

**Stillaguamish Salmon Recovery 3Year Work Plan Update**  
**Summary of changes from 2008to 2009**  
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**Overview:**

The 2009 - 2011 Stillaguamish Salmon Recovery 3-Year Work Plan consists of the restoration and protection projects that have been completed and projects that have already been funded and are underway. The above-mentioned projects have been deemed critical to the overall recovery of Chinook salmon as outlined in the 2005 Stillaguamish Chinook Salmon Recovery Plan. This work plan has been endorsed by the Stillaguamish Implementation and Review Committee (SIRC), as well as, the NOAA Technical Review Team (TRT), and the Salmon Recovery Funding Board (SRFB). The plan is organized by limiting factors determined to limit Chinook production in the Stillaguamish watershed. The Chinook Recovery Plan strives to integrate harvest, hatchery and habitat actions as outlined on Page 87, as a means to increase production to harvestable levels.

**Habitat**

The primary habitat limiting factors and the actions needed to recover Stillaguamish Chinook include:

*Riparian:* Plant native riparian vegetation, exclude livestock, protect existing native riparian vegetation, and control non-native invasive plants. Riparian actions are focused on restoring 400 acres of riparian forest on rural, urban, and agricultural lands that are not governed by existing private, state, or federal forest regulations within two geographic priority areas. The First Riparian Priority area includes the Upper North Fork Stillaguamish, Squire Creek, French-Segelsen, Lower Canyon Creek, and Lower South Fork Stillaguamish sub-basins. The Second Riparian Priority area includes the Middle North Fork Stillaguamish, Lower North Fork Stillaguamish, Jim Creek, and Lower Pilchuck Creek sub-basins. The plan defers to the existing regulatory framework for riparian forest management on private, state, and federal forest lands.

*Estuary/Nearshore:* Restore blind tidal channels and tidal marsh habitats by removing and/or setting back dikes, restore pocket estuaries, restore or enhance marine shoreline habitat by removing bulkheads and planting native vegetation, retrofit existing tide gates, and construct log jams to enhance tidal channel formation in the river delta. Estuary and marine nearshore restoration actions are focused on three primary locations. These include restoration of 115 acres of tidal marsh habitat on WDFW's Leque Island property, restoration of 80 acres of tidal marsh habitat on The Nature Conservancy's property adjacent to the mouth of Hat Slough, and creation of 120 acres of new tidal marsh habitat by placing 10 engineered log jams on the mud/sand flats in front of the mouth of Hat Slough.

*Large Woody Debris:* Install engineered log jams in main river channels, stabilize eroding stream banks and landslides using large wood revetments, and regenerate mature

riparian trees for future instream recruitment. Specific actions to supplement large instream wood include installation of 51 engineered log jams within specific reaches of the North and South Forks. These reaches have relatively unmodified banks and are therefore expected to be more responsive to the floodplain and channel morphological effects of large instream wood.

*Floodplain:* Reconnect main river channels with side channels and sloughs, reconnect main river channels with floodplains and forested wetlands, remove and/or set back dikes and levees, and remove bank armoring. Specific floodplain improvements include restoration of side channel habitat in the Lower Stillaguamish, Lower North Fork Stillaguamish, Middle North Fork Stillaguamish, and Lower South Fork Stillaguamish sub-basins. Removal of 4.1 miles of bank armoring is also prescribed for reaches above the confluence of the north and south forks of the Stillaguamish River.

*Sediment:* Stabilize large deep-seated landslides along main river channels using large wood revetments, decommission and treat forest roads in areas of steep and potentially unstable geology, restore wetlands to stabilize small tributary sediment regimes. Specific actions to reduce sediment impacts include remediation of the large deep-seated landslides at Steelhead Haven and Gold Basin and treatment of 106 miles of forest roads in the Upper North Fork, French-Segelsen, Deer Creek, Middle North Fork Stillaguamish, Upper Canyon Creek, Robe Valley, and Lower Canyon Creek sub-basins.

*Hydrology:* Restore floodplains to reduce peak flow and low flow impacts, reduce forest road density, increase hydrologically mature forest cover, identify optimum instream flow levels and actions to reduce water consumption. Riparian vegetation, floodplain, and sediment projects should also contribute to restoring and protecting hydrologic functions.

Secondary limiting factors and actions needed to recover Stillaguamish Chinook include:

*Fish Passage and Barrier Removal:* Reconnect habitat that has been disconnected from natural processes by anthropocentric actions such as dikes and levees, tide gates, dams, roads, and railway berms. Remove undersized and/or blocking culverts, bridges, and fishways.

*Water Quality and Quantity:* Take actions necessary to reduce temperature, increase dissolved oxygen and reduce fine sediment and turbidity from tributaries and mainstem reaches. Reduce the impacts of low flow on fish productivity. Ensure the Stillaguamish Instream Flow rule is fully implemented and flows protected for instream needs. Purchase water rights from landowners as they become available to supplement existing flows.

### Harvest

The Recovery Plan states, that “Washington Co-Managers have set an exploitation rate of 25% for the Stillaguamish Chinook salmon management unit.” According to the

simulation model this level of exploitation affords a 92% probability of recovery and a 4% risk of the management unit falling below the critical escapement threshold of 500. It is the goal of the SIRC that the exploitation rate of Stillaguamish Chinook salmon stay at or below 25%.

### Hatchery

There are currently captive brood stock programs on both the North and South Forks of the Stillaguamish. The intent of the program is to help restore the listed populations, and release sub-yearling North and South Fork Stillaguamish origin fish each year. Specific performance measures for the program include: 1) initially maintain and then increase the total abundance of the composite natural/hatchery Chinook salmon populations; 2) as habitat improves, increase the ratio of natural origin spawners vs. hatchery origin spawners on the spawning grounds; 3) produce hatchery reared fish that are similar to natural origin fish in morphological and life history traits; 4) maintain the genetic diversity of the population.

### **Progress on 2009 – 2011 Stillaguamish Salmon Recovery Work Plan**

During the 2009 - 2010 field season it is anticipated that several projects on the 3year work plan will be completed or well underway, notwithstanding monitoring and maintenance. These projects include Lower Pilchuck Wetland Restoration, Blue Slough Channel Reconnection Phase III, ELJ Placement on the North and South Fork, Stillaguamish Big Tree Placement, Knotweed and Spartina invasive species control, and the Leque Island and TNC Dike Removal. There are many projects ongoing related to hatchery, harvest, outreach and education, and monitoring and adaptive management and watershed coordination that have continued to show annual progress.

