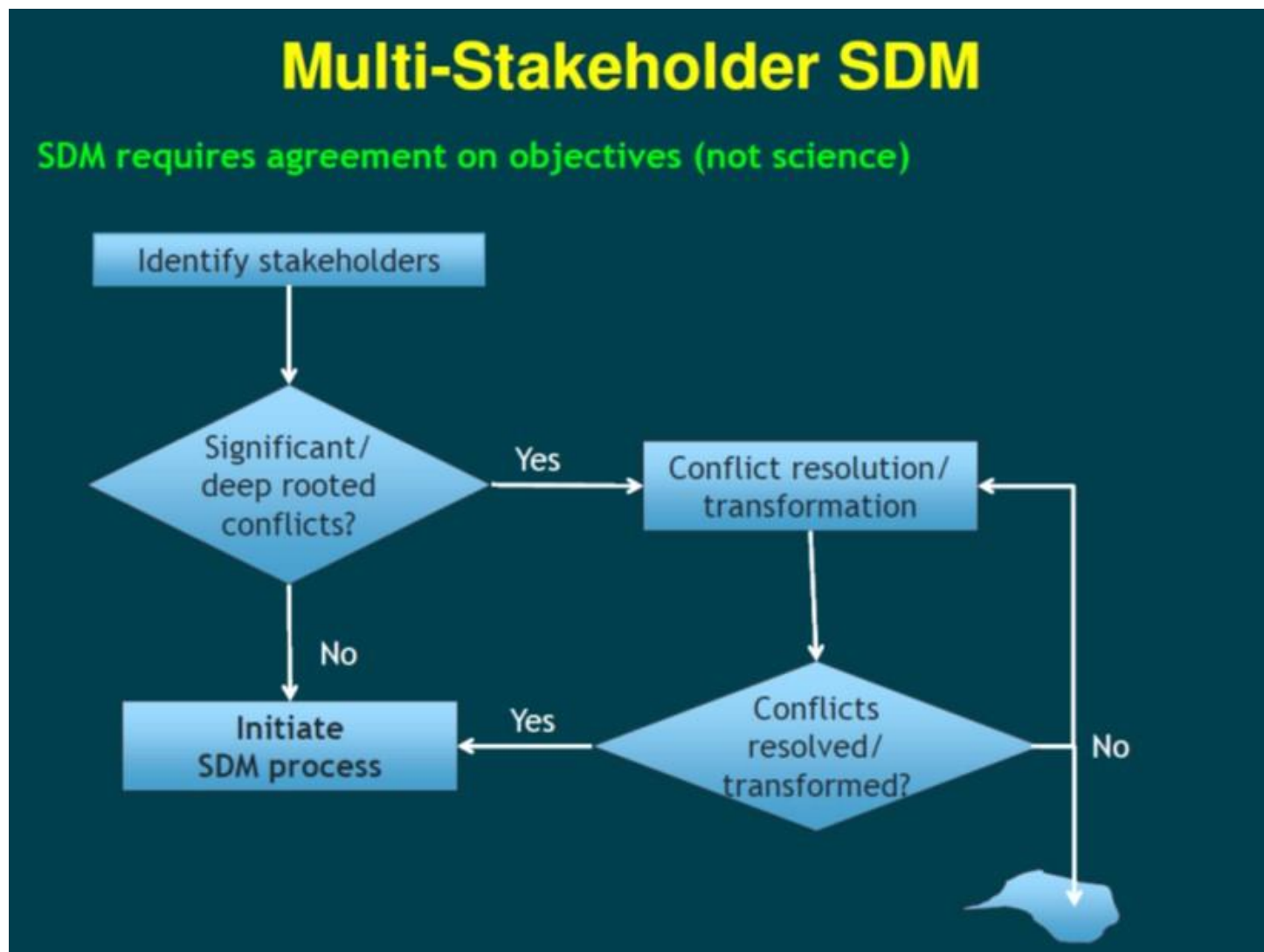
- Reclamation – Mission is Water supply & Power generation
- Central Valley of California – Sacramento & San Joaquin Rivers & the Delta
- CVP – Water supply project; Coordinated with State Water Project
 - Water Supply, Power Generation, Recreation, Flood Control primary authorized purposes of the project
- CVPIA (1992) – Added Environment to CVP Authorized Purposes
- Anadromous Fishes & Refuge Water Supply are the 2 main parts of CVPIA
- Main Anadromous Fish Accomplishments
 - 1992 to 2001 – Temperature Control Device on Shasta Reservoir
 - 1995 to 2014 – Anadromous Fish Screen Program & (b)(13) Program (2025)
 - 2013 to Now – Structured Decision Making (Science Integration Team – SIT)
 - 2019 to Now – Business model change from Charters to NOFOs

