

List of Action Agency Projects sorted by H, Province and Subbasin

Projects without identified Province or Subbasins will be updated as soon as the data is confirmed

04-Jun-01

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
429	Quantify the potential predators before & after a trash boom is installed in the forebay of LGO		Habitat			
372	Stabilize mainstem reservoir water levels to the extent practicable	Work with the state and federal agencies to enhance shallow-water and wetland habitats in the wildlife management areas and refuges and other appropriate areas in Columbia River mainstem reaches	Habitat			Provides more consistent water levels required for spawning, rearing, passage, etc.
485	Development of Performance Stds for Bull trout	The AA will participate in development of PS for BT. The stds shall consider direction contained in the recovery plans for these species and wherever feasible, shall be ready by Nov, '03	Habitat			
440	Evaluate bull trout movements in the Tucannon and Lower Snake rivers	Determine distribution of migratory bull trout in the Tucannon and Lower Snake rivers, and identify passage limitations (if any) resulting from the hydropower system.	Habitat			
439	BioAnysts - Giorgi	Develop Perf. Stds. For Resident Fish	Habitat			
365	Protect productive habitat	Protect and enhance currently productive non-Federal habitat especially if at risk of degradation by expanding on actions identified under "Fish and Wildlife Program projects achieving RPA objectives" by selecting projects for funding through the Council'	Habitat			Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
438		Evaluate Kokanee recruitment relative to PO lake levels	Habitat			
434		Evaluate and model the substrate needed for Kootenai Sturgeon Spawning	Habitat			

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433	Kootenai River Investigations	Monitor Sturgeon & Bull trout in the Kootenai between the Kootenai Falls and Lake	Habitat			
432	Libby Mitigation Project	Evaluate the Kootenai from Kookanusa to stateline	Habitat			
495	Kootenai Lake Fertilization	The action agencies shall seek a means to support an equitable portion of the ongoing Kootenay Lake fertilization program by October 2001. This program increases the Lake's productivity and forage base, presumably providing a benefit to sturgeon	Habitat			
430	Evaluate large-scale predation patterns of northern pikeminnow on juvenile salmonids & American shad		Habitat			
366	Protect existing or potential spawning habitat in this reach and adjacent tributaries		Habitat			It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
359	Implement the Vernita Bar Agreement	Fund a study of the feasibility, biological benefits and ecological risks of habitat modification to improve spawning conditions for chum and chinook salmon in the Ives Island area	Habitat			
385	Gather, describe & record historical data on fish distribution, abundance, & instream activities	Gather, create, describe, and record historic instream activities, such as gravel extraction, riprap installation, screens, diversions and push up dams.	Habitat			
386	Gather, create, describe and record current habitat and instream information for select areas	Gather, create, describe and record baseline environmental conditions in select areas by ESU where management actions will occur, including VBTs, channel geomorphology, flows, water quality, riparian habitat assessment, etc.	Habitat			
387	Assess life-stage survivals in select habitat areas by ESU and by management action	Monitor in select stream areas the biological and environmental responses to land and water acquisition, barrier removal, preservation, improved flows and water quality, removal of exotics, etc.	Habitat			

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388	Determine P/A, distribution, abundance by select habitat areas by ESU by management action	Monitor in select stream areas P/A, distribution and abundance responses to land and water acquisition, barrier removal, preservation, improved flows and water quality, removal of exotics, etc.	Habitat			
428	Identify the benefit to juvenile salmon of tidal freshwater and oligohaline transition zones		Habitat			
389	Standardized Redd Counting	Develop a standardized, basin-wide approach for redd counts to index annual spawning escapements and depict trends in escapements.	Habitat			It is important to standardize procedures
390	Assess significant environmental responses in select habitat areas by ESU and by management action	Monitor in select stream areas the biological and environmental responses to land and water acquisition, barrier removal, preservation, improved flows and water quality, removal of exotics, etc.	Habitat			
425	Collect data for lower Columbia fall chinook & chum salmon to protect & enhance mainstem spawning		Habitat			
165	Asotin Cr Habitat -Spring Chinook, Summer Steelhead	Coordinate, assess, implement and monitor holistically based fish habitat cost-share programs in Asotin Creek watershed. Continue to improve on grass roots public and agency cooperation and collaboration for identified high priority habitat projects.	Habitat	Blue Mountain	ASOTIN	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
255	Conservation Reserve Incentive	Increase landowner participation in the USDA Conservation Reserve Enhancement Program by providing cost share for practice installation of riparian protective strips along streams in Wallowa County.	Habitat	Blue Mountain	GRANDE RONDE	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
228	Grande Ronde - Union SWCD Channel/Road Restoration	Four habitat restoration projects: Grande Ronde bank work, Phillips Creek bridge, Smutz Draw road relocation and restoration and Mill Creek / Caldwell diversion dam passage improvement.	Habitat	Blue Mountain	GRANDE RONDE	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.

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195	Water Quality Monitoring - Grande Ronde Basin	Coordinate water quality and project effectiveness monitoring carried out by various agencies and high schools in the Grande Ronde, Wallowa, & Imnaha Basins. Expand the SWCD monitor program to 40 sites. Develop annual report of conditions and trends.	Habitat	Blue Mountain	GRANDE RONDE	Successful biological functions in streams are tied to water quality and quantity. Monitoring improvements is essential to determine success or failure of restoration efforts..
230	Alpine Meadows Trout Creek Restation	Stabilize the eroding channel of Trout Creek as it flows through the Alpine Meadows Golf Course in the Grande Ronde Basin through planting, rock structures and large woody debris.	Habitat	Blue Mountain	GRANDE RONDE	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
244	Wildlife Mitigation Sites Oregon, Wenaha Wildlife Area additions	Enhance grassland, riparian/riverine, open forest, and rocky habitats on lands adjacent to ODFW's Wenaha Wildlife Area (WA) to mitigate for wildlife and wildlife habitats impacted by the Columbia River federal hydropower system.	Habitat	Blue Mountain	GRANDE RONDE	More natural seasonal flows assure improved salmonid passage. Reduced sediment results in improved spawning and incubation conditions
256	McCoy Cr Alta Cunha Ranches Instream Restoration	Reconstruct McCoy Creek pasture fences and rest riparian pastures for the duration of the 15 year easement period. Install large woody debris. Obliterate 3000 feet of abandoned railroad grade. Replant riparian zone.	Habitat	Blue Mountain	GRANDE RONDE	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
225	Water Temperature Manipulation & Data Sharing Software	Write, edit and debug a public domain software program for water temperature data collection and analysis that is specifically designed to pool data from diverse sources into a common structure for tracking and evaluation..	Habitat	Blue Mountain	GRANDE RONDE	Successful biological functions in streams are tied to water quality and quantity. Monitoring improvements is essential to determine success or failure of restoration efforts..
231	Wallowa County Gauging Station	Maintain seven stream gages in the Grande Ronde Basin so that the effectiveness of water conservation practices can be determined.	Habitat	Blue Mountain	GRANDE RONDE	
232	Hagedorn Rd Relocation/Stream Restoration	Relocate the stream bottom Hagedorn Road (Grande Ronde Basin) to 100-400 feet upslope and restore the old road bed.	Habitat	Blue Mountain	GRANDE RONDE	Reduced erosion and sedimentation will facilitate inproved spawning, incubation and rearing life stages.

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233	Grande Ronde Technical Engineering Assistance	Provide technical engineering and hydrologic services to plan, design, and implement habitat restoration projects in the Grande Ronde Basin. This effort is being jointly funded by a number of agencies.	Habitat	Blue Mountain	GRANDE RONDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
235	Wallowa County Direct Seeding	Demonstrate the applicability of no-till agriculture with five landowners (1000 acres total) with 5 year crop rotation program.	Habitat	Blue Mountain	GRANDE RONDE	More natural seasonal flows assure improved salmonid passage. Reduced sediment results in improved spawning and incubation conditions
245	Wildlife Mitigation Sites Oregon, Ladd Marsh Wildlife Area	Enhance wetland habitats on lands adjacent to ODFW's Ladd Marsh Wildlife Area (WA) to mitigate for wildlife and wildlife habitats impacted by the Columbia River federal hydropower system.	Habitat	Blue Mountain	GRANDE RONDE	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
236	Crow Cr Star Thistle Containment & Riparian Enhancement	Contain and destroy the noxious weed, yellow star thistle along Crow Creek (Grande Ronde Basin). Increase riparian vegetation by controlling grazing with fencing. Protect the sensitive plant, spalding catchfly, within the project area.	Habitat	Blue Mountain	GRANDE RONDE	More natural seasonal flows assure improved salmonid passage. Reduced sediment results in improved spawning and incubation conditions
190	Wallowa County/Nez Perce Salmon Habitat Recovery Plan	Cooperative and voluntary efforts are a stated goal in the Wallowa County/Nez Perce Tribe Salmon Habitat Recovery Plan and Multi-species Habitat Strategy (County/Tribe Plan). Funding of this project will help to implement the Plan.	Habitat	Blue Mountain	GRANDE RONDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
258	Asotin Watershed Grazing Biological Plan	Manage yellow star thistle, etc. thru grazing management & improve soil water retention.	Habitat	Blue Mountain	GRANDE RONDE	More natural seasonal flows assure improved salmonid passage. Reduced sediment results in improved spawning and incubation conditions
155	Grand Ronde Model Watershed Development	Continue the Grande Ronde Model Watershed Program Administration and Habitat Restoration. Develop and oversee coordinated, sustainable resource management in the Grande Ronde Subbasin. Plan, design and implement salmonid habitat restoration projects.	Habitat	Blue Mountain	GRANDE RONDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
194	Cottonwood Creek Riparian Enhancement -Wallowa Basin	Repair the road along Cottonwood Creek and Basin Creek. Remove road from riparian zone where possible. Fix bridges, rock fill and armor cut banks. Restore road where eroded.	Habitat	Blue Mountain	GRANDE RONDE	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.

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148	Joseph Creek & Grande Ronde River habitat work	Protect and enhance fish habitat in selected streams on private lands in the Grande Ronde Basin to improve instream and riparian habitat diversity, and increase natural production of wild salmonids.	Habitat	Blue Mountain	GRANDE RONDE	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
209	Grouse Creek Culvert Replacement	Replace the existing culverts on Grouse Creek with a single bottomless multi-plate arch culvert. Raise and improve the road alignment.	Habitat	Blue Mountain	GRANDE RONDE	Reduced erosion and sedimentation will facilitate improved spawning, incubation and rearing life stages.
274	Grande Ronde Restoration (Bull Trout, Steelhead, S/S Chinook)/ Grande Ronde River	Develop over a 2 1/2 mile stretch of river, structures which will improve width to depth ratio, creation of pools, improvements to vegetation and water temperature.	Habitat	Blue Mountain	GRANDE RONDE	
229	Grande Ronde - Union SWCD Riparian & Upland Restoration	Fence a section of the riparian zone along Ladd Creek and build cattle watering troughs. Purchase a soil aerator to improve impacted soil sites on a variety of farms.	Habitat	Blue Mountain	GRANDE RONDE	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
207	McIntyre Road Relocation - Union County	Phase I of the McIntyre Creek Road effort. Ore-monitor the site and develop plans. Reconstruct 3.4 miles of existing county road along McIntyre Creek. Close 2.48 miles on private land.	Habitat	Blue Mountain	GRANDE RONDE	Reduced erosion and sedimentation will facilitate improved spawning, incubation and rearing life stages.
170	Wallowa Basin Project Planning	Act as the liaison between the Nez Perce Tribe and Wallowa County. Help coordinate watershed restoration efforts in Wallowa County between the Tribe, County, Grande Ronde Model Watershed Program, local landowners, and state and federal agencies.	Habitat	Blue Mountain	GRANDE RONDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
157	Life Studies Of Spring Chinook-Grande Ronde River	Investigate the abundance, migration patterns, survival, and habitat use of spring chinook salmon juveniles in the Grande Ronde River basin.	Habitat	Blue Mountain	GRANDE RONDE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
187	CTUIR-Grande Ronde Watershed - McIntyre Road/Mccoy Creek	Protect, enhance, and restore riparian, floodplain, and instream habitat to benefit anadromous fish with emphasis on rearing habitat and water quality. Project includes development and design, securing project partners, and working with priv. landowners	Habitat	Blue Mountain	GRANDE RONDE	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.

