

Narrative for WRIA 2 / San Juan County 3-Year Work Program

What has changed from the 2006 plan:

One of the primary changes to the work plan was in relation to the format of the work plan matrix based on the template provided by Shared Strategy. It took a significant amount of time to move the previous work plan to this new format. Many of the fields we were tracking in our matrix are no longer being tracked in the new format and also new fields were required. It was also challenging to try to fit our projects into the categories provided. It is understood the need for consistency across the region but this update required much more time than anticipated.

The more substantive changes in the plan are:

1. Creation of the Big Picture Project which is a direct result of a local salmon recovery planning retreat. The need for a comprehensive study to map habitats and fish utilization in San Juan County was highlighted during a local salmon recovery retreat in October 2006 on San Juan Island. The purpose of the retreat was to start creating a process and framework for prioritizing local salmon recovery protection and restoration actions. During that meeting participants struggled to create a prioritization framework as there is insufficient information available to prioritize local salmon recovery projects. The number one priority identified from the retreat was the need for a comprehensive study to map habitats and fish utilization in San Juan County. A breakout group outlined the necessary components of the “Big Picture” project to identify the different geomorphologic habitat types throughout the county and to sample fish at representative sites.
2. Incorporation of additional projects identified from the Capital Project List developed in October for the Governor’s Budget request.
3. Incorporation of the Softshore Blueprint results from the Friends of the San Juans work which was completed July 2006 into the Capital Project section of the work plan. The previous plan only had a placeholder for these results but the details were unavailable in April 2006 when the plan was developed. The Blueprint results were also incorporated in the Capital Project List developed in October for the Governor’s Budget request.
4. The section highlighting Synthesis and Compilation of data Gaps from the previous 3 year plan has now been incorporated into one project. This work is now partially funded via the recent Puget Sound Watershed Protection and Restoration grant.

Overall, the changes to the projects in the plan have not changed much primarily due to the limited funding available to San Juan County for projects. Most of the projects are stalled due to lack of funding, some due to lack of local capacity. The overall need for funding has increased due to the list of capital projects now in the plan. The need for capacity and non-capital work continues and has had minimal funding in the last year.

Goals and Objectives

The key 10-year goal of WRIA 2 (San Juan County) is to identify critical habitats and ecosystem interactions in order to develop protection and restoration actions that will be most effective in moving populations of Puget Sound Chinook towards recovery. In San Juan County (WRIA2) protection of high quality nearshore marine habitat is the top salmon recovery goal. The current prioritized action strategy to meet the protection goal is:

1. Assessment Projects – fulfilling critical data gaps via conservation research assessments which will enhance and support protection and identify needs and opportunities for restoration;

2. Protection Projects – includes data sharing, stewardship, acquisition and easements, incentives and education;
3. Restoration Projects – to be based on habitat condition assessments.

The primary placement of assessment strategies is a starting point to enhance protection and identify needs and opportunities for restoration. Assessment includes filling data gaps, monitoring, and conducting research that will in turn support protection and restoration efforts. Assessments ranked first for WRIA2 because - at least for the next several years - better information will significantly enhance the use of existing voluntary and regulatory tools for nearshore habitat protection and restoration.

Projects in the 3 year plan are prioritized based on Tiers. Tier I projects are projects which address the highest priority work such as protection actions or assessments of critical data gaps that will help in future prioritization of protection and restoration actions. Tier II projects are restoration projects.

San Juan County is experiencing some of the most rapid growth in Washington State with shoreline and nearshore habitats becoming increasingly stressed from residential and urban development and recreational / tourism uses. Past agricultural practices and water withdrawals have degraded the limited freshwater spawning and rearing habitats in the islands. And, inputs of water and air pollution from outside of the County may also be affecting nearshore habitat quality. In order to improve protection WRIA2 still needs important information to help prioritize restoration and/or protection activities. While we believe that nearshore waters in San Juan County provide important migration, rearing and feeding habitats for salmonids, we still do not know how the system functions such as when and where salmon are present, particularly juvenile stages. WRIA2 hosts an as-yet undetermined number of salmon stocks which most certainly includes ESA-listed stocks, in order to comply with stock-by-stock management, San Juan County needs to know which stocks show up, where, and at what life stage. WRIA2 has anecdotal evidence and some areas have been surveyed but there is not enough information to apply “best available science” (and at times there is no science available) to prioritize protection and restoration efforts.

The issues facing WRIA 2 are those of protecting quality habitat and restoring modified or degraded habitat. Much of the shoreline is high quality but pressure from development could change that. Once critical habitats have been identified for salmon and forage fish, protection of these habitats will be a priority. Research projects that will quantify and qualify key habitats include the association of juvenile Chinook in time and place for a variety of available habitats. Until 2004 it was not clear that juvenile Chinook occupied the near shore environment of high-energy beaches in San Juan County. Additional habitats and sites need investigating to discern the pattern of habitats that these fish utilize. Juvenile forage fish, a prey for juvenile Chinook have also been sampled in the beach seines. As we sample in different habitats, information for key species in the food web of Chinook salmon will also be acquired. Population structure, species interactions, ocean conditions, habitat quality and quantity are all issues addressed in the proposed non-capital projects.

Initially, summarizing and synthesis of information concerning key issues needs to be compiled. We identify these issues as gaps in knowledge. A series of white papers and map books are proposed for issues such as climate change, historic conditions, pollution sources, oceanography, and input in existing habitat plans, permitting and management.

WRIA 2 is seasonally affected by human population increases, both from summer residents and visitors. Two approaches to achieving our 10-year goal must be made: residents and businesses need information and encouragement to develop their property in a “salmon friendly” manner and visitors need information on how their actions will benefit the ecosystem in San Juan County. Educational outreach includes

workshops and classroom experiences for residents and information exchange at marinas and ferry terminals for visitors.

Fresh water quantity issues exist due to diversions from historic watersheds, changing the flow into streams that historically had salmon runs. Fish barriers from roads, bridges and culverts exist and are a part of the Capital projects. Fresh water quality is affected by failing septic systems, wastewater effluent and contaminants. Marine waters are impacted by point and non-point pollution at fuel docks and marinas and from potential oil spills.

In the next 3 years, we plan to ascertain the effectiveness of existing regulations and the development of a protection package that includes regulatory, voluntary, incentive and education. This work program provides an estimate of funding needed to move Chinook recovery forward in WRIA 2 under the Salmon Recovery Plan. This matrix provides a list of projects to undertake within the next 3 years. Some projects are underway and currently funded; the majority is in need of funding. The majority of the projects are considered to be critical steps in targeting protection and research efforts in WRIA 2.

Capital Projects

Habitat Capital Projects

All of our protection and restoration targets in WRIA2 would benefit from a countywide synthesis of available information in order to prioritize projects. Some research has been completed for forage fish spawning habitat that can be used to target beaches for removal of bulkheads and creosote logs however there is insufficient salmonid data to prioritize based on salmonid usage of local habitats. Protection and restoration projects outlined in the matrix will proceed as rapidly as basic information can be acquired and locations prioritized for action and funding becomes available.

