WRIA 1 Watershed Management Board

2022 SRFB 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.

2022 SRFB Grant Cycle

The current focus for this grant source is recovery of Nooksack early chinook, and grant proposals for the 2022 SRFB grant round must have a primary benefit to Nooksack early chinook. Projects considered for the 2022 SRFB 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. PSAR Large Capital Projects are not ranked locally- refer to the Puget Sound Partnership requirements and process.

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 recovery of Nooksack early chinook. Strategies that are not identified as Tier 1 or Tier 2 in the attached matrices are either not applicable in a reach or they are of low importance in terms of benefitting early Chinook recovery. 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.).

Level of Importance for Chinook

Tier 1	High priority
Tier 2	Moderate priority

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.

SRFB Grant Restoration and Protection Matrices

Level of Importance for Chinook

Tier 1	High priority
Tier 2	Moderate priority

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	High priority
Tier 2	Moderate priority

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)

Level of Importance for Chinook	
Tier 1	High priority
Tier 2	Moderate priority
TBD	To be determined

Restoration Strategies and Level of Importance: Lower Nooksack River (Downstream of Forks Confluence)

Note: Although there may be other existing or upcoming sources, the restoration strategies below are solely derived from Lower Nooksack geomorphic assessment (Boyd 2019).

	Lower Reach 2[1]		Upper Reach 2[2]		Lower Reach 3[3]		Upper Reach 3[4]		Lower Reach 4[5]		Upper Reach 4[6]	
	I-5 to Lower End of Devries Levee		Lower End of Devries Levee to Guide Mer		uide Meridian to Noon Road Constrictio		Constriction below Noon Rd. to Everson		Everson to Nugent's Corner		Nugent's Corner to Deming	
	RM 6.6 to 9.7		RM 9.7 to 15.3		RM 15.3 to 20.4		RM 20.4 to 23.8		RM 23.8 to 30.9		RM 30.9 to 36.6	
Lower Nooksack Mainstem	Reach-wide	Location-specific (see notes)	Reach-wide	Location-specific (see notes)	Reach-wide	Location-specific (see notes)	Reach-wide	Location-specific (see notes)	Reach-wide	Location-specific (see notes)	Reach-wide	Location-specific (see notes)
Levee/armor setback and expansion of corridor		TBD[a]		TBD[d]		TBD[e]				TBD[h]	TBD	
Restore anabranching planform							TBD			TBD[i]	TBD	
Removal of levee constrictions and hooks								TBD[g]				TBD[k]
Strategic armor removal							TBD			TBD[i]		
Strategic overtopping		TBD[b]		TBD[b]		TBD[b]						
Reconnect historic channels						TBD[f]						
Reforest historic channel migration zone and 300' buffer[7]	TBD		TBD		TBD		TBD		TBD		TBD	
Acquire properties necessary to facilitate floodplain reconnection[8]		TBD[c]		TBD[c]		TBD[c]		TBD[c]		TBD[c]	TBD[j]	
Acquire properties necessary to protect high-quality habitat and habitat-forming processes[9]												
Tributaries												
Restore riparian areas along tributaries and secondary channels within floodplain	TBD		TBD		TBD		TBD		TBD		TBD	
Restore/improve fish passage to floodplain tributaries disconnected by levees	TBD				TBD							

Location notes

[a] RM 7.3 to 8.5

[b] especially locations of poor connectivity or historic overtopping

[c] See specific locations identified for reach-specific restoration strategies.

[d] RM 10.8-12.8

[e] especially RM 16.8-19.3

[f] RM 16-16.3 left bank oxbow

[g] Abbott/Timon Levee constriction

[h] Twin View levee

[i] left bank below SR542

[j] right bank

[k] Deming to Sande-Williams levees; Sande-Williams to Lee levees

Level of Importance for Chinook

Tier 1	High priority
Tier 2	Moderate priority
TBD	To be determined

Restoration Strategies and Level of Importance: WRIA 1 Nearshore

Note: Although there may be other existing or upcoming sources, the restoration strategies below are solely derived from WRIA 1 Nearshore and Estuarine Assessment and Restoration PRioritization (MacLennan et al. 2013). See also *Notes* tab.

WRIA 1 Nearshore Zone

	Point Roberts	Drayton Harbor	Semiahmoo Spit to Birch Point	Birch Bay	Point Whitehorn to Sandy Point	Lummi Bay	Lummi Island	Lummi Peninsula/ Portage Island	Nooksack River Delta	Fort Bellingham	Bellingham	Edgemoor	Chuckanut Bay	Skagit
Remove or set back shoreline armoring/artificial fill/structures that impair nearshore sediment supply and transport[14]	TBD[a]	TBD	TBD	TBD	TBD		TBD[b]	TBD			TBD[c]	TBD[d]		TBD[e]
Restore tidal connectivity and/or fish passage[14]	TBD[a]	TBD	TBD	TBD[f]			TBD[g]	TBD[16]			TBD[h]	TBD[i]	TBD[j]	TBD[k]
Restore eelgrass, intertidal, salt marsh and marine riparian habitat[14]		TBD[l]			TBD[m]			TBD[16]			TBD[n]			
Structural enhancement where process-based restoration not feasible (includes beach nourishment, sediment bypass, nearshore habitat enhancement)[14]		TBD[o]			TBD[p]	TBD[17]		TBD[q]			TBD		TBD[17]	TBD[k]
Acquire properties at risk of degradation to protect habitat and habitat-forming processes, especially forage fish spawning habitat and intact high-volume feeder bluffs[15]	TBD[r]	TBD[s]	TBD[17]	TBD[t]	TBD[u]	TBD[v]	TBD[w]	TBD[x]	TBD	TBD[y]		TBD	TBD[17]	TBD[17]

