RECLAMATION

Managing Water in the West

New Melones Reservoir Revised Plan of Operation

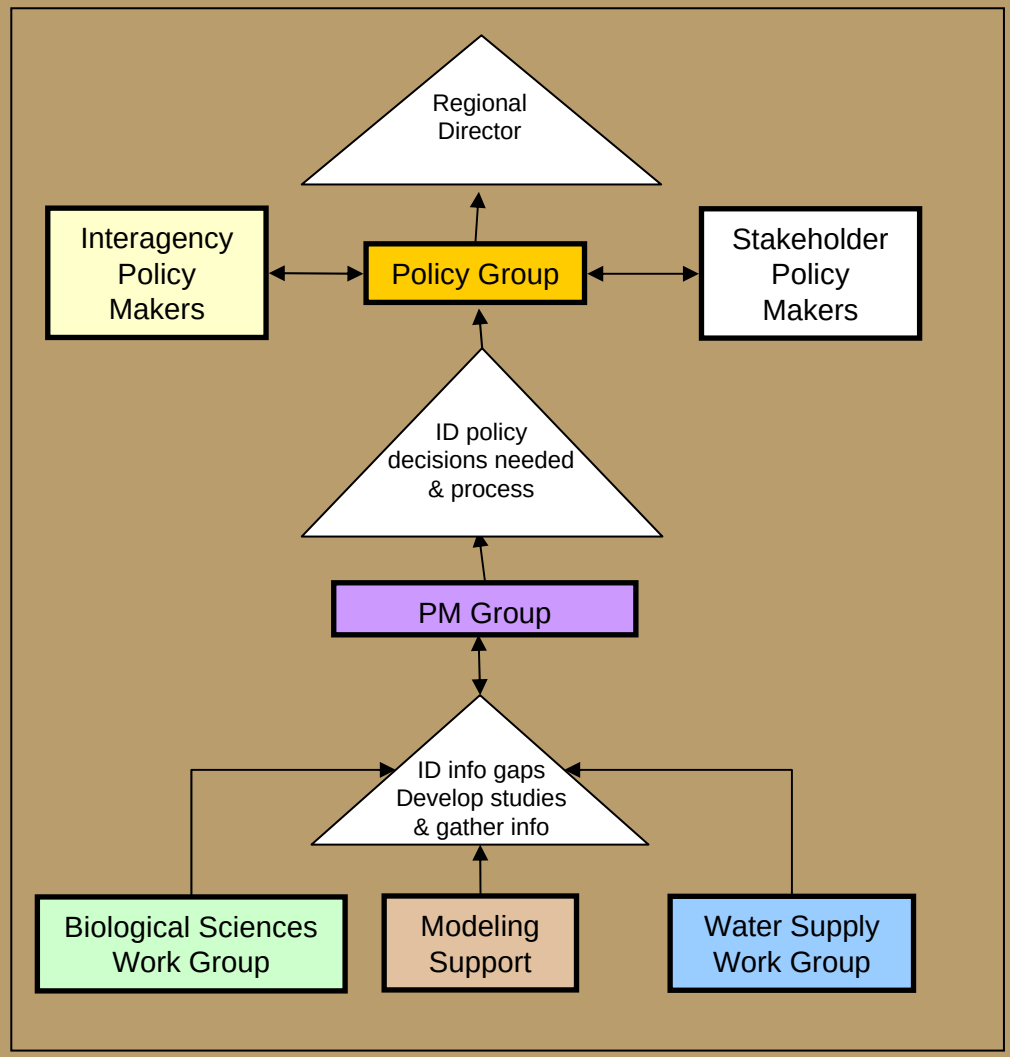
Biological Science Group January 18, 2005

U.S. Department of the Interior
Bureau of Reclamation

Meeting Objectives

- **Begin identifying biological information needed for a Stanislaus river minimum instream flow schedule.**
- **Present study design for the Stanislaus River salmonid habitat use investigation and address comments.**

