

# TRRP IDT



October 1, 2015  
WEaverville, CA



# TRRP MEETING GROUND RULES/GUIDELINES

(use best efforts to)

- Be present/focused/be prepared
- Avoid interruptions
- Listen before responding
- Be future orientated
- Stay on agenda – avoid policy debates
- Keep an open mind
  - **Willing Suspension of Disbelief!!**
- Raise disagreements openly and constructively
- Arrive on time/stay till end
- Avoid assumptions – Ask!
- Be clear about goal (“products”)

# TRRP MEETING GROUND RULES/GUIDELINES

CONSENSUS – Is a process through which a group makes a decision (w/o voting) that all members can support.

It is a group decision, supported by all group members, which is based on:

- A thorough understanding of all relevant information;
- 
- Active participation by all group members;
- 
- An understanding of different perspectives, concerns, and needs;
- 
- A creative effort to accommodate the different needs; and
- 
- A willingness to raise and understand disagreements and address the underlying needs manifested in disagreements.

# ·IDT·MEETING·AGENDA¶

October·1,·2015⌘

9:00·am·—·3:30·pm¶⌘

⌘

⌘

DRAFT·AGENDA·—·¶

Weaverville·TRRP·Office·⌘

## TECHNICAL·ROUNDTABLE·MEETING⌘

Coordinators:⌘ Joe·Polos·⌘  
Brandt·Gutermuth⌘

Desired·  
Outcomes:⌘

- Chart-out-a-path-forward-for-DSS-development¶
- Update-on-Corridor-Planning-Effort-and-Input-from-partners¶
- Sediment-Lessons-Learned-summary-document-plan·⌘

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Time⌘	Topic⌘	Presenters⌘
9:00⌘	Introductions/Agenda·Review/Goals-and-Objectives⌘	Joe·Polos⌘
9:15⌘	TRRP·Work·Group·¶ -→ Coordinator·Reports¶ -→ FY17· <u>Workplan</u> ·process¶ -→ ·Performance·Metrics⌘	WG·coordinators⌘
10:00⌘	Corridor·Planning·Effort—·presentation·of·analyses·to·date·and·discussion⌘	Dave· <u>Gauman</u> ⌘
12:00⌘	Lunch⌘	⌘
1:15⌘	Review·of·Sediment·Lessons·Learned·Workshop—·summary·document⌘	Robert·Stewart⌘
1:45⌘	Trinity·DSS·update—·plan·on·path·forward⌘	Group·Discussion⌘
2:45⌘	Big·Questions,·Objectives,·IAP—·Updates?·Review·by·WGs?⌘	Group·Discussion⌘
3:15⌘	Next·Steps·-/·Action·Items·-/·Set·Date·for·Next·Meeting⌘	Joe·Polos⌘
3:30⌘	ADJOURN⌘	

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## WG Updates/Reports

- **WG Administrative Issues**
- **TMC funding to IDT for DSS/River Corridor Plan**
- **Performance Measure Updates**
- **WG Coordinator Updates**



## WG Updates/Reports

- **WG Coordinators** – time to select coordinator
- **FY17 Workplan development** –
  - Likely an accelerated schedule with recommendations due to the TMC for approval in late January
  - Usual target date for budget approval is mid-June
  - TMC will discuss this at their October 15 conference call.
  - Depending on outcome WGs may need to develop annual workplan very soon.
- **Reports/Deliverables**
  - when reports and data packages are completed provide them to Eric Peterson (TRRP data steward)
  - Provide response to comments document as part of the deliverables
  - Sending the reports to contracting office creates confusion because sometime the reports do not get forwarded to TRRP office.

## WG Updates/Reports

- **Task for IDT from TMC on the FY 16 Budget**
  - “...and \$120K be placed in science line item for the IDT to provide recommendations regarding the river corridor plan and in support of DSS.”

## WG Updates- Performance Measures

### Trinity River Restoration Program – Performance Measures

- Documents need to be updated, last update ~2012
- WG leads responsible for coordinating updates and reviews
- Currently 13 documents
- Target date for updates is Nov 13 so they can be provided to the TAMWG and TMC in December
- New ones?

### Fish WG

1. Abundance of Naturally Produced Juvenile Chinook Salmon
2. Chinook and Coho Salmon Rearing Habitat
3. Distribution of Natural-Origin Chinook Salmon Spawners
4. Spawning Escapement of Naturally Produced Salmonids
5. Proportion of Natural Origin Salmonids Contributing to Total In-River Run
6. Temperature Target Performance



## WG Updates – Performance Measures (cont)

### Gravel/Physical WG

1. Change in Fine Sediment Storage
2. Increase and Maintain Coarse Sediment Storage

### Riparian/Wildlife WG

1. Mapping and Quantifying Riparian Vegetation
2. Abundance Patterns Over Time for Riparian Birds
3. Abundance Patterns Over Time for Riverine Birds
4. Comparison of Turtles on the South Fork and Mainstem Trinity

