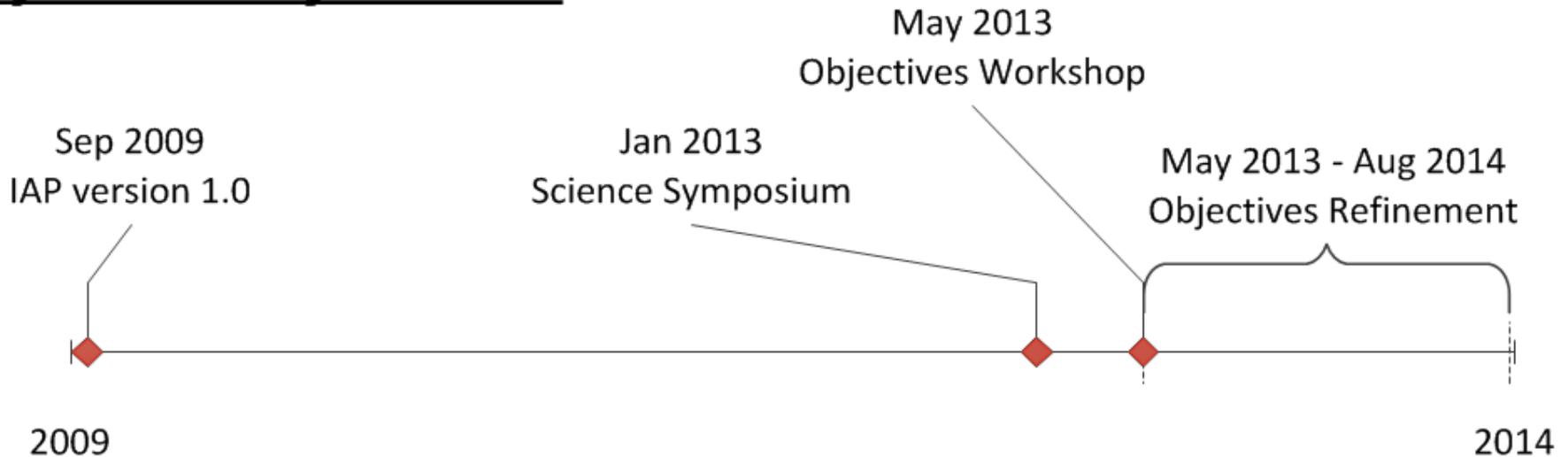


Objectives Refinement



IAP version 1.0

- Includes a goal statement.
- Identifies six primary objectives.
- Includes a hierarchy of objectives.
- Identifies linkages among objectives.
- Recommends assessments by objectives.

Science Symposium *SAB Recommendations*

- Identify objectives.
- Differentiate fundamental and means objectives.
- Link objectives to decisions.
- Better articulate program and stakeholder objectives and explicitly identify the relations among objectives.

Objectives Workshop

- Identifies an overarching goal and two fundamental objectives.
- Defines next steps in objectives refinement.

Objectives Refinement

- Reduce redundancies among means objectives.
- Review the conceptual models report to identify any missing objectives.
- Identify linkages between objectives and management actions.
- Develop quantitative metrics for each objective.

REPORT OUT

Program goals derive from these documents as well as other legislative and administrative actions. The IAP Steering Committee, a subcommittee of the Trinity Management Council, drafted the following Program goal statement, which both the TMC and TAMWG considered to be acceptable for purposes of guiding IAP development (though still under review by the TMC as an official Program goal):

5 *The goal of the Program 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 Program **strategy** for accomplishing this goal restores and perpetually maintains fish and wildlife resources (including threatened and*
10 *endangered species) by restoring the processes that produce a healthy alluvial river ecosystem. The above restoration **strategy** will be achieved by implementing management actions in a science-based adaptive management program.*

15 The first sentence of the goal statement focuses on fish, and incorporates the language of fishery goals from such foundational documents as the Trinity River Basin Fish and Wildlife Management Act (1984) amended in 1996, Central Valley Project Improvement Act (1992), and the ROD.

20 The second sentence of the goal mentions both fish and wildlife, and very briefly describes the restoration strategy. Threatened and endangered species are mentioned to ensure compliance with the Endangered Species Act. The words on the restoration strategy (i.e., “restoring the processes that produce a healthy alluvial river ecosystem”) are meant to concisely reflect the intent of the TRFE and ROD.

25 The third sentence of the goal statement reflects the commitment in the ROD, TRFE, and Implementation Plan to a science-based, adaptive environmental assessment and management program.