### **3 Year Workplan Organization**

The largest change in the new 2009/2011 3 year work plan is the organization and listing of only projects that have been funded and are either completed or ongoing. Previous iterations of the 3-Year workplan included many conceptual projects with little ownership or specificity. This list of potential projects may be attached later as an addendum to the workplan. By capturing the major habitat limiting factors and the targets for 10 years of recovery in each category we can calculate work done to date by adding completed project performance measures, (e.g. linear miles or acres of riparian planted). The remainder of the target should be useful guidance for sponsors wanting to do worthwhile recovery projects that scientists feel will do the most good for Chinook salmon (e.g. Riparian 10 Year target 400 acres planted (2005-2009) 200 acres planted. (2010-2014) will need 200 more acres planted).

While this new approach is being viewed as an experiment and will be evaluated next year during the workplan update, there are stakeholders in our watershed group (SIRC)

that prefer the past format of listing all potential Chinook recovery projects in the document. The lead entity and SIRC need to determine which method is most useful for potential project sponsors and carrying out the complete implementation of the WRIA 5 Chinook Salmon Recovery Plan. Again this will be evaluated during the 2010 three year workplan update.

Breakdown of 2009-2011 3year work plan projects by funded capital (limiting factor) and non-capital.

<b>Capitla Projects</b>	Units	10 Year Goal	Progress since 2005	Ongoing Degradation	10 Year Goal Remaining	Additional Funding needed Next Three Years
Riparian	Acres	400	225.5	?- Trend is one of decreasing near stream forest cover (LandSat)	174.5	\$489,473
Estuary/Nearshore	Acres	315	0	?	315	\$2,415,000
Large Wood		51	3	?	48	\$1,200,000
Floodplain	Acres	30	7	?	23	\$881,667
	Miles Armoring removed	4.1	0	0.43 miles added	4.53	\$1,404,300
Sediment	Major Landslide Treatments	2	1	No new major slides noted	1	\$750,000
	Forest Road Treatments	106	Working on reporting problems	Working on reporting problems	?	?
Acquisition	Acres	1445	160	? - Land being subdivided and cleared at an alarming rate	1285	\$4,925,833
				Total Capital (3 yr)		<b>\$12,066,273</b>
<b>NonCapital Needs for the Next Three Years</b>						
Hatchery	program					\$828,000
Harvest	program					\$100,000
Stewardship	program					\$4,065,000
M&AM	program					\$3,435,450
Strategic Planning	program					\$50,000
Watershed Coordination	program					\$0
				<b>Total Non-Capital (3 year)</b>		\$8,478,450
				<b>Grand Total</b>		<b>\$20,544,723</b>

## **Update on response to recent TRT Comments**

The continued struggle of balancing between restoring historic habitat and protecting what is left of the good habitat is a high priority discussion topic in WRIA 5 but a definitive solution has yet to be found. Individual watershed partners track and comment on local government regulations such as CAO's, Shoreline updates, development applications but the Stillaguamish Implementation and Review Committee (SIRC), our local watershed stakeholder group, has not felt they have the jurisdiction or authority to require any compliance with our Chinook Recovery Plan. **We did make it clear in our plan that we do not feel as a watershed we can recover Stillaguamish Chinook Salmon without major changes made at the State and Federal levels including: adequate instream flows, improved timber harvest regulations and enforcement to reduce peak flow activity, improved water quality enforcement and compliance, improved protection and enforcement on agricultural, and development regulations that protect critical habitat throughout the floodplain and the estuary. Many of our biggest hurdles to recovery need regional action.**

The Stillaguamish watershed is actively working to reduce sediment inputs in the headwaters from landslide and road activities. At the same time efforts are underway to begin to remove some hardened banks allowing both the estuary and floodplain to recapture historic habitat. We currently are carrying out projects throughout the watershed, which combine salmon recovery with water quality benefits. The efforts to implement a TMDL and a salmon recovery plan are occurring simultaneously. Restoring floodplain and hydrologic function is a primary example of the need to develop regional protection guidelines for actions beyond the scope of an individual watershed. Rules need to be developed to reduce increasing winter peak flows as well as to help increase summer low flows. Bank armoring and floodplain developments have to be addressed as impediments to recovering Stillaguamish Chinook salmon. Future development should not occur in the floodplain or impinge on critical ecosystem processes.

1). What are the actions and/or suites of actions needed for the next three years to implement your salmon recovery chapter as part of the regional recovery effort?

Currently the Stillaguamish watershed 3year work plan process does not have a screen or filter to prioritize or eliminate projects on the front end. It has been our philosophy to allow the local ranking and state review process to create a priority list of projects. With that said all our project sponsors and partners are aware of the critical limiting factors effecting Chinook production. Projects are categorized within each of the six limiting factors. Project sponsors are advised to consult the Stillaguamish Chinook Recovery Plan for fit with the watershed strategy. Over the past decade the watershed strategy has been to not prioritize between limiting factors as it was and is felt that the interaction of the major limiting factors are all interwoven and equally important. That said there is a need

to address factors beyond our control that limit our ability to carry out actions needed to recover Chinook salmon, such as: hardened bank removal, reduction in the magnitude and frequency of peak flows, and the reconnection of the mainstem river to its floodplain. Several projects or suites of projects are underway to reduce sediment, restore riparian areas, control invasive species, reconnect side channel habitat, and the installation of Engineered log jams (ELJ's) to both the North and South Forks.

2). What is the status of actions underway per your recovery plan chapter? Is this on pace with the goals of your recovery plan?

Projects on the Stillaguamish 3year work plan are a mix of large capital, small-scale capital and non-capital. Depending on which limiting factor is being addressed there is positive movement of habitat improvement on a trajectory that could reach the ten year goal in time. Riparian restoration and sediment reduction are examples of actions moving forward as planned. Removal of hardened banks and reconnection of the river to its floodplain are examples of actions that are not only not on target but are actually losing ground with increased bank protection and development of infrastructure in the floodplain. Placement of large wood is moving forward but not as quickly as planned. Peak flows continue to be a huge issue with increasing magnitude and frequency. Some of the hydrology issues can be addressed by restoring natural flow patterns across the landscape but much of the needed change will only come about by changes in State and Federal legislation. Again we need your help in addressing issues beyond the watershed scale.