Where We Started – Why SDM

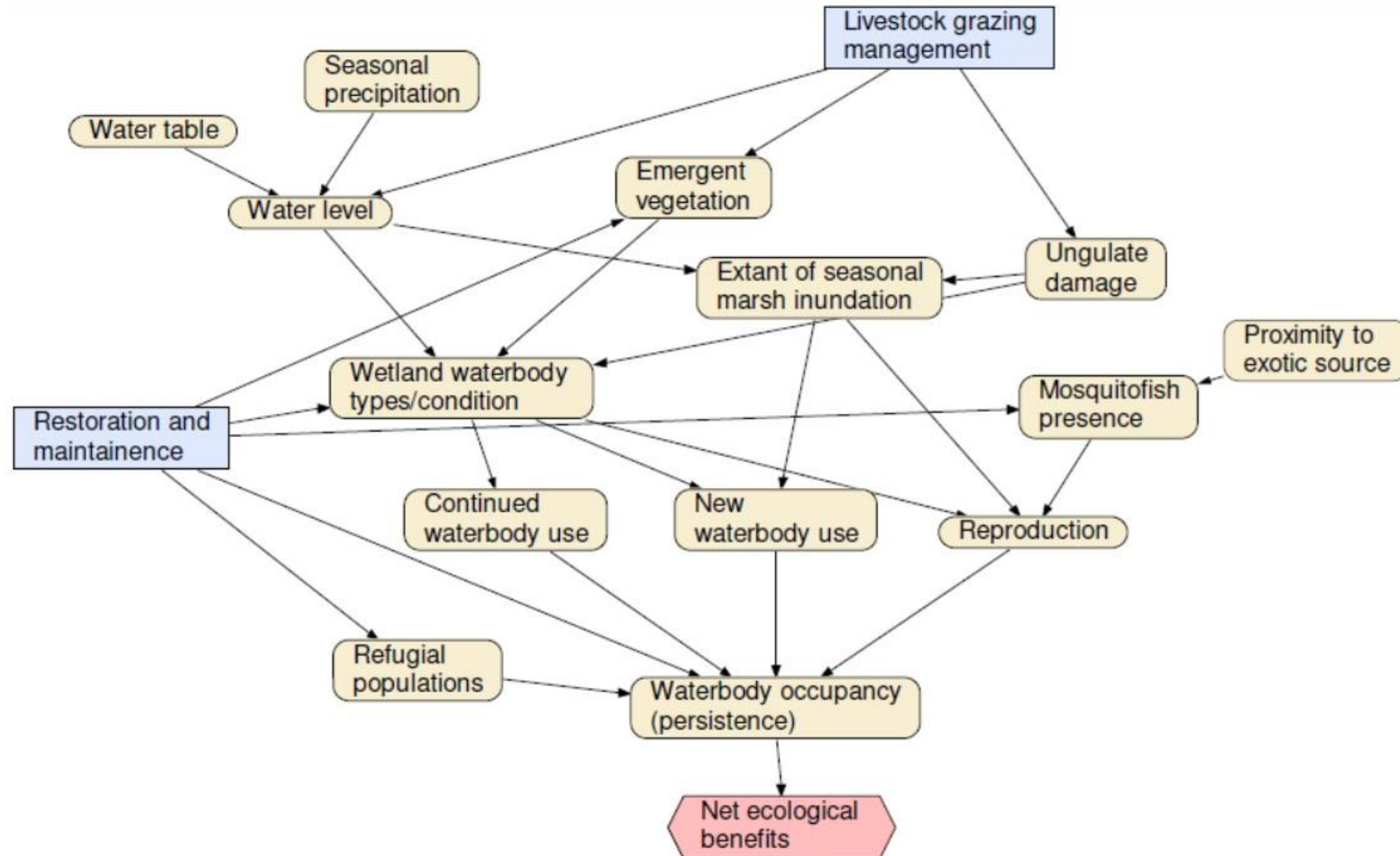
Listen to the River report recommendations:

- A Improve the Program's Science-Based Framework
- B+ Reorganize Program Structure and Management
- A Improve Implementation by Making Full Use of CVPIA Authorities
- B Improve Collaboration With *all* Related Programs & Stakeholders in the Central Valley

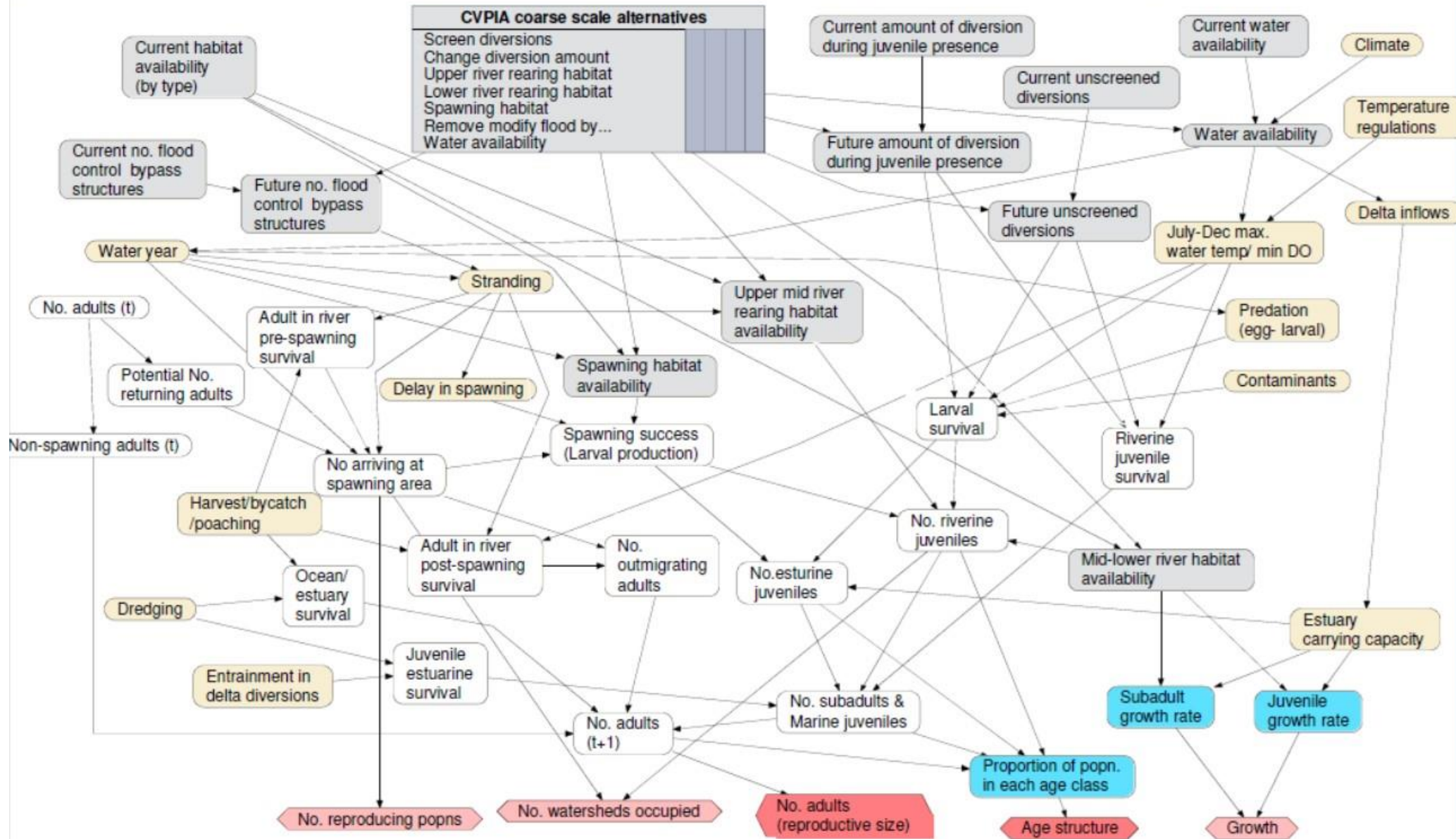
SDM is How we Determine Priorities for CVPIA Resources (\$)