Trinity River Restoration Program:

Integrated Assessment Plan

Version 1.0 – September 22, 2009

Prepared by staff, partners and interested parties of
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2.2 Major program objectives

Building on the Program Goal and foundational documents, the authors of this IAP have developed the following broad objectives to guide assessments:

1. create and maintain spatially complex channel morphology;
- 5 2. increase/improve habitats for freshwater life stages of anadromous fish;
3. restore and maintain natural production of anadromous fish populations;
4. restore adult anadromous fish numbers to pre-TRD levels in order to facilitate dependent tribal, commercial, and sport fisheries full participation in the benefits of restoration via enhanced harvest opportunities;
- 10 5. establish and maintain riparian plant communities that support fish and wildlife; and
6. rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation.

Each of these objectives is discussed in sub-sections of Chapter 3.

15

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1 **Table 2.1.** Three levels of IAP objectives. Level 1 and 2 objectives form the sub-sections of Chapter 3 (e.g., Level 1 Objective 1 is described in Section 3.1,
 2 Level 2 Objective 1.1 is described in Section 3.1.1). More specific objectives are outlined in Chapter 3, though further refinement of objectives is
 3 still required. The priorities shown in the rightmost column are relative priorities **within** each Level 1 Objective, not across all Level 1 Objectives.
 4 Cross-domain prioritization is described in Section 2.4 and Appendix H.

Level 1 Objectives	Level 2 Objectives	Level 3 Objectives	Priority of Objectives (L,M,H)
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 6.4.1 & 6.5.1)	1.1.1. Increase the size, frequency and topographic relief of bar/pool sequences	M
		1.1.2. Increase channel/thalweg sinuosity	H
		1.1.3. Increase geomorphic unit and substrate patch diversity	L
	1.2. Increase coarse sediment transport and channel dynamics	1.2.1. Increase and maintain target coarse sediment transport rates	H
		1.2.2. Frequently exceed channel migration, bed mobilization, and bed scour thresholds	H
		1.2.3. Encourage bed-level fluctuations on annual to multi-year time scales	L
		1.2.4. Route coarse sediment through all reaches	L
	1.3. Increase and maintain coarse sediment storage	1.3.1. Increase bars, side-channels, alcoves, and other complex alluvial features	H
	1.4. Reduce fine sediment storage in the mainstem Trinity River	1.4.1. Transport fine sediment through mainstem at a rate greater than tributary input	H
		1.4.2. Reduce fine sediment supply from tributary watersheds	M
1.4.3. Encourage fine sediment deposition on floodplains		L	
2. Increase/improve habitats for freshwater life stages of anadromous fish to the extent necessary to meet or exceed production goals	2.1. Increase and maintain salmonid habitat availability for all freshwater (in-river and tributary) life stages (linkage to Riparian Objectives 5.1.2 & 5.2)	2.1.1. Increase/maintain salmonid fry and juvenile rearing habitat in the upper 40 miles of the mainstem Trinity River by a minimum of 400 % following rehabilitation of fluvial attributes	H(1)
		2.1.2. Increase/maintain spawning habitat quantity and quality to 2,550,000 square feet in the upper 40 miles of the mainstem Trinity River	H(2)
		2.1.3. Create channel form that reduces loss of fry to stranding in the upper 40 miles of mainstem Trinity River following rehabilitation during high flows	
		2.1.4. Maintain or increase adult holding habitat from baseline conditions in the mainstem Trinity River	

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IAP: Objectives Hierarchy

Appendix H. Table of assessments¹

In developing the inclusive, integrated sampling design for Chapter 4, we catalogued all proposed assessments (Table H.1), and reviewed all existing sampling designs and monitoring protocols with Program scientists (Appendix L). As described in Section 2.4 of the IAP, Table H.1 includes two forms of prioritization: efforts by IAP authors to prioritize *within each component* (i.e., physical, fish habitat, juvenile fish production, adult fish production, riparian, wildlife), based on the consensus judgment of the authors working within that component; and 2) efforts by the IAP Steering Committee to prioritize assessments *across components* through an overall ranking, both over the short term (2009-2013) and over the long term (2014 and beyond). Assessments are listed below grouped by component (not ranked order), and include other information on each assessment.

Table H.1. List of Program assessments, including prioritization within individual components.

