ARM for CVPIA Fish Programs

Implementation Plan for Fish Programs

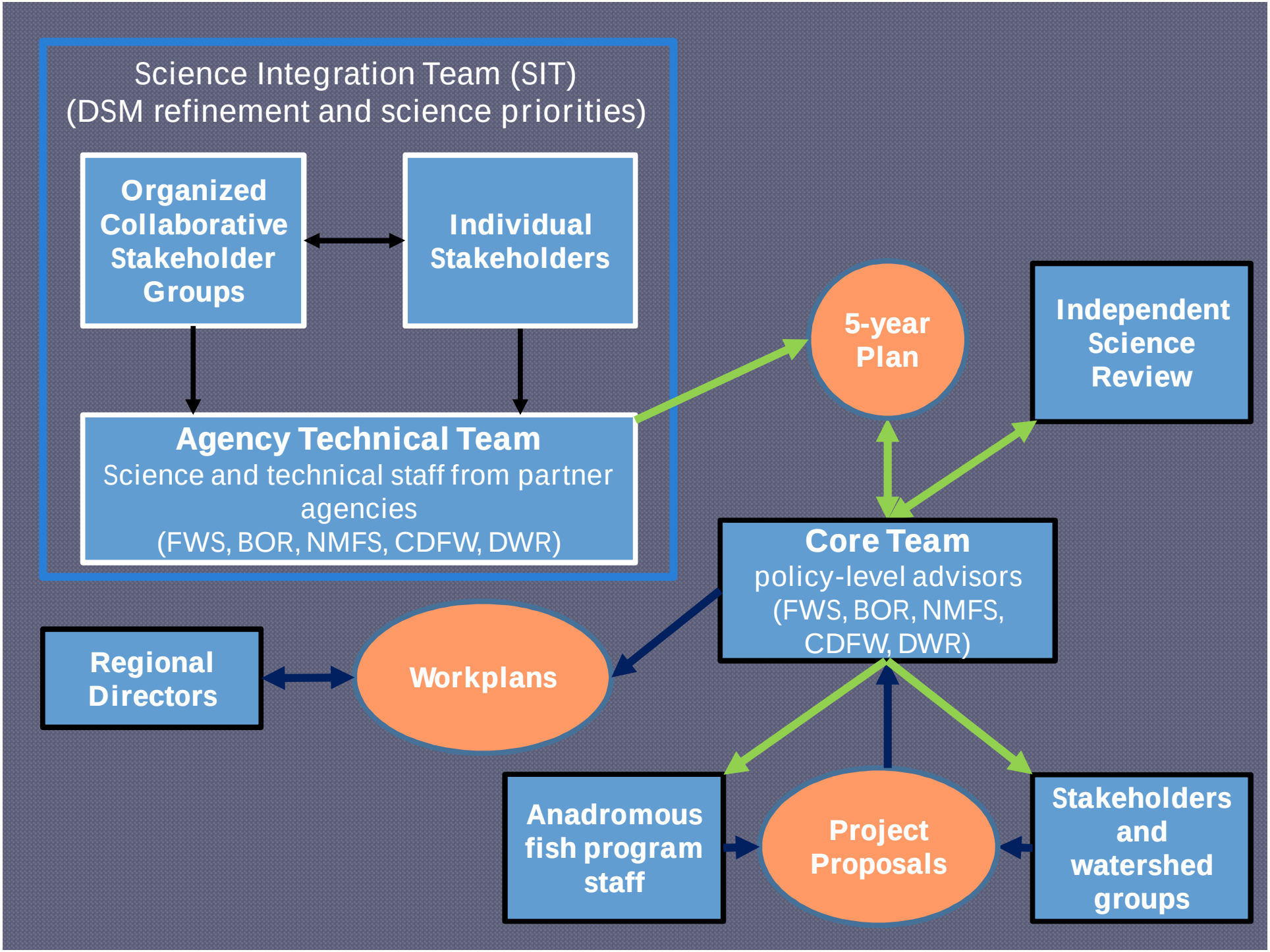
- Collaborative, science-based process to restore native anadromous fish
- Use ARM process to prioritize, implement, learn from projects
- Develop DSM based on biological objectives
- Revise governance structure:
  - Create an integrated CVPIA fish program
  - Manage ARM process
  - Develop science-based priorities, 5-year plan

Adaptive Resource Management

- Set biological objectives and alternatives
- Predict consequences of alternatives
- Evaluate trade-offs, recommend priorities
- Use monitoring data and studies to improve effectiveness over time
- Establish collaborative and transparent process for developing priorities and implementing projects

How do we implement ARM?

