Operational Scenarios for Stage 1

DEFT-NoName Coordination Team

November 23, 1998

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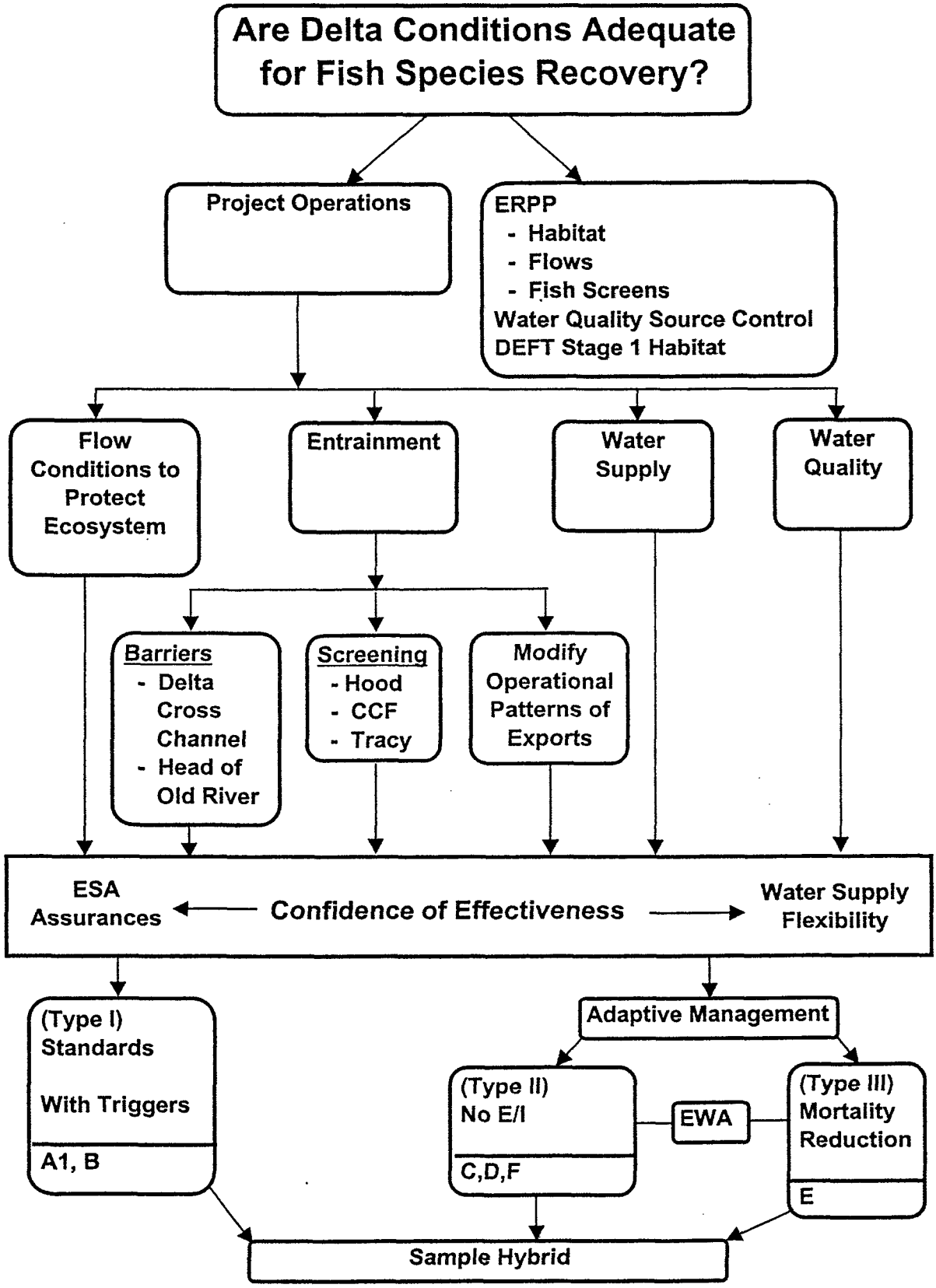
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- Flows
- Fish Screens
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DEFT Stage 1 Habitat
Flow Conditions to Protect Ecosystem
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- Hood