IAP Component	Objective(s)	Assessment	Assessment type (primary benefit)	Description	Priority within component	General ranking guideline	Scale	Survey Type (See IAP section 4.5)	How often are data needed? (See IAP section 4.5)	Contingent Assessment? (Y/N - See IAP section 2.4)	If Contingent, describe what objective (column B) and assessment (column C) that it is contingent upon	Potential Clustered Assessment? (Y/N)	If Clustered Assessment, list what objective (column B) and assessment (column C) that it is contingent upon
Physical	1.1.1	1P	Both	Quantify changes in channel width/geometry and geomorphic features within the wetted channel (including sinuosity, radius of curvature, thalweg crossings, controls, length of edge (banklength), etc.)	First	9	System wide	Census	After channel changing flow events	N		Y	1.1.1 12P; 1.1.1 2P; 5.2.1 15P
Physical	1.1.1	12P	Needed to revise rehab proj	Assess design performance of specific design features (alcoves, side channels, lowered floodplains, etc)	First	14	Site	Sample and model	Annual	N		N	
Physical	1.2.1, 1.2.4, 1.3.1	14P	Needed to revise flow	Predict sediment transport and use predictions to help guide annual flow scheduling process.	First	15	System wide	Model	Annual	Y	Physical processes subgroup needs to discuss predictions using rating curves or model	Y	1.2.1 7P
Physical	1.2.1	5P	Needed to revise specific actions	Monitor bedload transport rates, compute coarse sediment loads, and evaluate coarse sediment rating curves that are expected to change over time in response to management actions.	First	17	System wide	Non-rep / model	Annual	N		Y	1.3.2 8P
Physical	1.2.2	6P	Needed to revise specific actions	Monitor bed mobility and scour thresholds	First	19	System wide	Sample	Annual	N		Y	5.2.1 3R
Physical	1.4.1, 3.1.1	16P	Progress towards goals	Evaluate spawning gravel quality in upper reach(es)	First	29	Site	Sample	Annual	Y	Pilot project being conducted in 2009, more extensive sampling depends on results of pilot effort	N	
Physical	1.4.1	9P	Needed to revise specific actions	Map and quantify fine sediment storage on the bed surface of the mainstem	First	30	Reach	Sample	Annual	Y	Do this assessment if field observations suggest large changes in fine sediment storage on the bed surface	Y	1.1.1 13P
Physical	1.2.1, 1.2.2, 1.2.3, 1.2.4	7P	Needed to revise specific actions	Predict changes in gravel storage as determined from coarse sediment budget calculations	First	38	System wide	Non-rep / model	Annual	Y	depends on mainstem coarse sediment transport data	Y	1.2.1 14P
Physical	1.3.2	8P	Needed to revise specific actions	Monitor coarse sediment inputs from tributaries	First	39	System wide	Non-rep / model	Annual	Y	do this assessment if topographic method doesn't work		
Physical	1.1.1	2P	Needed to revise specific actions	Monitor variability in bed elevations	First	46	Reach	Sample	Annual	N			
Physical	1.4.1, 3.1.1	17P	Progress towards goals	Compute fine sediment budget (input, output, change in storage).	First	47	Site	Sample	Annual	Y	depends on mainstem coarse sediment transport data		
Physical	1.1.1	3P	Needed to revise specific actions	Assess hydraulic parameter variability in 2-D model	Second	57	System wide	Sample	Annual	Y	Possibly assess this if other channel performance measures don't pan o		

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IAP: Assessments by Objective

Science Symposium

SAB Recommendations

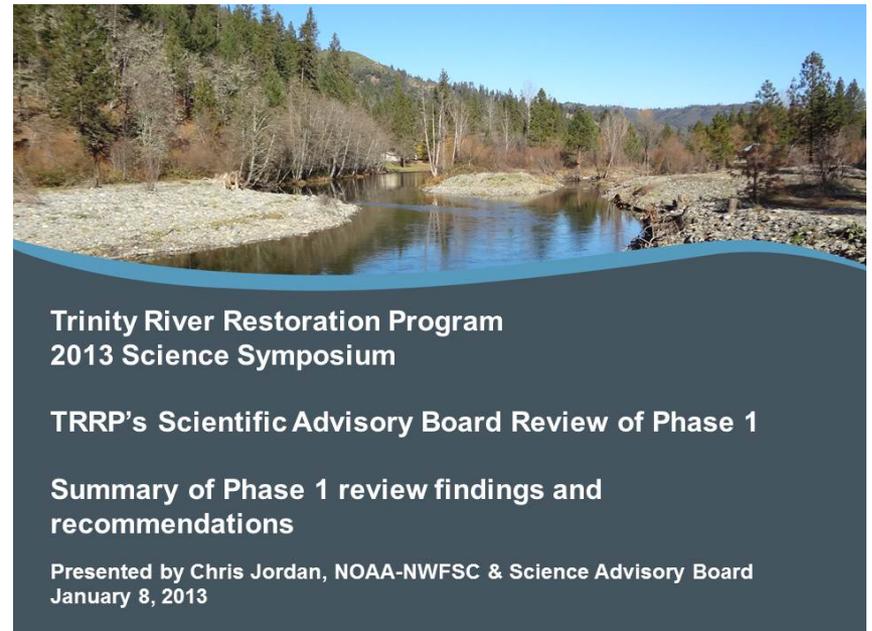
- Identify objectives
- Differentiate between fundamental and means objectives
- Link objectives to decisions via integrated model



