

Status as on 7/23/14: No changes proposed in this set of objectives.

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
		1.2.4 Route coarse sediment through all reaches
	1.3 Increase and maintain coarse sediment storage	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

Status as on 7/23/14: Objectives were incorporated in the "habitat" cluster (green font), "temperature" cluster (blue font), or deleted as redundant or irrelevant (strikethrough).

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)

Status as on 7/23/14: *Objectives were incorporated in the "fish production" cluster (purple font), "hatchery" cluster (red font), or deleted as redundant or irrelevant (strikethrough).*

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

Status as on 7/23/14: *Objectives in this suite were "outcome" based. Moved to fundamanetal fish objective.*

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

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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

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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

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.

Fisheries Fundamental Objective(s)	
Fundamental Objective	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:

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 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.

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)
	1.2 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

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

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

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

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)

Minimize impacts of predation, competition, and genetic interactions between and among hatchery and natural anadromous fish	Increase proportion of Natural Influence (pNI) used as a surrogate for genetic interactions = mixing of hatchery and natural fish
	Predation - NEED ITO DEVELOP LANGUAGE FOR THIS OJECTIVE
	Competition = NEED ITO DEVELOP LANGUAGE FOR THIS OJECTIVE
Adapt timing of hatchery release to alter distribution of avian predators and minimize predation on natural fry and smolts	FWG considering eliminating this. Pass on to wildlife WG to consider.