San Juan County has over 400 miles of shoreline to evaluate in light of salmon and forage fish habitat. Some sites are not prioritized yet due to lack of site-specific knowledge. Investigative work is funded for Thatcher Bay that will lead to restoration action. Preliminary surveys have isolated Deer Harbor, Victorian Valley, Crow Valley, Cascade Creek and Buck Bay as sites on Orcas where culvert or bridge replacement would open up habitat for salmonids. Estuary restoration at Fossil Bay (Sucia), Neck Point (Shaw) and Shoal Bay (Lopez) would protect or reclaim nearshore habitat. Additional projects would increase habitat quality in general and could benefit pelagic juvenile salmon and forage fish populations.

Results would provide for protection of high-quality nearshore habitats for juvenile and adult Chinook salmon, sand lance, herring and surf smelt and restoration of historic nearshore habitats.

The capital projects are listed in order of general prioritization and sequencing. Additionally, complimentary projects are grouped near each other in the list. Projects II-7 through II-17 are results of the Softshore Blueprint conducted by Friends of the San Juans which included a prioritized list based on forage fish habitat and spawning beaches. The Blueprint did not take into account the salmonid data currently available in San Juan County for their prioritization of projects. The current data set available is limited and does not have many sampling sites, thus there is insufficient salmonid data available to use when prioritizing site specific work in San Juan County. The Blueprint projects are included in the work plan as they were prioritized in the Blueprint results.

Project II-1. Pt Lawrence Road/Cascade Creek Culvert Replacement

The Cascade Creek stream system is one of the three most valuable freshwater salmon habitats in San Juan County. The Mountain Lake/Cascade Creek basin extends from the top of Mt. Constitution through

Mountain Lake to Buck Bay. It is approximately five square miles (3,072 acres). Cascade Creek flows from Mountain Lake approximately ¾-mile to a small dam and diversion and then another ¼-mile downstream to a diversion which diverts water over to Cascade Lake. The remaining water flows for two more miles, where it passes through a culvert under the county road into Buck Bay. The lower ¼-mile of Cascade Creek is listed as known natural Coho and Sea Run Cutthroat trout habitat by the state Department of Fish and Wildlife. Approximately 240 acres in the watershed are protected by a conservation easement. The upper two-thirds of the watershed, roughly 2117 acres, is located in Moran State Park. This watershed is primarily heavily wooded with old growth forest. The upper portion is in pristine condition and the lower portion of the stream corridor shows very little disturbance from current development. At the mouth of the creek, recent repairs to the culvert under the county road have resulted in flooding of the uplands and a substantial barrier to fish passage. The estuarine wetland upstream from the culvert no longer has sea water flow during the high tide in winter due to the high constant unidirectional flow through the smaller and longer temporary repair and significant erosion is now taking place. The permanent repair includes enhanced fish passage and completely removing the existing culvert and replacing it with a larger culvert or short span bridge. Replacing the causeway with a bridge will ensure free fish access to about 300 feet of excellent shaded pool-riffle stream habitat. San Juan County Public Works has this project on their list to be completed this next summer (2007) pending final funding.

Project II-2. Cascade Creek Fish Ladder

In addition to the culvert replacement (Project II-1), there is an opportunity to gain five times the habitat connectivity in Cascade Creek. In the stream a few hundred feet upstream from the causeway, is a rocky chute/waterfall about five meters in total height. The waterfall, which is artificial, was blasted out in the 19th Century to facilitate chuting logs downstream. A fish ladder, rock shelves as "natural" steps", would be built over the waterfall. Installing a ladder will add another 1200 feet of pool-riffle habitat, also nicely shaded with lots of structure. The landowner is very willing to work out a solution as quickly as possible to enhance fish passage on his property.

Project II- 3. Deer Harbor Estuary Habitat Restoration Project

The Deer Harbor Estuary is the largest estuary on Orcas Island. Up until the mid 20th Century, the estuary supported a chum and coho salmon run as well as native oyster beds. Beginning in the 1860s, forest clearing and development in the Deer Harbor watershed, manipulation of the tributary streams and, especially, the construction of the Channel Road Bridge altered the freshwater hydrology, vegetation communities, sediment dynamics, and tidal flow patterns in the estuary. These impacts have led to the elimination of shellfish populations in the lagoon, elimination of salmon rearing and spawning habitat in the tributaries, and degradation of salmon feeding habitat in the estuary.

The general goal for restoring estuary habitat functions at the Deer Harbor Estuary is to correct, to the extent practicable, the man-made conditions that have caused the degradation of the estuary's salmon habitat and overall aquatic ecology. Four specific objectives for meeting the general goal were identified:

1. Remove fish passage blockages at the mouths of the tributary creeks
2. Restore natural shading along the shoreline of the lagoon
3. Eliminate on-going accumulation of fine sediment in the lagoon
4. Restore tidal hydraulics and sediment transport in the lagoon

The Deer Harbor Bridge on Channel Road is a timber bridge constructed in 1971, which restricts the natural flow from the Deer Harbor estuary. There is an interest among multiple agencies to restore the 20 acre estuary to its original condition which will require construction of a longer span bridge. San Juan County Public Works bridge is scheduled to be replaced the bridge in 2011 but the work is contingent on funding for the replacement bridge. The County is willing to speed up the work when funding is available.

Project II-4. Deer Harbor/Kaiser Pool Beach Restoration

This derelict concrete community pool is located on an upper intertidal beach area in northeastern Deer Harbor. The concrete pool frame was built into the beach and encompasses the entire upper intertidal and backshore of the beach. The old pool has numerous breaks in the concrete walls and is completely non-functional. Estuarine marsh vegetation covers the adjacent northern shore. Cayou Valley Creek estuary is located north of the site, contributing to the estuarine condition of northern Deer Harbor. It is probable that this creek was historically salmonid bearing, thus increasing the restoration value of this site. The beach in this area was mapped as potential forage fish spawning habitat (if the site were not infringed upon by modifications). Recommendations for enhancement at this site include removing the entire cement pool walls and footings, followed by backfilling sediment into the old footing areas (minor beach nourishment). Riparian vegetation should be enhanced where damaged by removal work and marsh vegetation should be planted to initiate recreation of estuarine-marsh conditions. The pool and the surrounding 2 parcels, each approximately 1 acre in size, are now owned by the San Juan County Land Bank. The Land Bank is very motivated to have this structure removed and the 200 feet of beach restored as quickly as possible.

Project II-5. Fish Trap Creek re-charge and flow regulation

The primary source of freshwater flowing into the Deer Harbor Estuary (see Project 3) historically was Fish Trap Creek. This seasonal creek drains roughly three quarters of the land area of the 740-acre watershed. The severe reduction in natural flow rate is primarily due to development activities in the watershed. The loss of stream inflows is negatively affecting the lagoon as is the channel constriction. Fish Trap Creek is blocked by a 5-acre artificial reservoir constructed in 1999 at the headwaters of the Deer Harbor system. Impoundment has reduced Fish Trap Creek to a trickle even in winter and diverted all annual precipitation at the headwaters from Deer Harbor to West Sound. The earth dam of the lake needs to be partly rebuilt and a reliable valve is to be installed so the lake water can be released downstream as needed. The lake may also require some re-alignment so it can act as a large enough reservoir to provide for summer releases. This work would re-charge 3 miles of stream channel and freshen the lagoon. The landowner is willing to resolve the flow issues.

Project II-6. Pickett Springs Salt Marsh

One acre of salt marsh will be re-created where currently there are two fresh water farm ponds impounded by perched culverts. The dig-out of the current ponds and ditches will bring the tidal prism far up the stream and re-align a couple of ineffective culverts. The project will improve fish passage and access to prey resources and rearing habitat in 500 feet of stream. Some work is progressing on this project but additional funding is necessary to move it to completion.