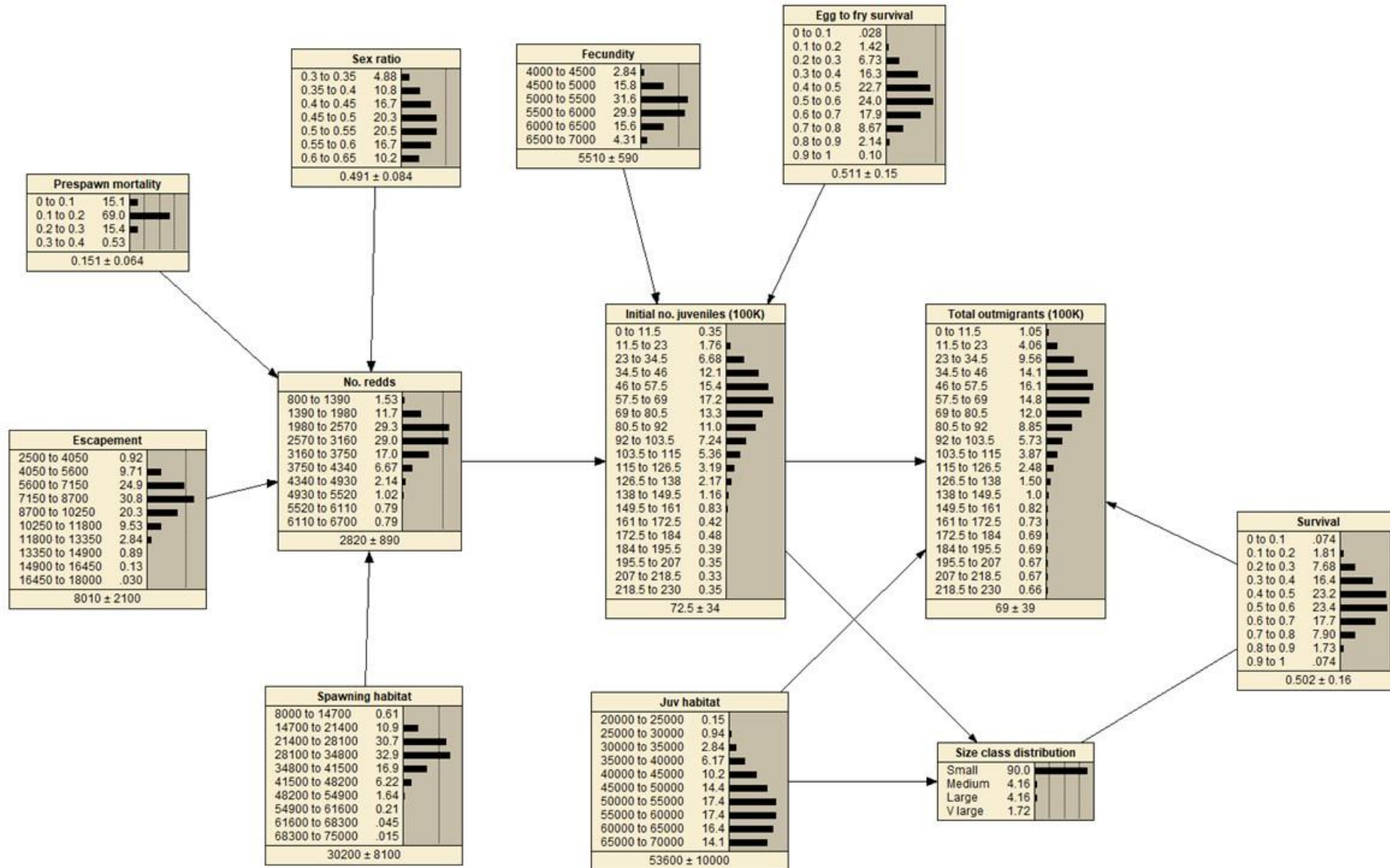
Simple model example: Least Chub Decision Model



