

## SKAGIT (WRIAs 3 and 4)

### HABITAT CAPITAL PROGRAM 2010 UPDATE

#### SUMMARY NARRATIVE

*The three-year work plan/program updates should include a narrative to describe the progress, changes, and status of recovery implementation and your work program since the previous year's update. These narratives can be a summary. Some questions may not be answerable at this time, please note where you cannot answer the questions.*

#### **Overview**

The 2010 *Skagit Basin Three-Year Work Program (3 Year Project List)* updates those projects and programs, active and planned, targeted at the recovery of Chinook salmon populations in the Skagit watershed for the next three years (2010, 2011, and 2012). This update was completed by Skagit Watershed Council staff in consultation with project sponsors and local technical experts. The actions identified are consistent with the recovery needs found in the *Skagit Chinook Salmon Recovery Plan* (Beamer et al. 2005). The proposed actions also provide valuable habitat benefits to other listed and non-listed species including bull trout, steelhead, pink, chum, and coho salmon.

Until a forum exists for the integration of all elements of the Skagit Chinook Recovery Plan, our Three-Year Work Program is limited to those elements contracted and funded under the lead entity authority. This includes the Habitat Capital program, non-capital needs related to the habitat capital program, and watershed research needs not identified in harvest and hatchery programs. In 2008, the Board of Directors of the Watershed Council held a series of planning meetings and identified from those the goal of fostering a "dialogue and information exchange between habitat, hatchery, harvest, and hydropower groups so that its member groups better understand how each contributes to recovery." Implementation of this goal will be incorporated into a Council work plan currently being drafted.

With respect to monitoring and adaptive management the Watershed Council will, in the upcoming year, participate with Puget Sound Partnership and the Recovery Implementation Technical Team (RITT) to develop a watershed-scale template/framework. This work will be grounded in the Skagit Chinook Recovery Plan and will be linked, through the template, to the regional efforts including the 2007 Draft Puget Sound Monitoring and Adaptive Management Plan and NOAA's Monitoring and Evaluation Plan.

The Skagit Watershed Council will work with the Partnership, RITT, and other members of the local watershed team, based on the agreed-upon schedule, to vet and flesh out the template, while furthering a dialogue about the technical components of recovery. Technical conversations include but are not limited to: goal development, hypotheses grounding, monitoring framework, gaps in plan, and needed analysis.

#### **Summary of Changes to the Three Year Habitat Capital Project List for 2010**

Changes to the Skagit Three Year Work Program for 2010 include a minor reorganization of the Habitat Capital Projects list to reflect the Tiers and Target Areas (Table 1) recently adopted in an update of the Council's Strategic Approach (attached). Previous lists have been organized by the geographical areas in the Skagit Chinook Recovery plan, which also correspond to the distribution of Chinook stocks in the watershed. The updated priority or Tier 1 Target Areas reflect the counsel provided by the RITT to Council staff in 2008 regarding the importance of restoring juvenile habitat in the estuary and main floodplain areas of the Skagit.

With this 2010 update, we also provide a longer-term context for viewing the collection of actions supporting the implementation of the Skagit Chinook Recovery Plan. Accompanying this summary and Three Year Work Program spreadsheet is a Gantt chart listing of projects funded and planned from 2000 through approximately 2020. Projects funded in multiple phases are shown on a single line, color-coded by different stages of development. Those projects on the Three Year Work Plan are bracketed by dark vertical lines for reference. The Gantt chart is being developed as a visual aid for both local planning and implementation tracking purposes, but it should also aid the regional organization and the RITT in their reviews as well. With the use of the Gantt chart we are also able to move those projects not ready for immediate implementation off the Three Year Work Program and out into the future. These are noted on the spreadsheet and reflected in the Gantt chart. As these projects are ready for implementation they will move or be moved into the three year planning window.

At the same time as we are focusing more effort on developing projects in our target areas and out-planning, our grant process remains open to take advantage of new opportunities as they arise. The 2010 Habitat Capital projects list includes four new (color-coded) project proposals currently under review for the 2010 SRFB grant round. These are projects not previously identified that were considered consistent with our updated Strategic Approach.

Research and monitoring needs have been updated, although cost estimates for some of those were not available.

Table 1. Summary of Target Areas for the Skagit Watershed Council 2010 Strategic Approach.

Tier	Target Area	Description	Geographic Locations within Watershed	Importance to Skagit Chinook Production
1	Skagit Estuary	Estuarine emergent marsh, estuarine scrub shrub.* Saltwater-freshwater mixing areas. Most productive aquatic ecosystem in watershed. Remaining brackish habitats areas are highly compressed due to dikes and levees. Key habitat features include delta distributaries and blind sloughs.	Skagit Bay including Fir Island bay front; lower end of North and South Fork Skagit River; Swinomish Channel; and associated wetlands on Padilla Bay	Critical physiological transition zone for juvenile Chinook (all life history types). Highest growth rates for juvenile Chinook in watershed (hence high ocean survival). Loss of habitat substantially reduces juvenile survival in Puget Sound and ocean.
	Riverine Tidal Delta	Riverine tidal marshes and wetlands* are the second most productive aquatic ecosystems in watershed.	North and South Fork Skagit River up to and including Cottonwood Island	Historically expansive habitat area for delta-rearing Chinook juvenile life history type. Rearing habitat areas limited due to dike and levee system.
	Floodplains (mixed population rearing)	Broad large-river floodplain areas with prominent alluvial features formed by channel migration, including secondary (islanded) channels, backwater habitats, freshwater sloughs, and oxbows. Highly productive aquatic habitats due to frequent floodplain inundation and extensive wetlands.	Floodplains of the Skagit River from Cottonwood Island to Marblemount, and the Sauk River up to Darrington.	Historically expansive rearing habitat area for distinct riverine juvenile Chinook life history type. Middle Skagit provides rearing habitat for all six independent Chinook populations in Skagit. Growth rates of juveniles equivalent to tidal freshwater habitats. Major spawning areas for fall and summer Chinook.
2	Nearshore Pocket Estuaries	Isolated and relatively small estuary habitats located along nearshore areas of Skagit Bay (WRIA 3).	Pocket estuaries in Skagit Bay that are in close proximity to the delta	Rearing habitats for fry migrant Chinook salmon emigrate from Skagit River in large numbers. Ocean survival rates extremely low (near zero) for emigrating fry that don't rear in these habitats.
	Floodplains (single population rearing)	River floodplain areas with prominent alluvial features formed by channel migration, including secondary (islanded) channels, backwater habitats, freshwater sloughs, and oxbows. Highly productive aquatic habitats due to frequent floodplain inundation and extensive wetlands. Large tributaries that currently or historically provided extensive spawning and rearing habitat areas for Chinook salmon.	Floodplains of the upper Skagit (above Marblemount), upper Sauk (above Darrington), Suiattle, and Cascade Rivers. Day Creek, Finney Creek, Illabot Creek, Bacon Creek	Major spawning areas for single Chinook populations. Historically expansive rearing habitat area for riverine juvenile Chinook. Important to spatial structure and life history diversity of Chinook populations according to NOAA Viable Salmonid Population (VSP) criteria.
3	Sediment and Hydrology Impaired (High Risk) Watersheds	Watersheds that have been identified as major sediment risk areas to important downstream Chinook spawning and rearing habitats. Watersheds located in unstable soils, sedimentary geology, and which possess high densities of forest roads.	Major tributaries to lower Cascade River, lower Suiattle River, and middle Skagit.	Increased risk of severe habitat degradation and reduced Chinook survival due to high risk of landslides, road failures, combined with peak flows caused by historic land management (i.e., logging) and forest road development.