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186	N.E. Oregon Wildlife Project - Helm Tract (NPT)	Mitigate and protect wildlife habitat in the canyon grassland ecosystem of the Snake and Grande Ronde Rivers.	Habitat	Blue Mountain	GRANDE RONDE	More natural seasonal flows assure improved salmonid passage. Reduced sediment results in improved spawning and incubation conditions
223	Union County Technical Engineering Assistance	Fund the technical support for design and implementation of watershed habitat projects for the Grande Ronde Model Watershed Program	Habitat	Blue Mountain	GRANDE RONDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
224	Wallowa County Technical Engineering Assistance	Cost share Water Temperature Software Project for the Grande Ronde Model Watershed Program with Wallowa County Soil and Water Conservation District. It also provided for technical service to assist in developing habitat restoration projects.	Habitat	Blue Mountain	GRANDE RONDE	
169	Grande Ronde Model Watershed Habitat Projects	Placeholder. Develop and implement projects which will restore proper watershed functions in the Grande Ronde Basin. Provide the required spawning, rearing and migration habitat for endangered salmonids.	Habitat	Blue Mountain	GRANDE RONDE	
280	Ladd Marsh (Steelhead, S/S Chinook)/ Grande Ronde Ladd Creek	Return Ladd Creek from a ditch to the original channel and reestablish the functions. Covers 2 sections totaling almost 1 mile of creek	Habitat	Blue Mountain	GRANDE RONDE	
297	Entiat High Priority Subbasin Enhancement	Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Cascade Columbia	ENTIAT	
296		Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Cascade Columbia	ENTIAT	
295		Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Cascade Columbia	ENTIAT	

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179	Methow River Valley Irrigation District	Improve the instream flow of the Methow River between the Twisp River mouth and Carlton by changing the irrigation system from an inefficient open canals to a pressurized, efficient system. Ninety % of the water saved will be dedicated to instream flows.	Habitat	Cascade Columbia	METHOW	Provides more consistent water levels required for spawning, rearing, passage, etc.
288	Methow Subbasin High Priority Subbasin Enhancement	Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Cascade Columbia	METHOW	
287		Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow.	Habitat	Cascade Columbia	METHOW	
286		Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Cascade Columbia	METHOW	
222	Salmon Creek Enhancement -Chumstick Creek Northroad	Document the fishery and water resources in the Okanogan River basin, particularly the Salmon Creek Drainage. Establish methodology for conserving water. Develop hydrologic model for the drainage.	Habitat	Cascade Columbia	OKANOGAN	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
310	Wenatchee High Priority Subbasin Enhancement	Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Cascade Columbia	WENATCHEE	
311		Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Cascade Columbia	WENATCHEE	

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312	Wenatchee High Priority Subbasin Enhancement	Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Cascade Columbia	WENATCHEE	
242	Evaluate Factors Limiting Columbia R Chum Salmon	Evaluate factors limiting chum salmon production, spawning group relationships, population dynamics, and biological and ecological characteristics of chum in tributaries and mainstem below Bonneville Dam; evaluate chum movements above Bonneville Dam.	Habitat	Columbia Gorge	COLUMBIA GORGE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
360	Improve mainstem habitats of the Columbia River extending from Chief Joseph Dam to Bonneville Dam	Improve mainstem habitats of the Columbia River extending from Chief Joseph Dam to Bonneville Dam	Habitat	Columbia Gorge	COLUMBIA GORGE	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
357	Survey existing and potential tributary and mainstem habitat in the Columbia River below The Dalles	Develop and implement an effective habitat improvement plan	Habitat	Columbia Gorge	COLUMBIA GORGE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
160	Fifteenmile Creek Habitat Improvement	Provide for continued operation and maintenance of all completed fish habitat treatment measures within the Fifteenmile basin. Continue photo documentation of habitat recovery and the collection of stream temperature data.	Habitat	Columbia Gorge	FIFTEENMILE	
213	15 Mile Creek Water Right Acquisition	Transfer an 1860 irrigation right for 24 acres to an instream right and monitor the increased stream flow to assure that the water remains in the stream and is not removed through junior irrigation rights.	Habitat	Columbia Gorge	FIFTEENMILE	Provides more consistent water levels required for spawning, rearing, passage, etc.
200	Hood River Fish Habitat	Implement habitat improvement actions that will support supplementation efforts and wild fish within the Hood River subbasin as approved by the NPPC and supported by the BPA Environmental Impact Statement for the Hood River Production Program (HRPP).	Habitat	Columbia Gorge	HOOD	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.

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241	Rock Cr Watshed Assessment /Restoration	Conduct watershed analysis in Rock Creek drainage(E of Klickitat) to determine conditions of the stream habitat, adjacent riparian stands, limiting factors to fish and wildlife production, and land management effect.	Habitat	Columbia Plateau	COLUMBIA LOWER MIDDLE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
360	Improve mainstem habitats of the Columbia River extending from Chief Joseph Dam to Bonneville Dam	Improve mainstem habitats of the Columbia River extending from Chief Joseph Dam to Bonneville Dam	Habitat	Columbia Plateau	COLUMBIA LOWER MIDDLE	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
			Habitat	Columbia Plateau	COLUMBIA UPPER MIDDLE	
212	Bakeoven Riparian Assessment	Assist private landowners develop and implement riparian management systems, installation of fencing, development of off-stream water sources, active revegetation of selected areas, enhancement of floodplain function, monitoring at selected sites.	Habitat	Columbia Plateau	DESCHUTES	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
202	Implement Trout Cr Watershed Enhancement	Development of a comprehensive watershed assessment and long-range action plan for long-term protection and enhancement of fish and wildlife habitat in the Trout Creek watershed.	Habitat	Columbia Plateau	DESCHUTES	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
171	Trout Creek Operation & Maintenance	Operation and Maintenance of instream and riparian habitat improvement; Monitoring and Evaluation of basin SSt smolt production and habitat recovery; coordination for basin long range plan; resulting in increased native salmonid and wildlife production.	Habitat	Columbia Plateau	DESCHUTES	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
259	Holliday Conservation Easement		Habitat	Columbia Plateau	JOHN DAY	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
243	Acquire Oxbow Ranch on the Middle Fork John Day River	Acquire the remaining 540.0 acres of the Oxbow Ranch, protect, enhance, and maintain a total of 1,022 acres of riverine, meadow, and forest habitat on the Middle Fork John Day River.	Habitat	Columbia Plateau	JOHN DAY	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.

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201	Acquisition Of Pine Creek Ranch	Complete acquisition of Pine Creek Ranch. Develop management plans and begin implementation of restoration activities to mitigate for fish and wildlife losses associated with the John Day hydro facility.	Habitat	Columbia Plateau	JOHN DAY	More natural seasonal flows assure improved salmonid passage. Reduced sediment results in improved spawning and incubation conditions
182	North Fork John Day dredge tailing restoration	Restore floodplain function to North Fork John Day River tributaries, Clear Creek and Granite Creek that were dredge mined in the late 1930's through early 1950's. The dredge tailing piles left on the floodplain from mining restrict high stream flows.	Habitat	Columbia Plateau	JOHN DAY	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
214	PINE HOLLOW WATERSHED ENHANCEMENT	Implement practices to reduce erosion and flooding, allowing natural recovery of riparian vegetation and channel type in Pine Hollow and Jackknife Canyons. Future phases will focus on replanting or protecting critical areas in the stream corridor.	Habitat	Columbia Plateau	JOHN DAY	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
162	Oregon Fish Screens Project	Installation of approximately 25 new fish screening devices in critical chinook spawning and rearing areas in the John Day Basin. Installation of 1-2 new fish passage/diversion structures in summer steelhead spawning and rearing areas in Trout Cr.	Habitat	Columbia Plateau	JOHN DAY	Improves passage for adults and juveniles. Restores access to blocked habitats. Enhances survival by blocking juveniles from entering irrigation systems.
198	Irrigation & Riparian Improvement, John Day River	Continue implementation of protection and restoration actions, planned under the comprehensive John Day watershed assessment, to improve water quality, water quantity, and fish habitat, and eliminate passage barriers for anadromous and resident fish.	Habitat	Columbia Plateau	JOHN DAY	Reduced erosion and sedimentation will facilitate improved spawning, incubation and rearing life stages.
246	Enhance North Fork John Day River	Increase production of indigenous wild stocks of spring chinook salmon and summer steelhead within the North Fork of the John Day River Subbasin.	Habitat	Columbia Plateau	JOHN DAY	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
197	Gravel Push-Up Dam Removal Lower John Day N Fork River	Eliminate gravel push-up dams in the lower North Fork John Day River. Replace with permanent pumping stations resulting in removal of passage impediments and elimination of annual instream modification.	Habitat	Columbia Plateau	JOHN DAY	Improves passage for adults and juveniles. Restores access to blocked habitats. Enhances survival by blocking juveniles from entering irrigation systems.

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147	Mainstem, Middle Fork, John Day habitat work	Implement long-term riparian, fish habitat and tributary passage improvement on private lands within the John Day Subbasin.	Habitat	Columbia Plateau	JOHN DAY	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
291	Upper John Day High Priority Subbasin Enhancement	Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Columbia Plateau	JOHN DAY	
308	North Fork John Day High Priority Subbasin Enhancement	Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Columbia Plateau	JOHN DAY	
289	Upper John Day High Priority Subbasin Enhancement	Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Columbia Plateau	JOHN DAY	
307	North Fork John Day High Priority Subbasin Enhancement		Habitat	Columbia Plateau	JOHN DAY	
309		Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Columbia Plateau	JOHN DAY	
292	Middle Fork John Day High Priority Subbasin Enhancement	Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Columbia Plateau	JOHN DAY	
293		Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Columbia Plateau	JOHN DAY	

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294	Middle Fork John Day High Priority Subbasin Enhancement	Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Columbia Plateau	JOHN DAY	
290	Upper John Day High Priority Subbasin Enhancement	Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Columbia Plateau	JOHN DAY	
221	PATAHA WATERSHED PROJECT PLANNING & IMPLEMENTATION	Finalize the Pataha Creek Model Watershed Plan and continue its implementation. Maintain public involvement in restoration. Monitor water quality and impact of different conservation practices.	Habitat	Columbia Plateau	TUCANNON	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
168	PATAHA CREEK STREAM & CROPLAND RESTORATION	Continue to coordinate, implement, and monitor practices for the reduction of sediment from the riparian zone and uplands and the enhancement of riparian habitat for Summer Steelhead and Fall Chinook Salmon within Pataha Creek and Tucannon Watersheds.	Habitat	Columbia Plateau	TUCANNON	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
240	TRAINING SUPPORT TO NRCS/WILDLAND HYDROLOGY	Fund to NRCSS employees to attend an applied fluvial geomorphology short course offered through Wildland Hydrology Consultants.	Habitat	Columbia Plateau	TUCANNON	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
167	Tucannon Stream And Riparian Restoration	Implement, assess, and monitor habitat cost-share projects coordinated through the Tucannon River Model Watershed Program, a grass roots public and agency collaborated effort to restore salmonid habitat on private and public property.	Habitat	Columbia Plateau	TUCANNON	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
151	Umatilla Habitat Improvement -ODFW	Protect and enhance coldwater fish habitat on private lands in the Umatilla River Basin in a manner that achieves self-sustaining salmonid populations and their associated habitat by utilizing natural stream functions to the fullest extent.	Habitat	Columbia Plateau	UMATILLA	