Project II-7. Barlow Bay Rd, Lopez Is.

This segment of modified shore protects Barlow Bay Rd. The shoreline modification is comprised of 2-3.5 ft riprap intended to curb erosion along Barlow Bay Rd. However, there were no signs of active erosion occurring along the beach. As a result, removing this 173 ft stretch of riprap from the intertidal and upper beach could enhance over 4,315 sq ft of beach habitat. The western most portion of Barlow Bay is a sheltered corner of an already low wave exposure shore. The beach faces directly north, but being located in the southern corner of MacKaye Bay, the beach is protected by southwest Lopez Island. A minor tombolo to the west, and a bedrock prominence to the north, further protects this shore from wave attack. Several species of algae are

found along this beach including *Fucus* sp., *Ulva* sp. and *Enteromorpha* sp. Overhanging riparian vegetation is found landward of the modification, offering shade to approximately 70% of the uppermost beach. Historically an extensive wetland, likely salt marsh, was located landward of the beach. The beach actually appears to have been a spit that extended west to a tidal inlet. The inlet and wetlands are now mostly filled and the remaining wetland areas are hydrologically controlled by tide gates. Removal of the riprap adjacent to Barlow Bay Rd should be the highest priority restoration action as this site does not appear to require shore protection along most of its length for erosion control. The site is in a very low wave energy environment and there is a buffer of variable width between the rock and the road allowing for rehabilitation of the valuable spawning habitat that the rock is infringing upon. Following rock removal, the beach would be nourished to restore upper beach sediment suitable for forage fish spawning and reduce erosion potential.

Project II-8. Smugglers Cove Rd, Shaw Is.

The modification consists of a low elevation rock revetment along road edge. The structure protects Smuggler's Cove Rd. This beach faces east and similar to other Blind Bay sites, has low erosion potential due to limited wave energy. The beach is swash is found in the middle of drift cell. The sediment source for the cell is glacial till, which occurs at the cell origin and over most of the length of the cell. A small stream appears to drain through the north-central portion of this site. WDFW has documented forage fish spawning along the southern half of this beach. Adjacent noback shorelines possess a narrow band of driftwood. Riparian vegetation is patchy, and found both north and south of the road revetment. Removing the 241 ft of riprap overlying this beach could recover approximately 1,685 sq ft of forage fish spawning habitat. Rock prominences located at either end of the beach minimize large losses of sediment from the beach system, making this shore well suited for beach nourishment. The area around the small stream could be enhanced and provides additional restoration opportunities. Due to the very close proximity of the road and the intertidal, the most obvious and viable long-term restoration action at this site is to setback Smuggler's Cove Rd. This would allow for full restoration of the beach profile (including the berm and backshore) and enhancement of forage fish spawning areas. It would also allow for marine riparian enhancement adjacent to the shore, which could have numerous positive effects on the beach. Beach nourishment could be used to reestablish the beach and backshore profile and augment potential spawning habitat.

Project II-9. West Shoal Bay, Lopez Island

This residential property spans across two adjacent lots in southwestern Shoal Bay. The modified area extends approximately 69 ft alongshore and is in very poor condition. It appears that boulders were dumped from the bank crest down the bank face to curb toe erosion. The lack of careful and targeted rock placement and presence of additional rock on the slope has caused the rock to migrate water ward (down to mid-tide level) during high tides, resulting in the burial of the natural intertidal beach. It is unlikely that the modification is providing much erosion control in its poor state, and is clearly degrading beach habitat. The beach has been documented as valuable forage fish spawning habitat. Removing this shore modification would recover approximately 1,665 sq ft of intertidal area. This shore segment was determined to have low moderate erosion potential and the homes located atop the bluff are setback approximately 75 ft from the bluff crest. Scattered riparian vegetation is found along south-central Shoal Bay, however the western and eastern shores have more heavily forested uplands with ample overhanging riparian vegetation. The beach enhancement action at this site is to simply remove the rock that is currently covering the intertidal beach, and to the extent possible, from the backshore area. Because the rock debris is scattered over only 69 ft this should not require considerable effort or funding, however alternative erosion control for the upland property and managing the rock removal from the beach will require additional consideration. This project

would improve 69 feet of shoreline habitat and 1,665 square feet of intertidal habitat.

Project II-10. Jasper Bay, Lopez Island

Jasper Bay is a small pocket beach located on the southeast shore in Lopez Sound. A single property owner owns the uplands, though the tidelands are apparently held by DNR. The beach has potential forage fish spawning habitat, overhanging riparian vegetation across most of the shore, and small stream mouth with mature conifers surrounding the stream. An approximately 150 ft long rock revetment covers the upper intertidal and backshore area. This structure was judged to be generally unnecessary for erosion control. The revetment contained several places where small boats were stored and the end of a rough track from the uplands. The revetment is recommended for removal along with beach nourishment if any structures were to remain. This project would improve 149 feet of shoreline habitat and 2,385 square feet of intertidal habitat.

Project II-11. Aleck Bay-s, Lopez Island

This site scored quite well for habitat values, and moderately well for bulkhead removal feasibility. However, this project should not be pursued for bulkhead removal. The apparently recent construction of the wooden soldier pile bulkhead and small setback distance of the house, make homeowner willingness highly unlikely. There are however, additional opportunities to enhance this beach, including removing the concrete pier footings on the beach, restoring the hydrologic connectivity of the large marsh to the marine environment and removing the large bulkhead and reconfiguring the community beach access at the eastern end of the site, which extends well into the intertidal. This project would improve 166 feet of shoreline habitat and 1,821 square feet of intertidal habitat.

Project II-12. Lopez shoal bay lagoon tide gate

There are several additional restoration opportunities in Shoal Bay. Removal of the large cement tide gate located within the tide channel water ward of the lagoon in the eastern corner of the bay should be of high priority. The tide gates do not appear to be functional, and the tide channel is scoured out on either side of the cement walls. The structure appears to constrict flow and impede fish passage through the channel at lower water due to its artificially high concrete base in addition to other impacts. WDFW has mapped the lagoon wetland system and the Shoal and Swift's Bays estuarine system as priority habitat and species areas, as these areas are used by several species. Additionally the lagoon is located within a conservation area. Additional study of the tide channel hydraulics and morphology should be conducted prior to initiating structure removal.

Project II-13. Lopez east Shoal Bay –spit

Removal of cement platform and relict bulkhead and beach nourishment will improve 65 feet of shoreline habitat and 1234 square feet of intertidal habitat.

Project II-14. Lopez Island- Aleck Bay- north

Redesigning the community beach access by removal of cement wall and rockery and replacing with stairs along with revegetation and beach nourishment will improve 65 feet of shoreline habitat and 645 square feet of intertidal habitat.

Project II-15. San Juan Turn Point Marsh

Removal of intertidal rockery in front of salt marsh will reconnect the system and will improve 191 feet of shoreline habitat and 3433 square feet of intertidal habitat.

Project II-16. Turn Point Western Properties, Turn Point Beach and Wetland Restoration

Removal of rock wall, beach nourishment and revegetation and installation of protective daylight culvert will reconnect a freshwater to saltwater system and improve approximately 47 feet of shoreline habitat.