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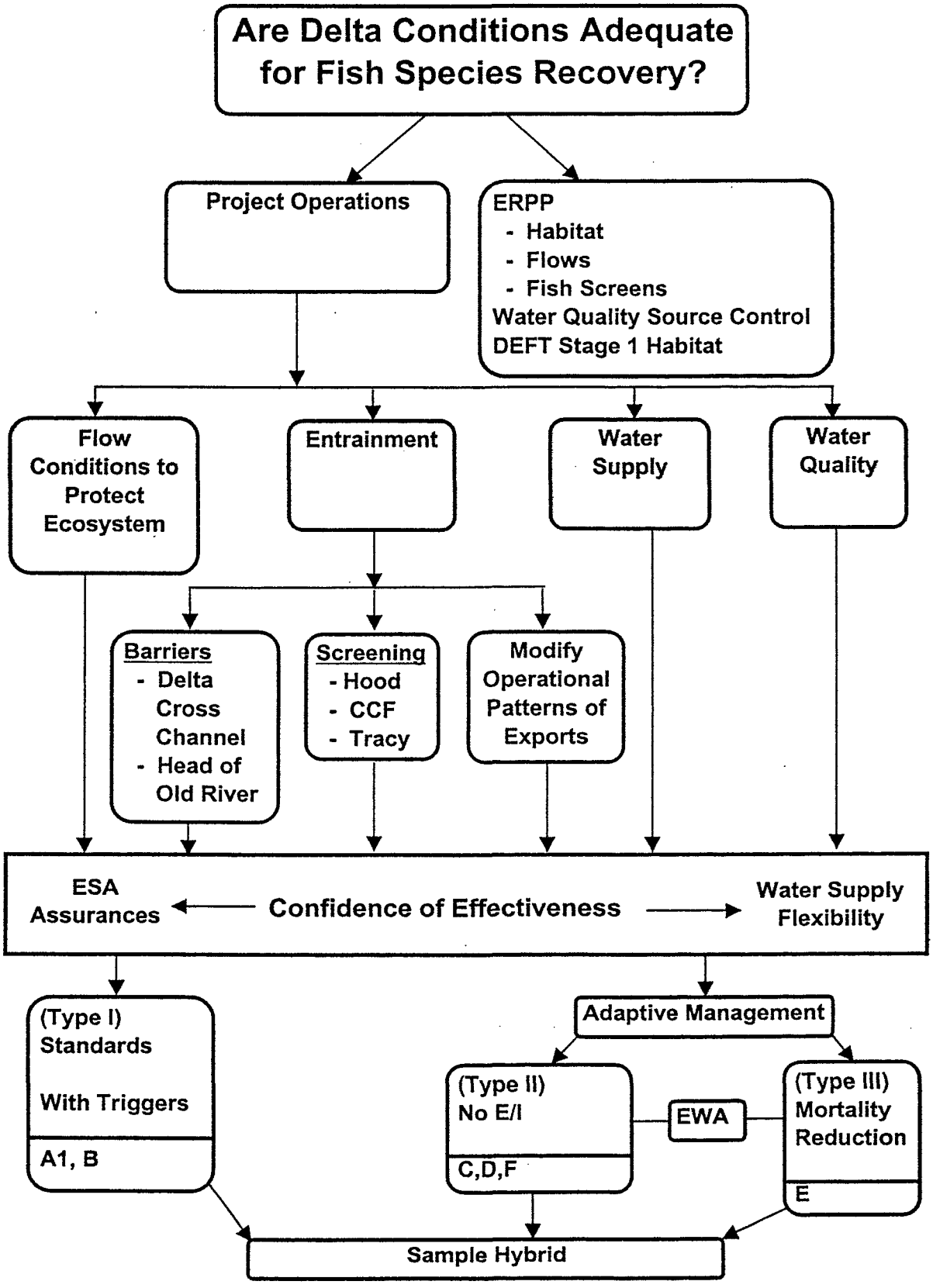
- Tracy
Modify Operational Patterns of Exports
ESA Assurances
Confidence of Effectiveness
Water Supply Flexibility
(Type I) Standards
With Triggers
A1, B
Adaptive Management
(Type II) No E/I
C,D,F
EWA
(Type III) Mortality Reduction
E
Sample Hybrid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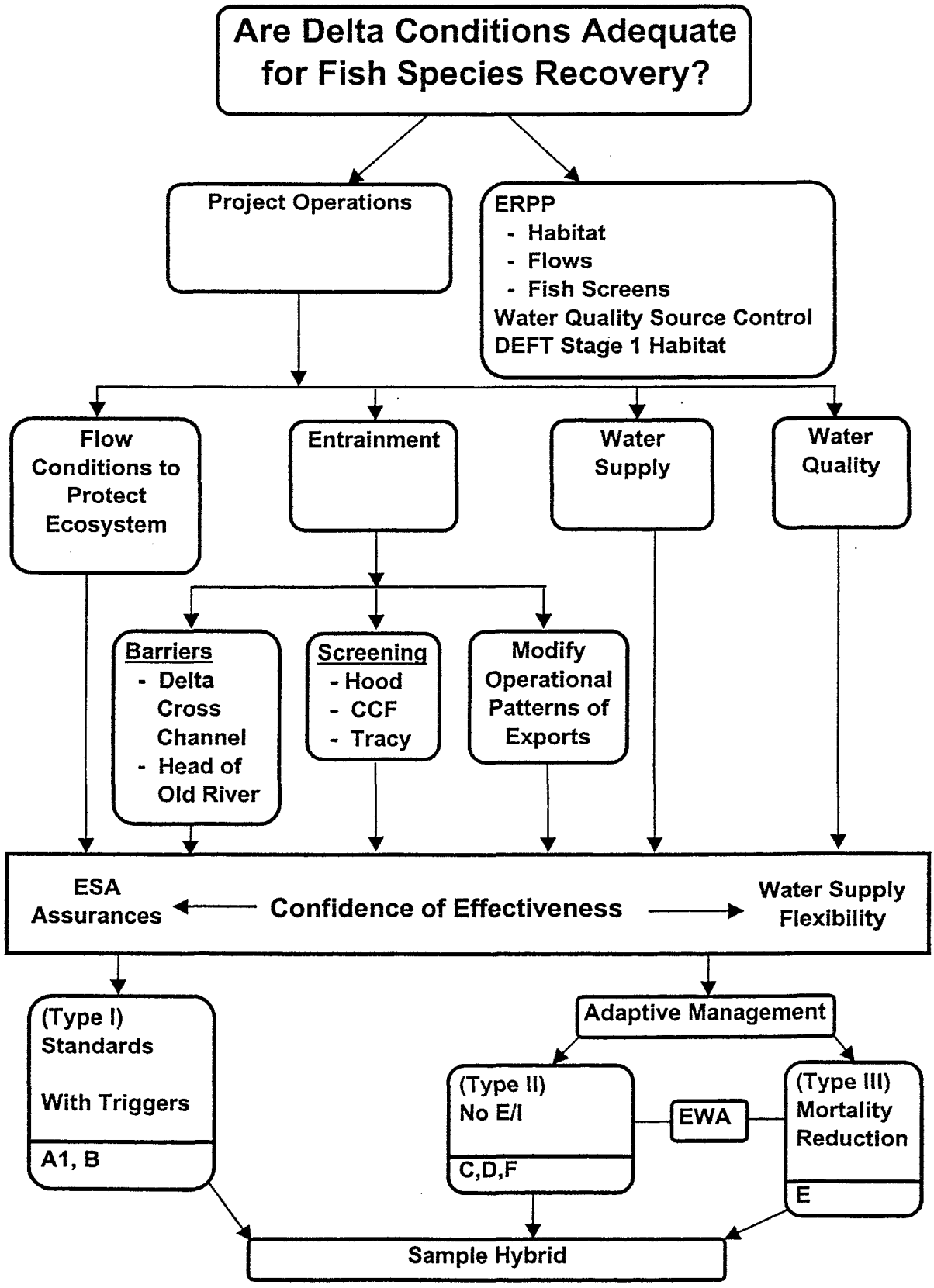
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Barriers