3). What is the general status of implementation towards your habitat restoration, habitat protection, harvest management, and hatchery management goals?

This could be easily determined by reviewing the 2008 Monitoring and Adaptive Management Report. Unfortunately the completion of that report does not coincide directly with the 3-Year workplan update schedule. We will include a draft update table with this update, which addresses harvest, hatchery and habitat progress. By using an integration process to link habitat to harvest and hatchery actions we can adjust our trajectory to meet changing conditions. Projects on the 3year work plan include a multitude of priorities from the highest to the lowest. All projects are linked to the Chinook Recovery Plan. The ultimate goal of the 3year plan is to develop an inclusive list of projects that protect and restore Chinook habitat throughout the Stillaguamish basin. The projects funded under each limiting factor are prioritized during local evaluation. The watershed goal is to maintain maximum flexibility as projects become available throughout the funding cycle. Properties go on the market and catastrophic events occur that may cause an immediate shift in priorities. The 3year work plan has, up to the present, been used primarily for SRFB and DOE Centennial project funding. It is a goal to make the project list a universal document that can steer potential sponsors to numerous funding opportunities outside of traditional sources. This change or opportunity will become available over the coming year. A prioritization scheme will also be developed during the same time period. Currently the thinking at the watershed is prioritization will occur within each of the limiting factors but not between factors. If

current or future research indicates a definitive bottleneck, highlighting one of our existing limiting factors, this strategy will be adjusted accordingly.

4). What are the top implementation priorities in your recovery plan in terms of specific actions or theme/suites of actions? How are these top priorities being sequenced in the next three years? What do you need to be successful in implementing these priorities?

Our implementation priorities are again based on the six factors we feel are limiting production of Stillaguamish Chinook. These factors are currently equally weighted as we feel there is a need to implement them all in order to bring about meaningful restoration and protection. We are implementing actions that have concurrence and willing landowners at this time. These actions include riparian planting, large wood placement, landslide and road treatment to reduce fine sediment input, and control of invasive species. Currently there are non-capital projects on the list that include harvest, hatchery, monitoring, and education and outreach that would not typically be funded under existing SRFB guidelines and priorities. Had it not been for the PSAR funding from the governor and legislature our highest priority SF Chinook Supplementation Project would not have been funded in 2007. Our Stillaguamish Chinook Recovery Plan describes in detail how our harvest, hatchery and habitat are integrated to bring about recovery. If H-Integration is truly a concept that the federal and state government support then funding should be adjusted to implement projects in all categories.

5). Do these top priorities reflect a change in any way from the previous three-year work program? Have there been any significant changes in the strategy or approach for salmon recovery in your watershed? If so, how and why?

There are no dramatic changes in the strategy or approach from previous years or the original Stillaguamish Chinook Salmon Recovery Plan in 2005. Our goal has been to use the critical habitat limiting factors, believed to be the cause of reduced Chinook production, in conjunction with harvest and hatchery actions to bring about recovery to harvestable levels of fish.

6). What is the status or trends of habitat and salmon production in your watershed  
Natural escapement of both North Fork and South Fork Stillaguamish Chinook salmon has remained relatively steady since the 1970s (Fig. 1).

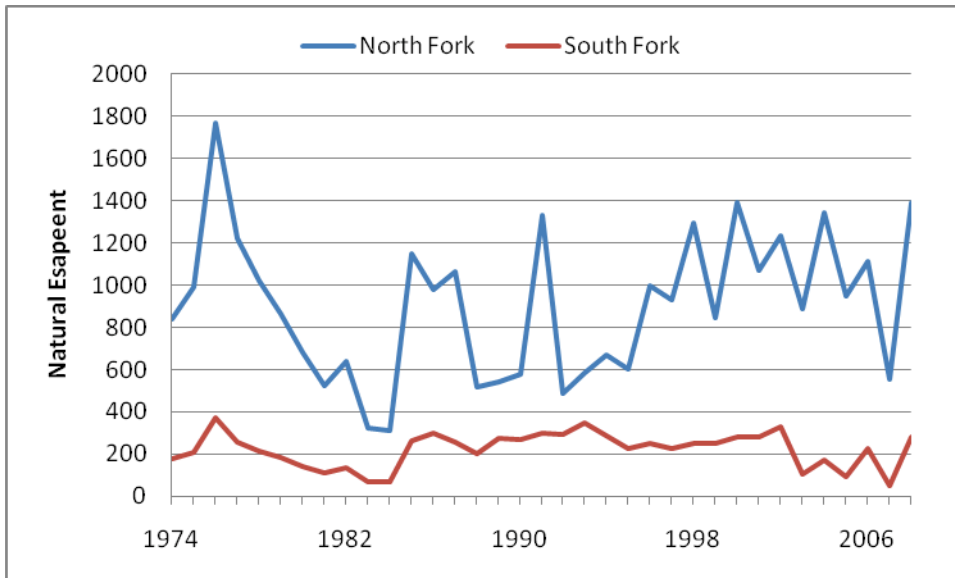


Figure 1. Natural escapement of North Fork and South Fork Stillaguamish Chinook salmon, 1974-2008. Fish removed for hatchery broodstock are not included in these figures. SOURCE: WDFW spawning escapement surveys.

The natural origin portion of the natural escapement shows a similar pattern, although there appears to be a long-term steady decline in the South Fork since the mid-1990s and evidence of a progressive increase in North Fork NOR escapement during that period, except for 2006 and 2007 (Fig. 2).

Because exploitation rates on Stillaguamish Chinook have continued to decrease (Fig. 3) without a corresponding increase in escapement, we conclude that the productivity and capacity of habitat supporting chinook salmon in the Stillaguamish basin continues to decline, or certainly is not improving.

The continued decline in the natural origin portion of the South Fork population, combined with recent genetic evidence that this group remains a unique population, has resulted in the evaluation of a captive brood program to prevent extinction of this population.