Complex model example: CVPIA Green and white sturgeon models



CVPIA Simplified DSM using NETICA

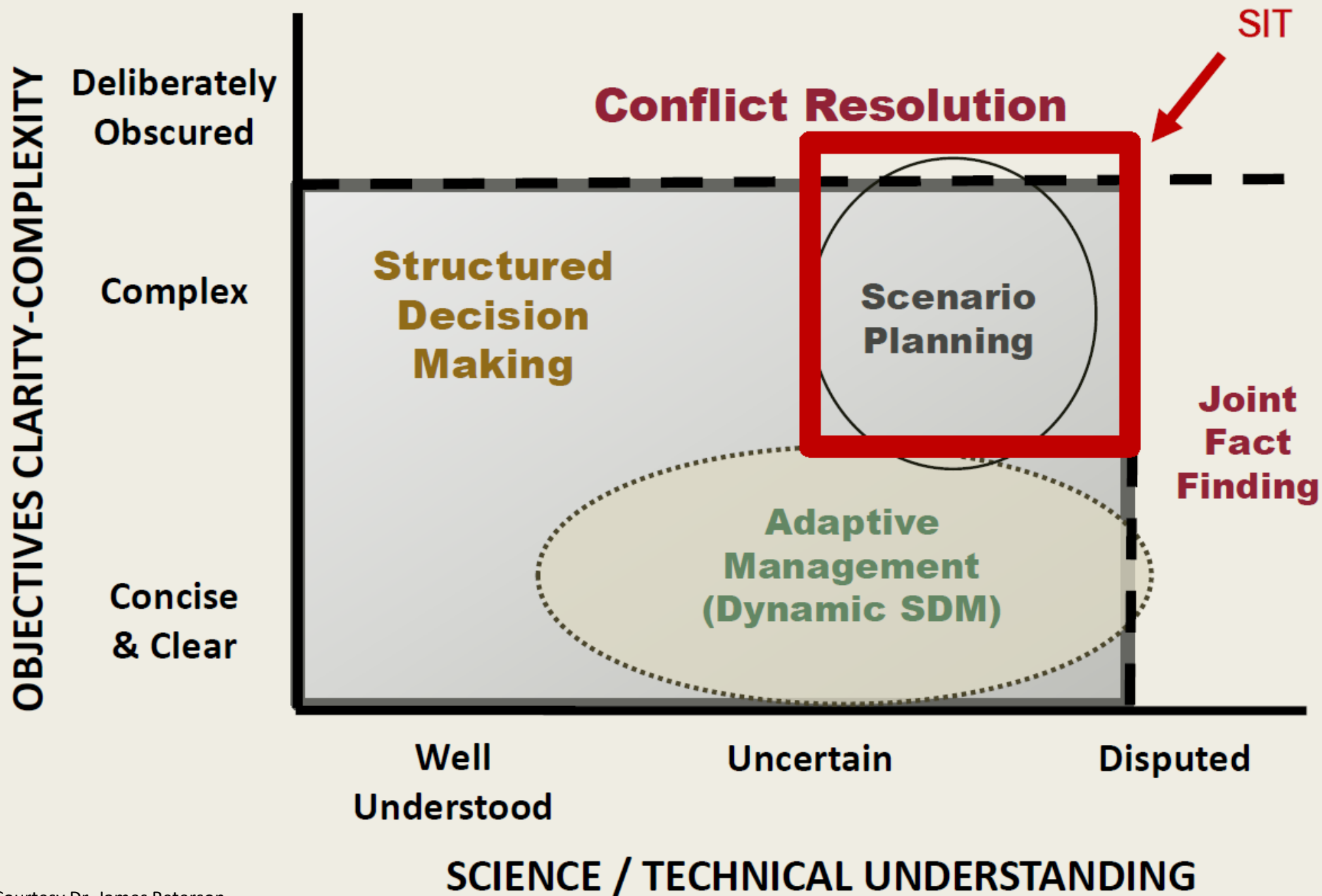


Roles in Our SDM Process

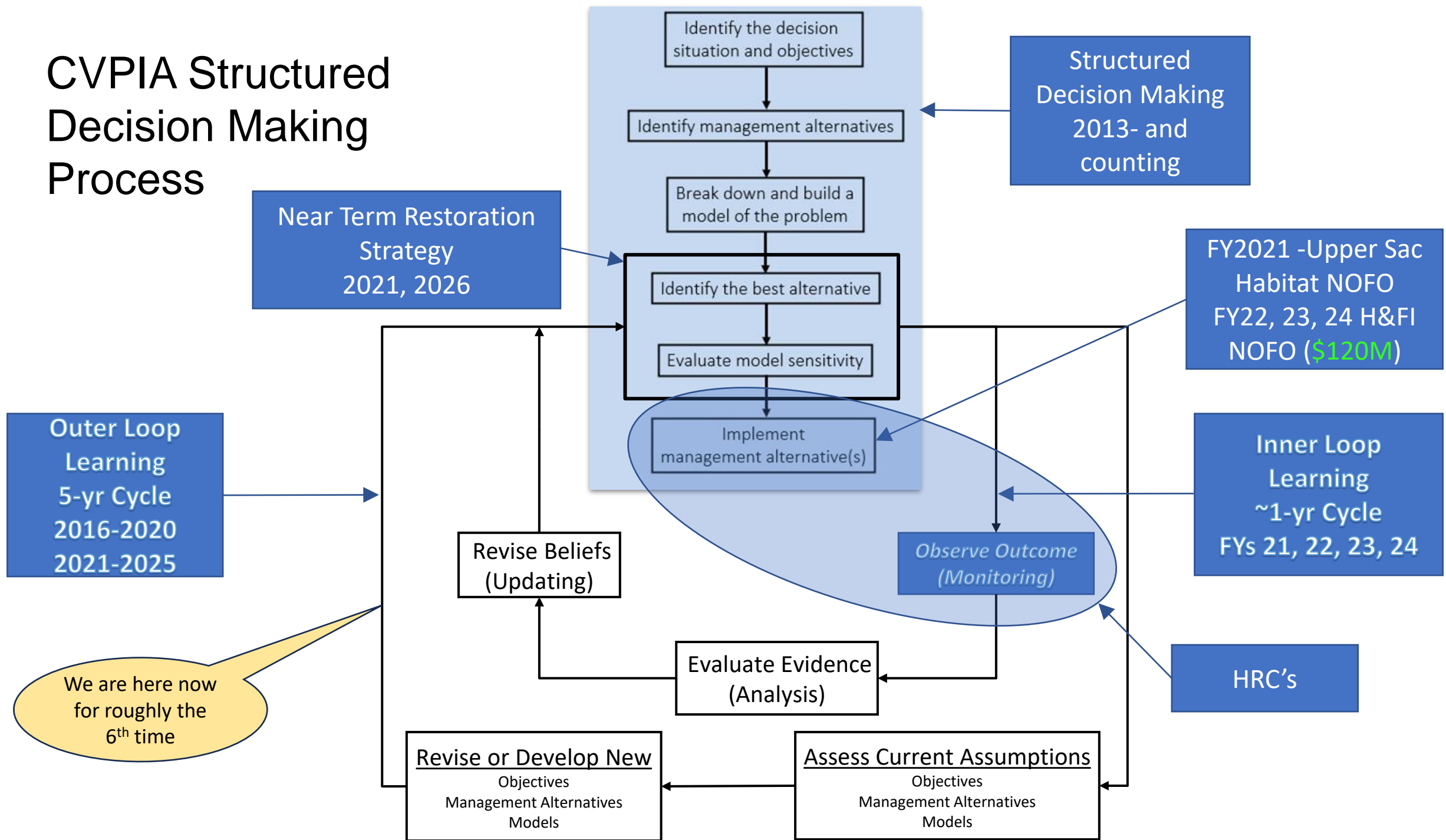
- **Science Integration Team (SIT) brings expertise, data, experience**
- Science Mentor (Jim Peterson - USGS) leads our Structured Decision Making process. He, along with the Science Coordinator, helps us to identify priorities
- Science Coordinator (Niccole Wandelaar - USFWS) summarizes agency priorities every 5 years in the Near-Term Restoration Strategy 1.0, 2.0, 3.0...
- Fish Resource Area Coordinator (Rod Wittler - USBR) leads our implementation cycle
- CVPIA Data Manager (Alin Gonzalez Barnes - USFWS) leads our data management cycle
- Lead Modelers & Assistant Modelers turn concepts into code
- Habitat Restoration Coordinators (HRCs - various) lead the habitat project development cycle
- Program Managers describe CVPIA accomplishments annually in a report to Congress