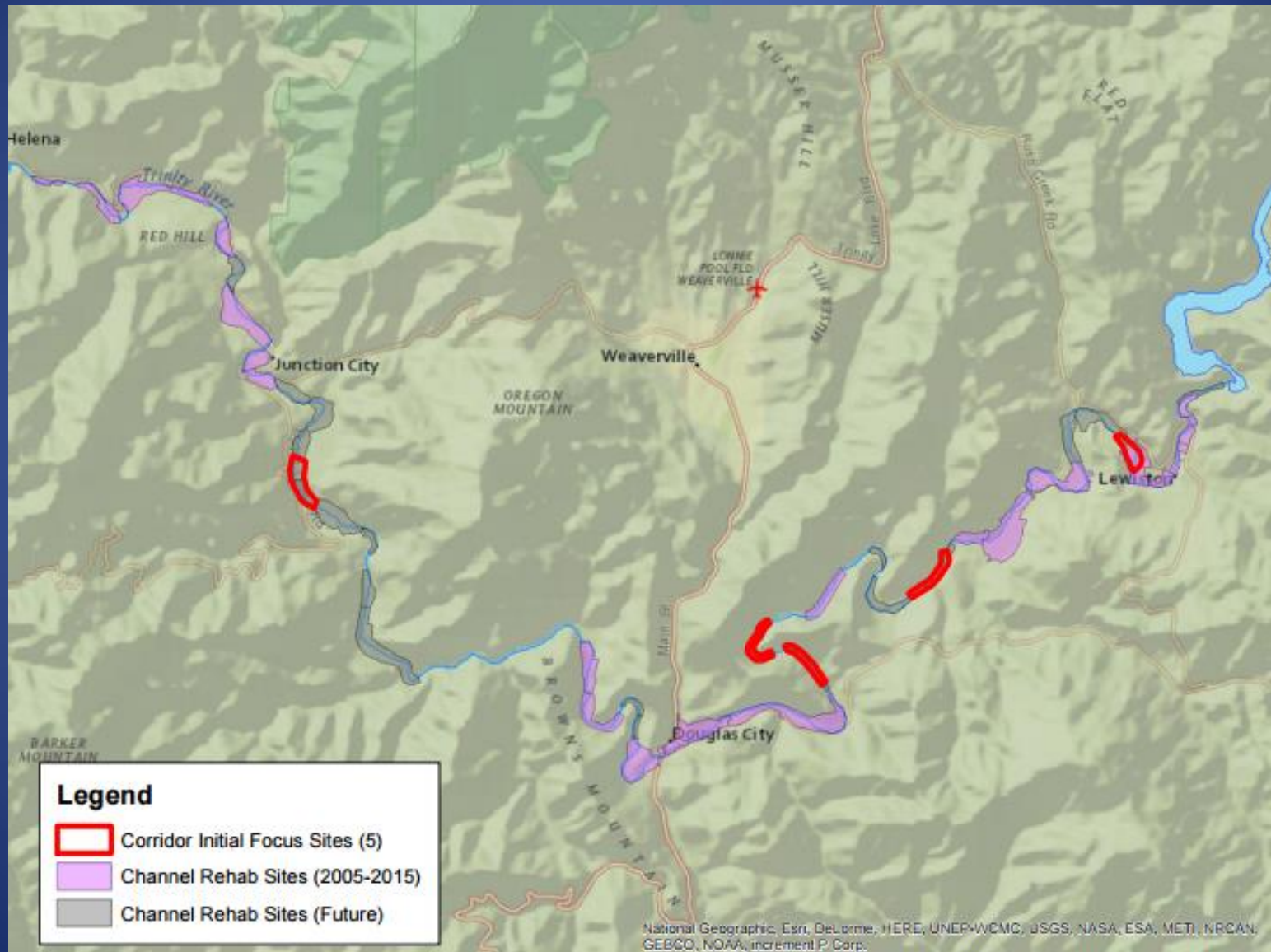
### Flow WG

1. Restoration Water Volume Accounting

## WG Updates/Reports

- Fish WG – Steve Cannata
- Gravel WG – Robert Stewart
- Wildlife-Riparian WG – James Lee
- Watershed WG – Sean Ledwin
- Flow WG – Robert Stewart
- Design Team – Conor Shea

# Corridor Planning Effort



# Sediment Lessons Learned Workshop



# Sediment Lessons Learned Workshop

From Sept 17, 2015 TMC meeting:

“Naman asked about a summary. Stewart described a set of questions each presenter was asked to answer (original assumptions, findings, lessons learned, and management implications). Naman and Bingham asked for a written summary. “