New Melones RPO-Organization



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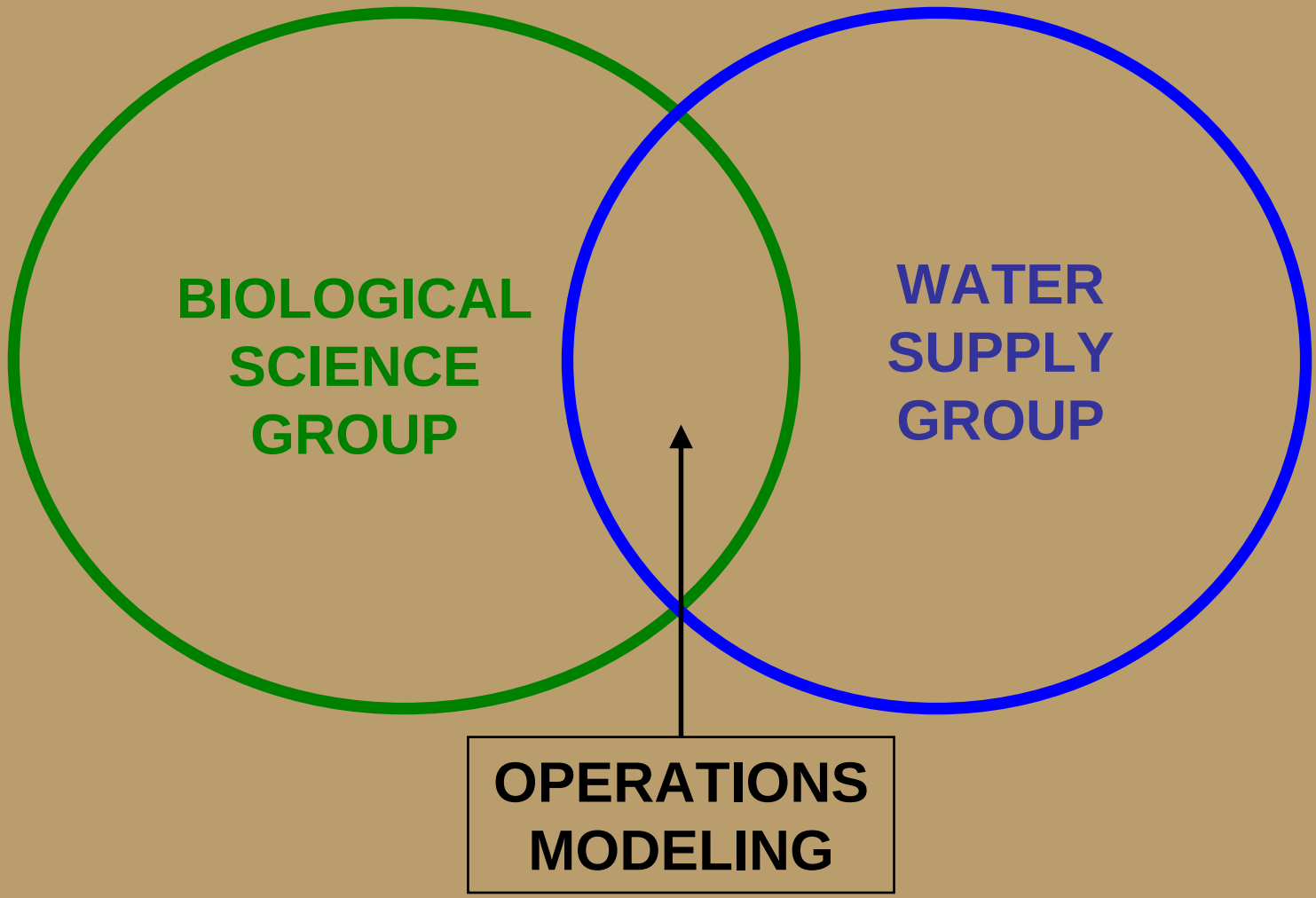
Technical groups - Interaction