\* See Skagit Chinook Recovery Plan (2005) Appendix D for definitions; original maps in Figure 3.1.

## Responses to Watershed Questions for Three-Year Work Programs

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?*

Attached is our updated list of actions and projects identified for some phase of implementation within the next three years. The format of the list complies with the regional template. As we have for the past several years, projects are color-coded by status as follows to assist review:

- Added to the list for 2010
- Removed from 2010 list
- In progress, phased implementation and funding

Also attached is a Gantt chart showing what has been accomplished, the current state of development of active projects, and those planned for the near and longer term future. We hope this is a sufficient replacement to a narrative of accomplishments.

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

In general terms, we are not keeping pace with the goals of the recovery plan. As an example, for the tidal delta area, restoration projects were identified in the Skagit Chinook Recovery Plan that, if implemented, could meet the habitat restoration goals for the delta area within a proposed 20-year implementation schedule. However, it's taking longer and costing more than projected in the recovery plan. Almost every project identified for implementation within the first five years of the plan has been delayed and costs underestimated. The exception is the Smokehouse Floodplain phase 2 reconnection made possible with transferred funding when an existing grant to reconnect higher quality habitat in Telegraph Slough could not move forward. No new delta projects have been added to the list, and some of those listed are long-shots associated with agricultural conversion.

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he Wiley Slough restoration project, one of the most important delta projects in terms of area restored, was completed just last year. Also poised for completion within the next three years is the Fisher Slough tidal marsh restoration.

More progress has been made in acquisitions for protection of existing habitat. Roughly 47 percent of Skagit SRFB funds have gone toward acquisitions, primarily for protection of functioning floodplain habitat. We do not, however, have a means by which to estimate the maintenance or loss of the existing habitat following the baseline estimate in the recovery plan.

We have been working the last two plus years on developing a template for estimating the benefit of proposed restoration projects using the same empirical models used in the recovery plan to estimate needs and set habitat restoration goals. The idea is to track the predicted juvenile capacity benefit of projects as they mature from concept through design and construction. The contract for that work expires this June, and we are hopeful to be able to incorporate these estimates into both our Habitat Work Schedule database and our Gantt chart to estimate progress toward habitat restoration goals.

An important piece of an adaptive management strategy that is not yet in place is effectiveness monitoring of projects to test the model predictions, especially on large, complex, and high profile projects. At this time, implementation and effectiveness monitoring of habitat restoration projects is spotty at best. The Fisher Slough restoration mentioned above is already being monitored and the sponsor received funding for doing so. However, the Wiley Slough project does not have funding and is already built. The funding sources for these restoration projects, particularly those with large capital investments, should include the funding for a minimum period of monitoring. All of our projects are experiments, none exactly like the next. The opportunity to learn and adapt is lost without this small investment.

3. *What is the general status of implementation towards your habitat restoration, habitat protection, harvest management, and hatchery management goals? Progress can be tracked in terms of 'not started, little progress, some progress, or complete' or in more detail if you choose.*

This narrative does not attempt to speak to harvest and hatchery management goals. As harvest goals are currently limited by habitat, however, we can speak to that. Habitat restoration and protection is actively and aggressively pursued in the Skagit. We don't yet have the yardstick by which to measure our progress. Please see the discussion for the question above.

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?*

In the recent update of our Strategic Approach (attached), the Skagit Watershed Council refined the target areas based on the Skagit Chinook Recovery Plan (Table 1). These target areas are divided into three tiers based on their importance to Chinook salmon recovery, and on the number of populations that will benefit from habitat protection and restoration actions within each area. While projects in all tiers are consistent with the Chinook Recovery Plan, projects within the Tier 1 target areas are the primary focus as they are the habitats with the greatest potential to increase Chinook salmon populations.

In terms of sequence, our restoration community is making progress in important areas where they can. We are also engaged in larger scale planning efforts to identify reaches and projects with the greatest benefit in the Tier 1 floodplain target area of the middle Skagit River. We hope to forward for 2010 Salmon Recovery Funding Board funding an assessment identified in the recovery plan to conduct hydrodynamic modeling in the Tier 1 tidal delta necessary to understand the synergy of multiple proposed restoration actions on estuary function and flood hazard implications. A partnership of the Watershed Council and the Western Washington Agricultural Association, the project goal is to map an important pathway forward in tidal delta restoration planning. We expect both assessment projects to bring more understanding and focus on restoration needs and priorities within both the restoration community and the community at large to enable some of the more controversial and important projects to move forward.

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 & why?*

The update of our Strategic Approach does not constitute a fundamental change since last year, but there is greater focus on areas and projects that will net greater or more measureable progress. The greatest change we see in our strategy has been since adoption of the Puget Sound Salmon Recovery Plan. Because of our six listed Chinook stocks and the focus of our funding sources, we have not developed specific strategies or prioritized actions that will benefit other listed species or areas.

6. *What is the status or trends of habitat and salmon populations in your watershed?*

As there is no status and trend monitoring of habitat in the Skagit, we can only assume that the habitat estimates from the 2005 Skagit Chinook Recovery Plan are still valid, and any habitat subsequently restored in the intervening five years is a gain. We would be interested to know more about the “number of tools/models available for assessing net gain or loss of habitat” cited in the RITT 2009 Three-Year Work Program Review, and the monitoring for habitat status and trends at the regional scale by DOE as cited in the Policy Review comments.

NOAA is conducting a five year review this year of the status of 27 ESU’s & DPS’s of Pacific salmon and steelhead. For a current assessment of Skagit Chinook stocks, we refer the reader to the draft November 25, 2009 document titled “Comprehensive Management Plan for Puget Sound Chinook: Harvest Management Component” by Puget Sound Indian Tribes and the Washington Department of Fish and Wildlife. From a restoration standpoint, there has not yet been enough restoration completed to detect a change in the population. By tracking the estimates of our progress in that regard, we hope to be able to predict when along the restoration/recovery planning horizon that might be possible.

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

The list of challenges to salmon recovery in the Skagit is long and persistent. As lead entity, we ask for RITT and regional support as necessary.

We are expecting assistance from the RITT as one of the first Puget Sound watersheds to benefit from a consistent approach to an adaptive management framework, as mentioned above. This was on our list last year, but the products have been delayed. On some levels we are practicing adaptive management “without a license” and in other ways we are stymied in our ability to either develop the information necessary to inform and adaptively manage or the structure by which to engage in the dialog or process. We expect to have made progress on this front by this time next year as a result of the assistance from the RITT.