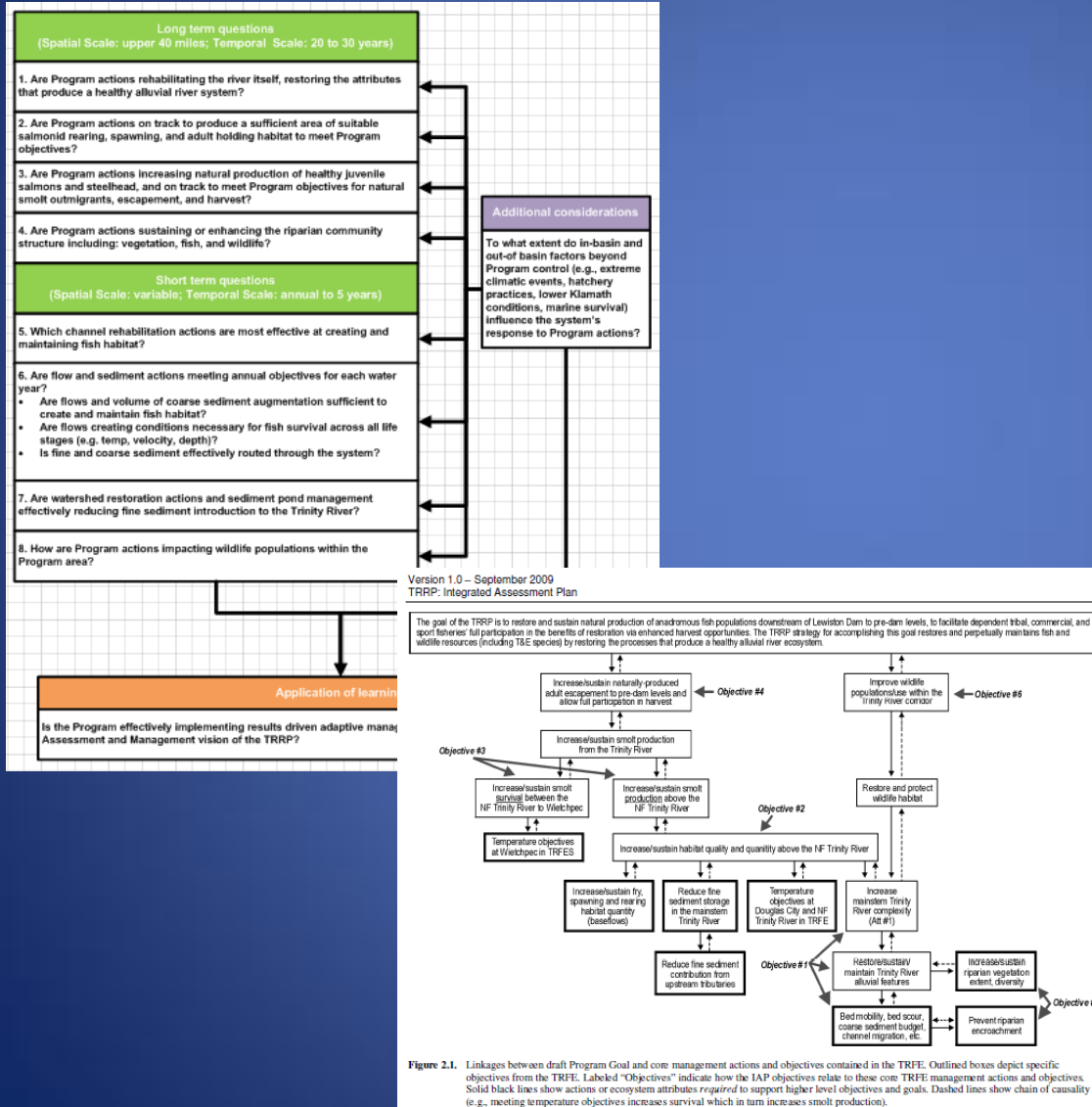
# Sediment Lessons Learned Workshop

## Draft TRRP Sediment Lessons Learned Workshop Summary (jcp)

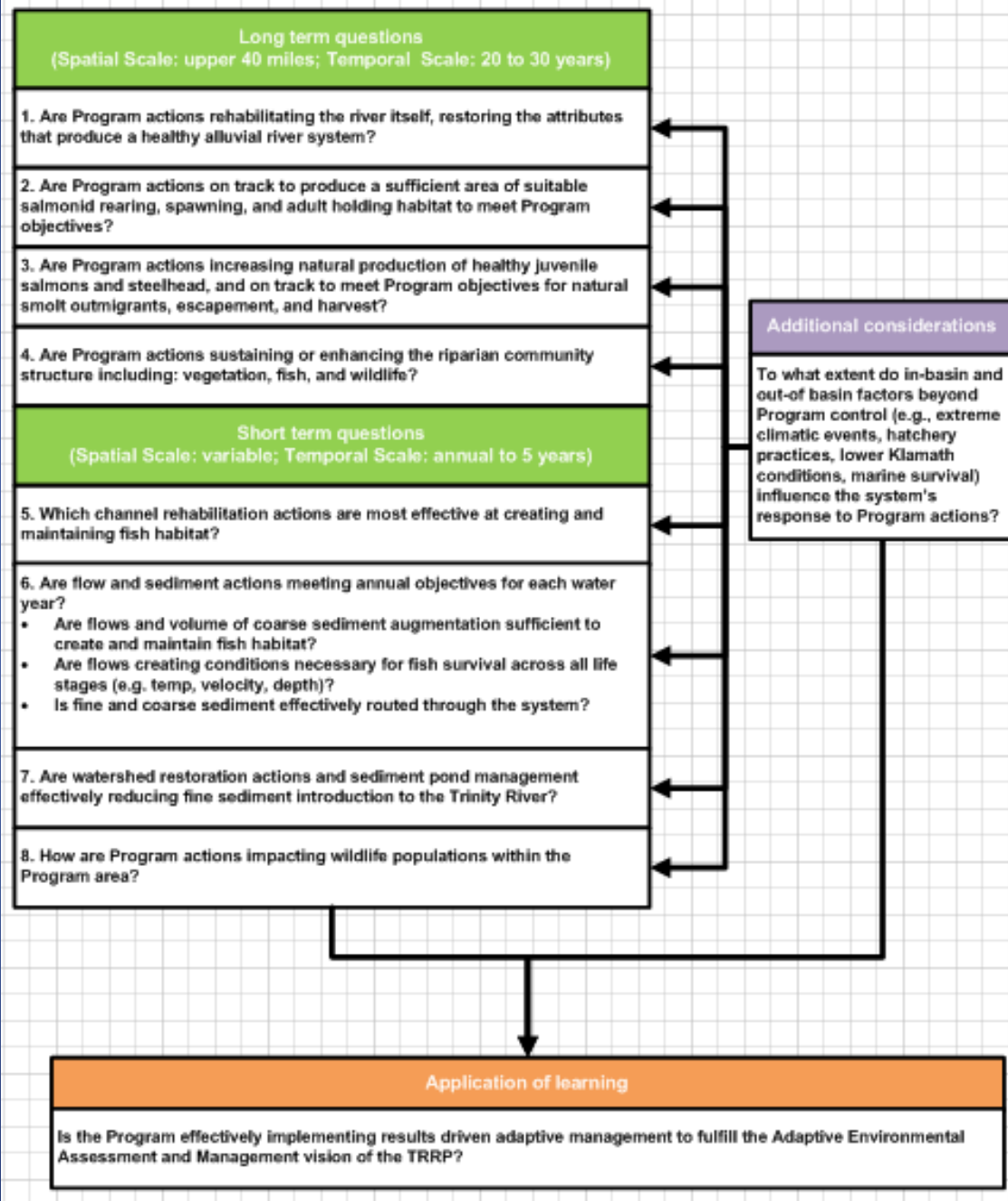
1. **Introduction** and Purpose of workshop
2. **Presentations** – this section would include the abstracts and the presentations could be included as appendices.
3. **Lessons learned matrix**
4. **Unresolved issues**
5. **Identify key uncertainties/issues**
  1. Prioritize key uncertainties based on how the outcome will influence management actions
  2. Develop plan to address key uncertainties
    1. Analyses of existing data
    2. Directed study
    3. Outside expert panel
    4. Other