- Modify organizational structure of CVPIA fish programs to work more effectively across programs and watersheds
- Integrate restoration and planning efforts across agencies
- Engage a broader community with interests in salmon restoration


Science Integration Team (SIT)
(DSM refinement and science priorities)
Organized Collaborative Stakeholder Groups
Individual Stakeholders
Agency Technical Team
Science and technical staff from partner agencies
(FWS, BOR, NMFS, CDFW, DWR)
5-year Plan
Independent Science Review
Core Team
policy-level advisors
(FWS, BOR, NMFS, CDFW, DWR)
Regional Directors
Workplans
Anadromous fish program staff
Project Proposals
Stakeholders and watershed groups

Science Integration Team

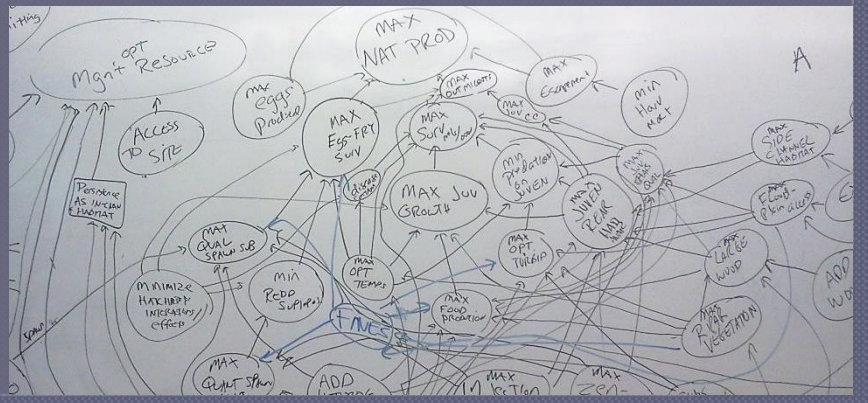
- ~20 members with landscape perspective
  - Technical expertise: biology, hydrology, geomorphology, statistics…
  - Agencies and stakeholders
- Recommend priorities for types of actions, watersheds, science/monitoring
- Engage additional technical staff with specific expertise when needed

Science Integration Team

- Does NOT recommend specific projects
- Does NOT recommend or consider project designs or implementation
- Does NOT recommend priorities for every watershed
- Does NOT create implementation plans for individual watersheds
- Does NOT replace watershed-specific technical teams or stakeholder groups

Decision Support Models

- DSMs are tools
- Predict outcomes of alternative actions
- Draft DSM available for each native anadromous species, 26 watersheds
- Refine structure of DSMs, objectives
- Improve performance – examine expert elicitation and data



Biological objectives

Maximize naturally reproducing self-sustaining populations

- Spatial structure
  - No. of spawning popn per diversity group
- Abundance
  - No. of returning naturally-spawned adults
  - Naturally-spawned juvenile abundance
- Productivity
  - No. natural juveniles/Natural returning adults
  - Nat. returning adult/natural spawner
- Diversity
  - Prop of natural spawners vs hatchery
  - Outmigrating proportion juvenile stages (fry parr smolt yearlings)