Science Symposium

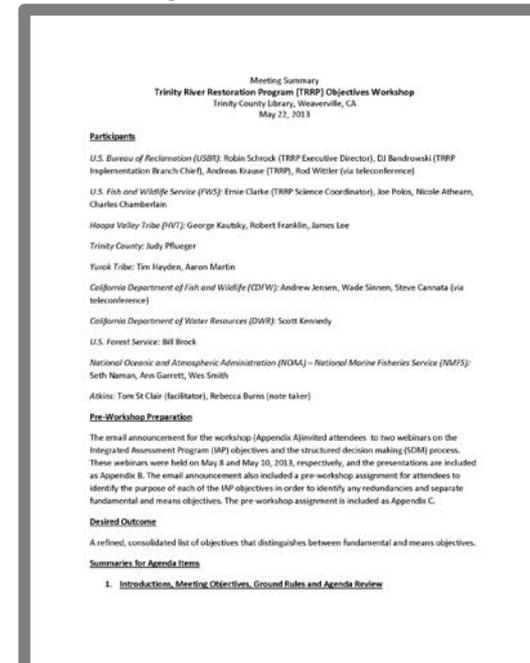
SAB Recommendations

- Better articulate program and stakeholder objectives and explicitly identify the relations among objectives.
- Integrate workgroup activities to better achieve specific Programmatic objectives.



Terminology

- The overarching goal is the common aspired to condition (or condition to aspire to), that unifies all stakeholders regardless of the ways they would choose to achieve that goal.
- A fundamental objective is an end that you are trying to achieve.
- A means objective is a way of achieving an end or fundamental objective.



Objectives Workshop: *Terms*

OVERARCHING GOAL

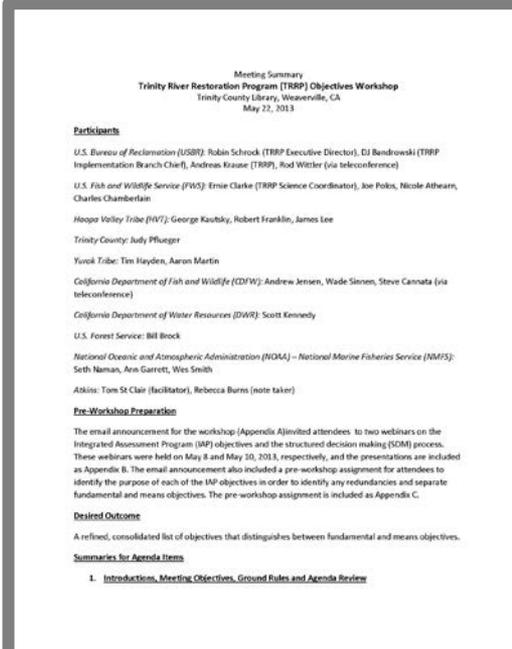
Restore and sustain natural production of adult anadromous fish populations downstream of Lewiston Dam to pre-dam levels, to facilitate dependent tribal, commercial and sport fisheries full participation in the benefits of restoration via enhanced harvest opportunities. *The TRRP strategy for accomplishing this goal restores and perpetually maintains fish and wildlife resources (including T&E species) by restoring the processes that produce a healthy alluvial river system.*

FUNDAMENTAL OBJECTIVES

Restore the processes and attributes of a healthy alluvial river system.

Restore and sustain natural production of anadromous fish populations *in the Trinity River basin* downstream of Lewiston dam to pre-dam levels.

Objectives Workshop: *Results*



Objectives Refinement

- Reduce redundancies among means objectives.
- Review the conceptual models report to identify any missing objectives.
- Identify linkages between objectives and management actions.
- Develop quantitative metrics for each objective.