- Delta Cross Channel
  - Closed to prevent Sacramento River salmon smolts from entering central Delta
  - Could have impacts on water supply and water quality
- Head of Old River Barrier
  - Closed to prevent San Joaquin river fish from entering south Delta region
  - Could have impacts on water supply, water quality, and water stages in the south Delta

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Screens

- 2,000 cfs Hood diversion test facility
  - Fisheries Impacts
  - Water supply and water quality benefits
- Head of CCF screening and fish handling facility
  - Size as stand alone or in combination with Tracy and intertie
  - Low head pumps, dredging, and water quality/stage requirements may require new analysis of SOD impacts
- Tracy demonstration /testing screen and handling facility
  - 2,500 test module or full production screen

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Modify Operational Patterns at Pumps

- Modify operational patterns at export pumps to :
  - Reduce direct fish mortality
  - Reduce in-direct fish mortality
  - Increase water supply.
  - Improve water quality.

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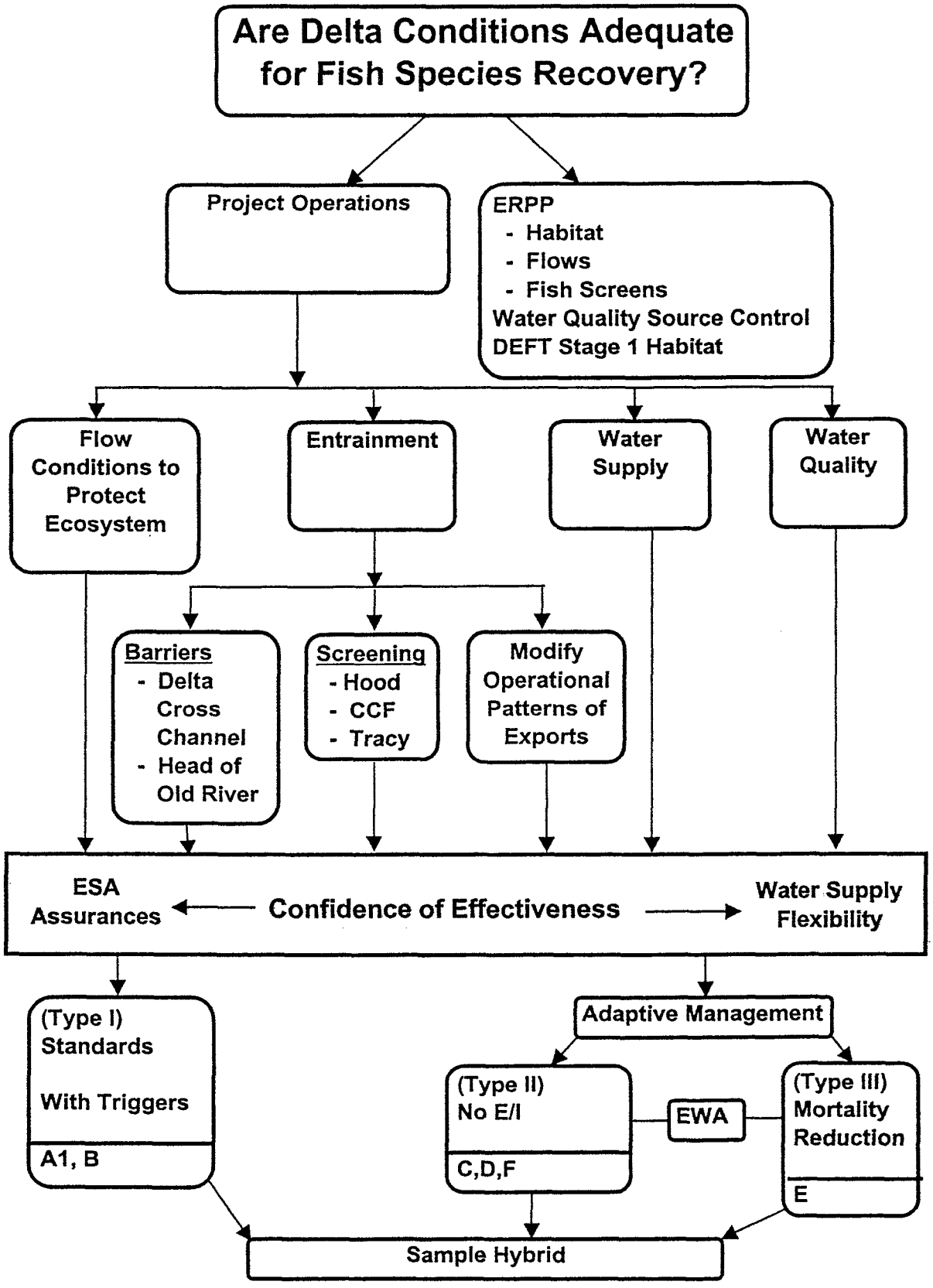
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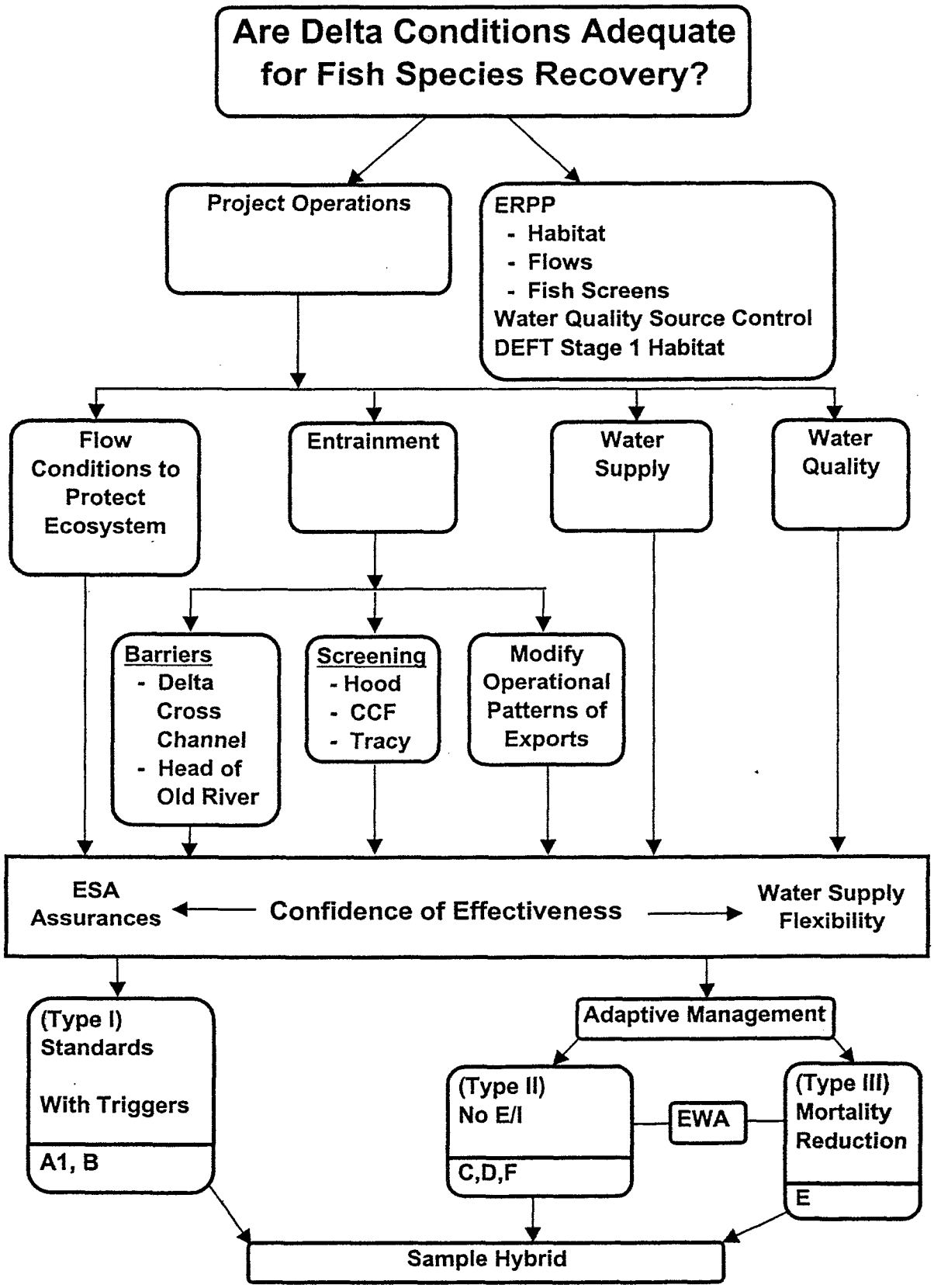
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More Prescriptive Approach (Type 1)