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150	Umatilla Habitat Improvement -CTUIR	Increase natural production of summer steelhead, chinook salmon and coho salmon in the Umatilla River Basin.	Habitat	Columbia Plateau	UMATILLA	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
261	East Birch Creek Section 206	Restore salmonid habitat quality, reduce unnatural bank erosion, restore natural channel and geomorphic function and associated aquatic and riparian biological processes in a one mile reach of East Birch Creek.	Habitat	Columbia Plateau	UMATILLA	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
175	Umatilla River Riparian - Squaw Creek Wildlife Project	Protect and enhance watershed resources to provide benefits for eight HEP Target Species and anadromous and resident salmonids.	Habitat	Columbia Plateau	UMATILLA	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
281	East Birch Creek (Steelhead rearing/spawning)	Realign about 3/4-mile of creek to return the sinuosity. Fence to restrict cattle.	Habitat	Columbia Plateau	UMATILLA	
199	Assess Salmonid Habitat, Walla Walla Watershed	Determine fish passage, rearing, spawning conditions, and limiting factors for steelhead and for potential reintroduction of chinook salmon, and assess steelhead and bull trout distribution, abundance, and genetic composition in the Walla Walla watershed	Habitat	Columbia Plateau	WALLA WALLA	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
278	Milton-Freewater Set-back Levees (Bull Trout Steelhead)/ Walla Walla River	Constructing setback levees over approximately 2 miles of river. Will add up to 25 hectares of floodplain and allow for maintenance of a more natural floodplain.	Habitat	Columbia Plateau	WALLA WALLA	
181	Walla Walla River Basin Fish Habitat Enhancement	Protect and enhance riparian habitat with particular emphasis on the holding, spawning, and rearing areas of salmonid fishes, thus promoting natural ecological function and improved water quality and quantity.	Habitat	Columbia Plateau	WALLA WALLA	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
247	Walla Walla River Fish Passage	Increase survival of migrating juvenile and adult salmonids in the Walla Walla Basin by operating passage facilities, trapping facilities, and transport equipment to provide adequate passage conditions.	Habitat	Columbia Plateau	WALLA WALLA	Reduced erosion and sedimentation will facilitate inproved spawing, incubation and rearing life stages.
178	Anadromous Fish Passage Walla Walla Basin	Provide for safe adult passage at several irrigation diversion dams in order to enhance summer steelhead and restore spring chinook runs in the Walla Walla River Basin.	Habitat	Columbia Plateau	WALLA WALLA	Improves passage for adults and juveniles. Restores access to blocked habitats. Enhances survival by blocking juveniles from entering irrigation systems.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
177	Juvenile Screens & Traps Walla Walla Basin	Improve outmigration of smolts in the Walla Walla basin. Construct the Little Walla Walla screen/trap facilities to capture smolts for trucking from the Little Walla Walla Diversion to the Columbia when conditions are poor.	Habitat	Columbia Plateau	WALLA WALLA	Improves passage for adults and juveniles. Restores access to blocked habitats. Enhances survival by blocking juveniles from entering irrigation systems.
279	Nursery Street Bridge (Bull Trout Steelhead)/ Walla Walla River	Replace existing fish ladder and trap to improve passage.	Habitat	Columbia Plateau	WALLA WALLA	
192	Toppenish/Simcoe Instream Flow Restoration	Identify extent of anadromous populations, identify land status, characterize habitat and discharge; model irrigation use; restore instream flows by land lease or purchase and/or water substitution; modify irrigation diversions to mimic natural runoff.	Habitat	Columbia Plateau	YAKIMA	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
158	Lower Yakima Valley Riparian/Wetlands Restoration	Continue implementation of YN Wetlands/Riparian Restoration Project by protecting and restoring native floodplain habitats along anadromous fish-bearing waterways in the agricultural area of the Yakama Reservation (~2,500 acres/year).	Habitat	Columbia Plateau	YAKIMA	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
180	Satus Creek Watershed Restoration	Enhance and protect summer steelhead spawning and rearing habitat by restoring the ecological function of the Satus Creek watershed.	Habitat	Columbia Plateau	YAKIMA	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
191	Yakima Basin Side ChannelsS	Protect, restore and reestablish access to productive off-channel rearing habitats, and protect and reconnect floodplains associated with the mainstem Yakima and Naches Rivers.	Habitat	Columbia Plateau	YAKIMA	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
204	Upper Toppenish Creek Watershed Restoratio	Moderate flow regime in Toppenish Creek by increasing the retentiveness of natural soil water storage areas, such as headwater meadows and floodplains, following prioritized plan generated by FY98-99 hydrologic assessment.	Habitat	Columbia Plateau	YAKIMA	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
205	Establish Safe Access Tributaries - Yakima Basin	Restore access to productive tributary habitat through consolidation of irrigation diversions, construction of fishways, and installation of screens. Protect and restore a limited amount of habitat through fencing and revegetation.	Habitat	Columbia Plateau	YAKIMA	Improves passage for adults and juveniles. Restores access to blocked habitats. Enhances survival by blocking juveniles from entering irrigation systems.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
215	Ahtanum Creek Watershed Assessment	Conduct watershed assessment in the agricultural portion of the Ahtanum Creek watershed to complete assessment of the entire watershed, facilitate restoration of salmon and steelhead, and protect bull trout.	Habitat	Columbia Plateau	YAKIMA	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
276	Clatskanie River/ Westport Slough/ Clatskanie OR	Reconnect Westport Slough with Beaver Slough and Clatskanie River by placing culvert through slough block.	Habitat	Columbia River Estuary	COLUMBIA ESTUARY	
262	Estuary Habitat Restoration and Research	Ten-year restoration program to protect/enhance tidal wetlands and other key estuary habitats, to rebuild productivity for the listed salmon populations, primarily in the lower 46 miles of the estuary. Identify critical salmon habitat.	Habitat	Columbia River Estuary	COLUMBIA ESTUARY	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
273	Chinook River Restoration/ Chinook WA	Restore 900-1500 acres of tidal wetlands.	Habitat	Columbia River Estuary	COLUMBIA ESTUARY	
265	Establish baseline data & other information needed to identify & prioritize estuary habitat actions	Develop plan for research needs in the Columbia River estuary to include the cross section of the Columbia river from bank to bank and possibly including basin-wide components from river mile 0 to 145, with a primary focus on the lower 46 miles.	Habitat	Columbia River Estuary	COLUMBIA ESTUARY	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
266	Columbia River Estuary Demonstration Projects .	Work with LCREP and others to identify projects that can be implemented in the near term to provide benefits to salmon in the estuary and to provide information for research and estuary restoration program planning purposes.	Habitat	Columbia River Estuary	COLUMBIA ESTUARY	
267	Support avian predation management program.	Work with Avian Predation Team to reduce avian predation of salmonid smolts in the estuary	Habitat	Columbia River Estuary	COLUMBIA ESTUARY	Improve survival of salmonids by controlling predation
263	Identify salmon habitat components from LCREP inventory.	Work with Lower Columbia River Estuary Management Program to review LCREP inventory of estuarine habitat. Develop/implement action plan to complete inventory mapping and assessment.	Habitat	Columbia River Estuary	COLUMBIA ESTUARY	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
367	Purchase and restore property at the mouth of Grays River, Columbia River mile 21	Acquire approximately 350 acres of high-quality riparian and uplands habitat on Grays River and Seal River, a year-round tributary that flows through the property.	Habitat	Columbia River Estuary	COLUMBIA ESTUARY	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
357	Survey existing and potential tributary and mainstem habitat in the Columbia River below The Dalles	Develop and implement an effective habitat improvement plan	Habitat	Columbia River Estuary	COLUMBIA ESTUARY	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
172	Lake Pend Oreille Kokanee Mitigation Research	Enhances resident fish populations by changing the winter draw down of Lake Pend Oreille and the Pend Oreille River and researches other possible mechanisms for improving sport fish abundance such as reducing predation or competition with exotic species.	Habitat	Intermountain	PEND OREILLE	Provides more consistent water levels required for spawning, rearing, passage, etc.
275	Fox Creek/ Rainier, OR	Remove 72" culvert that creek runs through due to dredging work—restore mouth of creek	Habitat	Lower Columbia	COLUMBIA LOWER	
211	Salmon Spawning Below Lower Columbia Dams -ODFW	Monitor, protect, and enhance fall chinook and chum spawning and rearing below Bonneville Dam. Develop a habitat profile of the spawning and rearing area. Search for evidence of fall chinook spawning below The Dalles, John Day, and McNary dams.	Habitat	Lower Columbia	COLUMBIA LOWER	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
347	Establish 4 long term sampling sites in the Columbia River below Bonneville Dam	Establish 4 long term sampling sites in the Columbia River below Bonneville Dam (one above the confluence of the Sandy River, one below the confluence of the Multnomah Channel, one below the confluence of the Cowlitz River, and one in the estuary	Habitat	Lower Columbia	COLUMBIA LOWER	
357	Survey existing and potential tributary and mainstem habitat in the Columbia River below The Dalles	Develop and implement an effective habitat improvement plan	Habitat	Lower Columbia	COLUMBIA LOWER	
346	Enhance flows in the Willamette River and below Bonneville Dam during critical periods	Enhance flows below Bonneville Dam during critical periods	Habitat	Lower Columbia	COLUMBIA LOWER	Provides more consistent water levels required for spawning, rearing, passage, etc.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
319	Upper Cowlitz High Priority Subbasin Enhancement	Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Lower Columbia	COWLITZ	
320		Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Lower Columbia	COWLITZ	
321		Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Lower Columbia	COWLITZ	
322	Lewis River High Priority Subbasin Enhancement	Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Lower Columbia	LEWIS	
323		Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Lower Columbia	LEWIS	
324		Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Lower Columbia	LEWIS	
313	Clackamas High Priority Subbasin Enhancement	Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Lower Columbia	WILLAMETTE	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
314	Clackamas High Priority Subbasin Enhancement	Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Lower Columbia	WILLAMETTE	
318	North Fork Santiam High Priority Subbasin Enhancement	Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Lower Columbia	WILLAMETTE	
316		Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Lower Columbia	WILLAMETTE	
298	McKenzie High Priority Subbasin Enhancement		Habitat	Lower Columbia	WILLAMETTE	
315	Clackamas High Priority Subbasin Enhancement	Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Lower Columbia	WILLAMETTE	
300	McKenzie High Priority Subbasin Enhancement		Habitat	Lower Columbia	WILLAMETTE	
330	Lower-Willamette-Clackamas High Priority Subbasin Enhancement		Habitat	Lower Columbia	WILLAMETTE	
329		Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Lower Columbia	WILLAMETTE	
328		Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Lower Columbia	WILLAMETTE	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
317	North Fork Santiam High Priority Subbasin Enhancement	Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Lower Columbia	WILLAMETTE	
348	Establish a set of sampling reaches that characterize the Columbia, Snake, and Willamette rivers	Establish a comprehensive set of sampling reaches that characterize the Columbia and Snake rivers.	Habitat	Lower Columbia	WILLAMETTE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
346	Enhance flows in the Willamette River and below Bonneville Dam during critical periods	Enhance flows below Bonneville Dam during critical periods	Habitat	Lower Columbia	WILLAMETTE	Provides more consistent water levels required for spawning, rearing, passage, etc.
299	McKenzie High Priority Subbasin Enhancement	Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Lower Columbia	WILLAMETTE	
154	Hungry Horse Mitigation/Habitat Flathead Basin	Implementation of watershed based habitat restoration and fish recovery actions to mitigate the losses caused by hydropower in the Flathead Subbasin. Montana Fish, Wildlife & Parks collaborates with the Salish and Kootenai Tribes, USFWS and B.C. Canada.	Habitat	Mountain Columbia	FLATHEAD	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
239	Protect Wigwam R Bull Trout-Koocanusa Reservoir	Assess and monitor the status of wild, native spawning populations of bull trout in tributaries to Lake Koocanusa and the upper Kootenay River and to protect these fish from inappropriate reservoir operating regimes and logging practices.	Habitat	Mountain Columbia	KOOTENAI	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
173	Kootenai River Resident Fish Assessments	Identify the best management strategies to enhance aquatic biota in the Kootenai River Ecosystem and recover native species assemblages across multiple trophic levels (e.g. zooplankton, mayflies, kokanee salmon, redband trout, white sturgeon).	Habitat	Mountain Columbia	KOOTENAI	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
152	Kootenai River Fisheries Investigation	Implement recovery and restoration efforts for Kootenai River white sturgeon, burbot, bull and rainbow trout, and whitefish stocks in the Kootenai River and effects of water fluctuations and ecosystem changes on these stocks.	Habitat	Mountain Columbia	KOOTENAI	Provides more consistent water levels required for spawning, rearing, passage, etc.
185	Restore McComas Meadows	Nez Perce portion of the Meadow Creek watershed effort. Restore the damaged McComas Meadows through riparian fencing, replanting, enhancing channel morphology. Project is a subdivision of 199607700.	Habitat	Mountain Snake	CLEARWATER	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
193	O'Hara Watershed Restoration, Clearwater Basin	Manage and implement a comprehensive system to coordinate multiple jurisdictions, agencies, and private landowners within the Clearwater River Subbasin. These efforts will protect, restore, and enhance anadromous fisheries habitat.	Habitat	Mountain Snake	CLEARWATER	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
216	Restore Anadromous Fish Habitat - Little Canyon Cr	Implement agricultural Best Management Practices in the watershed uplands to reduce sediment delivery, to retain water in the uplands longer, and improve riparian function.	Habitat	Mountain Snake	CLEARWATER	More natural seasonal flows assure improved salmonid passage. Reduced sediment results in improved spawning and incubation conditions
217	Restore Anadromous Fish Habitat - Nichols Canyon	Implement agricultural Best Management Practices in the watershed uplands to reduce sediment delivery, to retain water in the uplands longer, and restore riparian function.	Habitat	Mountain Snake	CLEARWATER	
188	Clearwater Focus Watershed	Coordinate multiple jurisdictions, agencies, and private landowner efforts to identify, prioritize, design, implement, and monitor projects and policies that will protect, restore, and enhance fish and wildlife habitat in the Clearwater River Subbasin.	Habitat	Mountain Snake	CLEARWATER	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
149	IDFG Dworshak Hydroacoustics (Resident fish studies)	Determines ways to minimize entrainment losses of fish into Dworshak Dam. Also, evaluates impacts to the kokanee population caused by drawdowns and routine operations of the dam.	Habitat	Mountain Snake	CLEARWATER	Provides more consistent water levels required for spawning, rearing, passage, etc.
219	Rehabilitate Lapwai Creek	Restore Lapwai Creek and tributaries to a more healthy and productive system which is capable of sustaining a self perpetuating population of anadromous and resident fish.	Habitat	Mountain Snake	CLEARWATER	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
184	Protecting & Restoring Squaw/Papose Creek Watersheds	Improve stream conditions in the Squaw, Pappose, Wendover, Cold Storage, & Badger Creek watersheds by restoring and obliterating unnecessary roads, establishing sediment traps, etc. Project is an outgrowth of 199607700.	Habitat	Mountain Snake	CLEARWATER	Reduced erosion and sedimentation will facilitate improved spawning, incubation and rearing life stages.
159	RED RIVER RESTORATION (LITTLE PONDEROSA RANCH)	Restore physical and biological processes to create a self-sustaining river/meadow ecosystem using a holistic approach and adaptive management principles to enhance fish, riparian, and wildlife habitat and water quality within the Red River watershed.	Habitat	Mountain Snake	CLEARWATER	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
250	Protect And Restore Mill Creek Watershed	Protect and enhance critical riparian areas of the Mill Creek Watershed to restore quality habitat for chinook salmon, steelhead trout, bull trout, and resident fish, by working within an overall watershed approach.	Habitat	Mountain Snake	CLEARWATER	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
249	Rehabilitate Newsome Creek - Clearwater Basin	Protect and restore Newsome Creek Watershed for the benefit of fish, both resident and anadromous, and wildlife.	Habitat	Mountain Snake	CLEARWATER	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
248	Protect N Lochsa Face Analysis Area	Protect and Restore the North Lochsa Face Watershed by working within an overall watershed approach, based on comprehensive studies of the analysis area. The overall goal of this project is to increase anadromous fish populations.	Habitat	Mountain Snake	CLEARWATER	
183	PROTECT AND RESTORE LOLO CREEK WATERSHED	Obliterate excess roads and stabilize any potential sediment sources near the streams or from existing landslides in the Lolo, Brown's, or Mussellshell drainages. Exclude cattle from critical riparian areas. Project is an outgrowth of 199607700.	Habitat	Mountain Snake	CLEARWATER	Reduced erosion and sedimentation will facilitate improved spawning, incubation and rearing life stages.
218	Protecting & Restoring Big Canyon Creek Watershed	Restore Big Canyon Creek and tributaries to a more healthy and productive system which is capable of sustaining a self-perpetuating population of anadromous and resident fish.	Habitat	Mountain Snake	CLEARWATER	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
304	Middle Fork Clearwater High Priority Subbasin Enhancement	Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Mountain Snake	CLEARWATER	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
305	Middle Fork Clearwater High Priority Subbasin Enhancement	Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Mountain Snake	CLEARWATER	
306		Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Mountain Snake	CLEARWATER	
176	Upper Salmon River Diversion Canal Consolidation	Irrigation consolidation of gravity diversions S-13(10 Acre Canal)with S-14 (Pope Canal)and consolidation of S-11(Edwards Canal) withS-12(Kane-Ramey Canal).Eliminate2 of 4 wingdams,2 of 4 screens,2 of 4 headgates & reduce migrational delay of all fish.	Habitat	Mountain Snake	SALMON	Improves passage for adults and juveniles. Restores access to blocked habitats. Enhances survival by blocking juveniles from entering irrigation systems.
269	Salmon River Section 206	Restore salmonid habitat quality, reduce unnatural bank erosion, restore natural channel and geomorphic function and associated aquatic and riparian biological processes in a 12 mile reach of the Salmon River near Challis, Idaho.	Habitat	Mountain Snake	SALMON	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
161	Upper Salmon River Anadromous Fish Passage	The goal is to balance resource protection and land use practices to provide barrier free passage for adult and juvenile fishes, and increase subbasin connectivity by returning surplus irrigation water to tributaries and mainstem systems.	Habitat	Mountain Snake	SALMON	Reduced erosion and sedimentation will facilitate improved spawning, incubation and rearing life stages.
163	Idaho Fish Screening Improvement	Enhance passage of juvenile and adult fish in Idaho's anadromous fish corridors by consolidation and elimination of irrigation diversions. Minimize adverse fish impacts of irrigation diversion dams, screen pump intakes and screen all irrigation canals.	Habitat	Mountain Snake	SALMON	Improves passage for adults and juveniles. Restores access to blocked habitats. Enhances survival by blocking juveniles from entering irrigation systems.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
164	Idaho Model Watershed Habitat projects	To protect, enhance and restore anadromous and resident fish habitat in a sustainable manner that balances resource protection and landuse practices. Emphasis is on holistic watershed assessment & implementation projects that maximize regional benefits.	Habitat	Mountain Snake	SALMON	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
277	Salmon River at Challis, ID (Bull Trout, Steelhead, S/S Chinook, Fall Chinook, Sockeye)/ Salmon R	Restore floodplain function of 12 miles of river by restore the proper geomorphology.	Habitat	Mountain Snake	SALMON	
174	Salmon River Habitat Enhancement & O&M	Maintain habitat improvements and evaluate benefits; monitor salmonid populations; coordinate evaluation of land and water stewardship activities; coordinate the planning, implementation, monitoring, and evaluation of new improvements and protections.	Habitat	Mountain Snake	SALMON	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
156	Model Watershed Studies - Lemhi River Basin	The Idaho Model Watershed has provided local direction to fish habitat improvement since 1992 through the leadership of the Custer and Lemhi Soil and Water Conservation Districts, the Model Watershed Advisory Committee & interdisciplinary Technical Team	Habitat	Mountain Snake	SALMON	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.
220	Restore Salmon River (Challis area)	Restore the channelized river corridor to a natural meandering form in balance with watershed processes that will restore geomorphic diversity, reduce bank erosion, lower summer temperatures and improve fish habitat, with local watershed group.	Habitat	Mountain Snake	SALMON	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