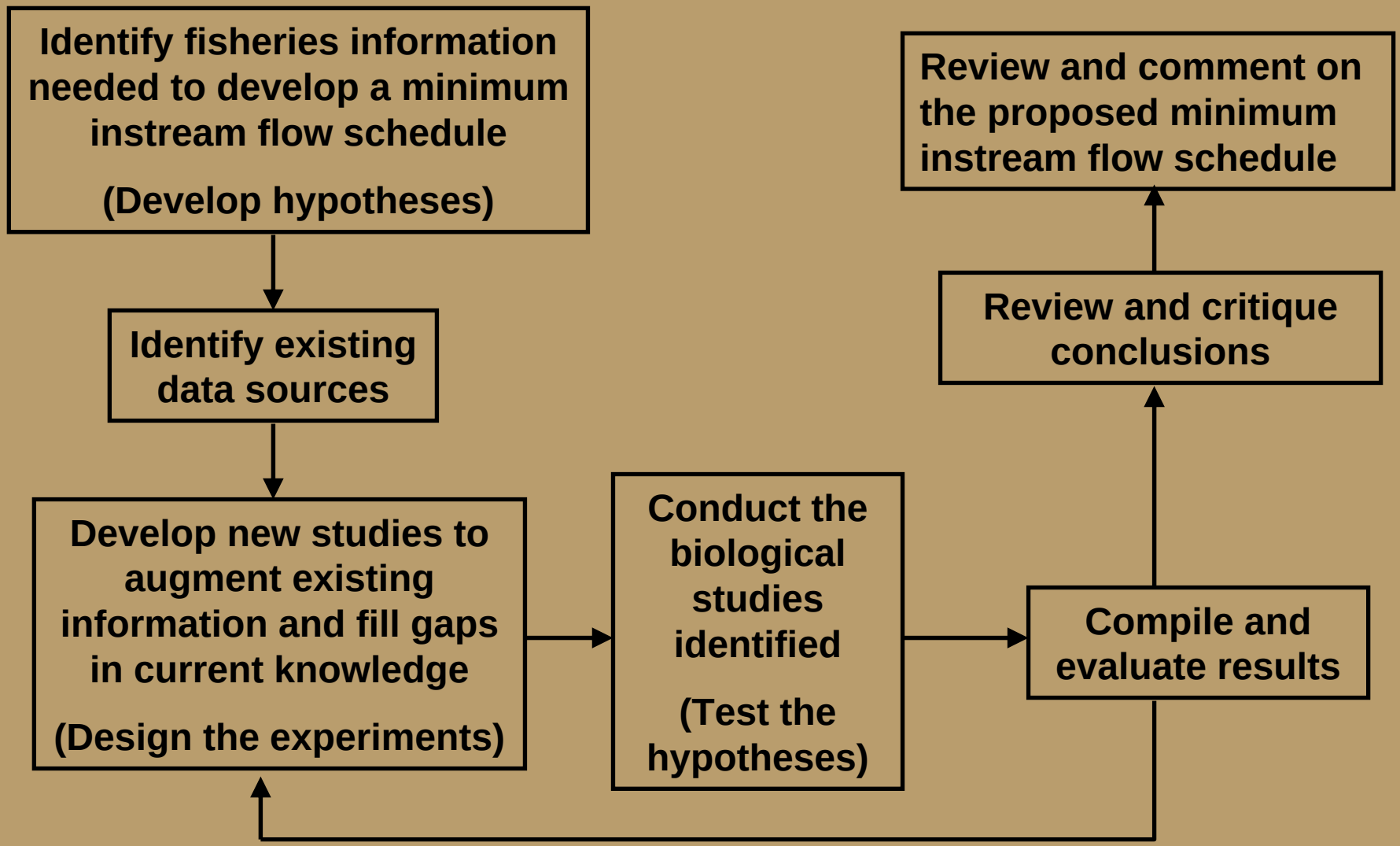
Purpose

The purpose of the Biological Science Group (BSG) is to provide an opportunity for stakeholders to identify, develop, and critique the biological information required to develop a minimum instream flow schedule for the lower Stanislaus River.

BSG Activities

The purpose of the BST is to provide an opportunity for stakeholders to identify, develop, and critique the biological information required to develop a minimum instream flow schedule for the lower Stanislaus River.

Proposed BST Activities



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BSG Products

Biological information needed to develop an instream flow schedule that is based on the best available science.

What is an instream flow schedule?