# Trinity DSS - Big Questions & Objectives

[illegible]

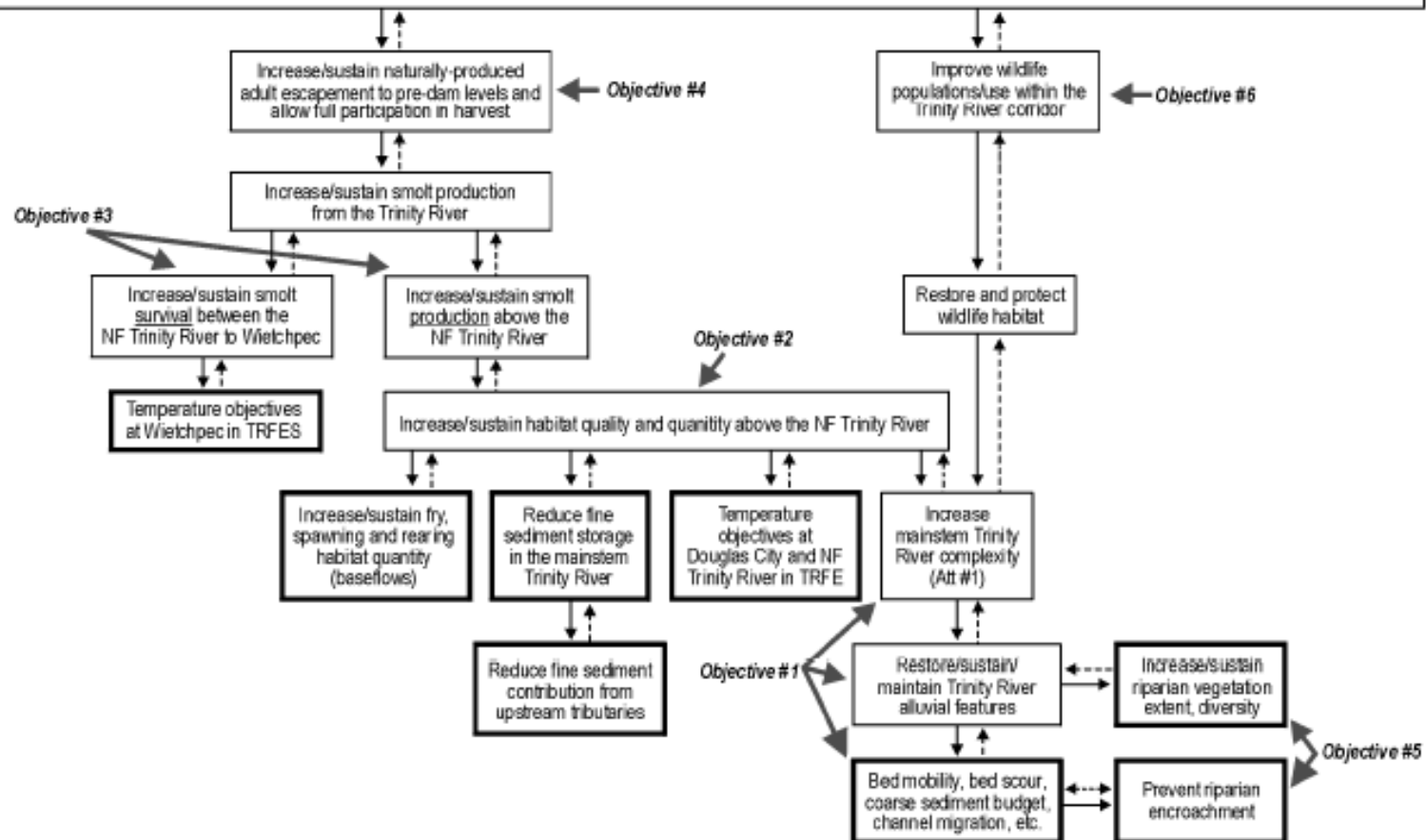
# Trinity DSS - Big Questions



# Trinity DSS - Objectives

Version 1.0 – September 2009  
TRRP: Integrated Assessment Plan

The goal of the TRRP is to restore and sustain natural production of anadromous fish populations downstream of Lewiston Dam to pre-dam levels, to facilitate dependent tribal, commercial, and sport fisheries' full participation in the benefits of restoration via enhanced harvest opportunities. The TRRP strategy for accomplishing this goal restores and perpetually maintains fish and wildlife resources (including T&E species) by restoring the processes that produce a healthy alluvial river ecosystem.



**Figure 2.1.** Linkages between draft Program Goal and core management actions and objectives contained in the TRFE. Outlined boxes depict specific objectives from the TRFE. Labeled "Objectives" indicate how the IAP objectives relate to these core TRFE management actions and objectives. Solid black lines show actions or ecosystem attributes required to support higher level objectives and goals. Dashed lines show chain of causality (e.g., meeting temperature objectives increases survival which in turn increases smolt production).