Project II-17. Blakely Island- n. Thatcher bay

Removal of creosote piles and dolphins that are relict and nonfunctioning along with removal of concrete, steel and boulder debris scattered through out the intertidal will improve approximately 100 feet of shoreline habitat and about 500 square feet of intertidal habitat.

Non-Capital Projects

Harvest Management support

San Juan County has not been directly involved in harvest management. Some participation is being sought to enhance the communication and activities in and around the San Juan waters. There is strong local support and recommendation for coordination of the orca recovery plan and the local and regional salmon recovery plans.

Future Habitat Project Development

Project I-1. Big Picture Project

Project will conduct a habitat based assessment of juvenile salmon in North Puget Sound. Proposed project will provide habitat classification and map fish utilization in 5 North Puget Sound nearshore areas over 3 years. Also includes genetic stock analysis. More specifically the project will identify the different habitat types throughout the area and break into geomorphologic types, sample representative sites for fish, sample throughout the year, and obtain samples for genetic analysis. Multiyear / 3-year study (but may be able to extrapolate from first year's data).

Project addresses a major data gap, providing information regarding salmonid use of estuarine and nearshore habitats. Working coalition between the 5 watershed leads/Lead Entities proposed in the proposal. This data gap is supported in each of the 5 watersheds in their local recovery plans and work plans. A regional / multi-watershed approach is highlighted and supported in the Puget Sound Recovery Plan. A regional scale study is much more efficient than each area attempting to do similar work separately. The study is highly beneficial to obtain data and to help develop a broader picture following juvenile salmon from North Sound deltas to the Strait. The project results will provide data to create a context / framework for prioritizing nearshore protection and restoration actions in the 5 watersheds. For example, in WRIA2 it may highlight a section(s) of southern Lopez Island as an area where salmonids are found and thus we will look at the state of the shoreline and adjacent upland areas in those areas to determine what new or additional protection, acquisition and/or restoration work is needed. With over 408 miles of shoreline in SJC, we need to have some idea of where the fish are to start concentrating our salmon recovery efforts in those areas that the fish are actually using.

Note: WRIA2 and other watersheds may break proposal into separate components to meet funding opportunities.

Project I-3. Nearshore Acquisitions / Easements

The San Juan County Land Bank (funded by 1% of real estate property sales taxes) and the San Juan Preservation Trust (501c3 private donations) work together to acquire property of ecological significance. No specific funds are designated in the matrix for property acquisition or easements. These organizations would appreciate help in determining a prioritization schema which would include salmonid usage information when evaluating opportunities. It is anticipated that the results of the Big Picture project would also address this prioritization need.

Thatcher Bay Nearshore Restoration

A mill operating on the beach from the late 1800s until the 1950s used the beach and nearshore areas of the bay to dispose of sawdust waste. Due to limited tidal action within the bay, the wood waste persists on the beach and in the adjacent nearshore areas. Historic salmon foraging and rearing habitat as well as forage fish spawning grounds have been eliminated in the deposition areas. Beach spawning has been lost where gravels have been buried under the waste; the accumulation of wood waste and products of their decomposition in the intertidal and subtidal regions of the southern reach of Thatcher Bay severely limits the growth of eelgrass in these regions. This project is in the assessment and design phase. The assessment includes a determination of the scope of the impact area, an evaluation of what historically existed previous to the deposition of the wood waste, and a determination of appropriate restoration scenarios. The assessment and design are anticipated to be completed end of 2007.

Habitat protection – monitoring of habitat quality

Forage fish habitats, such as eelgrass and beaches in San Juan County are experiencing declines in quality and quantity. Basic research into the reasons for declines and plans for restoration are necessary before the importance of near shore habitats can be evaluated, protected or restored. Water quality and quantity needs to be measured, monitored and restored.

The ten-year goal is to understand the importance of near shore habitats to Chinook populations. Basic gaps in habitat use of pocket estuaries, macro-algae, kelp, high and low energy beaches, and eelgrass exist. Food webs, resident times and population structure should be investigated to better understand the relationship of Chinook to the habitats and ecosystems in WRIA 2.

Some basic assessment research has been funded; near shore salmon presence near stream mouths and high-energy beaches, eelgrass habitat assessment, assessment of kelp bed extent, and limited stream habitat surveys. This work needs to continue beyond the two years of available data because of the affects of interannual variability and climate change. Other projects are proposed that will investigate additional habitats such as open water, pocket estuary, drift kelp and salt marsh. Best available science will be used to manage and steward the habitats and ecosystems in WRIA 2.

Habitat protection – monitoring of regulatory programs

Spatially Explicit Shoreline Development San Juan County's shoreline regulations.

Project will conduct a spatially explicit analysis of San Juan County's shoreline development including substantial shoreline development permits, shoreline exemptions and shoreline variances. This analysis will allow identify local regulations in need of additional protection through updated local or state policy and/or improved compliance. Voluntary protection methods will also be evaluated in terms of their role in long term protection of shoreline habitat in San Juan County. Where possible, policy implications will be linked to known habitat conditions to identify geographic areas for consideration of site or habitat specific policy changes. It is anticipated that this information will feed into the current CAO work in San Juan County. The results will also feed directly into the San Juan County Ecosystem-Based Initiative project by providing the first step of one portion of the policy analysis.

Habitat protection – participation in policy or regulatory updates

The Lead Entity will participate in ongoing multiple regulatory and policy activities in the county. The CAO update for San Juan County is in progress this year to be completed in early 2008.

Project I – 2. Ecosystem Based San Juan Initiative

The San Juan Initiative seeks effective protection of the San Juan Islands by evaluating how successful our volunteer, incentive, regulatory and education programs are in securing the vitality of our natural

resources for future generations. Led by a broad constituency of volunteer community leaders and regional resource managers, the San Juan Initiative is a pilot project for the entire Puget Sound.

Synthesis/Analysis of Data Gaps

During the development of the 3-year salmon recovery plan for WRIA2 in 2006, over sixteen major areas were identified where significant data gaps exist that hinder the progress of salmon recovery in WRIA 2. Analysis and synthesis of the best available science for issues such as permitting reverse osmosis systems, affects of mari-culture net pens in marine waters, identification of sensitive areas at risk from oil spills, and habitat issues around proposed electric power turbines (tidal energy) are currently lacking. This analysis would provide the county guidance on these types of projects being proposed in local waters.

Watershed Plan Implementation

An informal group is meeting on a regular basis to update and coordinate activities throughout the county to prevent duplication and to leverage work needed. Participants include UW Friday Harbor Labs, SJC Health Department, SJC Conservation District, SJC Lead Entity, etc. This group is also coordinating with the Marine Resources Committee and the Water Management Resources Committee.

Outreach and Education

Provide guidance to private citizens and governments that will lead to conservation and preservation of Chinook salmon, forage fish and their critical habitats. Technical assistance is aimed at managers to keep them knowledgeable about research findings and habitat issues. Public education is aimed at all age groups of county residents. School children will learn the importance of marine habitats and there will be workshops for landowners to acquaint them with “best management practices” of their property for salmon and forage fish. The “Salmon in the Schools” program is aimed at 4th grade students where they spend a semester learning about Chinook salmon and rearing juveniles for release.

The Lead Entity will interact with county managers to keep them abreast of new information. A web site has been developed for anyone with questions regarding the stewardship, conservation and preservation of habitats that are critical to salmon and forage fish. Educational outreach has several vectors: scientists in the classroom, salmon in the schools program, adult education by the San Juan Nature Institute and lecture series at Camp Orkila. The Beach Watchers program began in 2006 and will focus on ecosystem awareness for visitors to San Juan County.

