WRIA 1 Salmon Recovery Board

2016 Nooksack River Forks Project Development Matrices

The attached 2016 Nooksack River Forks Project Development matrices is based on the 2015 matrices, previously completed habitat assessments in the Nooksack Forks, and the *WRIA 1 Salmonid Recovery Plan* . The Project Development matrices identifies restoration strategies that benefit Chinook for each reach of the Nooksack River Forks. Not all strategies are applicable in all reaches and not all strategies provide the same level of benefit for Chinook Recovery.

The highlighted strategies are those that provide a high (Tier 1) or moderate (Tier 2) level of importance for providing benefits to Chinook in that reach. 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. Since these project development matrices help guide lcoal project development for the 2016 SRFB grant application process, the n/a or low level of importance strategies may not be shown in the matrices. Potential sponsors of restoration projects for the 2016 SRFB grant cycle will have a higher likelihood of funding success if projects are proposed for strategies in reaches that have a high or moderate level of importance for chinook.

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.

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)