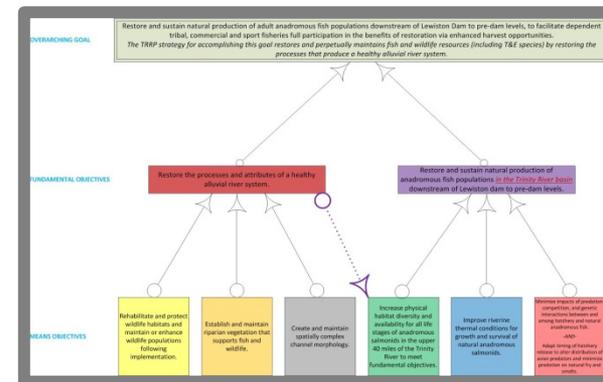


Objectives Workshop: *Next Steps*

Level 1 Objectives	Level 2 Objectives	Level 3 Objectives
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 6.4.1 & 6.5.1)	1.1.1. Increase the size, frequency and topographic relief of bar/pool sequences
		1.1.2 Increase channel/thalweg sinuosity
		1.1.3 Increase geomorphic unit and substrate patch diversity
	1.2 Increase coarse sediment transport and channel dynamics	1.2.1 Increase and maintain target coarse sediment transport rates 1.2.2 Frequently exceed channel migration, bed mobilization, and bed scour thresholds 1.2.3. Encourage bed-level fluctuations on annual to multi-year time scales
	1.3 Increase and maintain coarse sediment storage	1.2.4 Route coarse sediment through all reaches 1.3.1 Increase bars, side-channels, alcoves, and other complex alluvial features
1.4 Reduce fine sediment storage in the mainstem Trinity River		1.4.1 Transport fine sediment through mainstem at a rate greater than tributary input 1.4.2 Reduce fine sediment supply from tributary watersheds 1.4.3 Encourage fine sediment deposition on floodplains

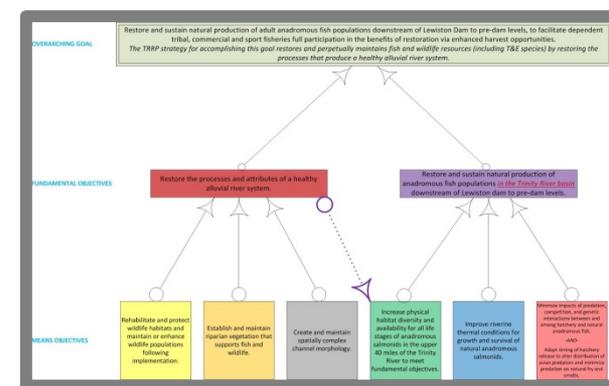
No changes were made to this objective. The level one objective is recognized as a means objective.

Objectives Refinement



Level 1 Objectives	Level 2 Objectives	Level 3 Objectives
2. Increase/improve habitats for freshwater life stages of anadromous fish to the extent necessary to meet or exceed production goals	2.1 Increase and maintain salmonid habitat availability for all freshwater (in-river and tributary) life stages (linkage to Riparian Objectives 5.1.2 & 5.2)	2.1.1 Increase/maintain salmonid fry and juvenile rearing habitat in the upper 40 miles of the mainstem Trinity River by a minimum of 400 % following rehabilitation of fluvial attributes
		2.1.2 Increase/maintain spawning habitat quantity and quality to 2,550,000 square feet in the upper 40 miles of the mainstem Trinity River
		2.1.3 Create channel form that reduces loss of fry to stranding in the upper 40 miles of the mainstem Trinity River following rehabilitation during high flows
		2.1.4 Maintain or increase adult holding habitat from baseline conditions in the mainstem Trinity River
		2.1.5 Minimize physical impacts to lamprey habitat
		2.1.6 Minimize physical impacts to other native fish habitats
		2.1.7 Maintain or increase tributary habitat
2.2 Improve riverine thermal conditions for growth and survival of natural anadromous salmonids		2.2.1 Provide optimal temperatures to improve spawning success of spring and fall-run Chinook salmon
		2.2.2 Improve thermal regimes for rearing growth and survival of juvenile steelhead, coho salmon and Chinook salmon
		2.2.3 Improve thermal regimes for outmigrant salmonid growth and survival (dependent on water year)
		2.2.4 Minimize temperature impacts to other native fish habitats
2.3 Enhance or maintain food availability for fry and juvenile salmonids		2.3.1 Increase and maintain macroinvertebrate populations (achieve Fish Production objective 3.1.1)