# Trinity DSS - Objectives

Trinity River Restoration Program Conceptual Model

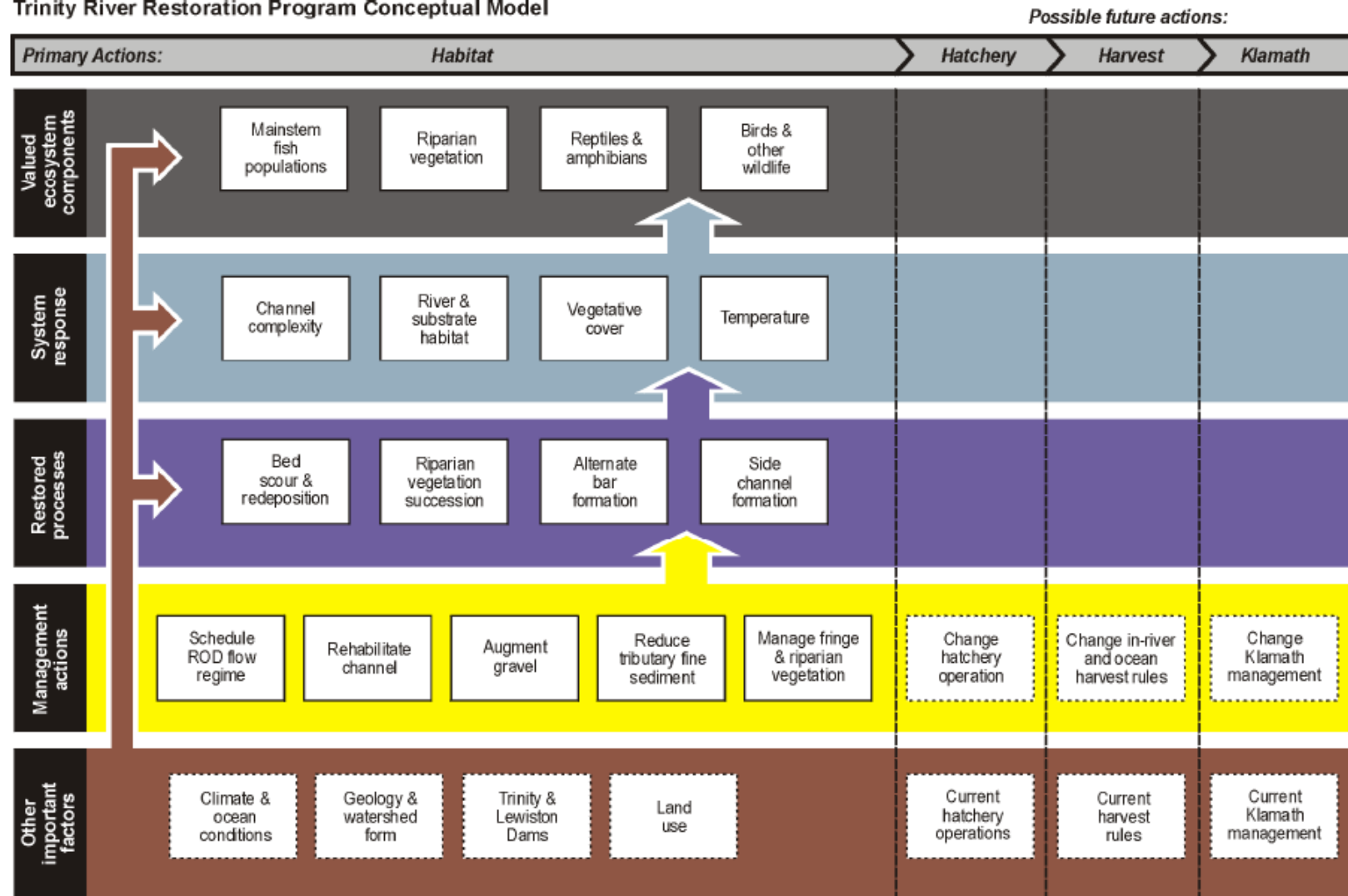


Figure 1.3. Conceptual model of overall system, showing the cause-effect chain from TRRP management actions to Valued Ecosystem Components. Management actions in the row second from the bottom (to the left of the dashed line) are within the mandate of the Program; actions to the right of the dashed line may be implemented in the future (see Table 1.4). Factors in the bottom row affect various processes and system responses, but are not within the control of the Program, and may confound some of the assessments of TRRP management action effectiveness.

# Trinity DSS - Objectives

Fundamental Objective	Fisheries Fundamental Objective(s)
	Species Specific Fundamental Objective
Restore adult anadromous fish numbers to pre-Trinity River Dam levels in order to facilitate dependent steel, commercial, and sport fisheries full participation in the benefits of restoration via enhanced harvest opportunities	Increase naturally produced fall-run Chinook salmon adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity
	Increase naturally produced spring-run Chinook salmon adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity
	Increase naturally produced coho salmon adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity
	Increase naturally produced steelhead adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity
	Increase naturally produced green sturgeon adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity
	Increase naturally produced Pacific lamprey adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity

## Attributes of Alluvial River Ecosystems:

1. Spatially complex channel morphology.
2. Flows and water quality are predictably variable.
3. Frequently mobilized channel-bed surface.
4. Periodic channelbed scour and fill.
5. Balanced fine and coarse sediment budgets.
6. Periodic channel migration or avulsion.
7. A functional floodplain.
8. Infrequent channel-resetting floods.
9. Self-sustaining diverse riparian plant communities.
10. Naturally fluctuating ground-water table.