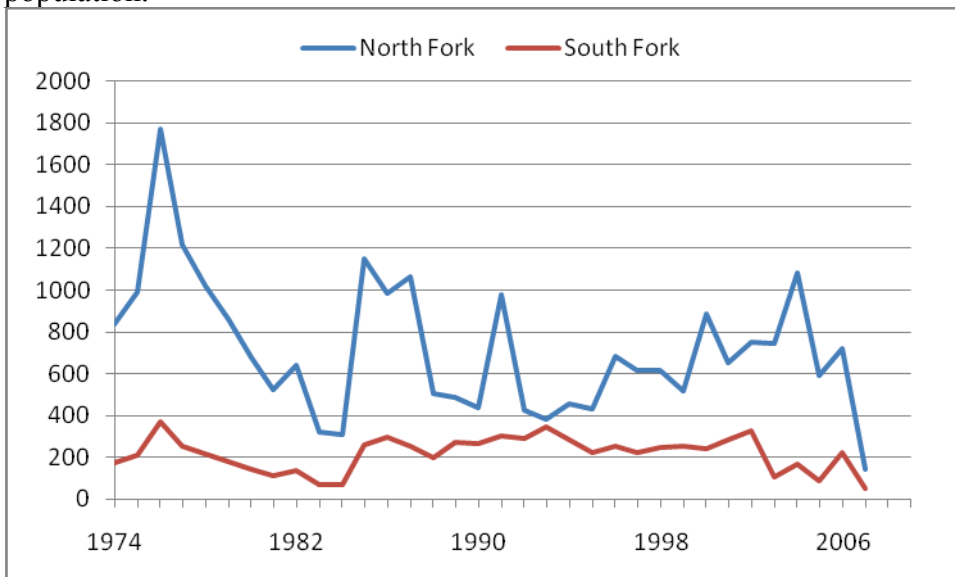




Figure 2. North Fork and South Fork Stillaguamish natural origin Chinook escapement, 1974-2007. Does not include fish removed for hatchery broodstock. SOURCE: Sampling data form the Stillaguamish Tribe applied to total escapement estimates in Fig. 1.

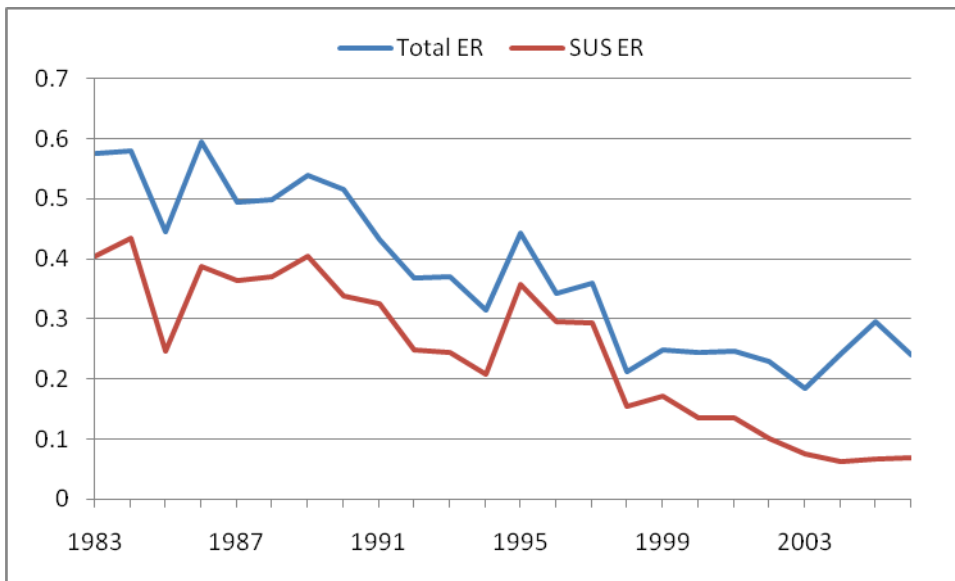


Figure 3. Annual exploitation rate on Stillaguamish Chinook salmon as measured by post-season FRAM runs, 1983-2006. “Total ER” is the estimate of the fraction that the potential escapement was reduced by all sources of fishery-related mortality. “SUS ER” is the part of that that occurred in United States waters south of the southern United States- Canada border. SOURCE: Northwest Indian Fisheries Commission and WDFW post-season FRAM runs, 2007.

We are seeing use of ELJ projects by Chinook as well as an increase in spawning downstream of the Steelhead Haven Landslide Remediation Project. Up to 100 redds were seen downstream of the landslide for the first time in several decades. It is far too early in the recovery process to detect a trend in actual fish numbers. Primarily fish are redistributing themselves throughout the watershed as conditions begin to improve. The South Fork Chinook population continues to be depressed. Spawning escapement has ranged from 43 up to 200-300 fish over the past several years. A brood stock program is being established by the Stillaguamish Tribe to supplement the natural spawning population with fish reared and released during normal out migration timing.

7). Are there new challenges associated with implementing salmon recovery actions that need additional support? If so, what are they?

Currently we are working with the PSP to find a solution to the hydrology/peak flow issue associated with forest practices and road drainage networks. Impacts from peak flows have been devastating to eggs and fry in the gravel. Monitoring out migration at our downstream smolt trap shows dramatic reductions in Chinook production during years of high peak flows, which seem to be recurring each year. The primary land use upstream and surrounding Chinook spawning habitat is forestry, coupled with a changing climate solutions need to be found to reduce downstream impacts. Secondly we are faced with a new hurdle to implementing salmon recovery projects. Snohomish County now requires project proponents to go before the Agricultural Advisory Board with any

project that may potentially impact farmland. This board is advisory to the County Council and makes recommendations concerning agricultural lands and potential impacts. There focus seems to be primarily on salmon projects, housing and other developments that convert farmland do not receive the same scrutiny. We could use some help from the PSP and NOAA Fisheries to get this issue resolved as soon as possible.

It was pointed out at our May SIRC meeting by the Stillaguamish Flood Control District, that any removal of bank armoring could exacerbate conditions leading to increased erosion and destruction of existing infrastructure. In order to complete the floodplain bank armor removal goal as outlined in our Chinook recovery plan we need to remove armoring and allow the river to recapture a portion of its historic floodplain. We should seek to find creative future projects that could combine salmon restoration and flood protection. Another area of concern from the district and others is the acquisition of land for protection with little or no funding for stewardship, maintenance or restoration. This is an on-going problem that again needs a regional fix.