From a technical standpoint, there is still a need for the region and the state to identify how all the possible things we are tracking or can track will be rolled up to make any statements about salmon or Chinook recovery. This topic got some day lighting at the

recent Lead Entity retreat in Leavenworth during discussions about the Habitat Work Schedule.

# Skagit Watershed Council

## Year 2010 Strategic Approach

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### INTRODUCTION

The Skagit Watershed Council's 2010 Strategic Approach is updated from the 2005 Strategic Approach to provide a more focused, proactive plan for meeting the goals of the Skagit Chinook Recovery Plan (2005). The Approach has evolved since its inception as a multispecies restoration Strategy in 1998, to a Chinook-focused Strategic Approach for habitat restoration in 2005. This latest revision is motivated largely by publication of the Puget Sound Chinook Recovery Plan in 2007. Our Strategic Approach is expected to be periodically revised as information improves, short-term objectives of the Council change, and long-term goals for salmon recovery in the Skagit and Samish evolve through Council discussion and regulatory mandates (e.g., 4(d) rules, ESA status, the Puget Sound Action Agenda, etc.).

Our Strategic Approach remains committed to restoring and protecting landscape processes that will produce the long-term, sustainable recovery of habitat conditions that benefit multiple species, but it also continues to evolve to better account for significant human constraints that prevent full restoration of processes in both the delta and floodplains and with the understanding that long-term watershed health is in part dependent on the community. The Skagit Watershed Council also recognizes that habitat restoration efforts will not fully restore all historical habitats in the Skagit River basin, and that Chinook salmon recovery is balanced against a variety of other ecosystem goods and services derived from the watershed. Hence, expected outcomes of restoration efforts should be tempered by a realistic view of human constraints that are unlikely to be removed or modified in the near future (e.g., certain dams or levees). This leads to more realistic expectations of what is possible, and a clear recognition that restoration actions in heavily constrained areas such as the lower Skagit will likely be dominated by habitat creation efforts that strive to mimic habitats that would naturally occur. An important challenge for habitat restoration in the Skagit basin is to assure that the suite of actions eventually taken is sufficient to support Chinook salmon populations that meet the recovery goals.

### KEY CONCLUSIONS OF THE CHINOOK RECOVERY PLAN

The primary aim of this Approach is to be more strategic by targeting specific areas that are identified in the Chinook Recovery Plan as most important for Chinook habitat restoration and protection. The Skagit Chinook Recovery Plan identifies six populations of Chinook salmon in the Skagit River basin (Table 1, Figure 1), and four different juvenile Chinook life history types (fry migrants, tidal delta rearing migrants, parr migrants, and yearlings). Chinook fry of all populations emerge from the gravel between late January and mid April.

“Fry migrants” spend the least time in the Skagit River, migrating downstream to Skagit Bay within a few days to a few weeks following emergence. “Delta rearing migrants” migrate downstream through the Skagit River during the same time period as fry migrants, but reside in freshwater and estuary areas of the delta for several weeks to several months before moving to Skagit Bay. “Parr migrants” spend several weeks to several months rearing in the freshwater habitats. Parr migrants are dependent upon shallow riverine rearing habitats along the mainstem Skagit. “Yearlings” are juveniles that remain in freshwater habitats for over one year. After residing in stream and riverine habitats for a year, these juveniles migrate downstream to Skagit Bay from late March through June. The Cascade, Upper Sauk, and Suiattle River populations are largely comprised of yearling juveniles, whereas the other populations are primarily sub-yearlings.

The Skagit Chinook Recovery Plan (2005) identifies three major habitat types that currently limit population sizes of Chinook salmon in the Skagit River basin: (1) tidal freshwater and estuary habitats in the delta, (2) shallow nearshore habitats including pocket estuaries, and (3) freshwater rearing areas in floodplains. A fourth aspect of habitat loss is the alteration of watershed processes that control tributary habitat conditions, including changes in sediment supply, flow regime, and riparian functions. There has been a net loss of 73% of tidal delta and 98% of non-tidal delta areas, 86% of pocket estuaries, and 37% of the large river floodplain (upstream of the non-tidal delta) (Skagit Chinook Recovery Plan 2005). Each of these areas has the potential to provide significant rearing area for juvenile Chinook of all life history types, and all life-history types are present to colonize restored habitats. Therefore, the Chinook Recovery Plan recommends restoration and protection actions that address each of these four factors that limit recovery of Skagit Chinook.

## **GUIDING PRINCIPLES**

The Skagit Watershed Council’s 2004 Strategic Approach adopted three previously-developed principles to guide restoration efforts in the Skagit River basin: (1) target the most biologically important areas for restoration and protection, (2) protect the highest quality habitat first, and (3) do the most cost-effective projects first. However, these principles are challenging to implement strategically because existing land and water uses constrain restoration options. Perhaps most importantly, the notion of doing the best and most cost-effective projects first is rarely possible because of such constraints. In the 2010 Strategic Approach we recast these principles based in part on our past experience, and in part on recent scientific contributions to the philosophy and conceptual basis for river restoration. These principles strive to guide projects toward those that will lead to recovery of Chinook salmon in the Skagit River basin.

### **Principle #1: Restore processes that form and sustain salmon habitats**

The Skagit Watershed Council’s Habitat Protection and Restoration Strategy (1998) is founded upon an overarching restoration goal of encouraging the voluntary restoration and protection of natural landscape processes that formed and sustained the habitats to which salmon populations are adapted. This process-based approach aims to re-establish natural rates and magnitudes of physical, chemical, and biological processes that create and sustain river and floodplain ecosystems, thereby supporting recovery of Chinook salmon.

Important process-based restoration actions in Skagit basin include restoring natural tidal, river, and erosion processes to delta habitats, restoring river-floodplain interactions and the formation of off-channel habitats, and plant growth and successional processes in riparian areas (Beamer et al. 2005). Additional processes include erosion and sediment transport, storage and routing of water, input of nutrients and thermal energy, and nutrient cycling in the aquatic food web. Process-based restoration focuses on correcting anthropogenic disruptions to these processes, so that the river-floodplain ecosystem recovers with minimal future maintenance and has the capacity to respond to future climate change through natural physical and biological adjustments (Sear 1994, Beechie et al. in press).

This approach contrasts with restoration efforts that focus on creating specific habitat characteristics to meet perceived “good” habitat conditions or uniform habitat standards (Wohl et al. 2005). These habitat creation efforts commonly attempt to control processes and dynamics rather than restore them, and often include channel stability as a criterion for success (Beechie et al. in press). By contrast, efforts that re-establish habitat forming processes promote recovery of habitat and biological diversity, and include river dynamics as criteria for success. Because process restoration focuses on restoring critical drivers and functions, such actions will help avoid common pitfalls of engineered solutions such as creating habitats that are unsuited to the natural potential of a site or building habitats that are ultimately destroyed by untreated watershed or river processes (Beechie and Bolton 1999).

Restoration actions should (1) address the underlying cause of degradation, (2) be tailored to local physical and biological potential, and (3) match the scale of restoration with the scale of underlying problem (Beechie et al. in press). Each reach in a river network has a relatively narrow range of channel and riparian conditions that match its physiographic and climatic setting, and restoration actions should be designed to correct disruptions to driving processes and redirect channel and habitat conditions into that range. Moreover, in order for restoration actions to succeed, the scale of the action must be at a scale that matches the scale of the underlying cause of degradation. That is, reach-scale problems such as riparian degradation or channel constraint by levees can be addressed at the reach scale, whereas sediment supply or hydrology issues must be addressed at larger scales.