- More restrictive standards to augment existing standards
- Gain water supply by flexing standards and new supplies
- No environmental water account

- Additional Standards over ACCORD + All AFRP
  - Oct-Jan: Supplement with QWEST
  - Nov-Jan: DCC closed
  - Feb-Mar: Replace E/I with days of reduction in exports and QWEST
  - Apr-June: 75 day VAMP

A & B

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More Prescriptive Approach (Type 1) - Evaluation

- Water Supply
- Accord + All AFRP + Apr-May VAMP + QWEST + June - Oct Accord E/I
- *Dry Period: -167 TAF
- *73-Year average, -355 TAF

- Biological Evaluation
- Fish Protection: Moderate to good
- ESA Assurances: Immediate good level
- Multi-species benefits: Maximizes benefits in average year
- Adaptive management: Low to medium. More likely in Stage 2

*Compared to ACCORD + All AFRP

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Elimination of E/I and use of EWA (Type 2)

- Water that would have applied to E/I goes to EWA
- EWA no storage priority
- Water produced from NoName actions shared

- Standards
- ACCORD + ALL AFRP - E/I

C,D, & F

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Elimination of E/I and use of EWA (Type 2)- Evaluation

- Water Supply
- Accord + All AFRP + JPOD + ISDP + No E/I
- *Dry Period: +196 TAF
- *73-Year average, +398 TAF