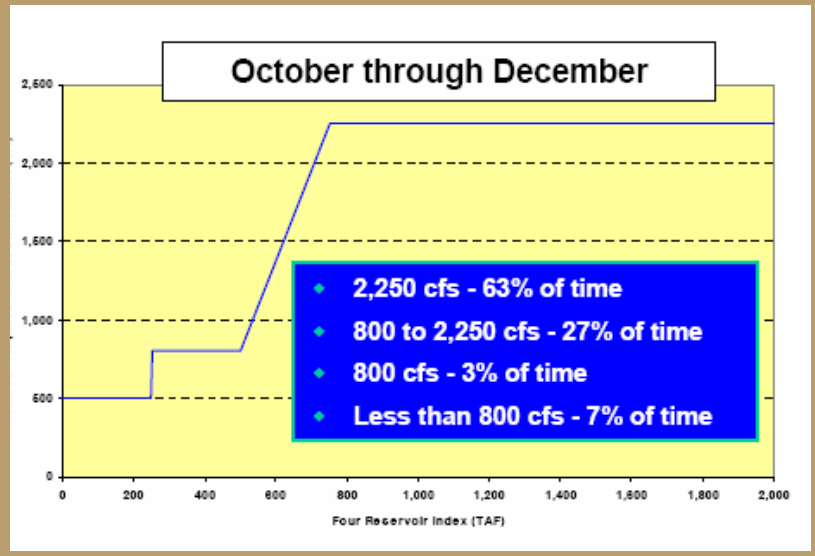
Examples

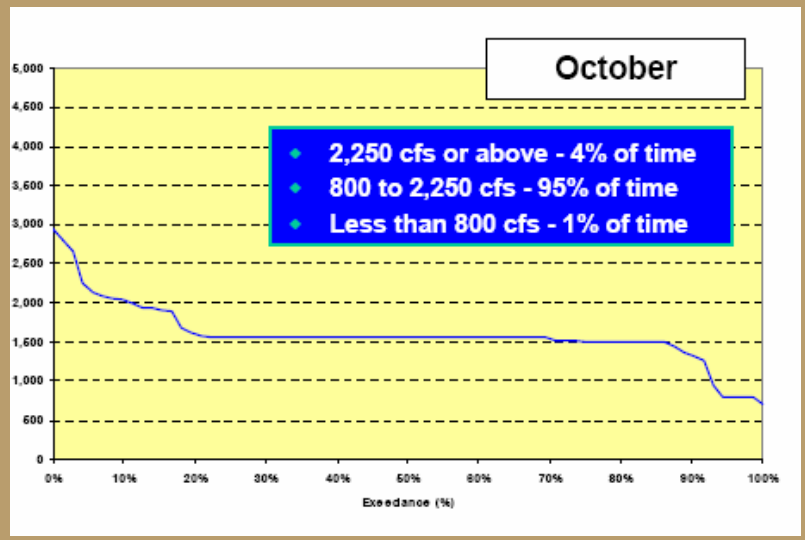
- **American River**
- **Yuba River**

Lower American River proposed Flow Management Standard

Flows determined by specified conditions at biologically significant times of the year.

- **Three hydrologic indices**
- **Three timeframes based on different life history stages**
- **Thresholds identified and exceedance estimates calculated**





Source:Water Forum FMS TECHNICAL APPENDIX
http://www.waterforum.org/LAR/LAR_FMS.htm

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Yuba River proposed Instream Flow Schedule

- **Hydrologic index**
- **Six flow schedules depending on year type**
- **Includes predicted occurrence of each flow schedule**

Table 1. *Yuba Accord Fisheries Agreement* – Lower Yuba River Monthly Instream Flow Requirements (in cubic feet per second, unless otherwise indicated)

	Schedule	OCT	NOV	DEC	JAN	FEB	MAR	APR		MAY		JUN		JUL	AUG	SEP	Total Annual Volume (acre-feet)
		1-31	1-30	1-31	1-31	1-29	1-31	1-15	16-30	1-15	16-31	1-15	16-30	1-31	1-31	1-30	
Wet	1	500	500	500	500	500	700	1,000	1,000	2,000	2,000	1,500	1,500	700	600	500	574,200
↓	2	500	500	500	500	500	700	700	800	1,000	1,000	800	500	500	500	500	429,066
↓	3	500	500	500	500	500	500	700	700	900	900	500	500	500	500	500	398,722
↓	4	400	500	500	500	500	500	600	900	900	600	400	400	400	400	400	361,944
↓	5	400	500	500	500	500	500	500	600	600	400	400	400	400	400	400	334,818
Dry	6	350	350	350	350	350	350	350	500	500	400	300	150	150	150	350	232,155

- Indicated flows at the Marysville gauge represent average volumes for the specified time period. Actual flows may vary from the indicated flows according to established criteria.
- Indicated Schedule 6 flows at the Marysville gauge do not include an additional 30,000 acre-feet available from groundwater substitution to be allocated according to established criteria.