## **The Role of Constraints in Choosing Restoration Actions and Designs**

Restoration of Chinook salmon habitats in Skagit River basin is constrained by competing land and water uses, particularly in the reaches downstream of Sedro Woolley. Therefore, natural processes that shape river and delta habitats are not always fully restorable, and restoration actions must often concede to some level of human constraint. In some cases such actions may be less costly in the short-term, but future maintenance costs will be higher and benefits to listed Chinook populations will be lower. By contrast, restoration actions that fully restore natural processes may be more costly in the short term, but have little or no future maintenance cost and greater benefits to Chinook salmon. Considering these tradeoffs in selection of projects is not trivial, and deciding when concessions to constraints are necessary is difficult.

To assist in evaluating proposed projects, the Skagit Watershed Council recognizes that restoration projects fall into one of three general types: full process restoration, partial process restoration, and habitat creation (Table 2). Full restoration actions are most consistent with the underlying philosophy of process-based restoration, as their specific aims are to address underlying causes of habitat degradation, and to restore habitat conditions and dynamics that support salmon populations. Such actions are generally more effective and sustainable than the other two action types, but partial restoration and habitat creation are not excluded as options. Partial restoration actions are largely consistent with the Council's process-based approach, but they acknowledge some limitation on process restoration. Habitat creation actions are fundamentally least consistent with the process-based approach, but such actions can be designed in the context of recently developed process-based principles to assure maximum contributions to Chinook recovery. These principles guide habitat creation actions to be (1) consistent with historical habitat types at the site, (2) designed in accordance with current habitat-forming processes (which are altered by human constraints), and (3) designed at an appropriate scale for the site (Beechie et al. in press). Actions designed in accordance with these three principles are more likely to provide significant habitat benefits for Chinook salmon, and to require minimal future maintenance.

## **Principle #2: Protect functioning processes and habitats from degradation**

The Council's Strategy describes the importance of protecting habitats and natural processes that retain a substantial measure of their natural productivity for salmon. In the Council's Strategy, these areas are generally referred to as key habitat. Protecting these highly functioning habitats is: 1) essential for anchoring highly productive spawning and rearing areas for long-term recovery, and 2) more cost-effective than attempting to restore degraded processes and habitats (Beechie et al. 2008). However, habitat protection commonly does not increase habitat function or salmon populations, and by itself cannot achieve recovery of Chinook salmon.

One of the most important aspects of Chinook recovery in the Skagit River basin is protection of the remaining high quality habitats in the Tier 1 and Tier 2 target areas below. Only 27% of Skagit tidal-delta habitats, 2% of non-tidal habitats, 14% of pocket estuaries in the Whidbey basin, and 63% of side channel habitats in the Skagit basin remain intact, and preventing further losses of these habitats is a critical component of Chinook salmon recovery. Moreover, protecting currently non-functioning habitats may in some cases lead to improved habitat conditions as those habitats return to a more natural condition in the future. Nonetheless, it is important to note that habitat protection efforts alone will achieve relatively little increase in productive capacity of the basin, so restoration actions will also be required to achieve Chinook salmon recovery. Habitat protection actions are especially important in areas where legal protections are insufficient to prevent habitat degradation.

## **Principle #3: Focus protection and restoration on the most biologically important areas**

The Puget Sound Chinook Recovery Plan identifies loss of delta and floodplain habitats in the lower Skagit River basin as the main constraints on Chinook salmon recovery. Therefore, this guiding principle encourages project proposals that focus habitat restoration and

protection efforts in those target areas. While our long-term Strategy (Skagit Watershed Council 1998) is a multi-species approach to watershed and salmon habitat restoration and protection, projects addressing critical rearing habitats for multiple Chinook salmon populations in the Skagit delta and floodplains are the focus at this time. The tiered target areas described below reflect this current focus.

## TARGET AREAS

For this update of the Strategic Approach, the Skagit Watershed Council has refined the target areas based on the Skagit Chinook Recovery Plan (Figure 2, Table 3). These target areas are divided into three tiers based on their importance to Chinook salmon recovery, and on the number of populations that will benefit from habitat protection and restoration actions within each area. While projects in all tiers are consistent with the Chinook Recovery Plan, projects within the Tier 1 target areas are the primary focus as they are the habitats with the greatest potential to increase Chinook salmon populations. We recognize that the target areas do not encompass all important areas for all salmon. Targeting all species simultaneously would likely result in priority areas covering nearly the entire basin, and provide little basis for prioritizing restoration and protection actions for the Council.

The Baker River system upstream of the fish trapping facility is currently omitted from our target areas because it is partially isolated from the Skagit by Lower Baker and Upper Baker hydroelectric dams (the Baker River Hydroelectric Project) which just completed the Federal Energy Regulatory Commission (FERC) relicensing process. The Baker basin (upstream of the Upper Baker Dam) contains high quality salmon habitat in either natural or moderately disturbed condition, and has relatively little sediment impairment. The vast majority of this upstream habitat is in protected, federal ownership. Moreover, the basin is underutilized by anadromous fish at this time due to downstream passage problems, and Puget Sound Energy is working with interested parties through various working groups to implement the relicensing agreement.

### Tier 1 Target Areas

The 1<sup>st</sup> Tier target areas are the Skagit estuary, riverine tidal delta, and river floodplains that provide rearing habitats for juveniles of multiple Chinook salmon populations. These areas currently constrain Chinook salmon recovery, and therefore have the highest potential benefit to Skagit wild Chinook salmon at this stage in implementation of the Skagit Chinook Recovery Plan.

#### Skagit estuary and riverine tidal delta target area

##### *Target Area Description*

The Skagit estuary and riverine tidal delta target area includes:

- Historic extent of the estuarine emergent wetland zone and estuarine scrub-shrub wetland zone adjacent to Skagit Bay and the North and South forks of the Skagit River, as well as the Swinomish Channel corridor and contiguous wetlands on Padilla Bay (Collins 2000).

- Historic extent of riverine tidal forested and riverine tidal scrub-shrub zones, particularly the North and South forks up to and including Cottonwood Island (Collins 2000).

***Rationale for target:***

The Chinook Recovery Plan identifies loss of rearing habitat in the delta as the primary habitat factor limiting recovery of Skagit River Chinook populations. In the past 150 years, 73% of tidal delta and 98% of non-tidal delta habitats have been lost, and the limited remaining habitats are insufficient to support juvenile Chinook salmon from the six populations (Skagit Chinook Recovery Plan 2005). Therefore, the Skagit delta is included in the highest priority Tier 1 target area.

