WRIA 1 Watershed Management Board

2018 SRFB/PSAR Grant Restoration and Protection Strategy Matrices

Background

The WRIA 1 Watershed Management Board is the lead entity for the WRIA 1 Salmon Recovery Program. The 2005 *WRIA 1 Salmonid Recovery Plan* and associated assessments and studies provide the foundation for the WRIA 1 Salmon Recovery Program. Whereas the WRIA 1 Salmon Recovery Program is inclusive of all salmon populations, the current focus is on recovery of the North Fork/Middle Fork and South Fork early Chinook populations. Adaptive manangement of these matrices over time, including potential expansion to other geographic areas, will be informed by new studies, chinook and habitat viability monitoring, and project effectiveness monitoring.

2018 SRFB/PSAR Grant Cycle

The current focus for this grant source is recovery of Nooksack early chinook, and grant proposals for the 2018 SRFB and regular PSAR grant round must have a primary benefit to Nooksack early chinook. Projects considered for the 2018 SRFB and regular PSAR grant round will be reviewed and ranked based on level of importance for Nooksack early Chinook, the sequencing and phasing of projects and/or project actions, and readiness to proceed.

Based on the *WRIA 1 Salmonid Recovery Plan,* previously completed habitat assessments/restoration plans in the Nooksack River Forks, and project effectiveness monitoring, this document presents the best available science on importance of geographic areas and restoration strategies to Nooksack early chinook. Strategies that are not highlighted in the attached matrices are either not applicable in a reach or they are of low importance in terms of benefitting Chinook. Project sponsors may present a science-based rationale for how projects that do not fit within the matrices benefit Nooksack early Chinook (e.g., change in priority tier, different strategy, different location, etc.).

2018 SRFB/PSAR Grant Restoration and Protection Matrices

Level of Importance for Chinook

Tier 1

Tier 2

Restoration Strategies and Level of Importance: North Fork Nooksack River

North Fork Reach Name (upstream RM)

	Pipeline	Rutsatz	Bell/ Kenny	Big Rock Canyon	Hatchery	Farmhouse	Maple Canyon	Maple Creek	Mahaffey Canyon	Below Boulder	Lone Tree	Wildcat/ Warnick	Canyon	Cornell	Horseshoe	Deadhorse
	38.3	40.6	42.9	43.7	46.7	49.4	49.8	50.6	51.1	52.3	53.3	54.8	55.8	57.8	61.9	65
North Fork Mainstem																
Construct/augment log jams to protect, encourage formation and growth of forested islands (especially upstream of tributary confluences)	Tier 2	Tier 2	Tier 2		Tier 1	Tier 1		Tier 1		Tier 1	Tier 1	Tier 1	Tier 2	Tier 2		Tier 1
Log jams to reconnect side channels (provide for flows during spawning/incubation, prevent major avulsion)					Tier 1	Tier 1		Tier 1		Tier 1	Tier 1	Tier 1	Tier 2	Tier 2		Tier 1
Logs/log jams to increase habitat quality in braids and side channels.	Tier 2	Tier 2	Tier 2		Tier 2	Tier 2	Tier 2	Tier 2		Tier 2	Tier 2	Tier 2	Tier 2	Tier 2		Tier 2
Reforest historic channel migration zone and 300' buffer	Tier 2	Tier 2	Tier 2		Tier 2	Tier 2		Tier 2		Tier 2	Tier 2	Tier 2	Tier 2	Tier 2		Tier 2
Promote floodplain forest encroachment on active channel area.	Tier 2	Tier 2	Tier 2		Tier 2	Tier 1		Tier 2		Tier 2	Tier 1	Tier 2	Tier 2	Tier 2		Tier 2
Promote channel-floodplain interaction to restore floodplain processes (e.g.wood recruitment, floodplain habitat formation)						Tier 2		Tier 2								
Acquire properties necessary to facilitate restoration	Tier 2	Tier 2	Tier 2		Tier 2*	Tier 2*		Tier 2*		Tier 2*	Tier 2*	Tier 2*	Tier 2*	Tier 2*		
Acquire properties at risk of degradation to protect high quality habitat, habitat-forming processes			Tier 2		Tier 2			Tier 1		High		Tier 2		Tier 1		
Early chinook tribs (upstream to chinook extent)	***None***	***None***	***Kenney Cr***	***None***	***Racehorse***	***None***	***None***	***Maple***		***Boulder***	***Lone Tree Reach***	***McDonald***	***Canyon***	***Cornell, Thompson, Hedrick & Glacier***	***None***	***Boyd, Deadhorse***
Restore riparian areas			Tier 2		Tier 2			Tier 2		Tier 2	Tier 2	Tier 2	Tier 2			
Restore habitat (diversity, stability)					Tier 2			Tier 2		Tier 2		Tier 2	Tier 2			
Restore fish passage											Tier 2		Tier 1			
Acquire properties at risk of degradation to protect high quality habitat, habitat-forming processes or to					Tier 2								Tier 1	Tier 1 for Thompson		
Watershed																
Assess, treat forest roads	Tier 2**															
Address chronic sediment sources	Tier 2**															

*Acquisition for restoration may be a Tier 1 if the acquisition is facilitating a Tier 1 restoration strategy.