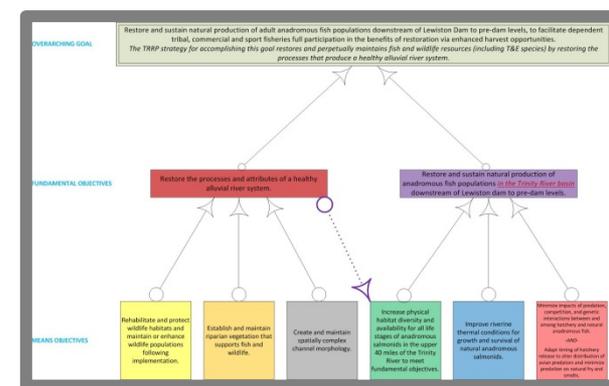
Objectives were incorporated in the "habitat" means objective (green font), "temperature" means objective (blue font), or deleted (strikethrough).



Objectives Refinement

Level 1 Objectives	Level 2 Objectives	Level 3 Objectives
3- Restore and maintain natural production of anadromous fish populations	3.1 Increase spawning, incubation and emergence success of anadromous spawners	3.1.1 Optimize adult utilization of suitable spawning habitat areas in the mainstem within 3-4 brood cycles following rehabilitation of fluvial river processes
		3.1.2 Optimize adult utilization of suitable spawning habitat areas in tributaries within 3-4 brood cycles following rehabilitation of fluvial river processes
		3.1.3 Reduce temperature related pre-spawning mortality and protect in-vivo egg viability of anadromous spawners in the mainstem Trinity River
		3.2 Increase freshwater production of anadromous fish
		3.2.1 Increase fry abundance, growth, physical condition, and health from baseline conditions in the mainstem Trinity River within 3-4 brood cycles following rehabilitation of fluvial river processes
		3.2.2 Increase outmigrant juvenile life stage abundance, growth, physical condition and health from baseline conditions in the mainstem Trinity River within 3-4 brood cycles following rehabilitation of fluvial river processes
		3.2.3 Improve juvenile fish production as a function of water temperature and habitat flow relationships from baseline conditions in the mainstem Trinity River within 3-4 brood cycles following rehabilitation of fluvial river processes
		3.2.4 Reduce clinical disease incidence in Trinity River origin outmigrants in the Klamath River to less than 20% within 5 years
		3.2.5. Reduce fry stranding in the upper 40 miles of the mainstem Trinity River by 50% following rehabilitation of fluvial river processes
		3.2.6 Reduce non-native fish predation on naturally produced fish by 50% in the mainstem Trinity River within 3-4 brood cycles following rehabilitation of fluvial river processes (linkage to Wildlife objective 6.3)
	3.3 Minimize impacts of predation, competition, and genetic interactions between and among hatchery and natural anadromous fish	3.3.1 Limit impacts of hatchery fish predation on naturally produced juvenile salmonids to less than 20% over the 40 miles
		3.3.2 Increase proportion of Natural Influence (pNI) to 0.7 or greater

Objectives were incorporated in the "fish production" fundamental objective (purple font), "hatchery" means objective (red font), or deleted (strikethrough).

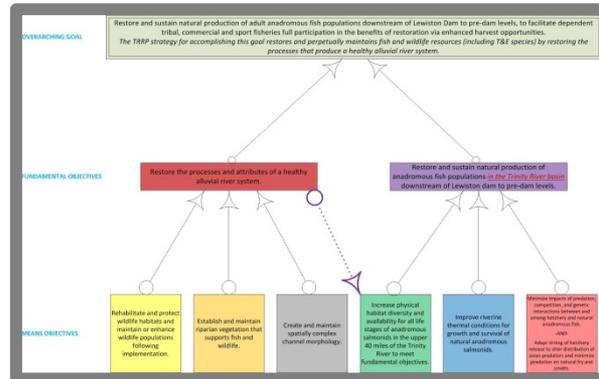


Objectives Refinement

Level 1 Objectives	Level 2 Objectives	Level 3 Objectives
4. 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	4.1 Increase naturally produced fall-run Chinook salmon adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity	4.1.1 Increase escapement of naturally produced fall-run Chinook salmon to 62,000 adults 4.1.2 Increase harvest of naturally produced fall-run Chinook salmon adults
	4.2 Increase naturally produced spring-run Chinook salmon adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity	4.2.1 Increase escapement of naturally produced spring-run Chinook salmon to 6,000 adults 4.2.2 Increase harvest of naturally produced spring-run Chinook salmon adults
	4.3 Increase naturally produced coho salmon adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity	4.3.1 Increase escapement of naturally produced coho salmon to 1,400 adults 4.3.2 Increase harvest of naturally produced coho adult salmon adults
	4.4 Increase naturally produced steelhead adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity	4.4.1 Increase escapement of naturally produced steelhead to 40,000 adults 4.4.2 Increase harvest of naturally produced steelhead adults
	4.5 Increase naturally produced Pacific lamprey adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity	4.5.1 Increase escapement of Pacific lamprey adults 4.5.2 Increase harvest of Pacific lamprey adults
	4.6 Increase naturally produced green sturgeon adult production to the extent necessary to meet or exceed escapement objectives and facilitate expanded harvest opportunity	4.6.1 Increase escapement of green sturgeon adults 4.6.2 Increase harvest of green sturgeon adults