***Priority objectives:***

The primary restoration objectives in this target area are to restore habitat capacity and connectivity in the Skagit delta. Specific recommended actions include:

- Restore distributary channels connecting the North Fork of the Skagit River to the Skagit bayfront.
- Restore connectivity between the North Fork and the Swinomish Channel/Padilla Bay area by addressing the barriers created by the McGlenn Island Causeway, jetties, levees, and Highway 20.
- Restore estuarine emergent and scrub-shrub wetlands that are directly connected to the North or South Fork Skagit River or a major distributary channel.
- Restore functioning riverine tidal forested and scrub shrub wetland habitat through actions such as dike removal and/or set back.
- Implement actions to improve water quality in areas identified as impaired.
- Protect existing high quality habitat and contribute to restoration actions through acquisition or permanent conservation easement.

***Issues/challenges:***

A major challenge in this target area will be achieving the community support necessary to realize significant habitat gains on or near privately owned lands (most of which has been heavily invested in agricultural production for many years). A second major challenge is incorporating potential effects of climate change on effectiveness of protection and restoration actions (e.g., sea-level rise will shift locations of delta habitat types). Predictions of such changes should be incorporated into project identification and design as they become available.

**Floodplain target area (multiple population rearing)**

***Target Area Description:***

The large river floodplain target area includes mainstem river, floodplain, and tributaries within the floodplains of the Skagit and Sauk Rivers that provide rearing habitat for multiple Chinook populations (Figure 2).

***Rationale for target:***

Chinook salmon utilize habitats in the mainstem and floodplain of the Skagit and Sauk Rivers extensively for migration, spawning, refuge and rearing. These floodplain habitats and contributing upland areas have been significantly altered over the past 100+ years due to

road building, bank hardening, hydropower operations, timber harvest in riparian zones, rural development, etc. Upstream of the delta, 61 miles of the mainstem channel edge has been hardened with riprap, and 31% of floodplains have been isolated from the river (Skagit Chinook Recovery Plan 2005). The Skagit basin has also lost approximately 37% of the historic side channel habitat that provided critical rearing and refuge functions in the floodplain (Skagit Chinook Recovery Plan 2005). An analysis of riparian vegetation conditions in these floodplain habitats throughout the Skagit basin found significant impairment in most of the reaches surveyed (Beamer et al., 2000). Recent research in the Skagit has found the junctions between tributaries and mainstem channels where fans are formed to be biological “hot spots” for habitat diversity and salmon utilization (Kiffney et al. 2003). Many of these fans have been delineated and are included in this target area.

***Priority objectives:***

- Reconnecting isolated floodplain areas and restoring mainstem edge habitat by removing, relocating, or improving hydromodifications and floodplain structures or roads that restrict natural floodplain and fan functions.
- Acquire lands or conservation easements to permanently protect high priority parcels or facilitate restoration actions.

***Issues/challenges:***

One objective for future Strategic Approach revisions will be to develop acceptable criteria for distinguishing among the targeted floodplain reaches, similar to that under development for the mainstem Skagit between Rockport and Sedro Woolley. Further work over the next year or two will provide much clearer objectives for this target area that will help identify specific actions and better guide project identification.

## **Tier 2 Target Areas**

Additional habitat losses that significantly impede Chinook salmon recovery are pocket estuaries in the nearshore marine area and river floodplains that provide rearing for single Chinook salmon populations, including four Skagit tributaries that provide significant spawning and rearing habitats. These are considered the Tier 2 target areas.

### **Nearshore pocket estuary target area**

***Target Area Description:***

Pocket estuaries are small sub-estuaries within the larger Skagit Bay estuary that form behind spit or barrier beach landforms at submerged, tectonically- or glacially-derived valleys or at small creek deltas. This target area includes:

- Twelve pocket estuaries bordering Skagit Bay within one day’s travel distance from the delta for fry migrant Chinook (Skagit Chinook Recovery Plan 2005).

***Rationale for target:***

Pocket estuaries are used by wild juvenile fry migrant Chinook during late winter through early spring (Beamer et al., 2003). These habitats provide extended rearing and growth opportunities for these Chinook, as well as refuge from predatory species. Eighty six percent of the total historic pocket estuary area in close proximity to the Skagit delta is currently blocked to non-natal salmon use and the habitat-forming forces of tidal hydrology.

Restoration and protection of this habitat will benefit the fry migrant life history type and help alleviate the effects of overcrowding in the Skagit delta. To maximize recovery benefits for Skagit Chinook salmon in pocket estuaries it is important to focus restoration effort on pocket estuaries with a high degree of connectivity to the Skagit Delta. Supporting the efforts of Island County WRIA 6 lead entity in restoring the Whidbey and Camano Island sites will also contribute to implementation of the Skagit Chinook Recovery Plan.

***Priority objectives:***

- Protect and/or restore natural landscape processes, connectivity, and habitat functions at the identified pocket estuaries in WRIA 3 (including acquisition of land necessary to achieve this objective).

***Issues/challenges:***

The nearshore marine areas of the Skagit and Samish basins encompass considerably more habitat than the pocket estuaries, including vegetated and unvegetated intertidal flats, subtidal flats, rocky reefs, the pelagic zone, beaches, backshore areas, and marine riparian zones. The value of these habitats for Chinook salmon is largely unknown. However, a recent NOAA study (Greene et al., 2005) has shown that environmental factors during the nearshore life stage significantly influence adult spawning recruitment, indicating the need to better understand the nearshore system and its role in recovery of Skagit Chinook salmon. Continuing research to assess current habitat conditions and salmon habitat use throughout the nearshore in order to understand the processes and conditions that may be limiting salmon production will help us target the most effective salmon restoration and protection actions in the nearshore. In the interim, it is the Council's decision to focus nearshore habitat restoration and protection actions on pocket estuaries because potential benefits to Chinook salmon are well established. However, pocket estuaries are particularly susceptible to sea level rise impacts given their shoreline location (i.e. usually bordered by higher elevation uplands rather than a gradual river delta). Sea level rise modeling should eventually be incorporated into selection and design to ensure restoration goals are achieved and sustained through time.

**Floodplain target area (single population rearing)**

***Target Area Description:***

The single population floodplain target area includes mainstem or tributary floodplains and adjacent areas that provide or significantly influence spawning and rearing habitat for single Chinook populations, including:

- Mainstem and large floodplains of the upper Skagit, upper Sauk, upper Cascade, and Suiattle Rivers.
- Key tributary floodplains that contain significant habitat for Chinook salmon: Day Creek above the Skagit floodplain, Finney Creek, Illabot Creek, and Bacon Creek.
- Floodplain-adjacent unstable slopes, alluvial fans, and riparian areas (generally not more than 2 site-potential tree heights in width).

***Rationale for target:***

Chinook salmon utilize habitats in the mainstem and floodplain of the upper Skagit, upper Sauk, upper Cascade and Suiattle Rivers extensively for migration, spawning, and rearing. These floodplain habitats and contributing upland areas have been significantly altered over

the past 100+ years due to road building, bank hardening, hydropower operations, timber harvest in riparian zones, and rural development. These areas are separate from Tier 1 floodplains because protection and restoration actions in these floodplains benefit only one population of Chinook salmon.