Table 2. *Yuba Accord Fisheries Agreement* – Predicted Occurrence of Each Flow Schedule

Schedule	Percent Occurrence	Cumulative Occurrence
1	56%	56%
2	22%	78%
3	7%	85%
4	5%	90%
5	5%	95%
6	4%	99%

- Remaining 1% are "Conference Years" (i.e., driest years).
- Based on 78-year hydrologic period of record for the lower Yuba River.

Source: Proposed Yuba Accord **Fisheries Agreement Technical Brief** http://www.ycwa.com/images/Other/Proposed_Yuba_Accord_Fisheries_Agreement_Tech_Brief.pdf

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Flow schedule considerations

Biological components (e.g. life history stages, biologically significant thresholds)

Water year type (e.g. hydrologic period of record, probability of occurrence)

Hydrologic index (one or more mechanisms for forecasting conditions)

Proposed Starting Point…

Reclamation and the CDFG entered into an agreement on June 5, 1987

Interim Instream Flows and Fishery Studies in the Stanislaus River below New Melones Reservoir

“87 Agreement”

Allowed for the withdrawal of the protest by DFG against Reclamation’s application for permits to divert water for beneficial uses at New Melones Reservoir.

87 Agreement

The purposes of the 87 Agreement were to:

1. **Provide appropriate Stanislaus River instream flows as needed to maintain or enhance the fishery resource during an interim period in which habitat requirements are better defined**
2. **Complete studies of the Chinook salmon fisheries of the Stanislaus River**

87 Agreement

Seven study elements described in the 87 Agreement:

1. **Evaluate instream flow requirements**
2. **Evaluate distribution and growth of juvenile salmon**
3. **Define timing and magnitude of downstream migration**
4. **Determine annual spawning escapements**
5. **Evaluate spawning habitat suitability and improvement needs**
6. **Temperature stations and modeling**
7. **Coordinate and integrate studies**

1. Evaluate instream flow requirements

A. Obtain information for probability of use curves
B. Transect selection and field data measurements
C. Data analysis
D. Flow release evaluations

Information available:

- **PHABSIM study /evaluation completed in 1990**
- **IFIM report prepared in 1993**

2. Evaluate distribution and growth of juvenile salmon

A. Evaluate distribution and growth in Stanislaus
B. Evaluate distribution and growth in the lower San Joaquin River and South Delta
C. Monitor thyroxine levels in fingerlings and smolts
D. Data analysis

Information available:

- CWT release tests conducted to evaluate survival of hatchery salmon smolts versus spring flow levels
- Trawl surveys at Mossdale
- Seining surveys on lower SJR

3. Define timing and magnitude of downstream migration

A. Development of sampling gear and techniques
B. Introduction of CWT fry from Merced River Fish Facility
C. Monitor downstream migration of CWT fish at various locations
D. Monitor ocean catch and spawning escapements for recovery of CWT
E. Monitor downstream migration of wild and CWT smolts
F. Data analysis

Information available:

- Rotary screw trap surveys at Oakdale and Caswell

4. Determine annual spawning escapements

No additional study activities defined

Information available:

- **Yearly escapement estimates**

5. Evaluate spawning habitat suitability and improvement needs

A. Map and evaluate existing spawning habitat
B. Plan habitat renovation project
C. Implement renovation project
D. Evaluate utilization of renovated area

Information available:

- Riffle Atlas
- Gravel augmentation projects
- Stanislaus River Fish Group Draft Restoration Plan

6.Temperature stations and modeling

No additional study activities defined

Information available:

- **Ongoing temperature monitoring and modeling efforts**

7. Coordinate and integrate studies among agencies

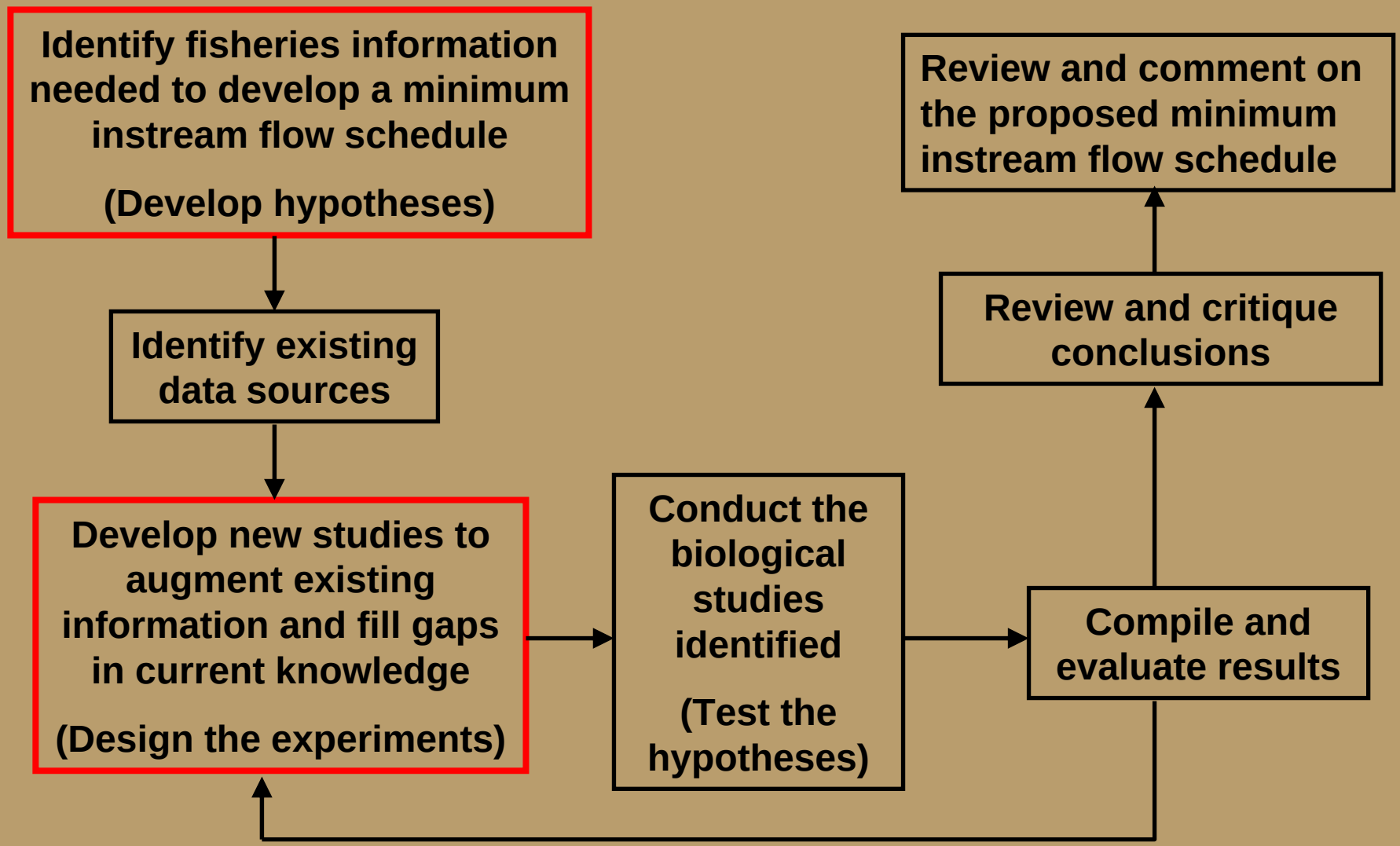
No additional study activities defined

Information available:

- **Annual reports have not been prepared**

Where are we now?

Proposed BST Activities



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Stanislaus River Salmonid Habitat Use Investigation

- **Based on initial review of the 87 Agreement with fish agencies**
- **Habitat mapping at various flows was a recurring theme**
- **Intended to contribute information to multiple study elements from the 87 Agreement:**

1. **Evaluate instream flow requirements**
2. **Evaluate distribution and growth of juvenile salmon**
3. **Define timing and magnitude of downstream migration**

Next steps