Objectives in this suite are "outcome" based. They support the overarching goal.

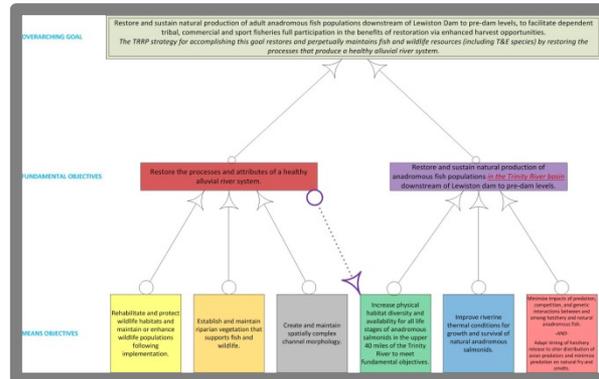
Objectives Refinement



Level 1 Objectives	Level 2 Objectives	Level 3 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>	5.1.1 Increase species, structural, and age diversity of riparian vegetation to improve and maintain wildlife habitat 5.1.2 Encourage establishment of riparian species on surfaces within the future channel migration corridor that will recruit LWD 5.1.3 Encourage establishment of vegetation that provides habitat for anadromous fish, aquatic organisms and aquatic / riparian wildlife
	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 & 6.4)</i>	5.2.1 Manage flows, coarse sediment augmentation, and channel rehabilitation that cause sufficient riparian plant mortality along low water margins to prevent channel simplification leading to degraded fish habitat
	5.3 Recover riparian vegetation area equal or greater than disturbed by physical rehabilitation <i>(achieve Wildlife Objective 6.1)</i>	- no level 3 objective required, as level 2 objective is sufficiently specific

No changes were made to this objective. The level one objective is recognized as a means objective.

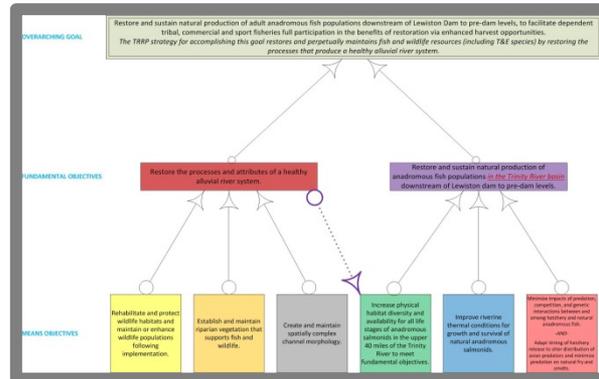
Objectives Refinement



Level 1 Objectives	Level 2 Objectives	Level 3 Objectives
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	6.1.1 Enhance quality and maintain quantity of riparian bird nesting and foraging habitats (<i>linkage to Riparian objective. 5.1</i>)
	6.2 Maintain Trinity River riverine bird populations and species diversity in the Program area	6.2.1 Enhance quality and maintain quantity of riverine bird nesting and foraging habitats (<i>linkage to Physical objective 1.1, Fish Habitat objective 2.3.1, Fish Production objectives 3.2.1 & 3.2.2 and Riparian objectives 5.1 & 5.2</i>)
	6.3 Minimize impacts of riverine bird predation on fry and smolts	6.3.1 Adapt timing of hatchery release to alter distribution of avian predators and minimize predation on natural fry and smolts (<i>achieve Fish Production objective 3.3.3</i>)
	6.4 Increase population size, survival, distribution, and recruitment success of Foothill Yellow-legged Frogs (FYLF)	6.4.1 Increase population size, survival, distribution, and recruitment success of Foothill Yellow-legged Frogs
		6.4.2 Increase quality and quantity of breeding and rearing habitat for Foothill Yellow-legged Frogs (<i>linkage to Riparian objectives 5.1 & 5.2</i>)
	6.5 Increase population size, survival, distribution, and recruitment success of Western Pond Turtle (WPT)	6.5.1 Increase population size, survival, distribution, and recruitment success of Western Pond Turtles
	6.5.2 Increase structural and thermal diversity of aquatic habitats used by various age classes of Western Pond Turtles	
	6.5.3 Increase recruitment of younger age classes of Western Pond Turtles	
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	6.6.1 Discourage invasive species	

No changes were made to this objective. The level one objective is recognized as a means objective.