Salmon population model

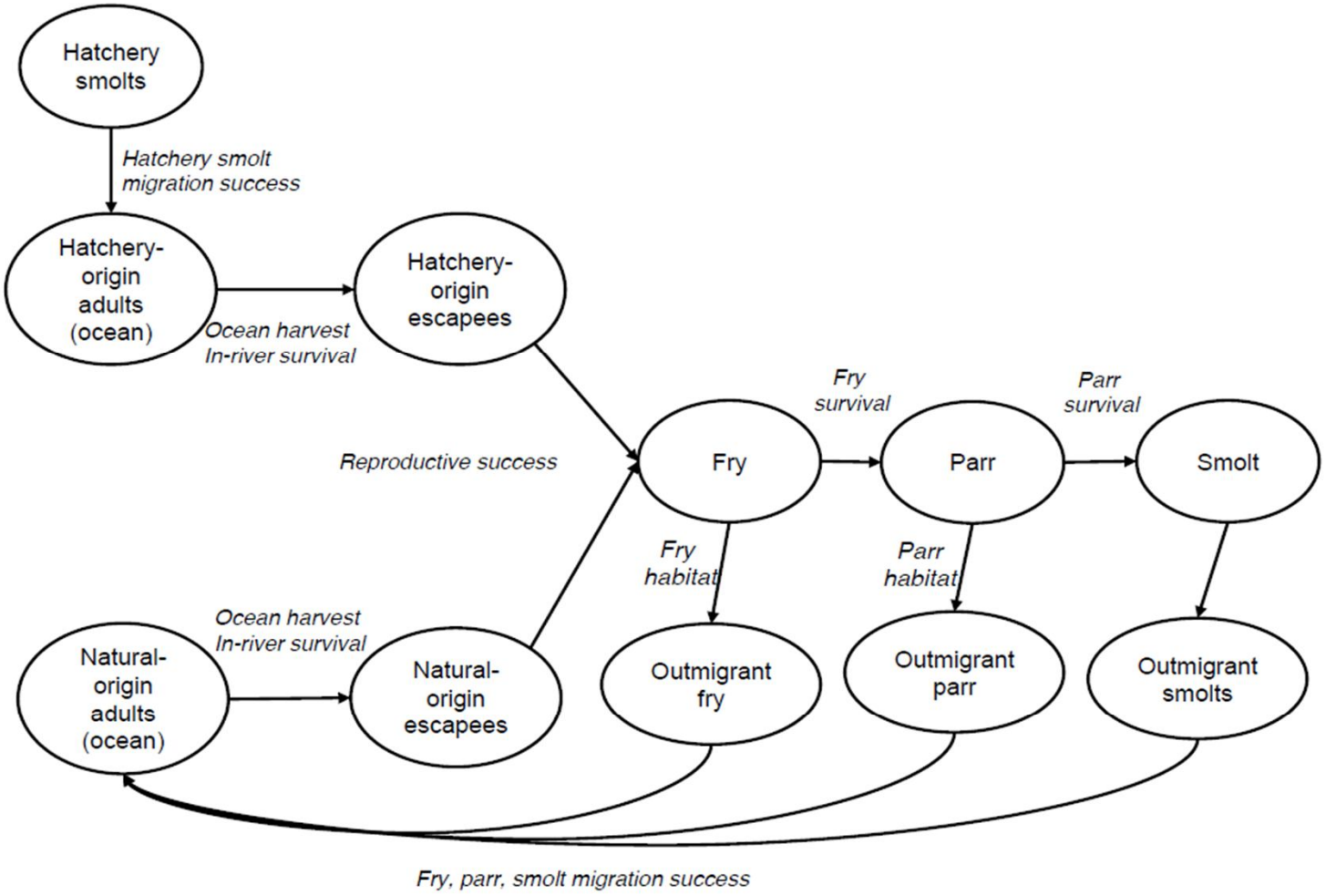