Three-Year Stillaguamish Salmon Recovery Work Plan: 2009 - 2011

Capital Projects from Plan  
 Funded 2005-date  
 Pending Funding

ID	Project Type/Name	Units	Quantity	Sponsor	Project/Program Status	Cost/Unit	Total Cost for 10 Year Goal	Next 3 Year Cost	2009	2010	2011
<b>Capital projects and programs</b>											
1	<b>Riparian</b>	Acres planted (In priority areas)	400	Many	10 year Goal	8415	<b>\$3,366,000</b>	\$1,020,000	\$340,000	\$340,000	\$340,000
2	<b>Banksavers Inmate Crew</b>			Stillaguamish Tribe	ongoing						
3	<b>SSFETF Knotweed (two grants)</b>			SSFETF	ongoing						
4	<b>South Fork Big Trees</b>			SnoCo	ongoing						
5	<b>North Fork Big Trees</b>			SnoCo	ongoing						
	Progress since 2005	Acres	225.5								
	10 year Target Amount Remaining	Acres	180 acres								
6	<b>Estuary</b>	restored (Leque Island)	195	TNC, Tribes, WDFW, Counties	10 year Goal	23000	<b>\$4,485,000</b>	\$1,359,091	\$453,030	\$453,030	\$453,030
7		Acres tidal marsh created	120	TNC, Tribes, WDFW, Counties	10 year Goal	7500	<b>\$900,000</b>	\$272,727	\$90,909	\$90,909	\$90,909
8	<b>Leque Island Restoration</b>	Acres	[115]	DU	Funded/no construction yet						
9	<b>Port Susan Bay Preserve Dike Removal</b>	Acres	[180]	TNC	Funding Likely						
	Progress since 2005	Acres	0								
	10 year Target Amount Remaining	Acres	315								
10	<b>Large Wood</b>	Large river ELJs	51	Stillaguamish Tribe, Snohomish County, Sno. Cons. District	10 year Goal	75000	<b>\$3,825,000</b>	\$1,159,091	\$386,364	\$386,364	\$386,364
11	<b>North Fork ELJs</b>			Stillaguamish Tribe	Funded/no construction yet						
	<b>South Fork ELJ's</b>			SnoCo	Funded/no construction yet						
12	<b>Steelhead Haven</b>		1	Stillaguamish Tribe	Complete						
13	<b>Hazel ELJs</b>		2	Stillaguamish Tribe	Complete						
	Progress since 2005	ELJ's	3								
	10 year Target Amount Remaining	ELJ's	48								
14	<b>Floodplain</b>	Miles armoring removed	4.1	Various	10 year Goal	310000	<b>\$1,271,000</b>	\$423,667	\$141,222	\$141,222	\$141,222
15		Acres restored	30	Various	10 year Goal	115000	<b>\$3,450,000</b>	\$1,150,000	\$383,333	\$383,333	\$383,333
16	<b>North Meander</b>	Acres restored	6.3	SnoCo	Complete						
17	<b>Wetland/Floodplain</b>	Miles Removed	[0.06]	Stillaguamish Tribe	Under Construction						
18	<b>Blue Slough Phase II</b>	Acres restored	[3.5]	Stillaguamish Tribe	Under Construction						
19	<b>Hazel Sidechannel (formed by Hazel ELJs)</b>	Acres restored	0.4	Stillaguamish Tribe	Complete						
20	<b>Blue Slough Phase III</b>	Acres restored	[3.5]	Stillaguamish Tribe	Pending			\$238,000		\$238,000	
21	<b>Jim Creek Restoration Design</b>	Miles Removed	?	SSFETF	Pending			\$129,500	\$43,167	\$43,167	\$43,167
	Progress since 2005 (Acres)		6.7								

ID	Project Type/Name	Units	Quantity	Sponsor	Project/Program Status	Cost/Unit	Total Cost for 10 Year Goal	Next 3 Year Cost	2009	2010	2011
	10 year Target Amount Remaining (Acres)		23.3								
	Progress since 2005 (Miles Removed)		0								
	10 year Target Amount Remaining (Acres)		4.1								
22	<b>Sediment</b>	Landslide treatments	2	Stillaguamish Tribe	10 year Goal	2250000	<b>\$4,500,000</b>	\$1,500,000	\$500,000	\$500,000	\$500,000
23		Forest Road Treatments	106	USFS, WADNR, Tribes	10 year Goal	40000	<b>\$4,240,000</b>	\$1,413,333	\$471,111	\$471,111	\$471,111
24	<b>Segelson Road Treatments</b>	Road Treatments	?	Snohomish Conservation District	Complete						
25	<b>Steelhead Haven Slide Remediation</b>	Landslide treatments	1	Stillaguamish Tribe							
26	<b>Deer Creek Headwaters Erosion Control</b>	Road Treatments	?	Snohomish Conservation District	Complete						
27	<b>Higgins Instream</b>	Sediment Stored	?	Stillaguamish Tribe-USFS	Complete						
28	<b>Gold Basin Feasibility and Design</b>	Landslide treatments	1	Stillaguamish Tribe-USFS	Pending			\$150,000	\$50,000	\$50,000	\$50,000
29	<b>Canyon Creek Roads Phase I&amp;II</b>	Road Treatments	21.6	Stillaguamish Tribe-USFS	Pending for Phase I			\$918,000	\$306,000	\$306,000	\$306,000
	Progress since 2005 (Landslides)		1								
	Progress since 2005 (Forest Road Treatments)		?		Working on reporting problems						
	10 year Target Amount Remaining (Landslides)		1								
	10 year Target Amount Remaining (Forest Road Treatments)		?								
30	<b>Protection/Acquisition</b>	Acres acquired in Priority Reaches (Floodplain, Riparian, Large Wood, Estuary)	1445	Tribes, CLC, WCLT, TNC	10 year Goal	11500	<b>\$16,617,500</b>	\$5,539,167	\$1,846,389	\$1,846,389	\$1,846,389
31	<b>Arney Acquisition/Restoration</b>		19.35	CLC/Stillaguamish Tribe	Close to Completion						
32	<b>Graafstra Floodplain</b>		[137]	City of Arlington	Pending						
33	<b>Pilchuck Wetland/Floodplain</b>		70	Stillaguamish Tribe	Complete						
34	<b>Fish Creek Buffalo Farm</b>		56	Stillaguamish Tribe	Complete						
35	<b>Grandy Lake C-Post</b>	Easement	80		Complete						
36	<b>PTF Hazel Hole Conservation</b>	Easement	26								
37	<b>French-Segelson Acquisition/Restoration</b>		?	CLC	in process						
38	<b>Klein Farm Acquisition</b>		60	Stillaguamish Tribe	Pending	\$15,000		\$900,000			
	Progress Since 2005	Acres	251.35								