284	Lemhi Subbasin High Priority Subbasin Enhancement	Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow.	Habitat	Mountain Snake	SALMON	
285		Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Mountain Snake	SALMON	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
301	Upper Salmon High Priority Subbasin Enhancement	Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Mountain Snake	SALMON	
302		Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Mountain Snake	SALMON	
303		Continue implementation of multi-year improvements: physically modify instream barriers to permit passage; screen diversions to meet current criteria; purchase available water up to 100% of recommended flow targets.	Habitat	Mountain Snake	SALMON	
327	Little Salmon High Priority Subbasin Enhancement		Habitat	Mountain Snake	SALMON	
326		Organization and program initiation. Coordinate with NPPC rolling provincial review; evaluate potential actions; coordinate among local, State, and Federal agencies. Implement actions related to fish screens, barrier modifications, and streamflow	Habitat	Mountain Snake	SALMON	
325		Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation	Habitat	Mountain Snake	SALMON	
283	Lemhi Subbasin High Priority Subbasin Enhancement	Preliminary needs assessment of fish screen, barrier modification, and streamflow opportunities. Initiate NEPA and Consultation.	Habitat	Mountain Snake	SALMON	
145	Implement High Priority Projects	Implement high priority projects that provide rapid "on the ground" direct and immediate benefits for ESA-listed anadromous stocks consistent with NMFS Biological Opinion performance objectives.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	All phases and aspects of the salmonid life cycle are enhanced by holistic watershed efforts.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
143	Subbasin Plans	Development of Subbasin Plans through the Council's rolling Provincial Review process.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
142	Water Acquisition Program	Implement an experimental water acquisition program designed to test the efficacy of a non-profit water brokerage as a tool to establish a competitive process to supply water to increase flows and improve water quality in biologically important areas	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Provides more consistent water levels required for spawning, rearing, passage, etc.
141	Agriculture incentive program partnerships	Partner with NRCS and FSA to expand the duration of protection of riparian buffers on agricultural lands.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
146	Subbasin Plans	Adopt Subbasin Plans for all Columbia Basin subbasins.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
189	Independent Scientific Review Panal	Fund the Independent Scientific Review Panel's effort in making priority decisions on Fish and Wildlife proposals submitted for funding.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
153	Annual Work Plan - Columbia Basin F & W Foundation	Coordinate fish and wildlife participation in regional mitigation activities in implementation of the FWP, FY2001 project and funding recommendations, rolling provincial review, subbasin planning, program amendment recommendations, FSOC, NPMP, etc.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
272	Address Flow Problems	Fund and manage projects to address flow problems.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Provides more consistent water levels required for spawning, rearing, passage, etc.
196	Columbia Basin Bulletin	Delivers by email to policymakers, stakeholders, and the public a weekly electronic newsletter containing objective, summary information about Columbia Basin fish and wildlife issues.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
238	Water Right Acquisition Program	Acquire existing water rights on a voluntary basis through purchase, gift and water conservation projects, and transfer to instream water rights under Oregon state law; target acquisitions to maximize fulfillment of habitat objectives for instream flows	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Provides more consistent water levels required for spawning, rearing, passage, etc.
260	GIS for Subbasin Assessment		Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Success in biological restoration efforts must be tied to geographical setting and our ability to map such efforts.
264	Develop and evaluate biological indices,		Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
268	New Authorities	Seek additional authorities for ecosystem restoration where needs are identified.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
270	Address Passage, Screening and Flow Problems in NMFS identified high priority subbasins	Fund and manage projects to address passage problems.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Improves passage for adults and juveniles. Restores access to blocked habitats. Enhances survival by blocking juveniles from entering irrigation systems.
203	Implement Wy-Kan-Ush-Mi Wa-Kish-Wit Watershed plan	Track and coordinate tribal watershed projects, coordinate habitat improvements with fish production, conduct and coordinate watershed assessment, design monitoring plans, and develop public outreach and education on watershed restoration.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
271	Address Screening Problems	Fund and manage projects to address screening problems.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Improves passage for adults and juveniles. Restores access to blocked habitats. Enhances survival by blocking juveniles from entering irrigation systems.
340	Develop and implement a habitat improvement plan that mimics historic conditions	Develop and implement a habitat improvement plan that, insofar as possible, mimics the range and diversity of historic habitat conditions	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
341	Develop and implement a rigorous mainstem monitoring and evaluation action plan	Develop and implement a rigorous monitoring and evaluation action plan	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
356	Fund a study of benefits and risks of habitat modification at the Ives Island area to salmonids	Fund surveys of existing and potential tributary and mainstem habitat in the Columbia River between The Dalles Dam and the mouth of the Columbia River for suitable protection and restoration projects	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
282	Reevaluate Lower Snake Compensation Plan	Reevaluate Lower Snake Compensation Plan to examine if it is meeting its objectives and recommend remedial actions.	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
358	Identify survival improvement objectives that contribute toward the hydrosystem performance standard	Identify survival improvement objectives that would contribute toward achievement of the hydrosystem performance standard	Habitat	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.
373	Stabilize the water levels of the Columbia River reservoirs to the extent practicable	Stabilize the water levels of the Columbia River reservoirs to the extent practicable	Habitat	Systemwide	COLUMBIA MAINSTEM	Provides more consistent water levels required for spawning, rearing, passage, etc.
370	Re-establish and/or enhance historic or existing wetlands adjacent to the Columbia River	Re-establish and/or enhance historic or existing wetlands adjacent to the Columbia River	Habitat	Systemwide	COLUMBIA MAINSTEM	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
350	Establish emergent aquatic plants in shallow water areas of the Columbia River mainstem	Establish emergent aquatic plants in shallow water areas of the Columbia River mainstem	Habitat	Systemwide	COLUMBIA MAINSTEM	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
363	Plant riparian and aquatic plants at appropriate locations along the Columbia River mainstem	Plant riparian and aquatic plants at appropriate locations along the Columbia River mainstem	Habitat	Systemwide	COLUMBIA MAINSTEM	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
362	Mainstem research	Develop a baseline data set	Habitat	Systemwide	COLUMBIA MAINSTEM	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
331	Acquire 100 to 300 m wide corridor of lands on either side of the mainstem Columbia River	Acquire 100 to 300 m wide corridor of lands on either side of the mainstem Columbia River	Habitat	Systemwide	COLUMBIA MAINSTEM	Habitat improvements can result in greater population and habitat diversity, complexity and productivity.
349	Establish at least one long-term sampling site in the impoundments below Chief Joseph & Weiser, ID	Establish at least one long-term sampling site in each of the impoundments below Chief Joseph Dam and Weiser, ID	Habitat	Systemwide	COLUMBIA MAINSTEM	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
334	Acquire and protect land around the tributary confluence areas in the Columbia River reservoirs	Acquire and protect via purchase, conservation easement, donation or other means, where practicable, a 100- to 300-m (109- to 328-yard) band of land around the tributary confluence areas in the Columbia River reservoirs	Habitat	Systemwide	COLUMBIA MAINSTEM	Habitat improvements can result in greater population and habitat diversity, complexity and productivity.
345	Discourage mainstem agricultural & urban land use practices that adversely affect listed fish	Encourage changes in agricultural and urban land use practices that adversely effect listed fish	Habitat	Systemwide	COLUMBIA MAINSTEM	More natural seasonal flows assure improved salmonid passage. Reduced sediment results in improved spawning and incubation conditions
354	Excavate backwater sloughs, alcoves and side channels on the Columbia River	Excavate backwater sloughs, alcoves and side channels on the Columbia River	Habitat	Systemwide	COLUMBIA MAINSTEM	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
336	Add large woody debris (large snags/log structures) to the Columbia River	Add large woody debris (large snags/log structures) to the Columbia River	Habitat	Systemwide	COLUMBIA MAINSTEM	Habitat improvements can result in greater population and habitat diversity, complexity and productivity.
352	Evaluate results of Columbia River habitat improvements	Evaluate results of Columbia River habitat improvements	Habitat	Systemwide	COLUMBIA MAINSTEM	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
338	Create islands and shallow-water areas in the Columbia River	Create islands and shallow-water areas in the Columbia River	Habitat	Systemwide	COLUMBIA MAINSTEM	Habitat improvements can result in greater population and habitat diversity, complexity and productivity.
375	Enhance shallow-water and wetland habitats in the Columbia wildlife management areas, refuges, etc.	Work with the state and federal agencies to enhance shallow-water and wetland habitats in the wildlife management areas and refuges and other appropriate areas in the Snake River mainstem reaches	Habitat	Systemwide	COLUMBIA MAINSTEM	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
368	Re-connect alcoves, sloughs, and side channels to the main channels of the Columbia River	Re-connect alcoves, sloughs, and side channels to the main channels of the Columbia River	Habitat	Systemwide	COLUMBIA MAINSTEM	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
342	Develop and implement an effective mainstem habitat improvement plan	Protect, via purchase, easement, or other means, existing or potential spawning habitat in this reach and adjacent tributaries (i.e., protect, restore, and/or create potentially productive spawning areas)	Habitat	Systemwide	COLUMBIA MAINSTEM	Only through these coordinated, planned efforts can the biological objectives be effectively accomplished.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
343	Dredge and excavate silted in lateral channels of the Columbia River	Dredge and excavate silted in lateral channels of the Columbia River	Habitat	Systemwide	COLUMBIA MAINSTEM	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
348	Establish a set of sampling reaches that characterize the Columbia, Snake, and Willamette rivers	Establish a comprehensive set of sampling reaches that characterize the Columbia and Snake rivers.	Habitat	Systemwide	COLUMBIA MAINSTEM	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
332	Acquire and protect a belt of land adjacent to the Columbia River mainstem	Acquire and protect a belt of land adjacent to the Columbia River mainstem	Habitat	Systemwide	COLUMBIA MAINSTEM	Habitat improvements can result in greater population and habitat diversity, complexity and productivity.
355	Excavate backwater sloughs, alcoves and side channels on the Snake River	Excavate backwater sloughs, alcoves and side channels on the Snake River	Habitat	Systemwide	SNAKE MAINSTEM	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
399	Early life history studies of Snake River fish	The Action Agencies shall continue to fund studies that monitor survival, growth, and other early life history attributes of Snake River wild juvenile fall chinook.	Habitat	Systemwide	SNAKE MAINSTEM	
376	Enhance shallow-water and wetland habitats in the Snake wildlife management areas, refuges, etc.	Implement the Vernita Bar Agreement	Habitat	Systemwide	SNAKE MAINSTEM	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
374	Stabilize the water levels of the Snake River reservoirs to the extent practicable	Stabilize the water levels of the Snake River reservoirs to the extent practicable	Habitat	Systemwide	SNAKE MAINSTEM	Provides more consistent water levels required for spawning, rearing, passage, etc.
371	Re-establish and/or enhance historic or existing wetlands adjacent to the Snake River	Re-establish and/or enhance historic or existing wetlands adjacent to the Snake River	Habitat	Systemwide	SNAKE MAINSTEM	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
369	Re-connect alcoves, sloughs, and side channels to the main channels of the Snake River	Re-connect alcoves, sloughs, and side channels to the main channels of the Snake River	Habitat	Systemwide	SNAKE MAINSTEM	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
361	Improve mainstem habitats of the Snake River downstream of Weiser, Idaho	Improve mainstem habitats of the Snake River downstream of Weiser, Idaho	Habitat	Systemwide	SNAKE MAINSTEM	Habitat improvements can result in greater population and habitat diversity, complexity and productivity.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
333	Acquire and protect a belt of lands adjacent to the Snake River mainstem	Acquire and protect a belt of lands adjacent to the Snake River mainstem	Habitat	Systemwide	SNAKE MAINSTEM	Habitat improvements can result in greater population and habitat diversity, complexity and productivity.
353	Evaluate results of mainstem Snake River habitat improvements	Evaluate results of mainstem Snake River habitat improvements	Habitat	Systemwide	SNAKE MAINSTEM	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
349	Establish at least one long-term sampling site in the impoundments below Chief Joseph & Weiser, ID	Establish at least one long-term sampling site in each of the impoundments below Chief Joseph Dam and Weiser, ID	Habitat	Systemwide	SNAKE MAINSTEM	
351	Establish emergent aquatic plants in shallow water areas of the Snake River mainstem	Establish emergent aquatic plants in shallow water areas of the Snake River mainstem	Habitat	Systemwide	SNAKE MAINSTEM	Reduced embeddeness facilitates spawning, incubation, & emergence. Increased stability and complexity aids in adult and juvenile passage, dispersian and rearing and adult holding,
348	Establish a set of sampling reaches that characterize the Columbia, Snake, and Willamette rivers	Establish a comprehensive set of sampling reaches that characterize the Columbia and Snake rivers.	Habitat	Systemwide	SNAKE MAINSTEM	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
344	Dredge and excavate silted in lateral channels of the Snake River	Dredge and excavate silted in lateral channels of the Snake River	Habitat	Systemwide	SNAKE MAINSTEM	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.
339	Create islands and shallow-water areas in the Snake River	Create islands and shallow-water areas in the Snake River	Habitat	Systemwide	SNAKE MAINSTEM	Habitat improvements can result in greater population and habitat diversity, complexity and productivity.
337	Add large woody debris (large snags/log structures) to the Snake River	Add large woody debris (large snags/log structures) to the Snake River	Habitat	Systemwide	SNAKE MAINSTEM	
335	Acquire and protect land around the tributary confluence areas in the Snake River reservoirs	Acquire and protect via purchase, conservation easement, donation or other means, where practicable, a 100- to 300-m (109- to 328-yard) band of land around the tributary confluence areas in the Snake River reservoirs	Habitat	Systemwide	SNAKE MAINSTEM	
364	Plant riparian and aquatic plants at appropriate locations along the Snake River main stem	Plant riparian and aquatic plants at appropriate locations along the Snake River main stem	Habitat	Systemwide	SNAKE MAINSTEM	Channel stability, habitat complexity, water temperature and turbidity affect all salmonid life stages such as adult and juvenile passage, adult holding, spawning, incubation, emergence, dispersian and rearing.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
133	Begin Gear Efficacy Testing between Bonneville and McNary Dam	Examine the feasibility of using selective gear to live capture spring chinook between Bonneville and McNary Dam.	Harvest	Columbia Gorge	COLUMBIA GORGE	Selective gear may offer opportunity to release in good condition weak or listed salmon stocks while maintaining viable commercial fisheries
			Harvest	Columbia Plateau	COLUMBIA LOWER MIDDLE	
139	Select Area Fishery Evaluation	Develop and enhance fisheries in the lower Columbia River utilizing hatchery stocks, while protecting depressed wild stocks, through application of net-pen rearing, and monitor and evaluate rearing effects on habitat at net-pen sites.	Harvest	Lower Columbia	COLUMBIA LOWER	
132	EVALUATE LIVE CAPTURE SELECTIVE HARVEST METHODS	Examine the feasibility of using tooth-tangle nets to live capture spring chinook in the Lower Columbia River. Examine the feasibility of using a floating trap net to capture spring chinook in the lower Columbia River	Harvest	Lower Columbia	COLUMBIA LOWER	Selective gear may offer opportunity to release in good condition weak or listed salmon stocks while maintaining viable commercial fisheries
138	Fishery Management Reform Project	Undertake Efforts Designed to Improve Existing Fishery Management & Stock Assessment Models	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Models provide analytical basis for quantification of biological impacts
125	Implement Selective Fishery Development Program	Implement a multiyear program to develop, test and deploy selective fishing methods and gear that enable fisheries to target nonlisted fish while holding incidental impacts on listed fish within defined limits.	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Selective gear may offer opportunity to release in good condition weak or listed salmon stocks while maintaining viable commercial fisheries
126	Revise sampling schemes & fishery/stock data systems	Project objective to modify and reformat existing management protocols and data systems to facilitate shift to mark-selective fisheries.	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Distinguish between natural and hatchery fish on the spawning grounds, in dam counts, and in fisheries.
127	Model refinement Project	Develop and/or refine models and analytical procedures in coordination with relevant fishery managers.	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Models provide analytical basis for quantification of biological impacts
128	Conservation Easement Projects	Purchase easements on portion of total catch or species within mixed-stock fisheries that intercept or target Columbia Basin stocks through contracts which pay harvesters for not fishing; ensure pass-through to spawning grounds.	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Conservation easements on certain fisheries an/or species within fisheries have the potential to increase the abundance of adults to spawning grounds provided appropriate passthrough mechanisms are in place.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
129	Lease Back/Buy Back Projects	Purchase fishing permits in open fisheries or IFQ fisheries which have the result of reducing commercial fishing capacity	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Conservation easements on certain fisheries an/or species within fisheries have the potential to increase the abundance of adults to spawning grounds provided appropriate passthrough mechanisms are in place.
130	Value Added Projects	Identify economic development strategies designed to enhance fishery values	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Develop reforms and methods to enhance fisheries and survival
137	Crediting Project	Develop methods for crediting harvest reforms and the survival benefits they produce, toward the FCRPS offsite mitigation responsibilities.	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
136	Enhanced Fishery Sampling Development Project	Begin Development of a Comprehensive Fishery and Stock Assessment (Sampling) Program in Anticipation of Mass Marking and Selective Fisheries.	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Selective gear may offer opportunity to release in good condition weak or listed salmon stocks while maintaining viable commerical fisheries
134	Develop a Research Plan to Address Incidental Mortality in Fisheries	Estimating the effects selective fisheries implementation of multiple captures of listed fish	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
131	Identify Potential Alternative/Terminal Fishing Locations	Inventory of potential terminal/alternate fishing locations through appropriate scoping activities. Identify process for evaluation of priority of potential sites.	Harvest	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Terminal fishing areas could potentially reduce fishing pressures in existing mixed stock fishing areas, thus reducing impacts to commingling weak stocks
135	NMFS NET EXCHANGE PROGRAM	Test the hypothesis that the ratio of chinook to steelhead is higher in the catch from 9" mesh gillnets than in nets with smaller mesh sizes. Calculate the reduction in steelhead catch based on the spreadsheet model in development under this project.	Harvest	Systemwide	COLUMBIA MAINSTEM	Selective gear may offer opportunity to release in good condition weak or listed salmon stocks while maintaining viable commerical fisheries
391	Hatchery reform studies	The Action Agencies and NMFS shall work within regional prioritization and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for a hatchery research, monitoring, and evaluation program	Hatchery			