Increase awareness of managers and citizens of proactive methods they can take as part of the San Juan County Marine Stewardship Area (MSA). An understanding of the links between watersheds, land use, and nearshore habitats will be emphasized. Tools will be provided for landowners to better manage their property for enhancing salmon and forage fish habitat.

Instream Flow Protection

KWIAHT and WA Fish Conservancy (formerly WA Trout) along with SJC Health Department and DOE are working to monitor some of the streams in SJC. Currently there is no real “owner” for flow issues and monitoring in the county, the Lead Entity Coordinator is attending the Water Management Resources Committee meetings to help keep this issue highlighted as an area of importance.

Salmon Recovery coordination/implementation

Each year more is asked of the Lead Entity Coordinators throughout the state yet the base funding from WDFW to support salary, travel, supplies and office expenses has not increased since 1999 although the Lead Entity role has expanded significantly. An improvement this year is that San Juan County has increased their funding portion to ensure a full-time Lead Entity Coordinator position to pursue and coordinate salmon related activities and grant programs. There are currently 20 governmental and non-governmental partners involved in conservation, education, research, planning and managing the marine

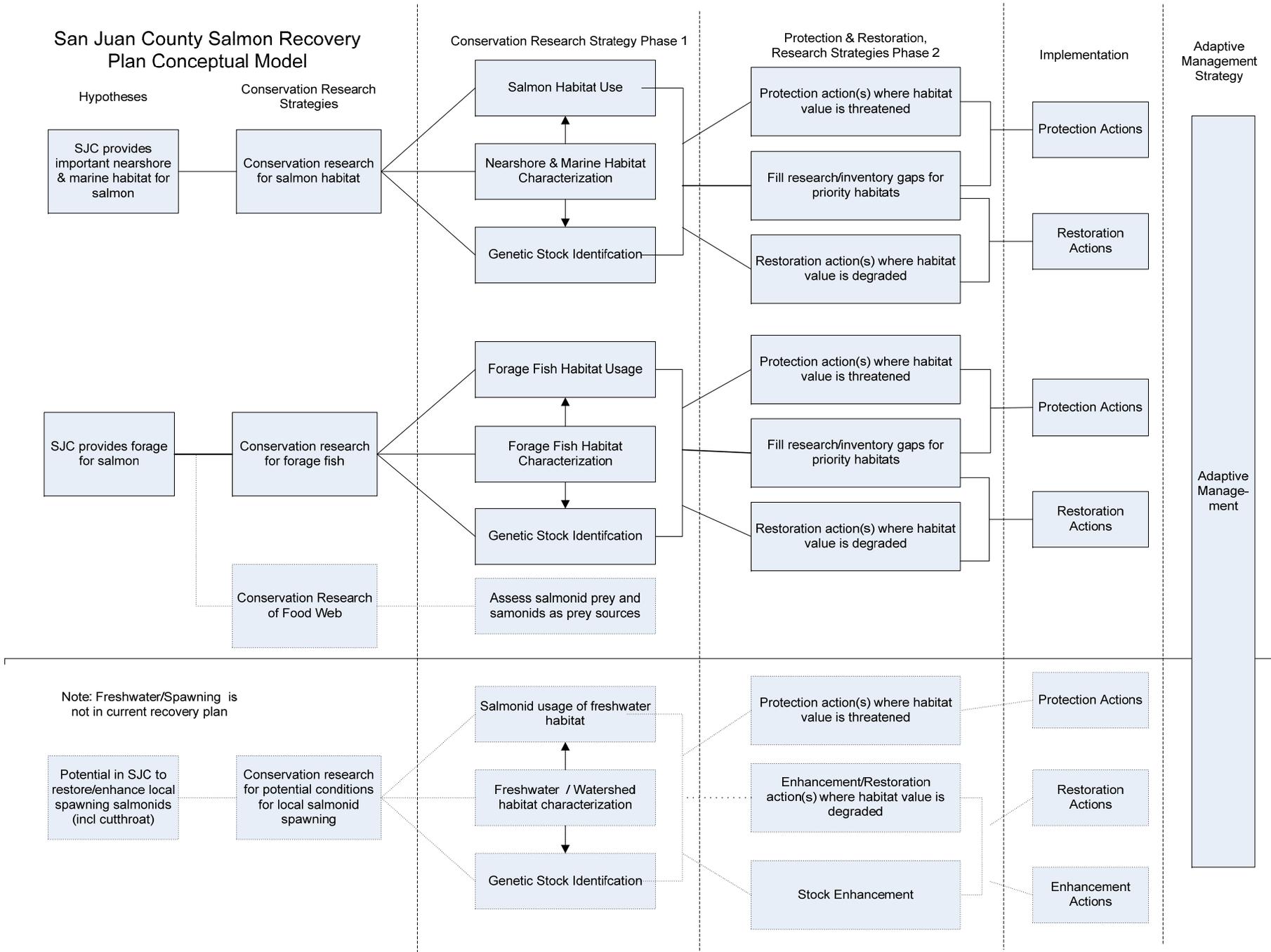
resources in San Juan County. The Lead Entity Coordinator is becoming a clearing-house of ideas, information and actions along with the primary point of contact for any and all habitat related projects in the county. The Lead Entity Coordinator is necessary to promote collaboration, eliminate redundancy and focus on priorities among the many partner organizations.

Stock Monitoring Support

The ten-year goal is to understand the importance of near shore habitats to Chinook populations. There are no documented natal streams in WRIA 2, however, there is some evidence that spawning of salmonids may be occurring in the freshwater systems in WRIA2. Additionally, juvenile Chinook are found both at near shore beaches and in open water. An inventory of all habitats used by Chinook and the timing and extent of this use needs to be investigated. Chinook from the Nooksak, Samish, Skagit and Canadian rivers could be populating WRIA 2. Stock identification would aid in identifying and prioritizing sites used by Puget Sound Chinook. Interactions of wild Chinook population with hatchery and mari-culture should be investigated. These projects are aimed at defining and quantifying recovery goals.

A conceptual model of the local salmon recovery strategy for San Juan County follows. The model was developed as a mechanism to provide a brief overview of the local salmon recovery strategy for WRIA 2.