Location notes:

[a] Pt Roberts Resort

[b] Shoreline in vicinity of Legoe Bay

[c] Post Point Lagoon shore, Mt Baker plywood, Bellingham Cold Storage (Padden Creek addressed per A. Burns, 2/2019)

[d] Post Point Lagoon south shore

[e] Samish delta, forage fish spawning beach south of Larabee

[f] Rogers Slough

[g] Wetland leeward of Legoe Bay Road

[h] Little Squalicum Cr; Harris Ave./Padden Cr. Estuary, railroad/Post Point Lagoon

[i] Tidal channel at Post Point south; Chuckanut Spit

[j] Mud Bay/Chuckanut Bay

[k] Colony Creek tidal channel; barrier estuary/emergent marsh near Oyster Creek

[l] Cain Creek, wetland near Blaine Marina

[m] Gulf Rd. coastal wetland

[n] Mt Baker plywood, I & J waterway, pocket beach (#95), Cornwall Ave. landfill, Squalicum Cr waterway, Bellingham Cold Storage. (Padden Creek addressed per A. Burns, 2/2019)

[o] Near Blaine Marina, near Cain Creek

[p] Bypass sediment around Intalco and Phillips piers

[q] Lummi Shore Rd

[r] Unarmored, undeveloped parcels along southshore of Pt Roberts; sand lance spawning beach north of Lily Point.

[s] Valuable habitats along shoreline of undeveloped parcels.

[t] Shoreline that delivers large amounts of sediment down-drift, undeveloped parcel just east of Point Whitehorn

[u] Undeveloped coastal wetland and surf smelt spawning beaches north of Sandy Point; intact, high-volume feeder bluffs along undeveloped parels.

[v] Wetland and marsh habitat, sand lance spawning beach and down-drift, undeveloped parcels.

[w] Sand land spawning beach, unarmored northeast shoreline.

[x] Wetland and marsh habitat, sand lance spawning beach and down-drift, undeveloped parcels.

[y] Forage fish spawning habitat

Level of Importance for Chinook	
Tier 1	High priority
Tier 2	Moderate priority
TBD	To be determined

Note: Although there may be other existing or upcoming sources, the restoration strategies below are solely derived from Nooksack River Estuary Habitat Assessment (Brown et al. 2005). See also *Notes* tab.

	Nooksack River Estuary Zone	
Restoration Strategies and Level of Importance: Nooksack River Estuary[10]	Nooksack Delta[11]	Lummi Delta[12]
Reconnect flooplain/delta by lowering, breaching, removing and/or setting back levees/infrastructure along mainstem and distributaries	TBD[a]	TBD[d]
Reconnect historic channels	TBD[b]	TBD[e]
Restore fish passage, tidal hydrology by removing or replacing tidegates/culverts	TBD[c]	TBD[f]
Restore nearshore processes, habitats, and passage by removing seawall dike		TBD[f,g]
Restore appropriate vegetation in riparian areas and across delta	TBD	TBD
Monitor and remove invasive species (Spartina)[13]	TBD	TBD[e]
Acquire properties necessary to facilitate floodplain/tidal reconnection	TBD	TBD
Acquire properties necessary to protect high-quality habitat and habitat-forming processes	TBD	TBD

Location notes

[a] Restoration alternatives identified in TWC et al. 2015.