***Priority objectives:***

- Reconnecting isolated floodplain areas and restoring mainstem edge habitat by removing, relocating, or improving hydromodifications and floodplain structures or roads that restrict natural floodplain and fan functions.
- Acquire lands or conservation easements to permanently protect high priority parcels or facilitate restoration actions.
- Restore natural riparian structure and processes (including shade, large woody debris recruitment, and root reinforcement of banks and adjacent unstable slopes) by reforesting impaired riparian zones and LWD supplementation where necessary to recover pool-riffle habitat until trees mature.

***Issues/challenges:***

As with the Tier 1 floodplains, there are currently no clear criteria for distinguishing among the tier 2 floodplain reaches. Future assessments should focus on identifying clearer restoration objectives and specific actions necessary to support Chinook salmon recovery.

As described below for Tier 3 watersheds, considerable sediment reduction work has been done in many of these watersheds, and it is currently unclear which, if any, of these basins are priorities for sediment reduction efforts. An updated sediment supply analysis is needed to better target upland protection and restoration actions within the Tier 2 floodplain target area.

## **Tier 3 Target Area**

### **Sediment and hydrology impaired watersheds**

***Target Area Description:***

The Tier 3 target area includes watersheds that have been identified as having impaired (elevated) sediment supply or peak flows (Skagit Chinook Recovery Plan 2005).

***Rationale:***

The scientific rationale for this Tier is that sediment contributions and increased peak flows to Chinook spawning areas contribute to reduced survival of eggs to emergence (Greene et al. 2005), while spawning area availability appears to be sufficient to support greater spawner populations (Beechie et al. 2006). This target area includes tributaries that deserve our most immediate attention in the near term (next 10 years), based primarily on their importance to Chinook salmon. Some of these areas were previously described as sediment impaired, and numerous tributaries in the lower Skagit have poor or degraded riparian, floodplain, peak flow, road density, and sediment supply conditions. These impaired processes fill pools and aggrade channels, increase the proportion of fine sediments in channel beds, increase the frequency of channel forming and bed mobilizing flow events, and decrease habitat

complexity and resilience to floods. Important biological effects of these changes include reduced rearing capacity and reduced egg to fry survival.

***Priority objectives:***

- The priority objective For Tier 3 is to reduce land use impacts on sediment supply and peak flows.
- Repair, relocate, or remove roads, bridges, culverts and other man-made structures that contribute to (or are at high risk of contributing to) significantly increased erosion or peak flows.

***Issues/challenges:***

Much road sediment reduction work has been accomplished on federally managed land since the assessments informing the Council's strategy application (Beamer et al. 2000) were conducted. Many sediment "impaired" watersheds have been rehabilitated and additional road surveys conducted. An update of the road sediment analysis from the 2000 assessment is needed to revise our priorities for sediment reduction work.

Existing land use regulations are assumed to be a sufficient regulatory baseline to support salmon across the watershed as a whole. However, the future implementation and success of these regulations is somewhat uncertain and it may be prudent to attain higher levels of protection in those places deemed most important for salmon recovery. Assessing the potential effects of changing land use regulations will help discern whether such expanded protection areas will significantly contribute to salmon recovery relative to other protection and restoration actions.

Table 1. Population origin, production type, and status of Skagit River Chinook salmon populations (WDFW 2002, Federal Register 2005).

<b>Chinook Population</b>	<b>Origin</b>	<b>Production Type</b>	<b>Population Status</b>
Samish	Non-native	Composite	Not-defined
Upper Skagit Mainstem/Tribs	Native	Wild	Threatened
Lower Skagit Mainstem/Tribs	Native	Wild	Threatened
Lower Sauk	Native	Wild	Threatened
Upper Sauk	Native	Wild	Threatened
Suiattle	Native	Wild	Threatened
Upper Cascade	Native	Wild	Threatened

Table 2. Classification of river restoration actions based on the degree to which each restores natural habitat-forming processes (Beechie et al. in press).

<b>Action class</b>	<b>Definition</b>
Full restoration	Restore processes that create and maintain habitats and biota, thereby returning a river ecosystem to its normative state.
Partial restoration	Restore or improve selected ecosystem processes, thereby partially restoring a riverine ecosystem.
Habitat creation	Improve quality of habitat by treating specific symptoms through creation of locally appropriate habitat types; used where causes of degradation cannot be addressed.

Table 3. Summary of Target Areas for the Skagit Watershed Council 2010 Strategic Approach.

Tier	Target Area	Description	Geographic Locations within Watershed	Importance to Skagit Chinook Production
1	Skagit Estuary	Estuarine emergent marsh, estuarine scrub shrub.* Saltwater-freshwater mixing areas. Most productive aquatic ecosystem in watershed. Remaining brackish habitats areas are highly compressed due to dikes and levees. Key habitat features include delta distributaries and blind sloughs.	Skagit Bay including Fir Island bay front; lower end of North and South Fork Skagit River; Swinomish Channel; and associated wetlands on Padilla Bay	Critical physiological transition zone for juvenile Chinook (all life history types). Highest growth rates for juvenile Chinook in watershed (hence high ocean survival). Loss of habitat substantially reduces juvenile survival in Puget Sound and ocean.
	Riverine Tidal Delta	Riverine tidal marshes and wetlands* are the second most productive aquatic ecosystems in watershed.	North and South Fork Skagit River up to and including Cottonwood Island	Historically expansive habitat area for delta-rearing Chinook juvenile life history type. Rearing habitat areas limited due to dike and levee system.
	Floodplains (mixed population rearing)	Broad large-river floodplain areas with prominent alluvial features formed by channel migration, including secondary (islanded) channels, backwater habitats, freshwater sloughs, and oxbows. Highly productive aquatic habitats due to frequent floodplain inundation and extensive wetlands.	Floodplains of the Skagit River from Cottonwood Island to Marblemount, and the Sauk River up to Darrington.	Historically expansive rearing habitat area for distinct riverine juvenile Chinook life history type. Middle Skagit provides rearing habitat for all six independent Chinook populations in Skagit. Growth rates of juveniles equivalent to tidal freshwater habitats. Major spawning areas for fall and summer Chinook.
2	Nearshore Pocket Estuaries	Isolated and relatively small estuary habitats located along nearshore areas of Skagit Bay (WRIA 3).	Pocket estuaries in Skagit Bay that are in close proximity to the delta	Rearing habitats for fry migrant Chinook salmon emigrate from Skagit River in large numbers. Ocean survival rates extremely low (near zero) for emigrating fry that don't rear in these habitats.
	Floodplains (single population rearing)	River floodplain areas with prominent alluvial features formed by channel migration, including secondary (islanded) channels, backwater habitats, freshwater sloughs, and oxbows. Highly productive aquatic habitats due to frequent floodplain inundation and extensive wetlands. Large tributaries that currently or historically provided extensive spawning and rearing habitat areas for Chinook salmon.	Floodplains of the upper Skagit (above Marblemount), upper Sauk (above Darrington), Suiattle, and Cascade Rivers. Day Creek, Finney Creek, Illabot Creek, Bacon Creek	Major spawning areas for single Chinook populations. Historically expansive rearing habitat area for riverine juvenile Chinook. Important to spatial structure and life history diversity of Chinook populations according to NOAA Viable Salmonid Population (VSP) criteria.
3	Sediment and Hydrology Impaired (High Risk) Watersheds	Watersheds that have been identified as major sediment risk areas to important downstream Chinook spawning and rearing habitats. Watersheds located in unstable soils, sedimentary geology, and which possess high densities of forest roads.	Major tributaries to lower Cascade River, lower Suiattle River, and middle Skagit.	Increased risk of severe habitat degradation and reduced Chinook survival due to high risk of landslides, road failures, combined with peak flows caused by historic land management (i.e., logging) and forest road development.