San Juan County Salmon Recovery Plan Conceptual Model



Three-Year Watershed Implementation Priorities for San Juan County / WRIA2																								
Priority Tier	Primary Limiting Factors Addressed	Action name	Description	Likely sponsor	Total cost of first three years	Proposed SRFB (or grant) share	Local share or other funding	Source of other funds / Partners	2007		2008		2009		2010		For Habitat projects (see key for categories)							
									Year 1 Scope	Year 1 Cost	Year 2 Scope	Year 2 Cost	Year 3 Scope	Year 3 Cost	Year 3 Scope	Year 4 Cost	Likely end date	Acquisition	Restoration type, if applicable	Location w/in watershed	Performance			
CAPITAL PROJECTS																								
Habitat Capital Projects																								
II - 1	7	Pt Lawrence Road/Cascade Creek Culvert Replacement	Culvert replacement with larger culvert to enhance fish passage.	San Juan County	\$480,000		\$480,000	GP, San Juan County Road Funds, USFW FPP	Work completed									2008	P	marine shoreline	1 barrier removed, 300 feet of stream opened			
II - 2	7	Cascade Creek Fish Ladder	Create natural "steps" over artificially created waterfall to enhance fish passage	WA Trout	\$250,000	\$0	\$250,000	GP, KWIAHT, Landowner, NFWF CSF												p	marine shoreline	1 barrier mitigated, 1200 feet of stream opened		
II - 3	2,7	Deer Harbor Estuary Habitat Restoration Project	Restoration of ecological process and conditions that supported historic salmon habitat in the estuary; and replacement of the Channel Road Bridge in a manner that mitigates the structure's detrimental impacts to the estuary ecosystem	People for Puget Sound	\$1,864,000	\$180,000	\$1,684,000	GP, San Juan County Road Funds, Ducks Unlimited, REED	Design and permitting complete		Bridge Construction		Bridge Construction complete, estuary work begins		Estuary work completed			2010		M, P, E	marine shoreline	20 acres restored		
II - 4	2	Deer Harbor/Kaiser Pool Beach Restoration	Remove derelict concrete pool from intertidal beach in Deer Harbor. Restore with beach nourishment and riparian planting.	SJC Land Bank	\$27,000	\$0	\$27,000	GP, NOAA CRP, NFWF CSF, ALEA	Permitting		work complete							2009		M,E	marine shoreline	200 feet restored		
II - 5	6	Fish Trap Creek re-charge and flow regulation	Partly rebuild earth dam and install valve for release of lakewater to re-charge stream channel and freshen Cayou Lagoon	KWIAHT	\$500,000		\$500,000	GP, SJPT, ACE, landowner, SJC CD, Ducks Unlimited, KWIAHT, REED												I	marine shoreline	3 miles		
II - 6	2,7	Pickett Springs Salt Marsh	Re-creation of a salt marsh where currently there are two fresh water farm pond impounded by perched culverts. The project will improve fish passage and rearing habitat.	People for Puget Sound	\$350,000	\$85,000	\$265,000	GP, WDFW LIP, SJPT, Landowner, WA Trout, KWIAHT													M, P, E	marine shoreline	1 acre salt marsh recreated, 500 feet of stream opened	
II - 7	2	Barlow Bay Rd, Lopez Is.	Remove rock, beach nourishment, remove debris	Public Works, Friends of the San Juans	\$77,000			GP, San Juan County													M	marine shoreline	173 feet, 4315 sq feet	
II - 8	2	Smugglers Cove Rd, Shaw Is.	Setback road, remove all rock, beach nourishment and revegetation (more likely soft shore enhancement option, without road moving)	Public Works, Friends of the San Juans	\$470,000			GP, San Juan County	soft shore protection with LWD, nourishment and beach enhancement aspects of this will likely be implemented in the next year or so (not the road removal)												M,R	marine shoreline	241 feet, 1685 sq feet	
II - 9	2	West Shoal Bay, Lopez Island	Remove rock debris covering intertidal	Friends of the San Juans	\$45,000			landowner	will be implemented within 3 years												M	marine shoreline	69 feet, 1665 sq feet	
II - 10	2	Jasper Bay, Lopez Island	Remove all rock and beach nourishment	Friends of the San Juans	\$62,500			landowner													M	marine shoreline	149 feet, 2385 sq feet	
II - 11	2	Aleck Bay-s, Lopez Island	Remove debris	Friends of the San Juans	\$5,000			landowner													M	marine shoreline	166 feet, 1821 sq feet	
II - 12	2,7	Lopez shoal bay lagoon tide gate	remove tide gate and restore tidal channel	Friends of the San Juans	\$100,000		\$50,000	CSF support likely	will be implemented within 3 years												M, P	marine shoreline	tbd	
II - 13	2	Lopez east Shoal Bay -spit	Remove cement platform and bulkhead, beach nourishment	Friends of the San Juans	\$10,000		\$5,000	fishamerica-pending	will be implemented within 3 years												M	marine shoreline	65 feet, 645 sq feet	
II - 14	2	Lopez Island- Aleck Bay-north	Redesign community beach access, remove cement wall and rockery, replace with stairs, restore beach	Friends of the San Juans	\$50,000			NFWF CSF, landowner														M,R	marine shoreline	65 feet, 1234 sq feet

Priority Tier	Primary Limiting Factors Addressed	Action name	Description	Likely sponsor	Total cost of first three years	Proposed SRFB (or grant) share	Local share or other funding	Source of other funds / Partners	2007		2008		2009		2010		For Habitat projects (see key for categories)				
									Year 1 Scope	Year 1 Cost	Year 2 Scope	Year 2 Cost	Year 3 Scope	Year 3 Cost	Year 3 Scope	Year 4 Cost	Likely end date	Acquisition	Restoration type, if applicable	Location w/in watershed	Performance
II - 15	2	San Juan Turn Point Marsh	Remove intertidal rockery in front of salt marsh, upper beach restoration	Friends of the San Juans	\$55,000		\$25,000	USFWS funds secured. Landowner match likely.	will be implemented within 3 years									M	marine shoreline	191 feet, 3433 sq feet	
II - 16	2,7	Turn Point Western Properties, Trun Point Beach and Wetland Restoration	Remove rock wall from beach, upper beach nourishment and revegetation, install protective anchor logs, daylight culvert and recreate coastal wetland on county property- need feasibility study, designs for county	Friends of the San Juans and san juan county parks and public works	\$55,000			San Juan County, landowner	progress over 3 years likely feasibility/, landowner commitment and designs, not implementation									M,P,R,W	marine shoreline	47 feet	
II - 17	2	Blakely Island- n. Thatcher bay	Remove creosote piles and dolphins, remove concrete, steel and boulder debris from intertidal	Friends of the San Juans	\$15,000			landowner match likely	will be implemented within 3 years									M	marine shoreline	400 feet, 4500 sq feet	
II	2	Creosote log/piling removal	Remove creosote logs - Water Quality and Restoration of forage fish spawning beaches	WA DNR	\$100,000	\$0	\$100,000	SJC MRC, Salmon Affect, Beachwatchers	Completed removal from Deer Harbor and Jackson Beach Mapping of other sites on Orcas, Lopez and Waldron	\$10,000	removal of creosote material from American Camp, South Beach, Spencer Spit State Park Also mapping of other sites on Orcas, Lopez and Waldron	\$30,000	removal of creosote material from beaches	\$30,000	removal of creosote material from beaches	\$30,000	on going		M	marine shoreline	tbd
II	2	Riparian Restoration of forage fish beaches (vegetation)	Improve quality of spawning beaches	Friends of the San Juans	\$10,000		\$10,000	Ducks Unlimited	ID sites	\$2,000	plantings	\$2,000	plantings	\$3,000	monitor	\$2,000	2010		M	marine shoreline	tbd
II	7	Other Culvert/ Bridge Replacements (Victorian and Crow Valleys, Buck Bay)	removal of fish barriers	SJC Public works	\$500,000		\$500,000		design	\$50,000	replace	\$150,000	replace	\$150,000	replace	\$150,000	2010		P	marine shoreline	tbd
II	2	coastal lagoon/estuary restoration (Fossil Bay, Neck Pt, Odlin park)	restore connectivity, increase nearshore habitat for juvenile salmon and forage fish- need feasibility studies for these sites	Friends of the San Juans	\$150,000	\$100,000		SJC CD, KWIAHT	feasibility, design, we are likely going to srfb with a coastal wetland restoration/reconnection package of projects that includes these and some of the restoration actions above.	\$25,000	design	\$50,000	design	\$50,000	restoration	unknown	2012		M	marine shoreline	tbd
II	2	Beach Clean-up of debris	increase spawning habitat	FSJ	\$5,000	\$0			clean-up	\$1,000	clean-up	\$1,000	clean-up	\$1,000	clean-up	\$1,000	on going		M	marine shoreline	tbd
II	2	Derelict Gear Removal	Restore benthic habitat for eelgrass; eliminate derelict gear	NW Straits Commission	\$10,000	\$0			underwater video survey/removal of derelict gear	\$5,000	underwater video survey/removal of derelict gear	\$5,000	removal of derelict gear	unknown	removal of derelict gear	unknown			M	marine shoreline	tbd
Hatchery Capital Projects																					
TOTAL CAPITAL NEED:					\$5,190,500					\$93,000	\$238,000	\$234,000	\$183,000								
NON-CAPITAL PROGRAMS																					
Harvest Management support																					
		forage fish population structure	Protection of discrete population segments	NMFS genetics lab	\$30,000				plan research project/collaboration	\$0	collect tissue samples	\$5,000	collect tissue samples	\$5,000	genetic analysis	\$20,000					
		Section 7 consultation on salmon harvest management plan relative to orca consumption	may affect harvest management plan details	Tribes, WDFW, NOAA																	
Future Habitat Project Development																					
I - 1	2	Big Picture Project	Mapping fish utilization of geomorphological habitats	Skagit River Systems Coop	\$750,000	\$625,000	\$125,000	KWIAHT	Geomorphological habitat classifications, fish sampling	\$225,000	Fish sampling	\$125,000	Fish sampling	\$125,000	Fish sampling, genetic analysis	\$225,000	2010		M	marine shoreline	
I - 3	2	Nearshore Acquisitions / Easements	habitat conservation through ownership	Land Bank/ Preservation Trust				Land Bank/ Preservation Trust	building program	not determined	easement/ acquisition	not determined	easement/ acquisition	not determined	easement/ acquisition	not determined	ongoing		AP	marine shoreline	TBD the number of acres to be restored
II	2	Thatcher Bay Nearshore Restoration	Beach and nearshore restoration project in Thatcher Bay, Blakely Island.	Skagit FEG	tbd	tbd	tbd	SRFB, SJPT, Blakely Island Trust											M	marine shoreline	TBD the number of acres to be restored