Increase juvenile production of <b>Steelhead, Coho salmon, Chinook, and Cutthroat trout</b> to levels consistent with natural conditions in the mainstem Trinity River within 54 broadcast years following rehabilitation of alluvial river processes	<b>Adult spawning habitat</b> - restore spawning habitat areas throughout the restoration reach  Minimize by standing in the upper 40 miles of the mainstem Trinity River  Reduce brown trout population to decrease predation on other naturally produced fish in the mainstem Trinity River
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1. Create and maintain spatially complex channel morphology	1.1. Increase physical habitat diversity and availability (to achieve Fish Habitat objective 2.1, Riparian objectives 5.1 & 5.2, and Wildlife objectives 6.4.3 & 6.5.1)
	1.2 Increase coarse sediment transport and channel dynamics
	1.3 Increase and maintain coarse sediment storage
	1.4 Reduce fine sediment storage in the mainstem Trinity River
6. Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation	6.1 Maintain Trinity populations and species diversity of birds using the riparian zone in the Program area
	6.2 Maintain Trinity River riverine bird populations and species diversity in the Program area
	6.3 Minimize impacts of riverine bird predation on fry and smolts
	6.4 Increase population size, survival, distribution, and recruitment success of Foothill Yellow-legged Frogs (FYLF)
	6.5 Increase population size, survival, distribution, and recruitment success of Western Pond Turtle (WPT)
	6.6 Minimize adverse impacts to additional native riparian or aquatic associated wildlife from Program activities. Focus on wildlife species associated with a healthy river ecosystem, not necessarily all species

Increase physical habitat diversity and availability for all life stages of anadromous salmonids in the upper 40 miles of the Trinity River to meet fundamental objectives.	Increase/maintain salmonid fry and juvenile rearing habitat  Increase/maintain spawning habitat quantity and quality  Maintain or increase adult holding habitat from baseline conditions in the mainstem Trinity River
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Improve riverine thermal conditions for growth and survival of natural anadromous salmonids	Improve thermal regimes for rearing growth and survival of juvenile steelhead, coho salmon and Chinook salmon
	Improve thermal regimes for outmigrant salmonid growth and survival (dependent on water year)
	Provide optimal temperatures to maximize pre-spawning mortality, provide in-river egg viability, and improve spawning success of spring and fall-run Chinook

Minimize impacts of predation, competition, and genetic interactions between and among habitats and natural anadromous fish	Increase proportion of natural influence (NFI) used as a surrogate for genetic interactions + mix of habitats and water flow  Predation = NEED TO DEVELOP LANGUAGE FOR THIS OBJECTIVE  Competition = NEED TO DEVELOP LANGUAGE FOR THIS OBJECTIVE
Adapting of habitat areas to alter distribution of river predation and minimize predation on naturally and smolts	WMA combining channelizing (this has on to wildlife WMA is consider)


5. Establish and maintain riparian vegetation that supports fish and wildlife	5.1 Promote diverse native riparian vegetation on different geomorphic surfaces that contribute to complex channel morphology and high quality aquatic and terrestrial habitat (achieve Fish Habitat objective 2, Fish Production objective, 3.1, and Wildlife objective 6.1)
	5.2 Prevent riparian vegetation from exceeding thresholds leading to encroachment that simplifies channel morphology and degrades aquatic habitat quality (achieve Fish Habitat objective 2.1, Wildlife Objectives 6.2 & 6.4)
	5.3 Recover riparian vegetation area equal or greater than disturbed by physical rehabilitation (achieve Wildlife Objective 6.1)



# Trinity DSS - Objectives

Fundamental Objective
Restore adult anadromous fish numbers to pre-Trinity River Dam levels in order to facilitate dependent tribal, commercial, and sport fisheries full participation in the benefits of restoration via enhanced harvest opportunities

This is the TRRP goal...seems to be a misuse of our current terminology of fundamental and means objectives (jcp)



Fisheries Fundamental Objective(s)
Species Specific Fundamental Objective
Increase naturally produced fall-run Chinook salmon adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity
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Increase naturally produced Pacific lamprey adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity



# Trinity DSS - Objectives

Increase freshwater production (abundance, physical condition, and health) of fry, juvenile and outmigrant anadromous fishes from baseline conditions in the mainstem Trinity River within 3-4 brood cycles following rehabilitation of fluvial river processes

*Limit redd superimposition by increasing* suitable spawning habitat areas throughout the restoration reach.

Minimize fry stranding in the upper 40 miles of the mainstem Trinity River

Reduce brown trout population to decrease predation on native naturally produced fish in the mainstem Trinity River.

# Trinity DSS - Objectives

## Attributes of Alluvial River Ecosystems:

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6. Periodic channel migration or avulsion.
7. A functional floodplain.
8. Infrequent channel-resetting floods.
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# Trinity DSS - Big Questions

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# Trinity DSS - Big Questions

Increase physical habitat diversity and availability for all life stages of anadromous salmonids in the upper 40 miles of the Trinity River to meet fundamental objectives.	Increase/maintain salmonid fry and juvenile rearing habitat
	Increase/maintain spawning habitat quantity and quality
	Maintain or increase adult holding habitat from baseline conditions in the mainstem Trinity River

# Trinity DSS - Objectives

Improve riverine thermal conditions for growth and survival of natural anadromous salmonids	
	Improve thermal regimes for rearing growth and survival of juvenile steelhead, coho salmon and Chinook salmon
	Improve thermal regimes for outmigrant salmonid growth and survival (dependent on water year)
	Provide optimal temperatures to minimize pre-spawning mortality, protect in-vivo egg viability, and improve spawning success of spring and fall-run Chinook



# Trinity DSS - Objectives

5. Establish and maintain riparian vegetation that supports fish and wildlife	5.1 Promote diverse native riparian vegetation on different geomorphic surfaces that contribute to complex channel morphology and high quality aquatic and terrestrial habitat <i>(achieve Fish Habitat objective 2, Fish Production objective. 3.1, and Wildlife objective 6.1)</i>
	5.2 Prevent riparian vegetation from exceeding thresholds leading to encroachment that simplifies channel morphology and degrades aquatic habitat quality <i>(achieve Fish Habitat objective 2.1, Wildlife Objectives 6.2 &amp; 6.4)</i>
	5.3 Recover riparian vegetation area equal or greater than disturbed by physical rehabilitation <i>(achieve Wildlife Objective 6.1)</i>