Objectives Refinement



OVERARCHING GOAL

Restore and sustain natural production of adult 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 system.

FUNDAMENTAL OBJECTIVES

Restore the processes and attributes of a healthy alluvial river system.

Restore and sustain natural production of anadromous fish populations *in the Trinity River basin* downstream of Lewiston dam to pre-dam levels.

MEANS OBJECTIVES

Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation.

Establish and maintain riparian vegetation that supports fish and wildlife.

Create and maintain spatially complex channel morphology.

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.

Improve riverine thermal conditions for growth and survival of natural anadromous salmonids.

Minimize impacts of predation, competition, and genetic interactions between and among hatchery and natural anadromous fish.
-AND-
Adapt timing of hatchery release to alter distribution of avian predators and minimize predation on natural fry and smolts.



Objectives Refinement

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 tribal, 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:

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

<p>Increase freshwater production opportunities for steelhead, steelhead of 6, coho and fall-run chinook anadromous fishes from baseline conditions in the mainstem Trinity River within 3-4 flood cycles following rehabilitation of fluvial flow processes</p>	<p>Facilitate spawning habitat areas throughout the restoration reach.</p> <p>Minimize by stranding in the upper 40 miles of the mainstem Trinity River.</p> <p>Reduce brown trout population to decrease predation on native naturally produced fish in the mainstem Trinity River.</p>
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<p>1. Create and maintain spatially complex channel morphology</p>	<p>1.1. Increase physical habitat diversity and availability (to achieve Fish Habitat objective 2.1, Riparian objectives 5.1 & 5.2, and Wildlife objectives 6.4.1 & 6.5.1)</p> <p>1.2 Increase coarse sediment transport and channel dynamics</p> <p>1.3 Increase and maintain coarse sediment storage</p> <p>1.4 Reduce fine sediment storage in the mainstem Trinity River</p>	<p>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.</p>	<p>Increase/maintain salmonid fry and juvenile rearing habitat</p> <p>Increase/maintain spawning habitat quantity and quality</p> <p>Maintain or increase adult holding habitat from baseline conditions in the mainstem Trinity River</p>
<p>6. Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation</p>	<p>6.1 Maintain Trinity populations and species diversity of birds using the riparian zone in the Program area</p> <p>6.2 Maintain Trinity River riverine bird populations and species diversity in the Program area</p> <p>6.3 Minimize impacts of riverine bird predation on fry and smolts</p> <p>6.4 Increase population size, survival, distribution, and recruitment success of Foothill Yellow-legged Frogs (FYLF)</p> <p>6.5 Increase population size, survival, distribution, and recruitment success of Western Pond Turtle (WPT)</p> <p>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</p>	<p>Improve riverine thermal conditions for growth and survival of natural anadromous salmonids</p>	<p>Improve thermal regimes for rearing growth and survival of juvenile steelhead, coho salmon and Chinook salmon</p> <p>Improve thermal regimes for outmigrant salmonid growth and survival (dependent on water year)</p> <p>Provide optimal temperatures to minimize pre-spawning mortality, protect in-vivo egg viability, and improve spawning success of spring and fall-run Chinook</p>
<p>Minimize impacts of predation, competition, and growth interactions between and among hatchery and natural anadromous fish</p>	<p>Increase proportion of Native Influence (NI) cases as a surrogate for growth interactions - mixing of hatchery and natural fish</p> <p>Producers - NEED PRO DEVELOP LANGUAGE FOR THIS OBJECTIVE</p> <p>Competition - NEED PRO DEVELOP LANGUAGE FOR THIS OBJECTIVE</p>	<p>Adapt timing of hatchery releases to alter distribution of water predators and minimize predation on natural fry and smolt</p>	<p>With consideration of minimizing this, focus on to evaluate and to consider</p>
<p>5. Establish and maintain riparian vegetation that supports fish and wildlife</p>	<p>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)</p> <p>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)</p> <p>5.3 Recover riparian vegetation area equal or greater than disturbed by physical rehabilitation (achieve Wildlife Objective 6.1)</p>		

Objectives Refinement