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									Year 1 Scope	Year 1 Cost	Year 2 Scope	Year 2 Cost	Year 3 Scope	Year 3 Cost	Year 3 Scope	Year 4 Cost	Likely end date	Acquisition	Restoration type, if applicable	Location w/in watershed	Performance
II	2	SJC nearshore enhancement and restoration	improve county infrastructure to reduce or eliminate impacts to beaches, lower freshwater and coastal wetland habitat. Project areas identified in sjc nearshore impact assessment.	FSJ				SJC	need funding for feasibility studies, coordination		funding needed for designs, permitting, coordination		funding needed for implementation of top project/s-county as lead in implementation						M	marine shoreline	tdb
II	2	Forage fish habitat restoration	work with public and private landowners to implement soft shore restoration blueprint	FSJ				SJC, CGS	need funding for feasibility studies, coordination		funding needed for designs, permitting, coordination		funding needed for implementation of top project/s						M	marine shoreline	tdb
Habitat protection -- monitoring of habitat quality																					
	2	assessment and protection of kelp	map bull kelp habitat in sjc, provide data to land managers	FSJ, DNR	\$200,000	(secured) 149500	\$50,000	DNR match	project will be complete in 2007												
	2	assessment of eelgrass loss	ongoing research into eelgrass declines to inform restoration and protection. Underwater video mapping of priority bays. Water quality monitoring.	UW, DNR, USGS, FSJ				DNR, USGS in-kind match,	multi year project-westcott bay research focus for 2007. funding needed to support distribution monitoring at priority bays, continue water quality monitoring and mapping	\$10,000		funding needed to support ongoing research and mapping by dnr, usgs, uw, fsj work	\$110,000								implement restoration or protection actions - As indicated by research
	2	class one beach inventory	complete mapping and quality assessment of class one beaches	MRC, CGS	\$65,000		\$15,000	SJC MRC	Digitization of Bauer's work on class 1 beaches	\$15,000		geomorphic mapping of accretion shoreforms to fill data gaps from Bauer's work	\$50,000								
	5	water column properties	water quality monitoring	FHL, UW, Ecology, FSJ					assessing fsj wq program started through eelgrass project with uw and ecology to plan future coordinated work. Funding needed for sampling and analysis	10,000/year?											
	2	salmon habitat protection blueprint	spatial prioritization of habitat protection priorities using biological, landscape ecological and landowner willingness data	FSJ, PT, LB	\$75,000	(secured) 64,000	\$11,000	charlotte martin match	project will be complete in 2007			implementation: funding needed to support PT or LB purchase of easements or acquisitions of sites identified in project									implementation: funding needed to support PT or LB purchase of easements or acquisitions of sites identified in project
	5	Friday Harbor wastewater	improved water quality for nearshore system	Town of Friday Harbor	included in other work				evaluation			analysis									clean-up action
	5	Nearshore/Marine and fresh water (storm water) quality monitoring	improved water quality	SJ CD	\$150,000			EPA, UW, KWIAHT	concept			monitor quality	\$50,000	monitor quality	\$50,000	improve quality	\$50,000				
	2,6	Hydrologic Modeling and Estuarine Wetland Data		SJC	\$12,000		\$10,000	EPA/DOE grant													
		Spartina Control of the few invasive occurrences	Avoid major habitat problems	Beach Watchers	\$11,000				survey Spartina	\$2,000	eradicate	\$3,000	eradicate	\$3,000	eradicate	\$3,000	on-going				
		Exotic Species	monitor/map exotic species on priority habitats	Beach Watchers	\$10,000			FHL	design	5000-	adapt. Manage.	\$5,000	action	unknown	action	unknown					
		juvenile salmon use open water	sample with tow net, Map and Inform regulatory agency for protect sites	KWIAHT	\$30,000			ACE, NMFS	pilot	\$0	sampling	\$10,000	sampling	\$10,000	sampling/analyses	\$10,000					
		salmon use of drift habitat, kelp canopy and understory	sample habitat, Map and document use		\$150,000						sampling	\$50,000	map	\$50,000	analysis	\$50,000					
		identification of juvenile salmon habitat	timing and residency in preferred habitats- a tagging study	KWIAHT	\$150,000				develop plan		model experiment		field work	\$1,000,000	analysis	\$50,000					
Habitat protection -- monitoring of regulatory programs																					
	2	spatially explicit shoreline permit and policy analysis		FSJ	\$20,000	\$0	\$10,000	EPA/DOE grant, russell family foundation, nw fund for the environment	complete in 2007												
Habitat protection -- participation in policy or regulatory updates																					