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
383	Studies of the reproductive success of hatchery fish relative to wild fish	The Action Agencies and NMFS shall work within regional priorities and congressional appropriations processes to establish and provide the appropriate level of FCRPS funding for studies to determine the reproductive success of hatchery fish	Hatchery			
435	The Kootenai River White Sturgeon Study and Conservation Aquaculture Project	The Kootenai River White Sturgeon Study and Conservation Aquaculture Project was initiated to preserve the genetic variability of the population, begin rebuilding natural age class structure, and prevent extinction while measures are implemented	Hatchery			
112	GRANDE RONDE SUPPLEMENTATION FACILITIES-O&M -NPT	Operate adult trapping and juvenile acclimation facilities and conduct monitoring and evaluation in the Lostine River to implement the Lostine component of the Grande Ronde Basin Endemic Spring Chinook Supplementation Program (GRESP).	Hatchery	Blue Mountain	GRANDE RONDE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
105	NE OREGON OUTPLANTING FACILITIES PLAN - ODFW	Work with comanagers to implement the Grande Ronde Endemic Spring Chinook Supplementation Program (GRESOSP). Participate in planning for additional anadromous salmonid enhancement programs in the Grande Ronde, Imnaha, and Walla Walla basins.	Hatchery	Blue Mountain	GRANDE RONDE	High risk of extinction due to small size of populations warrants management actions to preserve & maintain genetic material.
114	GRANDE RONDE CAPTIVE BROOD O&M / M&E	Implement captive broodstock programs and associated research, monitoring, evaluation, and fish health for spring chinook salmon populations in Catherine Creek, upper Grande Ronde and Lostine rivers, to conserve genetic diversity and assist in recovery.	Hatchery	Blue Mountain	GRANDE RONDE	
97	CAPTIVE BROODSTOCK ARTIFICIAL PROPAGATION	Implements the captive broodstock project through the collection of juvenile salmon from the wild and maintaining them in captivity. The founding generation is spawned at maturity and the resulting F1 generation is released back to the parental stream.	Hatchery	Blue Mountain	GRANDE RONDE	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
113	GRANDE RONDE SUPPLEMENTATION - O&M -CTUIR	Develop, implement, and evaluate integrated hatchery projects to prevent extinction, stabilize populations and assist in restoration of threatened spring chinook salmon and steelhead populations in the Grande Ronde River.	Hatchery	Blue Mountain	GRANDE RONDE	High risk of extinction due to small size of populations warrants management actions to preserve & maintain genetic material.
111	NEZ PERCE MASTER CONTRACT	Provide the Fish Passage Center with information and indices on spring emigration timing, estimated smolt survival, smolt performance and health of wild and hatchery salmonid smolts captured in the Imnaha River to Snake and Columbia River dams.	Hatchery	Blue Mountain	IMNAHA	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
104	NE OREGON HATCHERY MASTER PLAN - NEZ PERCE	Plan and develop conservation production facilities in the Imnaha and Grande Ronde rivers necessary to implement salmon recovery programs for native, ESA listed salmon.	Hatchery	Blue Mountain	IMNAHA	High risk of extinction due to small size of populations warrants management actions to preserve & maintain genetic material.
106	PITTSBURG LANDING ACCLIMATION FACILITY - SNAKE R	Supplement natural production of Snake River fall chinook above Lower Granite Dam through acclimation, final rearing and release of Lyons Ferry yearling and subyearling fish at two sites on the Snake River and one site on the Clearwater River.	Hatchery	Blue Mountain	SNAKE HELLS CANYON	
120	POST RELEASE SURVIVAL OF FALL CHINOOK IN SNAKE R	Facilitate implementation of federal and tribal fall chinook salmon recovery plans by monitoring and evaluating post-release attributes and survival of natural and hatchery juvenile fall chinook in the Snake River and Hanford Reach of the Columbia River.	Hatchery	Columbia Plateau	COLUMBIA LOWER MIDDLE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
98	TUCANNON RIVER SPRING CHINOOK CAPTIVE BROODSTOCK	Complete modifications to Lyons Ferry Hatchery to conduct spring chinook captive broodstock program. Rear and spawn broodstock, raise their progeny and release 150,000 smolts into the Tucannon River to rebuild spring chinook run and prevent extinction.	Hatchery	Columbia Plateau	TUCANNON	High risk of extinction due to small size of populations warrants management actions to preserve & maintain genetic material.
122	YKFP - OPERATIONS AND MAINTENANCE	Operation and maintenance of facilities needed for Yakima/Klickitat fisheries	Hatchery	Columbia Plateau	YAKIMA	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
121	YAKIMA/KLICKITAT FISHERIES PROGRAM	To implement supplementation-based fish production measures to increase natural production and harvest opportunities. Test feasibility of coho reintroduction. All measures will be evaluated using a systematic, experimental program (See M&E proposal).	Hatchery	Columbia Plateau	YAKIMA	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
119	YAKIMA HATCHERY - CONSTRUCTION	Construction of facilities needed for Yakima/Klickitat Fisheries.	Hatchery	Columbia Plateau	YAKIMA	
107	EXPERIMENTAL KOOTENAI STURGEON HATCHERY & RESEARCH	Prevent extinction, preserve existing gene pool, and begin rebuilding healthy age class structure of the endangered white sturgeon in the Kootenai River using conservation aquaculture techniques with wild broodstock.	Hatchery	Mountain Columbia	KOOTENAI	High risk of extinction due to small size of populations warrants management actions to preserve & maintain genetic material.
96	Experimental Sturgeon Hatchery & Kootenai		Hatchery	Mountain Columbia	KOOTENAI	
123	NEZ PERCE TRIBAL HATCHERY MONITORING AND EVALUATION	Monitor and evaluate results of the Nez Perce Tribal Hatchery so that operations can be adaptively managed to optimize hatchery and natural production, sustain harvest, and minimize ecological impacts.	Hatchery	Mountain Snake	CLEARWATER	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
115	NEZ PERCE TRIBAL HATCHERY CONSTRUCTION	Construct facilities needed for the Nez Perce Tribal Hatchery.	Hatchery	Mountain Snake	CLEARWATER	
124	ASSESS CHINOOK RESTORATION (SNAKE RIVER BASIN)	Assess current fall chinook spawning escapement and locations, juvenile emergence, growth rates, emigration timing, survival to dams, and smolt-to-adult survival for evaluating supplementation as a tool for recovery of Snake River fall chinook salmon.	Hatchery	Mountain Snake	CLEARWATER	
108	NEZ PERCE TRIBAL HATCHERY	Implement \$16 million construction of Nez Perce Tribal Hatchery (NPTH) supplementation program to assist in the recover and restoration of non-listed spring chinook and coho salmon and ESA listed Snake River fall chinook in the Clearwater subbasin.	Hatchery	Mountain Snake	CLEARWATER	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
101	IDAHO CHINOOK SALMON CAPTIVE REARING	Develop captive rearing techniques for chinook salmon and evaluate the success and utility of captive rearing for maintaining stock structure and minimum number of adult spawners in three drainages.	Hatchery	Mountain Snake	SALMON	High risk of extinction due to small size of populations warrants management actions to preserve & maintain genetic material.
100	REDFISH LAKE SOCKEYE BROODSTOCK REARING/RESEARCH	Incubate and rear Redfish Lake sockeye salmon captive broodstocks. Provide pre-spawning adults, eyed eggs, and juveniles to aid recovery of this ESA-listed endangered stock in Idaho.	Hatchery	Mountain Snake	SALMON	
99	REDFISH LAKE SOCKEYE REARING AND TRAPPING	Establish captive broodstocks of Redfish Lake sockeye salmon. Spawn captive adults to produce eggs, juveniles, and adults for supplementation and future broodstock needs. Monitor nursery lake conditions. Evaluate juvenile out-migration by release option.	Hatchery	Mountain Snake	SALMON	
109	JOHNSON CREEK ARTIFICIAL PROPAGATION ENHANCEMENT	Enhance and monitor a weak but recoverable stock of native summer chinook salmon in Johnson Creek. Construct facilities for adult collection and holding, juvenile rearing, and smolt acclimation.	Hatchery	Mountain Snake	SALMON	
93	Implement high-priority reforms identified in HGMPs	Upon approval of HGMPs by NMFS, begin implementing high-priority reform actions at the FCRPS-funded hatcheries.	Hatchery	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Manage genetic risks to listed species. Manage ecological risks to natural populations. Avoid management risks associated with hatchery production. Avoid harm to wild fish
103	MANCHESTER SPRING CHINOOK CAPTIVE BROOD	Rear Snake River spring/summer chinook salmon captive broodstocks from Idaho's Salmon River sub-basin and Oregon's Grande Ronde River sub-basin. Provide pre-spawning adults, eyed eggs, and juveniles to aid recovery of these ESA-listed stocks.	Hatchery	Systemwide	COLUMBIA BASIN SYSTEMWIDE	High risk of extinction due to small size of populations warrants management actions to preserve & maintain genetic material.
102	CAPTIVE SALMONID BROODSTOCK TECHNOLOGY DEMO	Develop captive broodstock husbandry practices through experimental research to i) improve juvenile quality, ii) improve adult reproductive performance, iii) improve in-culture survival, and iv) identify genetic risk factors.	Hatchery	Systemwide	COLUMBIA BASIN SYSTEMWIDE	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
110	INFRASTRUCTURE FOR FDA REGISTRATION ERYTHROMYCIN	Provide the infrastructure needed in the Columbia River basin to maintain and complete the FDA approval of erythromycin feed additive, a necessary therapeutant for sustained hatchery production and maintenance of captive broodstocks of salmon	Hatchery	Systemwide	COLUMBIA BASIN SYSTEMWIDE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
117	GENETIC ANALYSES OF COLUMBIA & SNAKE SOCKEYE	This project provides genetic information on <i>O. nerka</i> and <i>O. tshawytscha</i> throughout the Snake and Columbia Basins to be used in the overall recovery and captive propagation of endangered Snake River sockeye and threatened Salmon River chinook salmon.	Hatchery	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
118	THE NATURES (NATURAL REARING ENHANCEMENT SYSTEMS)	Develop and evaluate fish culture techniques (seminatural raceway habitat, predator avoidance training, exercise, live food diets, etc.) for a natural rearing enhancement system that increases the postrelease survival of artificially propagated salmon.	Hatchery	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
95	Safety Net Program	Develop and implement a safety net program to rescue populations within listed ESU's that are dangerously close to extirpation. Program will initially include the 10 populations identified in the BiOp as candidates for the safety-net program.	Hatchery	Systemwide	COLUMBIA BASIN SYSTEMWIDE	High risk of extinction due to small size of populations warrants management actions to preserve & maintain genetic material.
94	Implement remaining reforms identified in HGMPs	Upon approval of HGMPs by NMFS, begin implementing remaining reform actions at the FCRPS-funded hatcheries.	Hatchery	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Manage genetic risks to listed species. Manage ecological risks to natural populations. Avoid management risks associated with hatchery production. Avoid harm to wild fish
92	Develop HGMPs	Fund development of HGMPs for all federally-funded hatcheries (LSRCP, Mitchell Act, COE, BOR and Fish & Wildlife Program hatcheries). Begin with facilities affecting Upper Columbia and Snake River ESUs, i.e., Leavenworth, Winthrop, and Entiat (BOR) etc.	Hatchery	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
91	Comprehensive Marking Plan	Fund development of a comprehensive marking plan for Columbia Basin hatchery salmon and steelhead.	Hatchery	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Distinguish between natural and hatchery fish on the spawning grounds, in dam counts, and in fisheries.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
116	GENETIC M&E PROGRAM FOR SALMON & STEELHEAD	Monitor changes over time in genetic characteristics of hatchery, natural (supplemented), and wild (unsupplemented) populations of Snake River spring/summer chinook salmon and steelhead. Estimate reproductive success of hatchery and wild steelhead.	Hatchery	Systemwide	SNAKE RIVER BASIN	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
498	Kootenai River Channel Capacity	The proposed Kootenai River channel capacity investigation shall include or append all site specific elevation data gathered on structures which could be impacted and data on the defined 100 year floodplain.	Hydro			
492	VarQ at Libby Dam	By January 2001, the action agencies shall develop a schedule of all disclosures, NEPA compliance and additional Canadian coordination necessary to implement VarQ flood control/storage at Libby Dam.	Hydro			
397	Adult Count Reports	The Action Agencies shall continue to implement adult salmonid counting programs at FCRPS dams, but shall improve the reporting of these counts.	Hydro			
398	Install PIT-tag Detectors	As set out in Action 50 (Section 9.6.1.3.4), BPA and the Corps shall install necessary adult PIT-tag detectors at appropriate FCRPS projects before the expected return of adult salmon from the 2001 juvenile outmigration.	Hydro			
493	Stored Libby water for Sturgeon	During water year 2001, (October 1, 2000 - September 30, 2001) the action agencies shall store water and supply, at a minimum, water volumes during May, June and July based upon a water availability or "tiered" approach,	Hydro			
494	Reduce the 2nd peak flow in the Kootenai River	Seek opportunities to reduce the second peak flow created by July/August salmon flow through Kootenay Lake. One such opportunity for consideration to reduce the second peak is retention of July/August water in Lake Kooconusa	Hydro			