\* See Skagit Chinook Recovery Plan (2005) Appendix D for definitions; original maps in Figure 3.1.

Figure 1. Locations of the six populations of Chinook salmon in the Skagit River basin (Shared Strategy for Puget Sound, 2007).

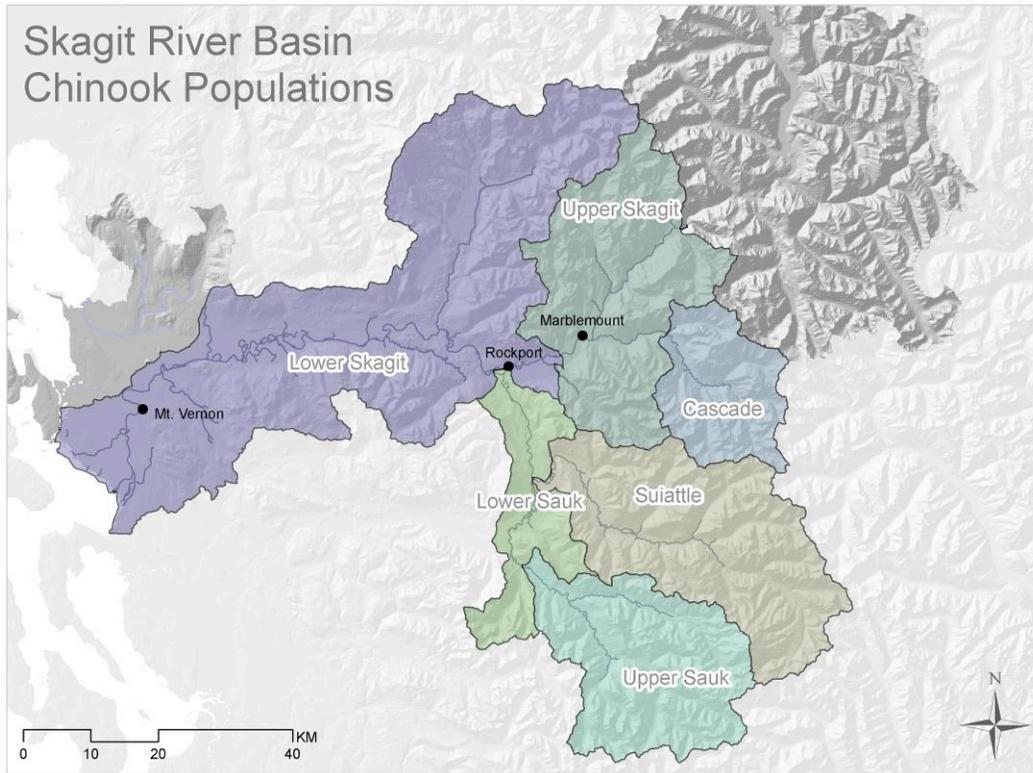
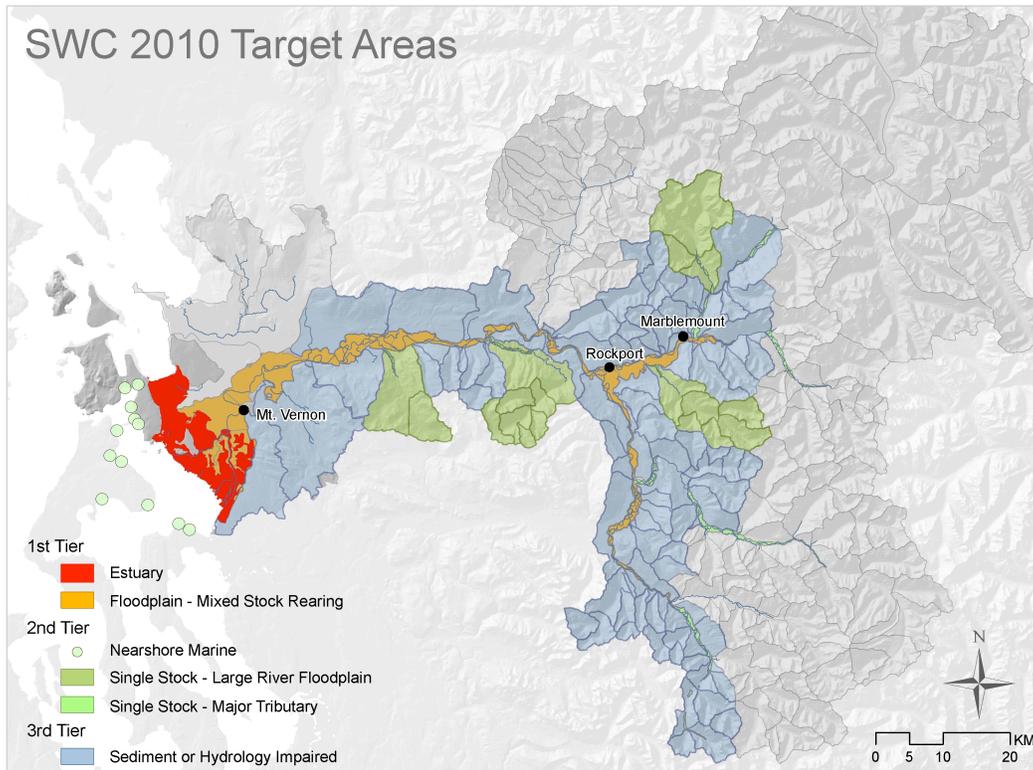


Figure 2. Tier 1, 2 and 3 target areas for habitat restoration and protection in the Skagit River basin. Note that detail of tributary Tier 2 floodplains is not visible at this scale (contained in green shaded watersheds). See Skagit Watershed Council website for higher resolution maps.