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									Year 1 Scope	Year 1 Cost	Year 2 Scope	Year 2 Cost	Year 3 Scope	Year 3 Cost	Year 3 Scope	Year 4 Cost	Likely end date	Acquisition	Restoration type, if applicable	Location w/in watershed	Performance
1 - 2		Ecosystem Based San Juan Initiative	Evaluation of existing regulatory, voluntary and incentive programs	Shared Strategy	\$500,000	\$30,000	\$220,000	SJC	planning, development of Leadership Council	\$220,000	Analysis, Final report / recommendation	\$280,000					2008				
		CAO Update		FSJ, MRC, LE				FSJ, MRC, LE									2008				
		Synthesis / Anlysis of Data Gaps	White papers on 16 topic areas and local issues	SJC	\$46,000		\$16,000	EPA/DOE grant	Document data gaps, start on 2 white papers	\$16,000	Additional white papers completed	\$30,000					2008				
	2	Forage Fish Habitat Enhancement	Regulations to protect/enhance forage fish spawning beaches/eelgrass meadows, landowner incentive program	SJPT, LB, SJC, MRC																	
	2	Nearshore work windows-HPA input	Add county requirements for pre-project survey	MRC, WDFW					inform WDFW of juvenile salmon use of nearshore habitats in SJC												
	6	Incorporate drainage basin planning in Comp Plan/ordinance	assist county planning process	SJC																	
	2	Overwater structures	protect eelgrass and beaches through permitting process- "no-net loss"	WDFW, DNR																	
	2	Reduce shoreline armoring	permitting for soft shoreline protection	FSJ, SJC													ongoing				
		Management through Best Available Science	Improve Management plans	LB, SJPT, SJC, TNC, FSJ, SJC MRC													ongoing				
Watershed Plan Implementation																					
	5,6	water quality and watershed coordination group		SJ CD				CD, SJC, FHL, FSJ, LE, MRC, SJI, DOE, etc	review existing plans, id areas of need and lead entity to implement, develop database												
Outreach & Education																					
		water in san juan county realtor workshop		FSJ	\$6,000			1,200 realtors association	host class on san jaun island												
		salmon-in-the-schools	Juvenile salmon ecology	SJNI, LLTK	\$1,000				planning	\$500	implementation	\$500	implementation	not determined	implementation	not determined	ongoing				
		Outdoor Classroom	Juvenile salmon ecology	SJNI, FHL, Whale museum	\$1,000				planning	\$500	implementation	\$500	implementation	not determined	implementation	not determined	ongoing				
		WRIA 2 Salmon Recovery Website	Public outreach	LE	\$500		\$500	SJC									ongoing				
Outreach & Education -- stewardship																					
		MSA Plan Outreach	education and outreach to public on MSA	MRC	\$45,000		\$45,000	SJC, NWSC, TNC, LE	public outreach meetings, publications	\$22,500	public outreach meetings, publications	\$22,500									
		shoreline stewardship guide for landowners	update guide, mail to all shoreline proeprty owners in SJC	FSJ				srfb, charlotte martin, pie	complete in 2007												
		coordinate educational resources to include salmon and forage fish habitat components in existing programs	coordinated education on the protection of salmon resources	LE					outreach/coordination	\$5,000	integrated plan	\$10,000			not determined		not determined	ongoing			
		Boater Education	Marine Stewardship	Whale museum, MRC	\$3,000				stewardship coloring book	\$3,000					not determined		not determined				
		Oil Spill Education	improve water quality	IOSA, NPS, schools, SJC public works					planning	not determined	workshop	not determined	workshop	not determined	workshop	not determined					
		Marine Ecosystems Signage	Public Outreach	MRC grant	\$5,000				planning	\$1,000	implementation	\$2,000	implementation	\$2,000							
		Landowner conservation motivation	encourage salmon friendly actions on property through incentives	SJC, LB, SJPT, FSJ (open space program)													ongoing				
		LID Education	LID techniques decrease development impacts on ecosystem	SJC CD	\$2,000				planning	\$1,000	implementation	\$1,000	maintenance	not determined	maintenance	not determined	ongoing				
		smart / green building program education	best building practices	FSJ/SJC	\$5,000				scope	\$2,000	workshop	\$3,000					ongoing				
Instream Flow protection																					

Priority Tier	Primary Limiting Factors Addressed	Action name	Description	Likely sponsor	Total cost of first three years	Proposed SRFB (or grant) share	Local share or other funding	Source of other funds / Partners	2007		2008		2009		2010		For Habitat projects (see key for categories)					
									Year 1 Scope	Year 1 Cost	Year 2 Scope	Year 2 Cost	Year 3 Scope	Year 3 Cost	Year 3 Scope	Year 4 Cost	Likely end date	Acquisition	Restoration type, if applicable	Location w/in watershed	Performance	
6		San Juan County Stream flow monitoring FW quantity	maintain flow via water rights	KWIAHT	\$60,000			WA Water Trust, FHL, SJC			establish sites & monthly data collection		monthly data collection		monthly data collection							
6		Restore fresh water inputs-quantity	Map of fresh water system/ reestablish historic watershed flow/ address diversions	KWIAHT	\$100,000			SJC	survey	\$20,000	survey	\$30,000	survey	\$30,000	map book	\$20,000						
Salmon Recovery coordination/implementation																						
		WRIA 2 Salmon Recovery Plan / Sub area Plan	Actions proposed to protect and restore Chinook populations	LE				WDFW, SJC	ongoing implementatoin	\$80,000	ongoing implementatoin	\$80,000	ongoing implementatoin	\$80,000	ongoing implementatoin	\$80,000	ongoing					
Habitat Project Monitoring																						
Stock Monitoring Support																						
		Stream Habitat Surveys / Watertype Assessment	Interactive GIS showing water type survey results and prioritizing watershed and estuarine restoration / protection opportunities.	WA Trout	\$175,000	(Secured) 120000	\$55,000	KWIAHT, ACE	Collection Permits, Landowner Permission	\$10,000	survey, outreach, prioritize restoration opportunities.	\$60,000	survey, outreach, prioritize restoration opportunities.	\$60,000	survey, outreach, prioritize restoration opportunities.	\$45,000	2009					
		Discrete Population Segments - Salmon	ID priority habitats for ESA listed species	KWIAHT	\$30,000	\$0	\$30,000	SJC MRC	analysis	\$25,000	synthesis	\$5,000					2008					
		Native salmonid use of spawning habitat-stock ID	Cutthroat, Kokane, brook trout natal streams identified	WA Trout	\$40,000			KWIAHT	analysis	\$20,000	analysis	\$20,000					2009					
		Ecological interactions of hatchery and wild salmon in marine habitats	may affect size, timing, quantity of releases at hatcheries	WDFW	\$30,000			Tribes, NOAA			sampling	\$10,000	sampling	\$10,000	analysis	\$10,000						
		Glenwood Springs Chinook hatchery	pathways they use after release/interactions with wild Chinook	LLTK	\$30,000			Tribes, WDFW			design	\$5,000	sampling	\$10,000	sampling/analysis	\$10,000						
		Cypress Island Fish Farm	Evaluate if farmed Atlantic salmon are escaping and are a threat to Pacific salmon	NMFS	\$50,000			SJC	concept		research	\$30,000	research and evaluation	\$20,000								
TOTAL NON-CAPITAL NEED:					\$2,782,500					\$678,500		\$997,500		\$1,455,000		\$573,000						
TOTAL CAPITAL & NON-CAPITAL NEED:					\$7,973,000					\$771,500		\$1,235,500		\$1,689,000		\$756,000						
PRIORITY PROJECTS AND PROGRAMS BENEFITTING NON-LISTED SPECIES																						
TOTAL NON-LISTED SPECIES NEED:																						