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
496	Koocanusa Volume Forecast	By October 2004, the action agencies shall revisit the volume forecast procedure in the Kootenai River above and below Libby Dam. If additional equipment, in-season data, or modeling is feasible, the action agencies shall seek a means to accomplish this	Hydro			
497	TDG Spillway Tests at Libby Dam	The proposed spillway test in 2001 shall be conducted under sufficiently high turbine discharge levels during the sturgeon conservation operation to reliably estimate the maximum spillway flow dilution capability and compliance with state water quality	Hydro			
491	Libby Dam Flows for sturgeon	The action agencies shall regulate flows from Libby Dam, consistent with existing treaties, Libby Project authorization for public safety, other laws, and the 1938 IJC order, to achieve water volumes, water velocities, water depths, and water temperature	Hydro			
500	Libby Spill Test	If, by December 30, 2001, it is determined that at least 5,000 cfs can not be routinely passed over the spillway within the total dissolved gas criteria of 110 %, or VarQ or some other flood control/storage procedure has not been adopted	Hydro			
409	Migrating success of adult salmonids at the eight dams		Hydro			
408	Timing/survival of transported/in-river fish		Hydro			
410	Monitor effects of juvenile bypass system at Ice Harbor dam		Hydro			
412	Adult returns of hatchery origin fall chinook salmon released at as juveniles above LGR dam		Hydro			