Decision Space

Important to know where you are and where you are going.



CVPIA Structured Decision Making Process



NTRS 2021 Priority Restoration Actions for Chinook based on SDM

Type of Restoration Action	Locations and Runs Benefitting
Juvenile habitat restoration	<ul style="list-style-type: none"> • Mainstem Sac River above the American River confluence (all runs) • Battle Creek in winter-run juvenile rearing locations (winter) • American River (fall) • Stanislaus River downstream through the San Joaquin River at Vernalis (fall) • Clear Creek (spring, fall) • Lower Feather River below the confluence of the Yuba River (fall, spring)
Reconnect ephemeral non-natal tributaries	<ul style="list-style-type: none"> • Mainstem Sac River (winter)
Improve survival	<ul style="list-style-type: none"> • Butte Creek in downstream areas (spring, fall)
Maintain existing spawning habitats	<ul style="list-style-type: none"> • Upper Sac, American, and Stanislaus Rivers • Clear and Butte Creeks (all runs)

Content of 1st H&FI NOFO is Combination of NTRS Priorities and LTO 2020 ROD Non-Flow Actions

- The priorities identified in the Near-term Restoration Strategy (NTRS) for the Central Valley Project Improvement Act Fish Resource Area
- The non-flow actions using a collaborative process (Habitat or Facilities Improvement category) listed in the Proposed Action of the CVP LTO Biological Assessment. (Table 4-7 of the 2019 Biological Assessment – Proposed Action)

These 2 bullets are what we need to accomplish.

We need people on the ground formulating these types of projects.

A Few Thoughts About Buy-In

- Legal: Science Integration Team is NOT a FACA Committee
 - **SIT does not make decisions**
 - SIT helps to inform agency decisions
- Policy: Reclamation does not pay for SIT participation
- Investment 2015-2019:
 - 9 in-person meetings per year (2 days); 26 three hr. conference calls per year
 - Material to review
 - Calls for data
- Investors 2015-2019:
 - Regular attendees: Federal - 17
 - CA State - 9
 - NGOs - 6
 - Consultants - 5
 - Municipalities - 4

Lessons Learned...so far...Modeling

(in no particular order)

- Everyone has a model. Everyone.
- Numerical modeling induces heuristic exercises by forcing us to...
 - ...organize data
 - ...discern what we know...and don't know
 - ...explicitly state hypotheses in the form of algorithms
- The Rule of 'Six' – No matter how complex the system, no more than six inputs will govern the output
- The Holy Grail of modeling is the simplest model that provides sufficient confidence to make a decision
- If you torture the data long enough, it will confess to anything
- Don't fall in love with your model – your model will always cheat on you
- The model informs; the model does not dictate
- Models are most useful for identifying what won't work

Questions?

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