- Biological Evaluation
- Fish Protection: Moderate to good (phased)
- ESA Assurances: Dependent on new water and structure of EWA
- Multi-species benefits: Annual varying benefits, focused on ESA assurances.
- Adaptive management: High, flexibility to test hypothesis

* Compared to ACCORD + All AFRP

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Export restrictions based on salvage (Type 3)

- Export restrictions based on direct mortality at pumps
- Water produced by restrictions and Noname actions shared and stored in EWA
- Production and mortality credits

- Standards
- ACCORD + ALL AFRP - E/I

E

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Export restrictions based on salvage (Type 3) - Evaluation

- Water Supply
- Accord + All AFRP + No E/I + JPOD + ISDP + 99 days @ 1,500 cfs
- *Dry Period: -40 TAF
- *73-Year average, +145 TAF

- Biological Evaluation
- Fish Protection: Fair to Moderate
- ESA Assurances: Dependent on demonstrated effectiveness
- Multi-species benefits: Initially limited
- Adaptive management: limited to entrainment effects

** Compared to ACCORD + All AFRP*

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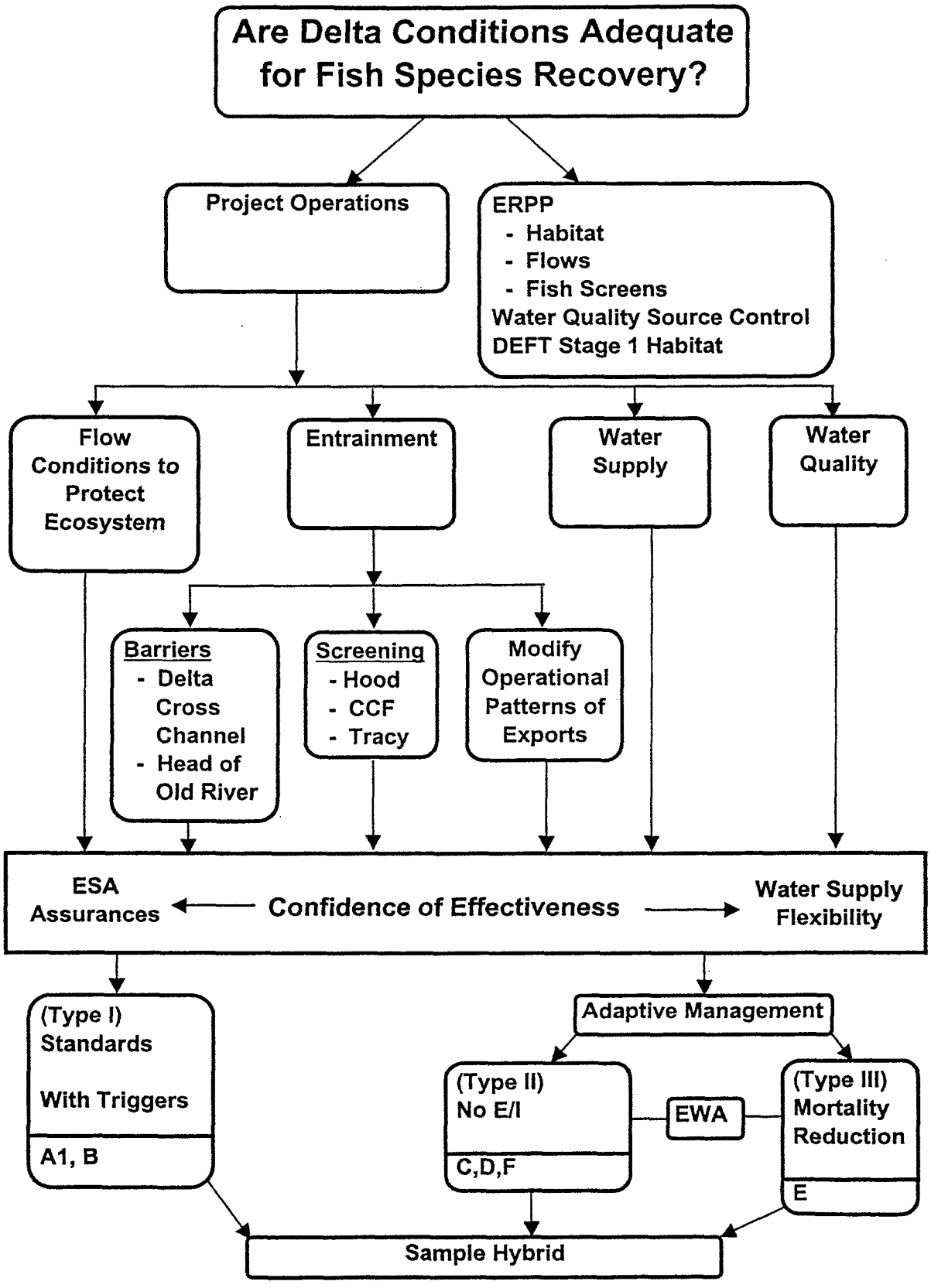
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Sample Hybrid