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
413	Movement, distribution and passage behavior of radio-tagged juvenile salmon at BON, TDA, and JDA dam		Hydro			
499	Libby Spill Test	The Libby spillway option shall only be considered a viable long term conservation measure if VarQ, or a comparable flood control/storage procedure, is in effect which assures the reservoir surface routinely	Hydro			
414	Compare wild and hatchery fish exposed to stress from bypass, collection & transportation		Hydro			
416	Develop and evaluate adult PIT-tag interrogation systems for future installation at the dams		Hydro			
419	Response of juvenile anadromous salmon to a prototype surface bypass structure at LGR		Hydro			
417	Four studies at dams		Hydro			
418	Evaluate migration to the ocean of adult steelhead that have spawned as kelts		Hydro			
407	Adult salmonid counts at dams	The Action Agencies shall continue to implement adult salmonid counting programs at FCRPS dams, but shall improve the reporting of these counts.	Hydro			
490	Implement Entrainment Improvements	Base upon the priority list for entrainment the AA shall assess the extent of BT entrainment at the FCRPS dams. If it is determined to be significant, the AA will explore techniques to deter them (eg. strobe lights)	Hydro			
423	Evaluate juvenile fish collection/bypass facilities at select dams		Hydro			

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
424	Identify and innumerate adult steelhead kelts that pass through juvenile bypass facilities		Hydro			
426	Evvaluate modifications to the juvenile fish PIT-tag diversion systems at LWG and LGO dams		Hydro			
427	Compare SARs of yearling and subyearling chinook /steelhead juveniles transported from MCN to BON		Hydro			
431	Study energy expenditure of upstream migrating adult salmon and steelhead and dam passage		Hydro			
422	Evaluate juvenile fish survival through ICH spillway		Hydro			
420	Data on the timing, passage and survival of juvenile salmonids in relation to the operation of JDA		Hydro			
421	Evaluate inriver migration survival versus transportation survival from LWG to BON		Hydro			
411	Document the growth, migration timing, survival and SARs for SNR wild juvenile fall chinook salmon		Hydro			
486	Priority List of FCRPS for Dams to research up/downstream passage	The AA will develop a priority list of dams to conduct research on to determine the effect of up/downstream passage by 9/1/01	Hydro			
487	BT Passage Requirements	Based upon the priority list the AA shall initiate research to determine the requirements for passage up/downstream	Hydro			

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
488	Implement Changes to the FCRPS that are necessary as determined by Passage projects above	Based upon the research to determine the requirements for passage up/downstream the AA shall initiate implement measures found to be needed to provide suitable up/downstream passage. Re-initiate consultation if necessary	Hydro			
489	BT Entrainment	AA shall develop a priority list of FCRPS dams to determine the extent of BT entrainment	Hydro			
503	Kootenai River studies	The action agencies have proposed to seek funding to conduct biological studies, in consultation with the Service, to both determine the effectiveness of increased flows in improving sturgeon recruitment and to determine any adverse effects to bull trout	Hydro			
508	Ground Seepage Assessment relative to Sturgeon Flows	By December 1, 2001, the action agencies shall quantify the effects of groundwater seepage associated with the magnitude and duration of sturgeon flows on crops in the Kootenai Valley relative to all other types high flow/stage events which occur	Hydro			
510	Thermal Profiles Assessments	The action agencies shall continue to monitor water temperature profiles in the south end of Lake Koocanusa during May and June to provide information necessary for timing of sturgeon spawning/rearing flow augmentation.	Hydro			
509	Effects of Load Following on Levee integrity	By December 1, 2001, the action agencies shall report specifically on the effects of load following on levee integrity throughout the Kootenai Valley over the last 26 years. This may be incorporated into the ongoing flood damage reduction study.	Hydro			
511	Evaluate the depth, velocity and substrate	By December 1, 2002, the action agencies shall complete an evaluation and report on any changes in depth, water velocity and substrate in the vicinity of Bonners Ferry which have occurred since Libby Dam became operational.	Hydro			

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
507	Flood Level Assessments	By spring 2001, the Corps shall evaluate flood levels and public safety concerns along the banks of the Kootenai River below Libby Dam, and the feasibility of increasing releases above any identified channel capacity constraints	Hydro			
506	Sturgeon Flows and Guidelines	The action agencies shall fulfill the operational guidelines provided by the Service annually prior to and during the sturgeon spawning/incubation period. Specific release recommendations will be developed in consultation with action agencies	Hydro			
512	Spawning Substrate Assessment	Should spawning/incubation habitat changes be documented, the December 1, 2002 report, identified above shall be expanded to include all feasible remedies such as channel constrictions or other physical habitat modification(s) to restore and maintain	Hydro			
504	Reinitiate Consultation when >20 natural sturgeon are found	If, as a result of these increased releases, in any year during the 10-year life of this biological opinion, a new year class of at least 20 naturally recruited yearling or older sturgeon is documented, the action agencies shall reinitiate consultation	Hydro			
518	Coordination w/ TMT and IT	The action agencies shall coordinate annual implementation, review, and modification of the measures through an interagency group, such as the Implementation Team, or Technical Management Team (TMT).	Hydro			
502	Reinitiate Consultation if flows are not feasible	The action agencies shall immediately reinitiate consultation with the Service when it is determined either of the above two 5,000 cfs (10,000 cfs total) increased release increments scheduled for spring of 2002, or 2004 and 2007, is not achievable	Hydro			

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
505	reporting requirements	interim monitoring reports of biological results, storage volumes, flows, augmentation flows released, water temperatures, and total dissolved gas concentrations shall be provided to the Service by October 1 each year, and final reports by December 1	Hydro			
513	Preservation stocking w/ MELP	The action agencies shall continue to maintain the preservation stocking program operated by the Kootenai Tribe of Idaho, and associated rearing facilities operated by B.C. Ministry of Environment, Lands and Parks.	Hydro			
514	Monitoring and Evaluation of Recruitment	The action agencies shall maintain the current level(s) of monitoring associated with all stages of natural recruitment, and the preservation stocking program. This program involves monitoring by the Kootenai Tribe of Idaho and IDFG	Hydro			
515	one and five year plan development	The action agencies shall annually develop one and five-year implementation and funding plans to implement the measures contained in this Opinion.	Hydro			
517	MOU development	The action agencies shall participate with the Service and NMFS in developing an interdepartmental memorandum of agreement which establishes and formalizes the purpose, structure, and scope of activities of a regional Federal coordinating body	Hydro			
519	Coordination of Planning and in-season management	The action agencies shall coordinate with the Service and NMFS, and the affected states and Tribes, in preseason planning and in-season management of water management operations.	Hydro			
520	Use of Adaptive management, PS for BT and Sturgeon	The action agencies, in coordination with the Service, shall implement an adaptive management approach for designing and implementing actions, including performance standards, needed for survival improvements for Kootenai River white sturgeon & bull trout	Hydro			

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
521	Coord. W/ NMFS and FWS on modeling	By June 30, 2001, the action agencies shall develop and coordinate with the Service, NMFS and EPA on a plan to model the water temperature effects of alternative Snake River operations, including Libby and Hungry Horse Dams.	Hydro			
522	Assess up/downstream passage needs of BT	The action agencies shall initiate research to determine the upstream and downstream passage requirements of bull trout at FCRPS dams in the Columbia Basin. These investigations should address entrainment, both upstream and downstream adult passage	Hydro			
523	Sturgeon Substrate Modeling	Assess and model the substrate movement in the Kootenai relative to the sturgeon flows	Hydro			
524	Pend Orielle Lake Level Kokanee Needs	Determine the lake level needed to meet the needs of kokanee in PO.	Hydro			
525	BT Use of SF Flathead	Determine the use of SF Flathead by BT and the effects of Ramping rates	Hydro			
501	Sturgeon Flows	By spring 2007, the action agencies will seek means and be prepared to release an additional 5,000 cfs (total of at least 10,000 cfs) at Libby Dam for sturgeon conservation	Hydro			
516	Review the 1/5 plan w/ NMFS and FWS	The action agencies shall coordinate with the Service and NMFS on the proposed annual plan in sufficient time to allow review and discussion prior to implementation (normally before the start of the fiscal year).	Hydro			
528	Annual Report on Treaty Canadian Water Storage	This action item directs BPA and the Corps to continue to request and negotiate the annual non-power uses agreement with Canada.	Hydro	Canada	CANADA	Provides more consistent water levels required for spawning, rearing, passage, etc.
529	Annual Report on Non-Treaty Canadian Water Storage	This action item directs BPA to continue to request, and seek to negotiate an agreement for the storage of, water in Non-Treaty Storage (NTS) space during the spring for subsequent release during July and August.	Hydro	Canada	CANADA	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
530	Annual Report Additional Canadian Water Storage and Shaping	This action item directs BPA and the Corps to evaluate, request, and negotiate with BC Hydro for shaping and release of Canadian water (Treaty and/or Non-Treaty) for July/August flow augmentation	Hydro	Canada	CANADA	Provides more consistent water levels required for spawning, rearing, passage, etc.
39	The Dalles Adult Entrance Channel Dewatering Modifications	Provide for dewatering the adult fishladder entrances and transport conduit to allow inspection and maintenance of the system.	Hydro	Columbia Gorge	COLUMBIA GORGE	Improve survival of adult salmonids at mainstem dams
86	Consider turbine design technology to decrease fish injury at The Dalles & Ice Harbor	Placeholder	Hydro	Columbia Gorge	COLUMBIA GORGE	
41	Bonneville Adult Fallback	Determine cause of adult fallback over spillway and design, install and evaluate corrective actions. Very preliminary outyear costs for corrective actions.	Hydro	Columbia Gorge	COLUMBIA GORGE	Improve survival of adult salmonids at mainstem dams
42	Bonneville 2nd Powerhouse Adult Fishway Auxiliary Water Supply	Evaluate alternatives and implement improvements to the 2nd PH emergency auxiliary water supply system.	Hydro	Columbia Gorge	COLUMBIA GORGE	
73	The Dalles Gas Fast Track	Evaluate, design and install flow deflectors or other improvements as determined appropriate. Outyear costs are preliminary and assume decision to proceed is made in FY03.	Hydro	Columbia Gorge	COLUMBIA GORGE	Improve water quality (lower levels of dissolved gases and temperatures) to enhance fish passage.
38	The Dalles Sluice Outfall and Auxiliary Adult Water Supply	Relocate ice and trash sluiceway outfall to improve juvenile survival and provide for emergency water supply for adult ladder.	Hydro	Columbia Gorge	COLUMBIA GORGE	
57	Adult Lamprey Passage	develop upstream migrant facilities at Bonneville to pass adult lamprey without disrupting adult salmon and steelhead passage	Hydro	Columbia Gorge	COLUMBIA GORGE	
58	Marine mammal predation @Bonneville tailrace	TBD	Hydro	Columbia Gorge	COLUMBIA GORGE	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
72	Bonneville Gas Fast Track	Evaluate, design and install new and replacement flow deflectors or other improvements as determined appropriate. Outyear costs to modify existing deflectors dependent on decision after 5 new deflectors installed by 02 and tested.	Hydro	Columbia Gorge	COLUMBIA GORGE	Improve water quality (lower levels of dissolved gases and temperatures) to enhance fish passage.
50	Adult Pit Tag Monitoring @ Bonneville, The Dalles , and John Day	Develop, install and evaluate adult PIT-tag program in adult fishways.	Hydro	Columbia Gorge	COLUMBIA GORGE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
32	Dalles Project Survival Study	Evaluate spillway and other passage route efficiencies and survival under various spill operations and in conjunction with surface bypass prototype testing. Evaluate causal mechanisms of spill mortality leading to potential improvements.	Hydro	Columbia Gorge	COLUMBIA GORGE	
10	Bonneville Juvenile Fish Bypass Studies	Evaluate project and route specific survival estimates for juvenile fish. Tests are planned for 2001, 2002, and 2003. The tests in 2002 and 2003 will include a focus on comparing existing and planned new flow deflectors.	Hydro	Columbia Gorge	COLUMBIA GORGE	Improve survival of juvenile salmonids at mainstem dams
8	Bonneville 1st Powerhouse FGE Improvements	Evaluate improvements (extended screens and other potential measures) to the fish guidance efficiency (FGE) of the screened bypass system at the 1st powerhouse. Costs shown assume decision to proceed to permanent construction is made in FY01.	Hydro	Columbia Gorge	COLUMBIA GORGE	
7	Bonneville 1st Powerhouse Surface Bypass (Deep Slot)	Evaluation of the potential success for surface bypass technology to effectively pass fish at the 1st powerhouse, and compare this system with an extended length screened bypass system.	Hydro	Columbia Gorge	COLUMBIA GORGE	
6	Bonneville 2nd Powerhouse Surface Bypass (corner collector)	Develop and implement a surface bypass system (corner collector) to work in conjunction with the existing bypass system at B2. Implementation decision in FY01. If implemented would be complete for FY 04 passage season.	Hydro	Columbia Gorge	COLUMBIA GORGE	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
5	Bonneville 2nd Powerhouse Gatewell Debris Removal	Evaluation of a debris removal system to eliminate gatewell dipping at the 2nd PH. Expansion to include additional units TBD.	Hydro	Columbia Gorge	COLUMBIA GORGE	Improve survival of juvenile salmonids at mainstem dams
4	Bonneville 1st Powerhouse JBS Improvements	Modify the existing bypass system collection channel and dewatering system to meet current criteria, relocate the outfall, and add monitoring capability. Alternative to surface bypass system.	Hydro	Columbia Gorge	COLUMBIA GORGE	
3	Bonneville 2nd Powerhouse JBS Improvements	Complete the post-construction testing of modifications to the juvenile bypass system, new monitoring facility and outfall relocation.	Hydro	Columbia Gorge	COLUMBIA GORGE	
2	The Dalles Surface Bypass Studies	Investigate and evaluate surface bypass technology at The Dalles project. Test prototype turbine intake trashrack blocks to reduce turbine entrainment and increase sluiceway passage efficiencies.	Hydro	Columbia Gorge	COLUMBIA GORGE	
1	Bonneville Automated Trashracks	Automation of trashrack cleaning for adult ladder auxiliary water intakes to maintain ladder in criteria at all times.	Hydro	Columbia Gorge	COLUMBIA GORGE	Improve survival of adult salmonids at mainstem dams
11	Bonneville Flat Plate	Provide temporary PIT-tag capability at the 1st powerhouse until a new bypass system or surface bypass system is implemented.	Hydro	Columbia Gorge	COLUMBIA GORGE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
12	Delayed Mortality of Juveniles with Differential Migration Histories	Provide important baseline information to study delayed mortality by reducing the variability in existing data sets and isolating the causes, if any, that contribute to long-term post-system mortality.	Hydro	Columbia Gorge	COLUMBIA GORGE	
9	Bonneville 2nd Powerhouse FGE Improvements	Evaluate modifications to improve guidance into the B2 bypass system. Testing will be initiated in FY 01. Outyear costs assume successful testing in 01 and 02 and initiation of permanent modifications begin in FY04.	Hydro	Columbia Gorge	COLUMBIA GORGE	Improve survival of juvenile salmonids at mainstem dams
84	Investigate surface bypass RWSW at McNary Dam & install the unit in multiple spillways as warranted	Placeholder	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
50	Adult Pit Tag Monitoring @ Bonneville, The Dalles , and John Day	Develop, install and evaluate adult PIT-tag program in adult fishways.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
45	John Day Ladder Temperature Project	Determine effects of varying temperatures on fish passage at John Day fishways. Outyear placeholder funds for yet to be determined corrective action, if necessary.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	Improve survival of adult salmonids at mainstem dams
28	McNary Juvenile Fish Facility Debris	Implement various actions to reduce and alleviate debris accumulations and problems.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	Improve survival of juvenile salmonids at mainstem dams
74	John Day Spill/Survival Studies	Continue evaluations of spill passage efficiencies and project survival ,including 12-hour vs. 24-hr spill comparisons.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	
75	John Day Surface Bypass/Removable Spillway Weir/Flow Deflectors	Develop, install and test a RSW surface bypass prototype in spillbay 20, including an extended deflector in that bay. Also construct an additional deflector in bay 1. Outyear costs for permanent surface bypass system dependent on test results.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	
44	John Day Salmonid Holding and Jumping Project	Determine cause of holding and jumping behavior in the south fishladder and the transition pool. Design, install and evaluate corrective actions.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	Improve survival of adult salmonids at mainstem dams
43	John Day North Shore - Adult Fishway Auxiliary Water Supply	Design corrective actions to auxiliary water supply to bring into compliance with flow criteria. Outyear construction costs are placeholder amounts. Corrective actions have not been identified.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	
31	McNary Spillway Survival Study	Evaluate spillway efficiency and effectiveness and spillway deflector optimization	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
40	McNary/Ice Harbor Adult Fallback Project	Evaluate alternatives for removal of adults from collection channel. Implement recommended alternative at both projects.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	Improve survival of adult salmonids at mainstem dams
27	McNary Cylindrical Dewatering Prototype Evaluations	Complete biological testing. Complete Feasibility Study to determine application at other collector projects.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	Improve survival of juvenile salmonids at mainstem dams