**Proponent of a project addressing this strategy must demonstrate benefits to Chinook.

2018 SRFB/PSAR Grant Restoration and Protection Matrices

Level of Importance for Chinook

Tier 1

Tier 2

Restoration Strategies and Level of Importance: Middle Fork Nooksack River

Middle Fork Reach Name (upstream RM)

	Kulshan	Welcome	Porter	MF Canyon	Clearwater	Galbraith	Warm	Rankin
	1.5	3.1	5.2	7.2	9.4	11.7	14.5	17.4
Middle Fork Mainstem								
Restore passage at Middle Fork Diversion Dam					**Tier 1**			
Install lwd/log jams throughout the active channel to increase flow impedance.								
Install log jams along maturing forested channel margins to improve channel stability and slow migration	**Tier 2**	**Tier 2**	**Tier 2**					
Reforest historic migration zone and 300-foot riparian buffer	**Tier 2**	**Tier 2**	**Tier 2**					
Install lwd/log jams in unvegetated bar areas to provide sheltered areas that encourage vegetation encroachment	**Tier 2**	**Tier 2**	**Tier 2**					
Install log jams to increase the stability of forested islands and their associated side-channel habitats.	**Tier 1**	**Tier 1**	**Tier 1**					
Install log jams to reconnect side channels (provide for flows during spawning/ incubation)	**Tier 1**	**Tier 1**	**Tier 1**					
Install log jams to increase pool depth and frequency	**Tier 1**	**Tier 1**	**Tier 2**					
Install lwd/logjams to increase woody cover along channel edges								
Acquire functioning habitat at risk of degradation	**Tier 2**	**Tier 2**	**Tier 2**					
Acquire land to facilitate restoration	**Tier 1***	**Tier 1***	**Tier 1***					
Restore floodplain wetlands								
Restore floodplain connectivity								
Early chinook tribs (upstream to chinook extent)	***Canyon Lake***	***None***	***Porter, Peat Bog***	***None***	***Clearwater***	***Galbraith***	***Wallace, Warm, Sisters***	***Ridley***
Improve low-flow connectivity with tributaries								
Restore tributary riparian areas	**Tier 2**	**Tier 2**	**Tier 2**	**Tier 2**				
Restore habitat (diversity/stability)								
Acquire functioning habitat at risk of degradation								
Watershed								
Assess, treat forest roads	**Tier 2****							
Address chronic sediment sources	**Tier 2****							

*Acquisition for restoration may be a Tier 1 if the acquisition is facilitating a Tier 1 restoration strategy.

**Proponent of a project addressing this strategy must demonstrate benefits to Chinook.

Level of Importance for Chinook

Tier 1

Tier 2

Restoration Strategies and Level of Importance: South Fork Nooksack River

South Fork Reach Name (upstream RM)

	VanZandt	Todd	Hardscrabble	Standard	BNSF	Acme	Hutchinson	Saxon	Skookum	Dye's Canyon	Cavanaugh	Larson's Bridge	Lyman Pass	Elk Flats	Howard
	1.8	3.7	5.1	7.2	8.6	9.6	10.9	12.8	14.3	16.1	18	20.6	22	25.4	31
South Fork Mainstem															
Log jams to form deep complex pools: cool-water inflow areas	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1		Tier 1	Tier 1	Tier 2	Tier 2	Tier 2
Log jams to form deep complex pools: other areas	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 2	Tier 2	Tier 2
Replace riprap with wood bank structures	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2						
Reconnect and restore side-channels and restore historic channel pattern	Tier 2			Tier 2		Tier 2	Tier 2	Tier 2				Tier 2			
Setback or remove riprap embankments	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1						
Lower artificial levees to native bank elevations	Tier 1			Tier 1	Tier 1	Tier 1	Tier 1								
Relocate river-adjacent infrastructure outside the 100-year erosion hazard area	Tier 2	Tier 2	Tier 2	Tier 2	Tier 1	Tier 2	Tier 2	Tier 2	Tier 2					Tier 2	
Reforest historic channel migration zone and 300' buffer	Tier 2*	Tier 2*	Tier 2*	Tier 2*	Tier 2*	Tier 2*	Tier 2*	Tier 2*	Tier 2*		Tier 2*	Tier 2*	Tier 2*		
Remove invasive species (knotweed and reed canarygrass)							Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
Reconnect floodplains	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2		Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
Improve in-channel woody debris loading in floodplain channels	Tier 2						Tier 2	Tier 2							
Improve riparian conditions along floodplain channels (outside HMZ and 300')	Tier 2						Tier 2	Tier 2							
Acquire properties necessary to facilitate restoration	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
Acquire properties at risk of degradation to protect high quality habitat, habitat-forming processes	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 1	Tier 2	Tier 2	Tier 2
Early chinook tribs (upstream to chinook extent)	***None***	***None***	***None***	***None***	***None***	***None***	***Hutchinson***	***None***	***Skookum***	***None***	***Cavanaugh***	***Fobes, Deer, Roaring, Plumbago***	***None***	***None***	***None***
Restore riparian areas							Tier 2		Tier 2		Tier 2	Tier 2			
Restore habitat (diversity, stability)							Tier 2								
Acquire properties at risk of degradation to protect high quality habitat, habitat-forming processes							Tier 2		Tier 2		Tier 2	Tier 2			
Watershed															
Assess, treat forest roads	Tier 2														
Address chronic sediment sources*** (South Fork adjacent large inputs)				Tier 2								Tier 2	Tier 2	Tier 2	Tier 2

*If project is establishing a buffer where there currently isn't one, the strategy is a Tier 1.
**Proponent of a project addressing this strategy must demonstrate benefits to Chinook.
***Strategy is to address the large sediment streamside contributions (not intended for small)