- Combined certainty of stricter standards with flexibility of EWA
- Credit 150 TAF in San Luis reservoir to EWA on Oct 1 each year
- Use JPOD and increased Banks to recover storage

- Standards
- Accord +All AFRP -E/I
- Mar-Jun:
  - 45-day Vamp + 15 discretionary days

Hybrid

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Sample Hybrid - Evaluation

- Water Supply
- Accord + All AFRP + No E/I + JPOD + ISDP + 61-day VAMP
- *Dry Period: +145 TAF
- *73-Year average, +303 TAF

- Biological Evaluation
- Fish Protection: Moderate to good
- ESA Assurances: medium levels, depend on supply
- Multi-species benefits: Annual varying benefits Adaptive management: High, flexibility to test hypothesis

** Compared to ACCORD + All AFRP*

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Type 1 lite

- Standards and water supply actions that could be phased in in two years.
- Water supplies are applied to meeting new standards after which additional supplies go to water users

- Additional Standards over ACCORD + All AFRP
- Dec-Jan: QWEST criteria
- Feb: 7-day exports to 2,400 cfs
- Mar-Jun: QWEST criteria
- April-May: 45-day VAMP
- Nov-DEC: DDC closed

B1

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Type 1 lite - Evaluation

- Water Supply
- Accord + All AFRP + No E/I + QWEST + 45-day VAMP + JPOD + Banks (8.5K) + Kern WB
- *Dry Period: +60 TAF
- *73-Year average, +9 TAF

- Biological Evaluation
- Fish Protection: Moderate to good (phased)
- ESA Assurances: Moderate to good
- Multi-species benefits: Maximizes benefits in average year
- Adaptive management: Low to medium. More likely in Stage 2

** Compared to ACCORD + All AFRP*

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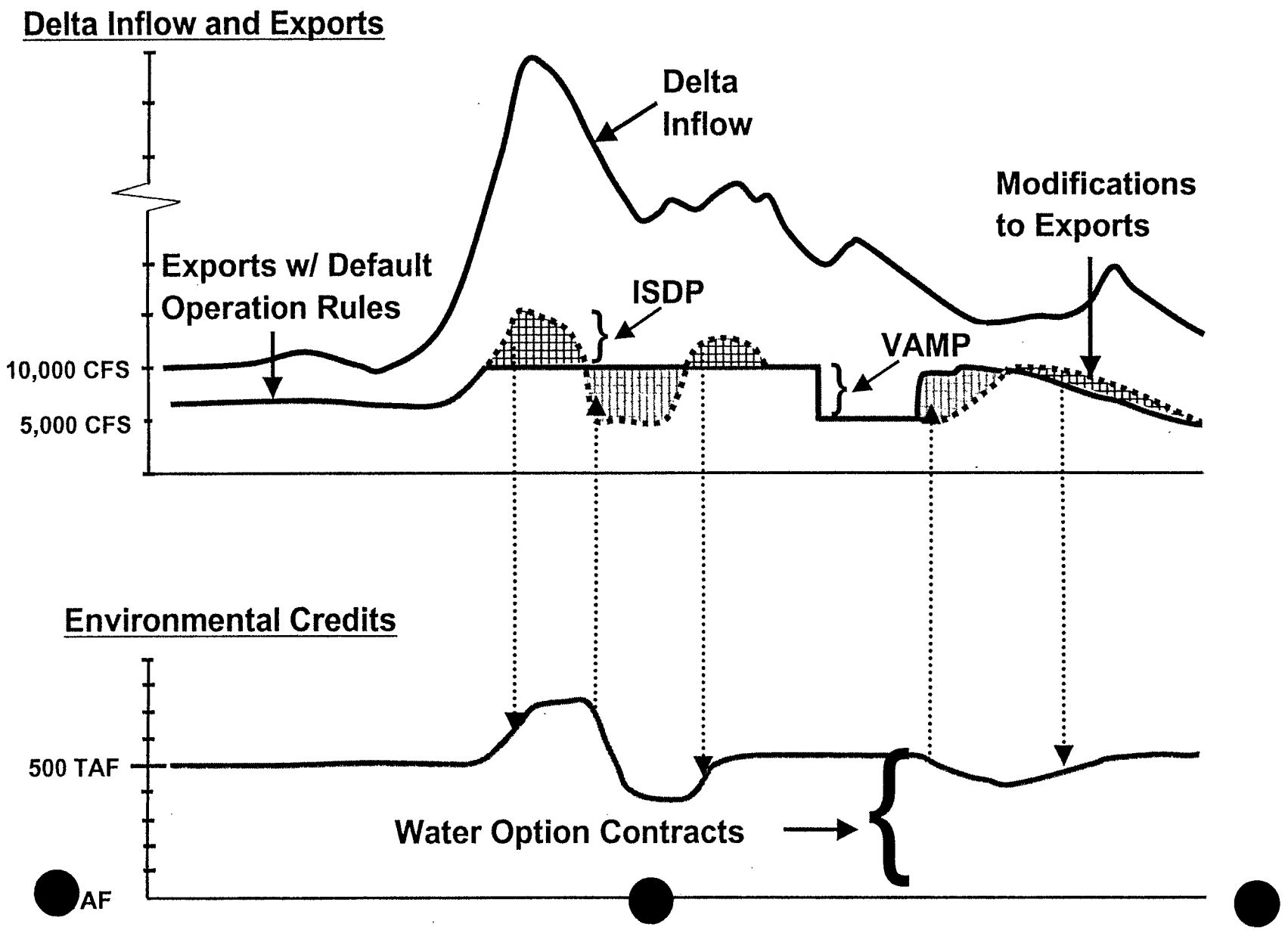
EXAMPLE USE OF ENVIRONMENTAL WATER ACCOUNT