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Year 2010 reflects currently funded projects																			
Project Information and How it relates to the Recovery Plan												Project Planning							
Project Type	Plan Category	Project Name	Brief Project Description	Priority tier of project	Limiting Factors	Document Ref for limiting factors	HWS Habitat Type	HWS Activity Type	Project Performance	Primary Species Benefiting	Secondary Species Benefiting	Current Project Status	2010 Activity funded	2010 Funded Cost*	2011 Activity to be funded	2011 Estimated Cost	2012 Activity to be funded	2012 Estimated Cost	Likely End Date
<b>CAPITAL PROJECTS</b>																			
<b>Habitat Capital Projects</b>																			
<b>Estuary / Riverine Tidal Delta (Tier 1)</b>																			
Restoration		Wiley Slough Estuary Restoration	Restoration of 160 ac tidal marsh	1	Loss of habitat	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore	160.6 acres	Chinook		Construction	Monitoring	\$75,000	Monitoring	\$75,000	Monitoring	\$75,000	2015
Restoration		Swinomish Channel Restoration (i.e. Fornsbys or Smokehouse Floodplain)	Completion of Fornsbys Ck SRTs to provide fish access and dredge spoil removal from intertidal at several locations	1	Loss of habitat	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore	50 acres	Chinook	Chum	Construction Completed 2009	Monitoring	\$0	Monitoring	\$0	Monitoring		2012
Restoration		Swinomish Channel Fill Removal	Removal of dredge spoils from west side of Swinomish Channel to restore tidal marsh habitat	1	2	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore		Chinook	Chum	Construction	Construction		Post-restoration Monitoring	\$60,000			2012
Restoration		McGlenn Island Causeway	Improve hydraulic connection between the N. Fork of the Skagit and Swinomish Channel to improve access by juveniles to estuarine rearing habitat in Padilla Bay	1	Loss of habitat	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore		Chinook		Feasibility/90% Design Post-construction monitoring			Design/Permitting	?			2012
Restoration		Milltown Island	Second phase of restoration on WDFW tidal delta island	1	2	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore		Chinook	Chum	Post-construction monitoring	Post-restoration Monitoring	\$50,000	Design/Construction	\$75,000			2012
Restoration		Fisher Slough	Restores 50-80 acres of farmland within the riverine tidal zone to channel, scrub-shrub, forested wetland, and tributary junction habitats	1	Loss of habitat	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore	68 acres	Chinook	Coho	Design & Construction	Design & Construction	\$2,800,000	Construction	?	Monitoring		2011
Restoration		South Fork Off Channel	Reconnection of riverine wetland in freshwater delta. Grant funding acquisition & restoration feasibility complete.	1	Loss of habitat	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore	40 acres	Chinook	Chum	Feasibility complete			Design/Permitting	\$20,000	Construction	\$175,000	2011
Restoration		Telegraph Slough Reconnection	Implementation scheduled out beyond 3 year list window. Re-establish connectivity between Padilla Bay and Swinomish channel via Telegraph Slough	1	Loss of habitat	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore	80 acres	Chinook		Conceptual							
Restoration		Fir Island Farm Restoration (i.e. Dry Slough Tidegate, Goose Reserve)	Restoration of tidal marsh on 264 acres of WDFW property currently managed as a snow goose reserve	1	Loss of habitat	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore	120 acres	Chinook	Chum	Feasibility	Feasibility/30%Design	\$296,353	Design	?	Construction	?	2012
Restoration		Cottonwood Island	Reconnection of relict side channel for rearing habitat	1	Floodplain Connectivity & Function, Loss of habitat	Skagit Chinook Recovery Plan	Instream	Instream	170 acres	Chinook	Coho	Design & Permitting	Design/Permitting	\$98,700	Construction	?	Construction		2012
Restoration		South Fork Pole Yard	Implementation scheduled out beyond 3 year list window.	1	Floodplain Connectivity & Function, Loss of habitat	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore	40 acres	Chinook	Chum	Conceptual							
Restoration		Deepwater Slough Phase 2	Restore and reconnect 268 ac of estuarine habitat on South Fork Skagit	1	Loss of habitat	Skagit Chinook Recovery Plan	Estuary river delta	Estuary or nearshore	268 acres	Chinook		Conceptual					Feasibility	?	2017
TOTAL ESTUARY/TIDAL DELTA CP														\$3,320,053		\$230,000			\$20,126
<b>Floodplain (multiple Chinook population rearing areas) (Tier 1)</b>																			
Acquisition for Protection/Restoration		Snell Acquisition	Acquisition of 81 acres of floodway property along 3700 feet of the Skagit River on Cockreham Is.	1	Floodplain Connectivity & Function, Loss of habitat	Skagit Chinook Recovery Plan		Land Protected/Aquired/Leased	81 acres	Chinook		Active	Acquisition		Acquisition				2011
Restoration		Gilligan Floodplain	Restore function to 170 acres of side channel and floodplain habitat in the Skagit R downstream from Gilligan Creek by removing 170 linear meters of a flood control dike and riprap & replant	1	1	Skagit Chinook Recovery Plan	Instream	Instream	170 acres	Chinook	Coho	Feasibility/30% design			Design/Permitting/Construction	\$500,000			2014
Restoration		Skagit River Floodplain Restoration (Middle Skagit Floodplain Restoration)	Small scale restoration actions on properties permanently protected for conservation purposes in the Upper and Middle Skagit Floodplain areas; total 25 acres of riparian restoration	1	5	Skagit Chinook Recovery Plan	Instream	Floodplain Restoration	25 acres	Chinook	Coho	Construction - funded in 2008	Construction Design/Permitting		Construction Design/Permitting		Planting maintenance		2012
Restoration		Skiyou Slough	Reconnection of mainstem side channel; project needs to follow the Gilligan dike removal not yet funded	1	1	Skagit Chinook Recovery Plan	Instream	Instream		Chinook	Coho	Proposed			Feasibility/design	\$120,000	Construction	\$400,000	2014
Acquisition for Restoration		Savage Slough Acquisition & Restoration	Acquisition of 211 ac in middle Skagit w/3,460 ft of river front, portion of Savage Ck., isolated Savage Slough, and assoc. off-channel habitats	1	1	Skagit Chinook Recovery Plan	Instream	Floodplain Restoration	60 acres	Chinook	Steelhead	Funded 2010	Acquisition	\$1,497,500	Further design & restoration		Restoration		2014
Restoration		Cascade Trail Relocation	Implementation schedule revised out beyond 3 year list window. Reconnection of floodplain by relocating old rr grade now a public trail	1	1	Skagit Chinook Recovery Plan	Instream	Instream	30 acres	Chinook	Steelhead	Conceptual							
Restoration		Skagit Floodplain Riparian (Upper Skagit Floodplain Restoration)	Restore riparian area of 5 floodplain properties owned by the USFS along the Skagit R. and major trib junctions; will enhance 74 acres of protected riverine habitat	1	5	Skagit Chinook Recovery Plan	Instream	Floodplain Restoration	74 acres	Chinook	Coho	Construction	Construction Design/Permitting		Construction Design/Permitting				
Acquisition for Protection		Skagit Floodplain Habitat Acquisition Phase 2 (Upper Skagit Acquisitions)	Acquisition of floodplain properties for protection of habitat	1	1	Skagit Chinook Recovery Plan	Instream	Land Protected/Aquired/Leased		Chinook	Steelhead	Funded 2010	Acquisition	\$1,282,835	Acquisition		Acquisition		2012
Restoration		Barnaby Reach Restoration	Restoration of large side chnl complex at confluence of Skagit & Sauk Rivers	1		Skagit Chinook Recovery Plan	Instream	Floodplain Restoration		Chinook	Steelhead	Feasibility/Design	Feasibility	\$242,260					2012
Restoration		Car Body Hole	3 year list window. Remove ~550 linear meters of riprap bank armoring	1	1	Skagit Chinook Recovery Plan	Instream	Floodplain Restoration	550' of channel bank,	Chinook	Coho	Conceptual							