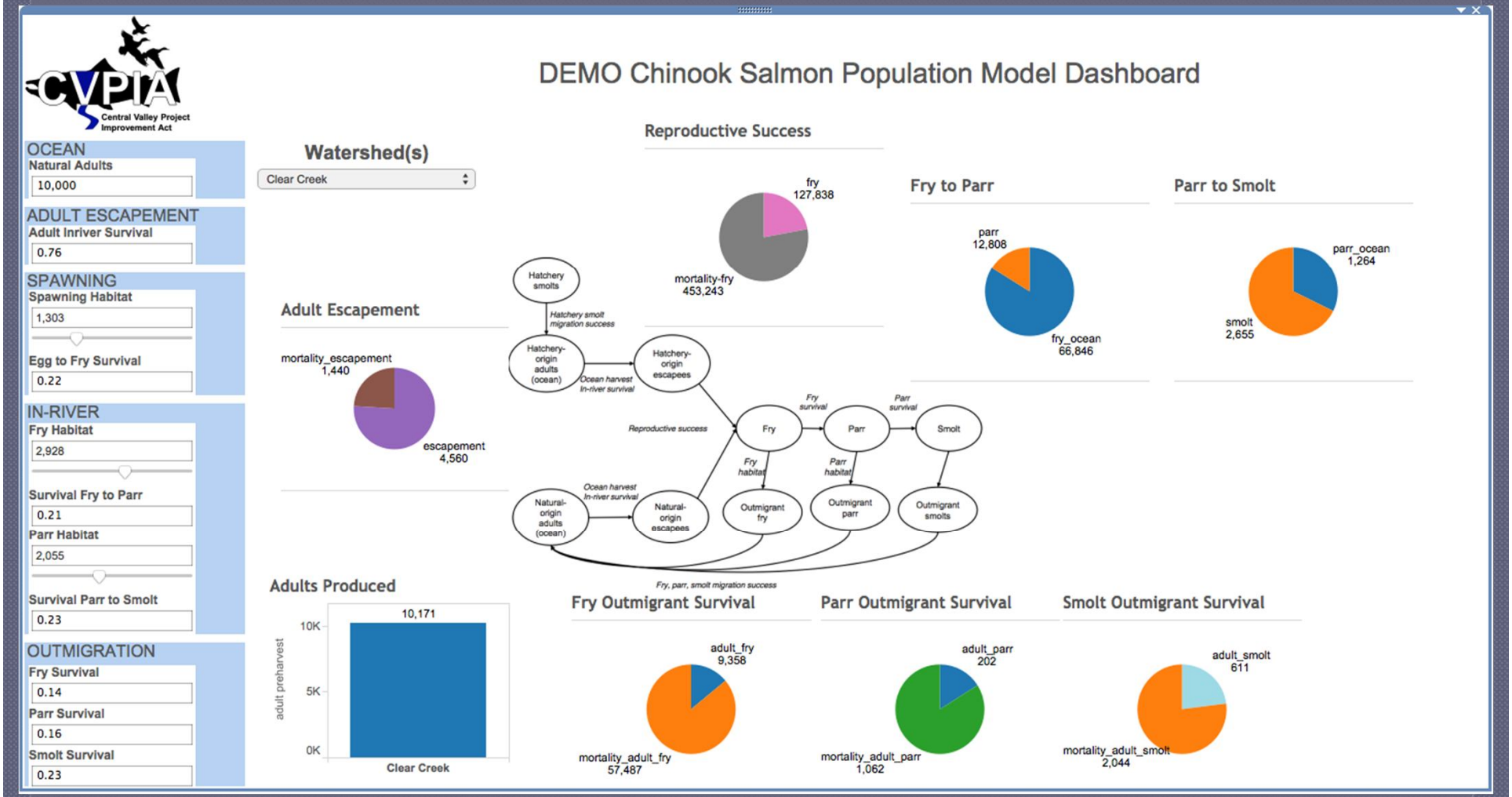