ID	Project Type/Name	Units	Quantity	Sponsor	Project/Program Status	Cost/Unit	Total Cost for 10 Year Goal	Next 3 Year Cost	2009	2010	2011
	10 year Target Amount Remaining	Acres	1193.65								
						<b>Total capital need</b>	<b>\$42,654,500</b>	<b>\$13,837,076</b>	<b>\$4,612,359</b>	<b>\$4,612,359</b>	<b>\$4,612,359</b>

Category/Name	Units	quantity	Likely Sponsor	Project/Program Status/Background	Total 3 Year Cost	Estimated Existing Funds	Additional Funding Needed Next 3 years	Total Cost: 2009	2010	2011
<b>Non Capital Projects</b>										

<b>Hatchery</b>											
1	NF Integrated Recovery	# of smolts	220,000	Stillaguamish Tribe and WDFW	Ongoing	\$ 654,000	\$ 498,000	\$ 156,000	\$ 218,000	\$ 218,000	\$ 218,000
2	SF Integrated Recovery	# of smolts	100,000 to 150,000 smolts	Stillaguamish Tribe and WDFW	ongoing	\$ 420,000	\$ 300,000	\$ 120,000	\$ 140,000	\$ 140,000	\$ 140,000
<b>Subtotal</b>								<b>\$ 276,000</b>			

<b>Harvest</b>											
3	Spawning ground Surveys	Program	Program	Stillaguamish Tribe, WDFW	Ongoing	\$ 192,000	\$ 192,000	\$ -	\$ 64,000	\$ 64,000	\$ 64,000
4	Reassessment of Recovery Exploitation Rate (RER) for SF	Project	Possibly revised harvest management guideline for NF and SF populations	Tulalip and Stillaguamish Tribes, WDFW	Cannot start until SF hatchery is up and running	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Monitoring/Managing Fisheries to keep exploitation rates below acceptable levels	Program	program	Tulalip and Stillaguamish Tribes, WDFW, NOAA fisheries	ongoing	\$ 720,000	\$ 720,000	\$ -	\$ 240,000	\$ 240,000	\$ 240,000
<b>Subtotal</b>								<b>\$ -</b>			

<b>Habitat Protection Actions Needed (via Regulatory Changes)</b>											
6	Revision of ACOE Dike Maintenance Strategy to better protect stream functions			ACOE, NOAA, PSP	Riparian veg is mowed on a regular schedule, increasing temperatures and degrading habitat	?					
7	Change needed in Shoreline and Hydraulic code to better protect stream functions. Remove harmful exemptions, including federal.			WDFW, NOAA	Increase of 2250' of hardened bank since 2005	?					

ID	Project Type/Name	Units	Quantity	Sponsor	Project/Program Status	Cost/Unit	Total Cost for 10 Year Goal	Next 3 Year Cost	2009	2010	2011
8	Strengthening of CAR to achieve net protection of habitat, removing state exemptions for Ag			WDFW, PSP, SnoCo	Added more than 3% of Near stream TIA in last five years. AG land still not required to buffer streams	?					
9	County Code change needed to prohibit new construction within the historic channel migration zone of salmon bearing waters			SnoCo	Homes being built in CMZ of NF and other salmon waters.	?					
10	Move from complaint driven to active enforcement of all regulations protecting fish and wildlife habitat/ real enforcement of existing regulations. Strengthen Enforcement.			All state, federal, and local agencies, PSP coordinating	Substantive enforcement is lacking, often pays to break rather than follow laws	?					
11	LID requirements needed for all new development/re-development			WADOE, PSP, SnoCo, NOAA	Streams draining urban areas (Portage, Church, etc) showing signs of stormwater impacts during rains	?					
12	Strengthen Forest Practice Regulations to achieve hydrologic mature forest in all subbasins, and limit roadbuilding on unstable geology			WADNR	NF hydrograph continues to show trend of increasing peak flows	?					
13	More work needed to streamline permits (esp. Sect. 106 review) for all restoration projects			All state, federal, and local agencies, PSP coordinating	Projects delayed due to current permit environment	?					
14	Strengthen Comp Plan/ amend GMA to align with goals in Salmon Recovery Plan			SnoCo	Currently not consistent/contradictory	?					
15	Integration of Chinook Recovery Plan critical habitat and ecosystem processes with local government permit review process for all development projects.			SIRC	Ag shouldn't be the only specialty group weighing in on permit applications	\$ 150,000	\$ -	\$ 150,000	\$ 50,000	\$ 50,000	\$ 50,000
16	Harmful chemicals-Mechanisms put in place to prevent from entering fresh and marine waters			WADOE	Work from more highly urbanized watersheds is showing that chemicals in stormwater are causing sub-lethal effects in salmonids	?					
<b>Stewardship</b>											