[b] Head of Kwina Slough

[c] lower Kwina Slough dike, Kwina Slough at mouth of Slater Slough

[d] N. Red River distributary

[e] Lummi River

[f] Mitigation bank

[g] west of Lummi aquaculture facility

Geographic Area	ID	Note
		Lower Reach 2 strategies derived from Boyd 2019, Table 13
		Excluded "Excavation of Slackwater Habitats" and "Armor rehabilitation or enhancement"- awaiting habitat assessment for more specific recommendations about habitat restoration needs.
		"Levee Setbacks" - used "Levee/armor setback and expansion of corridor" to capture multiple similar strategies across reaches.
MS	1	"Installation of self-regulation floodgates that provide fish passage and manage backwater and floodplain drainage" - used more generalized, habitat-specific "Restore/improve fish passage to floodplain tributaries disconnected by levees".
		Upper Reach 2 strategies derived from Boyd 2019, Table 12.
		Excluded "Excavation of Slackwater Habitats" and "Armor rehabilitation or enhancement"- awaiting habitat assessment for more specific recommendations about habitat restoration needs.
MS	1	"Levee Setbacks" - used "Levee/armor setback and expansion of corridor" to capture multiple similar strategies across reaches.
		Lower Reach 3 strategies derived from Boyd 2019, Table 11.
		Excluded "Enhancements to habitat and connectivity to prevent stranding" and "Armor rehabilitation or enhancement"- awaiting habitat assessment for more specific recommendations about specific habitat restoration needs.
		"Levee and Armor Setbacks" - used "Levee/armor setback and expansion of corridor" to capture multiple similar strategies across reaches.
MS	3	"Reactivation of old meander as backwater slough or secondary channel" - used more generalized "Reconnect historic channels"
		Upper Reach 3 strategies derived from Boyd 2019, Table 10.
		Excluded "Channel migration zone (CMZ) Management", because management not restoration strategy.
		"Construction of LWD jams to promote local scour, anabranching" split into "Construction of LWD jams to promote local scour" and "Restoration of anabranching channels (including construction of apex jams)."
MS	4	"Removal of Constriction" - used "Removal of levee constrictions and hooks" to capture multiple similar strategies across reaches
		Lower Reach 4 strategies derived from Boyd 2019, Table 9.
		Excluded "Channel migration zone (CMZ) Management" because management not restoration strategy.
MS	5	"Twin View Levee Setback" - used more general "Levee/armor setback and expansion of corridor" but location captured in location notes
		Upper Reach 4 strategies derived from Boyd 2019, Table 8.
		Excluded "Channel migration area (CMA) Management" because management not restoration strategy.
		Excluded "Strategic Levee Extensions and Reconfigurations" because goal is flood risk management, likely no habitat benefit.
		"Construction of LWD jams to promote local scour, anabranching" split into "Construction of LWD jams to promote local scour" and "Restoration of anabranching channels (including construction of apex jams)."
		"Levee reconfiguration and expansion of corridor" - used "Levee/armor setback and expansion of corridor" to capture multiple similar strategies across reaches.
MS	6	"Reconfiguration of hooks" - used "Removal of levee constrictions and hooks" to capture multiple similar strategies across reaches
MS	7	Added based on best professional judgment - current riparian function along lower Nooksack heavily degraded.
MS	8	Added based on best professional judgment - acquisition as necessary to support restoration strategies.
MS	9	Added based on best professional judgment and consistency with other geographic areas.
		Strategies derived from Brown et al. 2005 (Nooksack Delta, Lummi Delta geographic areas) - excluded General Floodplain Projects due to redundancy with Boyd 2019; excluded "Pocket Estuaries and Nearshore" projects to defer to MacLennan et al. 2013.
Estuary	10	Strategies also encompass estuary restoration opportunities identified in MacLennan et al. 2013.
		"Improve connectivity by lowering, breaching or removing levees along river channels along the main channel, its tributaries and distributaries" - use "Reconnect flooplain/delta by lowering, breaching, removing and/or setting back levees along mainstem and distributaries" and specify location from THC et al. 2015 (as depicted in Boyd 2019, Table 14).
		"Remove pilings at head of Kwina Slough" - use "Reconnect historic channels". Specify location in location notes.
		"Breach the dike along the right bank of Kwina slough below Marine Drive to improve fish habitat by…" - use "Reconnect flooplain/delta by lowering, breaching, removing and/or setting back levees/infrastructure along mainstem and distributaries" and specify location
		"Remediate a non-functioning tidegate in the lower section of the Kwina Slough dike by updating the existing tidegate with one that is fish passable" - use "Restore fish passage, tidal hydrology by removing or replacing tidegates/culverts"
		"Reconnect Slater Slough with the Nooksack River estuarine channel network by breaching the Kwina Slough dike at the mouth of Slater Slough, or installing a fish-passable tidegate at the site, and excavating the relict channel to again pass water to and from the
Estuary	11	river." - use "Reconnect historic channels"
		"Improve passage between Lummi River and Nooksack River" - use "Reconnect historic channels"
		"Restore hydrology of tidal channels and salt marsh" - use "Restore nearshore processes, habitats, and passage by removing seawall dike"
Estuary	12	"Reconnect North Red River distributary channel of the Lummi River" - use "Reconnect flooplain/delta by lowering, breaching, removing and/or setting back levees/infrastructure along mainstem and distributaries"
Estuary	13	Per recommendation of Jill Komoto, former Lummi Restoration Manager. No Spartina found in Nooksack delta.
Nearshore	14	Derived from MacLennan et al. 2013, Tables 26-29. Location notes based on project location per Maps 19-22.
Nearshore	15	Derived from MacLennan et al. 2013, Tables 24 and 25. Location notes based on project location per Maps 17 and 18. Excluded projects identified on Semiahmoo County Park (#41) and Larabee State Park (#115).
Nearshore	16	Per recommendation of Jill Komoto, former Lummi Restoration Manager.
Nearshore	17	Per recommendation of Analiese Burns, City of Bellingham Habitat and Restoration Manager.