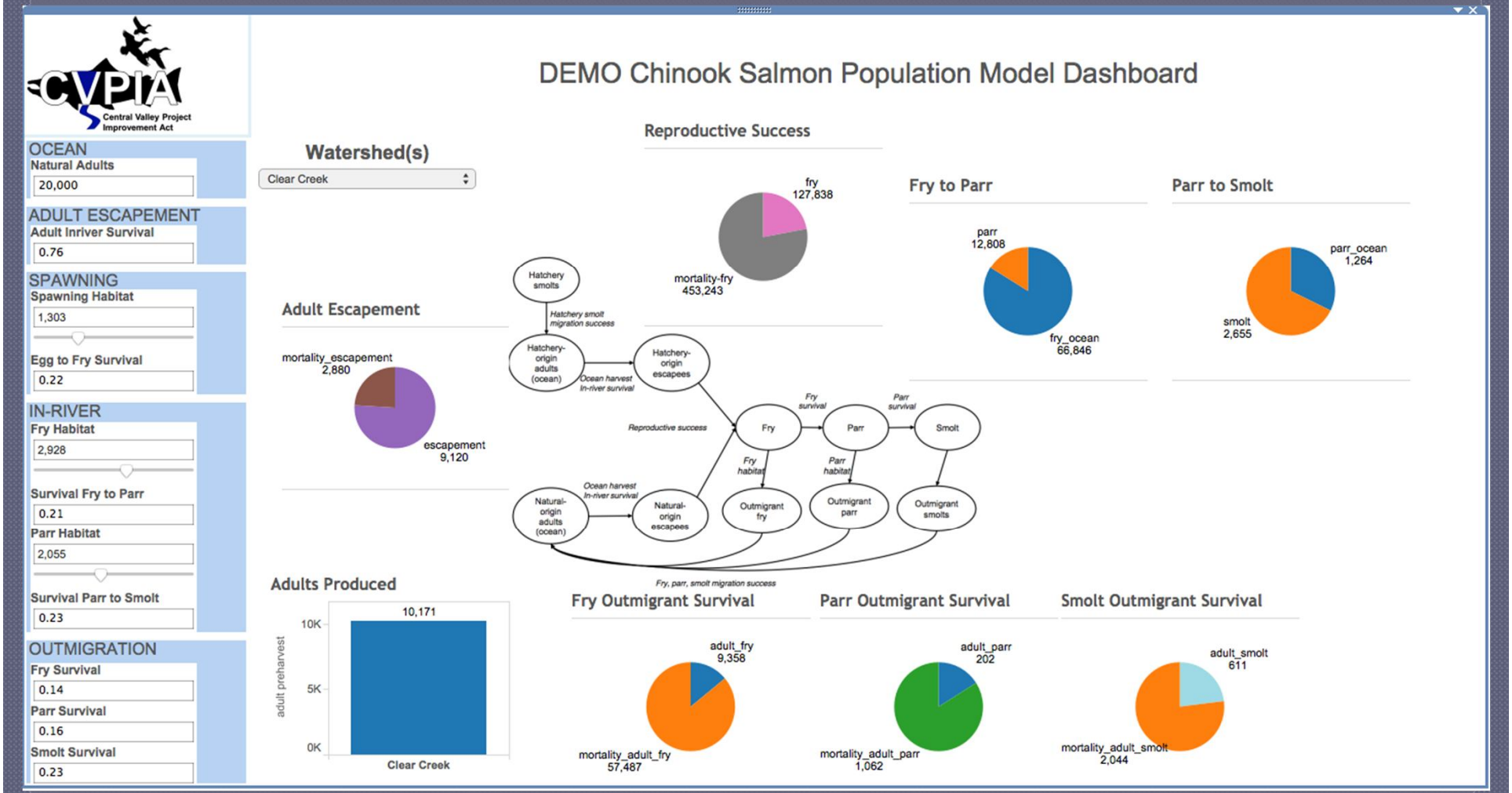