ID	Project Type/Name	Units	Quantity	Sponsor	Project/Program Status	Cost/Unit	Total Cost for 10 Year Goal	Next 3 Year Cost	2009	2010	2011
17	Stillaguamish Stewardship Subcommittee for Salmon Recovery	Develop and implement plan, objectives, & deliverables for stewardship activities in the Stillaguamish	TBD	Snohomish County, Stillaguamish Tribe, USFS, WDFW, Sno. Cons. District, Beach Watchers, TNC, City of Arlington,	Ongoing	\$ 450,000	\$ 75,000	\$ 375,000	\$ 150,000	\$ 150,000	\$ 150,000
18	Stillaguamish Watershed Stewards Volunteer Program	Program	TBD	USFS, Stilly-Sno	Discussions w/ partners and others with similar programs, Title II RAC grant proposal	\$ 90,000	\$ 25,000	\$ 65,000	\$ 30,000	\$ 30,000	\$ 30,000
19	Restoration Education for Young Stewards	Program	TBD	Stilly-Sno. FETF	Ongoing	\$ 33,600	\$ 3,600	\$ 30,000	\$ 11,200	\$ 11,200	\$ 11,200
20	Stilly Stewardship media campaign	Monthly Newspaper ads, website development, newsletter production	2, Website, Newsletter	Stillaguamish Tribe	Expanded component of ongoing stewardship program	\$ 90,000	\$ 15,000	\$ 75,000	\$ 30,000	\$ 30,000	\$ 30,000
21	Construction site visitation and Education shared FTE with Stanwood, Arlington, Granite fall, Darrington, Snohomish County	Program	1 FTE	SnoCo. and Arlington	Discussion	\$ 160,000	\$ -	\$ 160,000	\$ 53,333	\$ 53,333	\$ 53,333
22	Stillaguamish Watershed Steward	Program	TBD	Snohomish County	Ongoing	\$ 120,000	\$ 120,000	\$ -	\$ 40,000	\$ 40,000	\$ 40,000
23	Sound Stewards Program	Program	TBD	People for Puget Sound, Snohomish County Marine Resources Committee	Ongoing	\$ 12,000	\$ 4,000	\$ 8,000	\$ 4,000	\$ 4,000	\$ 4,000
24	Salmon Watch Program & Pond Watch Program to engage citizens in salmon recovery and water quality	Participants/year, Volunteer hrs/yr	40, 500	Snohomish County	Ongoing	\$ 19,500	\$ 19,500	\$ -	\$ 6,500	\$ 6,500	\$ 6,500
25	Adult Education Programs - educator and homeowner workshops	Number of Site Visits Number of Participants Contact Hours	15, 800, 450	Snohomish County	Ongoing	\$ 33,000	\$ 33,000	\$ -	\$ 11,000	\$ 11,000	\$ 11,000
26	Youth & Parent Education Programs - Classroom & field presentations requested by teachers	Number of Site Visits Number of Participants Contact Hours	16, 800, 450	Snohomish County	Ongoing	\$ 33,000	\$ 33,000	\$ -	\$ 11,000	\$ 11,000	\$ 11,000

ID	Project Type/Name	Units	Quantity	Sponsor	Project/Program Status	Cost/Unit	Total Cost for 10 Year Goal	Next 3 Year Cost	2009	2010	2011
27	Volunteer Mussel Survey/Analysis Program to identify pollutant concentration in marine waters	# of Volunteers Mussels Surveyed	TBD	Snohomish County Marine Resources Committee, NOAA, Stillaguamish Tribe	Ongoing	\$ 15,000	\$ 15,000	\$ -	\$ 5,000	\$ 5,000	\$ 5,000
28	Forestry Stewardship Education Program	Program	TBD	WSU Extension/SWM	Ongoing	\$ 200,000	\$ 149,000	\$ 51,000	\$ 66,667	\$ 66,667	\$ 66,667
29	Stillaguamish Festival of the River	events, people attending, groups participating	1 5000 30	Stillaguamish Tribe	ongoing	\$ 600,000	\$ 540,000	\$ 60,000	\$ 200,000	\$ 200,000	\$ 200,000
30	Salmon life history programs for youth	Classroom visits or tours, participants	15, 650	Stillaguamish tribe	ongoing	\$ 45,000	\$ 39,000	\$ 6,000	\$ 15,000	\$ 15,000	\$ 15,000
31	Technical service & outreach activities	hours	510	Stillaguamish Tribe	ongoing	\$ 76,500	\$ 67,500	\$ 9,000	\$ 25,500	\$ 25,500	\$ 25,500
32	Stilly Sub-basin TMDL Farm planning and education	site visits, farm plans, info sent, workshops	12,6, 620, 1	Snohomish Conservation District	in progress	\$ 88,000	\$ 88,000	\$ -	\$ 29,333	\$ 29,333	\$ 29,333
33	CWD Farm planning and technical assistance	contacts, farm plans	540, 36	Snohomish Conservation District	ongoing	\$ 426,000	\$ 426,000	\$ -	\$ 142,000	\$ 142,000	\$ 142,000
34	Conservation District stream and riparian restoration program			Snohomish Conservation District	ongoing	\$ 180,000	\$ 24,000	\$ 156,000	\$ 60,000	\$ 60,000	\$ 60,000
35	SWM education and stewardship program			Snohomish Conservation District	ongoing	\$ 115,500	\$ 115,500	\$ -	\$ 38,500	\$ 38,500	\$ 38,500
36	PDS permitting response & farm planning	contacts, farm plans updated	150, 15	Snohomish Conservation District	ongoing	\$ 112,500	\$ 112,500	\$ -	\$ 37,500	\$ 37,500	\$ 37,500
37	NPDES response to solid waste referrals			Snohomish Conservation District	projected	\$ 180,000	\$ -	\$ 180,000	\$ 60,000	\$ 60,000	\$ 60,000
38	LID/ stormwater program			Snohomish Conservation District	projected	\$ 180,000	\$ -	\$ 180,000	\$ 60,000	\$ 60,000	\$ 60,000
<b>Subtotal</b>								<b>\$ 1,355,000</b>			
<b>Monitoring &amp; Adaptive Management</b>											
39	Plan Monitoring and Adaptive management	Annual Monitoring & Adaptive Management Report, Increased Capacity for M & AM	1 FTE	Multiple Stakeholders	Ongoing	\$ 330,000	\$ 50,000	\$ 280,000	\$ 110,000	\$ 110,000	\$ 110,000
40	Mainstem Juvenile Outmigrant Trap	Production Estimation	NA	Stillaguamish Tribe	ongoing	\$ 360,000	\$ 120,000	\$ 240,000	\$ 120,000	\$ 120,000	\$ 120,000