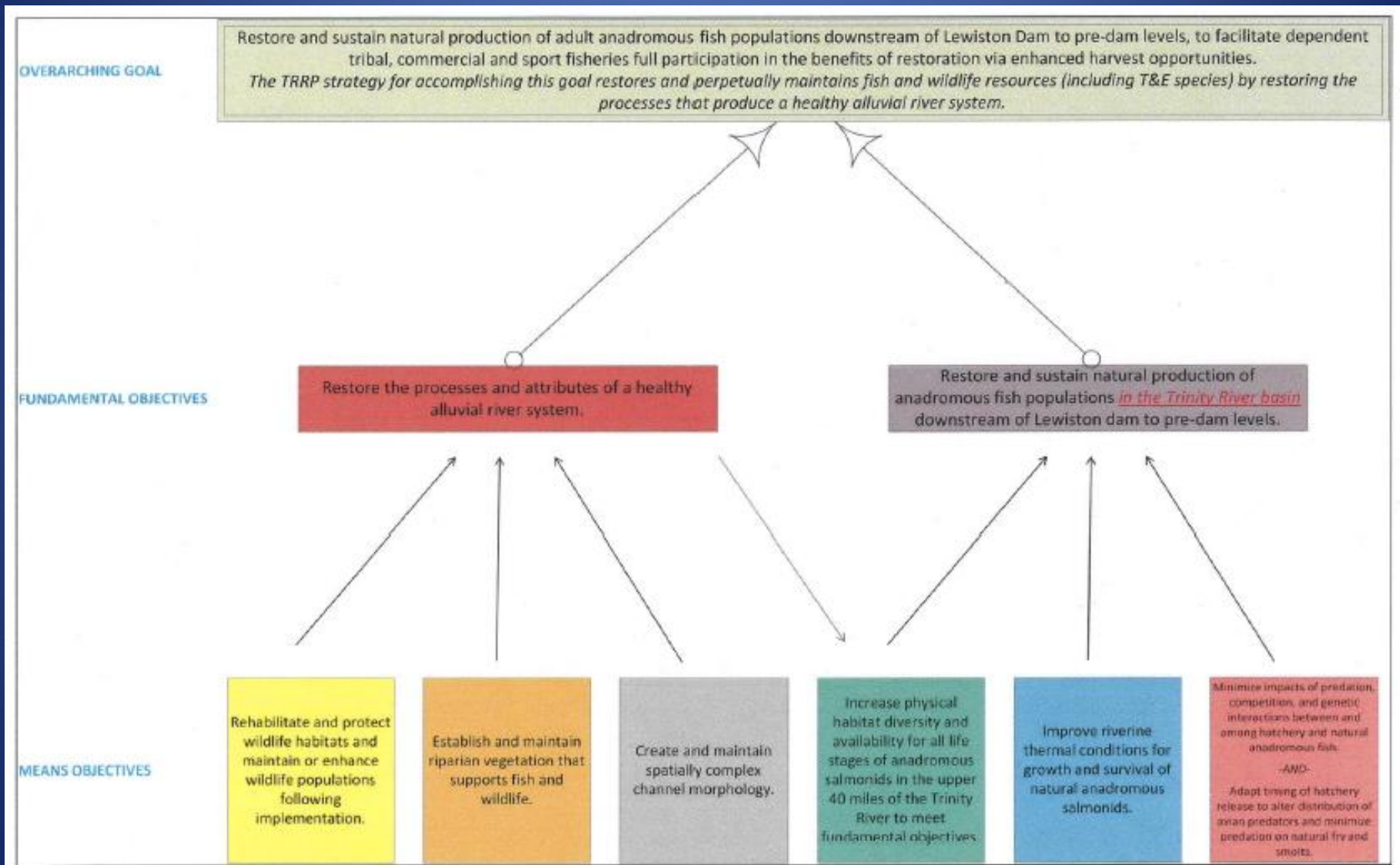


# Trinity DSS - Big Questions

6. Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation	6.1 Maintain Trinity populations and species diversity of birds using the riparian zone in the Program area
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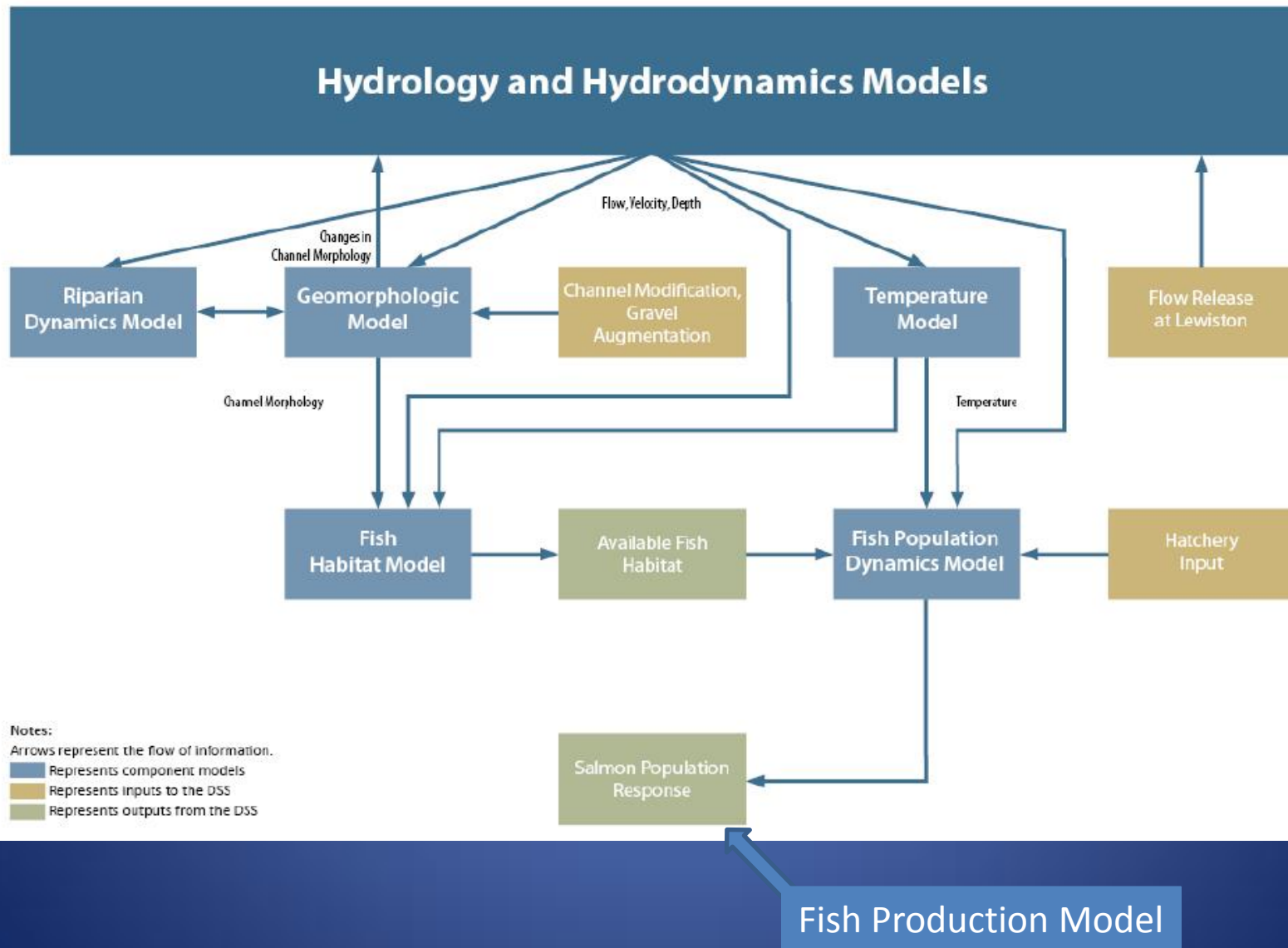
# Trinity DSS