Figure 2.1. Graphical example of baseline Chinook salmon population dynamics model used to estimate the relative value of CVPIA actions. Labeled arcs indicate model components that were used to model state transitions.

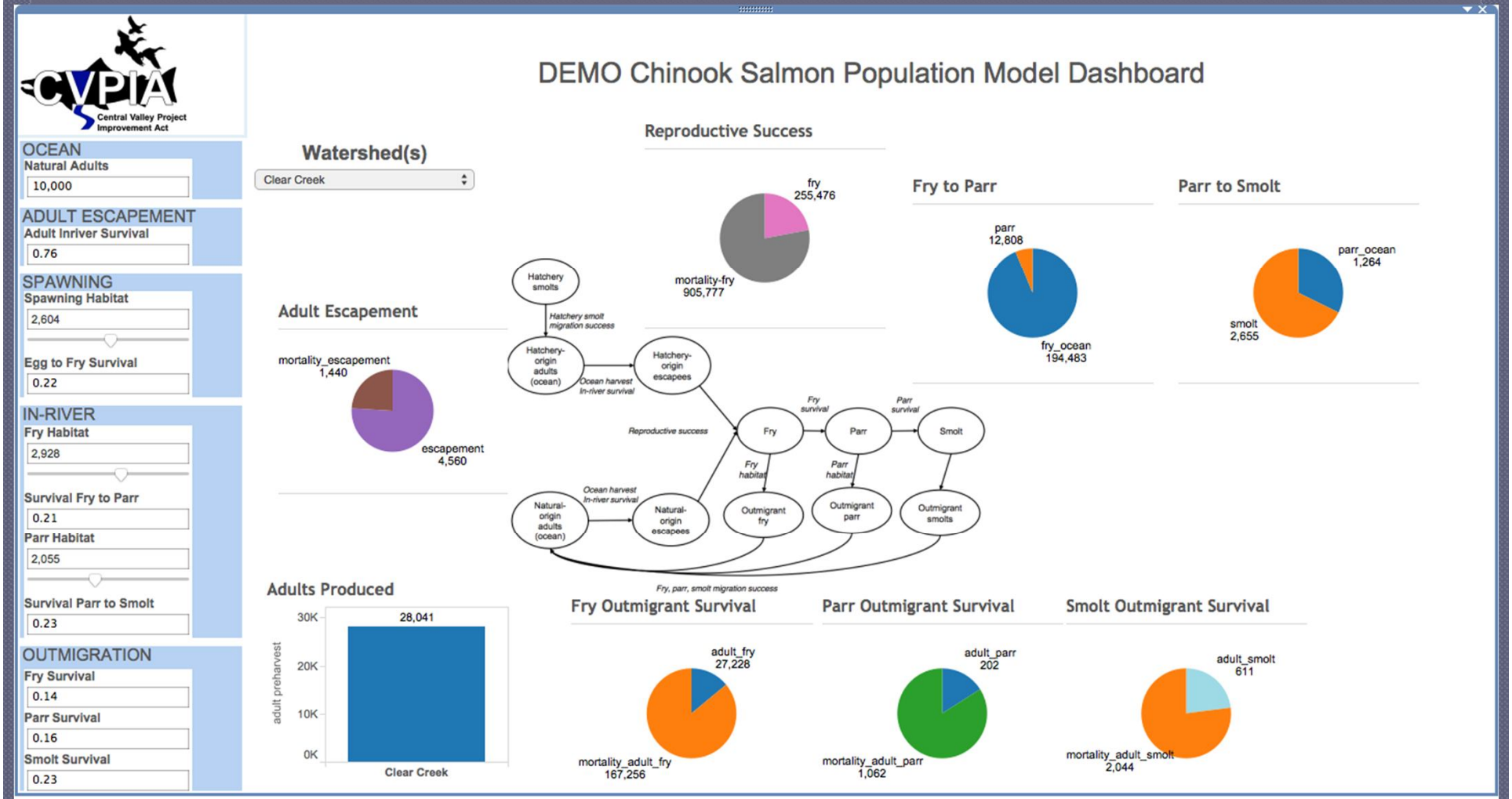
Salmon model dashboard



Salmon model dashboard



Salmon model dashboard



SIT deliverables

- Set of DSM models for native anadromous fish that:
  - Synthesize monitoring data and other information
  - Can be used as a tool to inform development of priorities
- Annual tech memo updating the status of the DSMs and documenting changes
- 5-year Plan that recommends priorities for science and project development

Next Steps

- Monthly SIT meetings through February
  - 1-2 day working meetings
  - Revise and refine DSMs
  - Recommend FY17 priorities
- Develop Core Team process
  - Call for proposals
  - Proposal scoring criteria
- Select projects, implement and learn!