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Environmental Water Account Advantages

- Flexible to allow for short-notice export reductions without harming water users
- Flexible to allow for improved water management as knowledge is gained regarding the biological usefulness of particular standards (adaptive management)
- Incentives for cooperation

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Role of Default Operation Rules

- Allow environmental credits and debits to be defined
- Use defaults for:
  - Baseline ecosystem protection
  - Entrainment protection, where the needs are highly predictable and high priority

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What is an Environmental Water Account?

It is a portfolio of water management tools (storage, options, cash, etc.) to be used by the Ecosystem Manager to flexibly move away from normal operations to increase biological protection without harming other water users

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What are Environmental Credits?

- Environmental rights to:
  - Actual water south of the Delta -- e.g., storage or reclamation
  - Reduced demand for water south of the Delta -- e.g., transfers or conservation

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How are Credits Acquired?

- Purchase
- Trade
- Direct diversion of water from the Delta

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How and Where are Credits Held?

- San Luis Reservoir
- Other surface reservoirs
- Groundwater
- Option contracts

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How Would Credits be Used to Affect Operations?

- Direct trade for reduced pumping
- Collateral for reduced pumping

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How Would Water User Interests be Protected?

- Default rules will determine export supplies
- Operation of EWA would be, in effect, application of ESA based upon “no harm”

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How Can Environmental Risks be Minimized?

- High priority water in storage
- Water purchase contracts south of the Delta
- Constant supplies of credits from water efficiency or reclamation projects
- Start with a balance of water and $
- Annually replenish

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What Decisions are Needed?

A partial list:

1. Default operational rules
2. Sharing future export/storage capacity increases
3. Sharing of pumping above default rules
4. Environmental priorities for existing facilities
5. Decision making authority
6. Regulatory certainty
7. Who pays

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Upstream Interactions

- Changes in Delta project operations will have upstream implications
- Other standards might also be modified

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NoName Water Quality Operations Actions

Ops-related Water Quality Measure	Year 1	2	3	4	5	6	7
In-Delta water quality							
Small Hood diversion to Mokelumne	Study/Permitting			Construct.			
Adjusted minimum outflows in the fall							
Improved export water quality (within-Project)							
Selective San Luis filling							
Releasing low quality water in wetter years							
Utilization of Joint-Point for water quality							
Central Delta intake							
Expanded Los Vaqueros Reservoir							--->
In-Delta Island Storage							
Improving delivered water quality							
Circumventing San Luis							
Enlarged Pacheco Reservoir							--->
Restructured SCVWD intake							
Demand shift/Conj. Use with MWD							
Water Exchanges or Transfers							
Pine Flat and Millerton reservoirs							
Exchanges for SCVWD							
Miscellaneous							
Bifurcation of the California Aqueduct							
Multiplexing California Aqueduct deliveries							
Desalination							

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