## Conceptual Model with Fundamental and Means Objectives



# Trinity DSS – Fish Production

## Fundamental Objective – Restore and Sustain Natural Production of Anadromous Fish Populations



# Trinity DSS – Potential Models that May Be Used to Address Parts of Both Fundamental Objectives

## TRRP Decision Support System

Component	Model(s)	Status
Hydrodynamics	SRH*-1D	In use
	SRH*-2D	In use
Riparian Dynamics	SRH*-1DV~	Being developed
	SRH*-2DV~	
Geomorphologic	SRH*-1D	In use
	SRH*-2D	In use
Temperature	RBM+10	Being calibrated for use in WY16%
Fish Habitat	SRH-2D or other habitat typing technique	Recommendation to be made by modelers within the month
Fish Population Dynamics	SSS#	Being developed to the North Fork for use in WY16%

### Notes

\*SRH = Sedimentation and River Hydraulics

~V = Vegetation

+RBM = River Basin Model

%WY16 = water year 2016

#SSS = Stream Salmonid Simulator

# Trinity DSS - Healthy River

## Fundamental Objective – Restore the Processes and Attributes of a healthy Alluvial River System

### RIVER HEALTH EVALUATION FORM

Process/Attribute	Alternate Bar Morphology	Frequent Bed Mobility	Bar Scour	Balanced Sediment	Channel Migration	Floodplain Inundation	Large Floods	Diverse Riparian	Groundwater Corrosion	LWD Budget	Nutrient Cycling
Metric	Bars free to form in alluvial reaches; less than 10% of reach confined by man-made obstacles	Transport of sediments up to D50 diameter across active bar surfaces, every two years on average	Scour to depth of 2 D84 on 50% of active bar surfaces, every 2-3 years on average	Sediment transport and storage in sub-reaches supports alternate bar morphology where confinement allows. Sediment input is balanced with sediment output over	Channel free to migrate in response to flows above 25-year recurrence, free from confinement by man-made obstacles	75% of floodplain is inundated every 2 years, on average	Channel and floodplain attuned to 25+ year recurrence interval floods, allowing for substantial channel re-setting (e.g. avulsions)	Riparian vegetation is sustained in a complex mosaic of native species and seral stages	Variations in groundwater elevation attuned to lifecycles of native riparian and floodplain plant species	Density/volume of LWD and density/volume of recruitable species (e.g. older cottonwoods) is sustained over time at levels sufficient to ...?	?
Scoring*											
* 2 = supports; 1 = no significant impact; 0 = obstructs											

# Trinity DSS - Moving Forward

1. Integration of Big Questions, Objectives, Metrics/Targets and Models
  1. WGs need to develop and/or refine metrics
2. Description of models – needed inputs and resulting outputs
  1. Need to assign to individuals to write-up
3. Science Symposium – Late March/Early April
  1. WGs need to develop scenarios to be evaluated for demonstration of model utility in informing TRRP management actions



# Trinity DSS - Moving Forward

TRRP next steps (this includes some of the ideas/issues that were identified during the recent IDT conference calls)

1. Work through the DSS question in Appendix H of the Phase I review.
2. Incorporation of Big Questions?
3. Incorporation of objectives exercise?
  1. Define/refine metrics associated with objectives
4. What models does the TRRP have?
  1. How important are these in informing the TRRP through the DSS?
  2. Description of models – needed inputs and resulting outputs
    1. Need to assign to individuals to write-up
5. What is missing?
  1. How important are these in informing the TRRP through the DSS?

## Trinity DSS - Moving Forward

6. How will the DSS guide TRRP management actions – define procedures
7. How will the DSS guide the TRRP monitoring and assessment programs (TMAG and RIG information needs).- define procedures
8. Science Symposium – Late March/Early April
  1. WGs need to develop scenarios to be evaluated for demonstration of model utility in informing TRRP management actions

## 9. OTHERS



# EXTRA SLIDES