ID	Project Type/Name	Units	Quantity	Sponsor	Project/Program Status	Cost/Unit	Total Cost for 10 Year Goal	Next 3 Year Cost	2009	2010	2011
41	Coded-wire tagged Program	Coded-wire tagged fish released	200,000/yr	Stillaguamish tribe (tagging); multiple agencies (tag recovery, reading, and analysis)	Ongoing	\$ 78,000	\$ 78,000	\$ -	\$ 26,000	\$ 26,000	\$ 26,000
42	Reassessment of Recovery Exploitation Rate (RER)	Possibly revised harvest management guideline for NF and SF populations	NA	Tulalip Tribes, WDFW	Not started until SF supplementation smolts can be tagged	\$ 10,000	\$ -	\$ 10,000	\$ 3,333	\$ 3,333	\$ 3,333
43	Water quality monitoring	Multiple sampling sites	NA	Snohomish County, Stillaguamish Tribe, City of Arlington	Ongoing	\$ 750,000	\$ 750,000	\$ -	\$ 250,000	\$ 250,000	\$ 250,000
44	Large river survey	Rivermiles surveyed	80	Snohomish County, Stillaguamish Tribe	Ongoing (every 5 years)	\$ 480,000	\$ 72,000	\$ 408,000	\$ 160,000	\$ 160,000	\$ 160,000
45	Wadable stream survey	Wadable stream miles surveyed	90	Snohomish County, Stillaguamish Tribe, Tulalip Tribes, USFS	Ongoing	\$ 540,000	\$ 81,000	\$ 459,000	\$ 180,000	\$ 180,000	\$ 180,000
46	Fine sediment data collection and analysis	River miles sampled	80 miles	Snohomish County, Stillaguamish Tribe	Ongoing: NF data collection began in 2005; SF data collection began in 2006; Proposed funding for Pilchuck in 2008	\$ 650,000	\$ 60,000	\$ 590,000	\$ 216,667	\$ 216,667	\$ 216,667
47	Reach scale river restoration analysis	Reach scale analysis completed	NA	Snohomish County	Not started	\$ 100,000	\$ 100,000	\$ -	\$ 33,333	\$ 33,333	\$ 33,333
48	Estuary monitoring and assessment	Ongoing Monitoring	NA	TNC, Stillaguamish Tribe	Ongoing	\$ 240,000	\$ 45,000	\$ 195,000	\$ 80,000	\$ 80,000	\$ 80,000
49	South Fork smolt trap	production estimation	NA	Tribe	Not Started	\$ 350,000	\$ -	\$ 350,000	\$ 116,667	\$ 116,667	\$ 116,667
50	Stillaguamish Mussel Survey	Stream miles surveyed		Snohomish County	Ongoing as of 2005	\$ 15,000	\$ 6,000	\$ 9,000	\$ 5,000	\$ 5,000	\$ 5,000
51	Juvenile salmon endocrine disruptor study	Basin wide	NA	Stillaguamish Tribe, NOAA, Snohomish County MRC	Ongoing	\$ 75,000	\$ 75,000	\$ -	\$ 25,000	\$ 25,000	\$ 25,000
52	Pocket Estuary Mapping - Identify and prioritize for restoration	Estuary-wide pocket estuary map	NA	Stillaguamish Tribe	All PE's have been mapped by SRSC. Prioritization is a short office exercise.	\$ 5,000	\$ -	\$ 5,000	\$ 1,667	\$ 1,667	\$ 1,667
53	Development and adaptation of hydrodynamic models	Integrated hydrodynamic models for restoration projects	NA	Snohomish County	Program	\$ 150,000	\$ -	\$ 150,000	\$ 50,000	\$ 50,000	\$ 50,000
54	Temperature monitoring	Multiple sites in North Fork by 303(d) listed segments	NA	USFS	Planning; seeking funds	\$ 25,000	\$ 5,000	\$ 20,000	\$ 8,333	\$ 8,333	\$ 8,333

ID	Project Type/Name	Units	Quantity	Sponsor	Project/Program Status	Cost/Unit	Total Cost for 10 Year Goal	Next 3 Year Cost	2009	2010	2011
55	Forest Roads Assessment for future treatments	Miles of Forest Roads Assessed	45	FS, Tribes	Planning; seeking funds;	\$ 22,500	\$ 5,000	\$ 17,500	\$ 7,500	\$ 7,500	\$ 7,500
56	Basin Wide Sediment Budget	Sediment Budget	NA	Wild Fish Conservancy, USFS	Preliminary Review	\$ 350,000	\$ -	\$ 350,000	\$ 116,667	\$ 116,667	\$ 116,667
57	Chinook prespawning mortality / predation / disease surveys	Middle North Fork and tributaries surveyed	NA	Wild Fish Conservancy, Stillaguamish Tribe	Not Started	\$ 105,000	\$ 45,000	\$ 60,000	\$ 35,000	\$ 35,000	\$ 35,000
58	Stillaguamish low flow water right assessment	Basin Wide	NA	Wild Fish Conservancy, Washington Water Trust	Funded in 2007, work has begun	\$ 66,994	\$ 10,044	\$ 56,950	\$ 22,331	\$ 22,331	\$ 22,331
59	Forest Practice review and assessment	USFS Lands	NA	Wild Fish Conservancy, USFS	Not Started	\$ 75,000	\$ -	\$ 75,000	\$ 25,000	\$ 25,000	\$ 25,000
60	South Fork Reach Fish Use Assessment	South Fork - sites to be determined	NA	Wild Fish Conservancy, Snohomish County	Not Started	\$ 160,000	\$ -	\$ 160,000	\$ 53,333	\$ 53,333	\$ 53,333
61	Stilly Sub-basin TMDL stream monitoring	stream monitoring sites	8	Snohomish Conservation District	monitoring plan will be completed in mid-2007	\$ 28,000	\$ 28,000	\$ -	\$ 9,333	\$ 9,333	\$ 9,333
<b>Subtotal</b>								<b>\$ 3,435,450</b>			
<b>Strategic Planning/Capacity increases</b>											
62	Comprehensive estuary restoration strategy		Program	Snohomish County	Not started	\$ 50,000	\$ 25,000	\$ 25,000	\$ 16,667	\$ 16,667	\$ 16,667
63	Comprehensive floodplain function strategy		Program	Snohomish County	Not started	\$ 45,000	\$ 20,000	\$ 25,000	\$ 15,000	\$ 15,000	\$ 15,000
<b>Subtotal</b>								<b>\$ 50,000</b>			
<b>Watershed Coordination</b>											
64	Lead entity administration		Program	Snohomish County, Stillaguamish Tribe	Ongoing	\$ 510,000	\$ 510,000	\$ -	\$ 170,000	\$ 170,000	\$ 170,000
65	City and urban assistance in plan implementation and code amendments	Program	NA	City of Arlington		\$ 160,000	\$ 160,000	\$ -	\$ 53,333	\$ 53,333	\$ 53,333
<b>Subtotal</b>								<b>\$ -</b>			
<b>Total non-capital need</b>						<b>\$ 10,966,094</b>	<b>\$ 5,699,644</b>	<b>\$ 5,116,450</b>	<b>\$ 3,655,365</b>	<b>\$ 3,655,365</b>	<b>\$ 3,655,365</b>