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
51	McNary Adult Pit Tag Program	Install Adult PIT tag detection systems in both fish ladders.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
37	McNary outfall evaluation	TBD	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	
36	John Day Extended Length Screens	Continue testing and development of extended screens to resolve guidance, gatewell mortality, and debris issues. Outyear costs assume decision to proceed with permanent construction is made in FY 03.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	
17	McNary Extended Submerged Bar Screens	Series of minor improvements to improve reliability and operability of the screens.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	Improve survival of juvenile salmonids at mainstem dams
35	McNary Gas Fast Track Deflectors	Design modifications and install deflectors to allow for higher spill levels for passing juveniles while staying below TDG limits	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	
536	Juvenile Salmon Transportation Evaluations	This work focuses on determine the absolute and comparative adult return rates of smolts transported from Lower Granite and McNary to smolts that complete their outmigration within the river.	Hydro	Columbia Plateau	COLUMBIA LOWER MIDDLE	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
64	Five-Year Water Management Plan (5-WMP)	Several water management initiatives included in the BiOP have a long-term nature and in some cases will require several years to initiate. These items are described individually below and will be included in the 5-year Water Management Plan.	Hydro	Columbia Plateau	COLUMBIA MAINSTEM	
68	Banks Lake Drawdown Study	The Banks Lake Drawdown study will examine the effects of an additional 5' reduction in the surface elevation of the reservoir during the month of August. This would reduce the amount of water pumped into Banks Lake by about 130 kaf.	Hydro	Columbia Plateau	CRAB	Provides more consistent water levels required for spawning, rearing, passage, etc.
60	Adult PIT tag monitoring- Snake River projects	TBD	Hydro	Columbia Plateau	SNAKE LOWER	

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
26	Little Goose Pit-Tag System Modification	Series of modifications to improve Juvenile PIT-tag system.	Hydro	Columbia Plateau	SNAKE LOWER	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
49	Ice Harbor Adult Fishway Auxiliary Water Supply Project	Configure the adult fishway system with spare water capacity and improved electrical reliability.	Hydro	Columbia Plateau	SNAKE LOWER	Improve survival of adult salmonids at mainstem dams
48	Little Goose Adult Fishway Auxiliary Water Supply Project		Hydro	Columbia Plateau	SNAKE LOWER	
47	Lower Monumental Adult Fishway Auxiliary Water Supply Project		Hydro	Columbia Plateau	SNAKE LOWER	
46	Lower Granite Adult Fishway Auxiliary Water Supply Project		Hydro	Columbia Plateau	SNAKE LOWER	
24	Lower Granite Juvenile Bypass System	Complete Design Documentation Report (DDR). Prepare P&S and construct.	Hydro	Columbia Plateau	SNAKE LOWER	Improve survival of juvenile salmonids at mainstem dams
34	Little Goose Gas Fast Track Deflectors	Design modifications and install deflectors to allow for higher spill levels for passing juveniles while staying below TDG limits	Hydro	Columbia Plateau	SNAKE LOWER	
54	Fish Ladder Temperature Evaluation	Compile existing data on temperature gradients and salmonid behavior. Make decisions on need for additional data or further project specific evaluations.	Hydro	Columbia Plateau	SNAKE LOWER	Improve survival of adult salmonids at mainstem dams
56	Adult Fish Transition Pool Evaluations	Investigate the factors that stimulate the adult salmon to turn around in transition pool area and evaluate solutions to this problem	Hydro	Columbia Plateau	SNAKE LOWER	
86	Consider turbine design technology to decrease fish injury at The Dalles & Ice Harbor	Placeholder	Hydro	Columbia Plateau	SNAKE LOWER	
40	McNary/Ice Harbor Adult Fallback Project	Evaluate alternatives for removal of adults from collection channel. Implement recommended alternative at both projects.	Hydro	Columbia Plateau	SNAKE LOWER	Improve survival of adult salmonids at mainstem dams

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
33	Lower Monumental Gas Fast Track Deflectors	Design modifications and install deflectors to allow for higher spill levels for passing juveniles while staying below TDG limits	Hydro	Columbia Plateau	SNAKE LOWER	Improve survival of juvenile salmonids at mainstem dams
25	Lower Monumental Juvenile Bypass System Outfall	Complete investigation to determine more desirable outfall location. Relocate existing outfall if determined necessary.	Hydro	Columbia Plateau	SNAKE LOWER	
16	Lower Monumental Extended Submerged Bar Screens	Initiate work to implement extended screens, including modeling, prototype testing, and installation.	Hydro	Columbia Plateau	SNAKE LOWER	
30	Ice Harbor Spillway Survival Study	Evaluate passage distribution; spillway survival; adult passage rates; and spill effectiveness and efficiency.	Hydro	Columbia Plateau	SNAKE LOWER	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
18	Lower Snake River Juvenile Bypass System Improvements	An engineering and biological assessment of the operational performance of each of the four lower Snake River project's JBS's will be completed.	Hydro	Columbia Plateau	SNAKE LOWER	
15	Lower Granite Extended Submerged Bar Screens	Series of minor improvements to improve reliability and operability of the screens.	Hydro	Columbia Plateau	SNAKE LOWER	Improve survival of juvenile salmonids at mainstem dams
85	Investigate surface bypass RWSW at Lower Monumental Dam and install the unit in multiple spillways	Placeholder	Hydro	Columbia Plateau	SNAKE LOWER	
29	Little Goose Trash Boom	Determine the effect of the trash boom on the abundance and distribution of predatory resident fishes in the forebay.	Hydro	Columbia Plateau	SNAKE LOWER	Improve survival of salmonids by controlling predation
13	Lower Granite Surface Bypass and Collection	Test the concept of Raised Spillway Weir (RSW) in 2002. Assess need for future testing and application to other projects.	Hydro	Columbia Plateau	SNAKE LOWER	Improve survival of juvenile salmonids at mainstem dams
536	Juvenile Salmon Transportation Evaluations	This work focuses on determine the absolute and comparative adult return rates of smolts transported from Lower Granite and McNary to smolts that complete their outmigration within the river.	Hydro	Columbia Plateau	SNAKE LOWER	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.

Project ID	Project Title	Project Description	H-Sector	Province	Subbasin	Biological Rationale
535	Water Quality Effects on Bull Trout Survival Near Hydro-projects	Evaluate the effect of critical water quality parameters on distribution of bull trout including temperature, turbidity, and total dissolved gas concentrations and distribution between Lower Monumental and Lower Granite dams	Hydro	Columbia Plateau	SNAKE LOWER	Improve water quality (lower levels of dissolved gases and temperatures) to enhance fish passage.
14	Little Goose Extended Submerged Bar Screens	Series of minor improvements to improve reliability and operability of the screens.	Hydro	Columbia Plateau	SNAKE LOWER	Improve survival of juvenile salmonids at mainstem dams
526	By January 2003, develop an analysis on ESBS's vs. RSW's at Lower Monumental	Complete modeling, biological analysis, develop alternatives, develop cost information. Make recommendations.	Hydro	Columbia Plateau	SNAKE LOWER	Provides more consistent water levels required for spawning, rearing, passage, etc.
537	Bull Trout Distribution, Timing, and Usage of the Lower Snake River Reservoirs	Little is known regarding the number of mainstem moving bull trout, their distribution criteria, or their survival through the FCRPS. Taggi bull trout and monitor their movements downriver and upriver through the FCRPS and critical tributaries	Hydro	Columbia Plateau	SNAKE LOWER	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
64	Five-Year Water Management Plan (5-WMP)	Several water management initiatives included in the BiOP have a long-term nature and in some cases will require several years to initiate. These items are described individually below and will be included in the 5-year Water Management Plan.	Hydro	Columbia Plateau	SNAKE MAINSTEM	
88	COE to develop and construct spillway deflectors at Chief Joseph Dam to minimize TDG.	Placeholder	Hydro	Intermountain	COLUMBIA UPPER	
531	Columbia Falls Reinforcement	Actions to reinforce transmission capacity from Hungry Horse Dam during lightning storms.	Hydro	Mountain Columbia	FLATHEAD	Provides more consistent water levels required for spawning, rearing, passage, etc.
533	West Of Hatwaii Transmission Reinforcement	Transmission reinforcement project that provides increased transmission capacity from Libby and Hungry Horse Dams to the West.	Hydro	Mountain Columbia	FLATHEAD	

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527	Ensure that Hungry Horse refills in a timely manner without spill that causes excessive TDG	Reclamation annually prepares a maintenance plan for generator outages. The plan is part of Reclamation's annual PNCA planning February 1 data submittal. Reclamation will provide a copy of the submittal to NMFS and modify it if needed	Hydro	Mountain Columbia	FLATHEAD	Provides more consistent water levels required for spawning, rearing, passage, etc.
89	Investigate TDG abatement at Libby Dam and installation of spillway deflectors /additional turbines	Placeholder	Hydro	Mountain Columbia	KOOTENAI	
80	Develop, and implement a revised storage plan for Libby reservoir		Hydro	Mountain Columbia	KOOTENAI	
78	Modify water supply to the Dworshak NFH while maintaining discharges of Dworshak cold water		Hydro	Mountain Snake	CLEARWATER	
55	Adult Temperature Evaluation	Gather baseline data on temperature exposure to adult fish passing through the fishways, dams and hydrosystem, and the behavioral responses.	Hydro	Mountain Snake	CLEARWATER	Improve survival of adult salmonids at mainstem dams
90	COE to investigate TDG abatement at Dworshak Dam and implement options as warranted.	Placeholder	Hydro	Mountain Snake	CLEARWATER	
538	Dworshak Reservoir Bull Trout Distribution to North Fork of the Clearwater River	Radio telemetry will be used to characterize the basic biology, seasonal distribution, abundance, spawning timing and sites, and migration range of bull trout in the Dworshak reservoir and associated tributaries.	Hydro	Mountain Snake	CLEARWATER	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
19	Multiple Bypass Accumulative Impacts	Investigate factors that may cause additional mortality due to accumulative stress, injury and predation of fish that pass through multiple juvenile bypass systems.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
20	Separator Evaluation	Make minor upgrades to existing separator system to make it an operating system. Provide a final report of the multi year evaluation.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	

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21	Juvenile Salmon Temperature Studies	Correlate temperature profile data with sonic tag information for juvenile migrants to estimate mortality from the range of temperature during in-river migration, bypass and transportation.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Improve survival of juvenile salmonids at mainstem dams
23	Turbine Passage Survival Program	Investigate turbine passage and survival and potential improvements. Includes turbine environment, draft tubes, and d/s gate slot issues. Addresses juvenile passage and adult fallback and Kelt passage issues	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
69	VARQ Flood Control Operation	VARQ reduces system flood control drafts at Hungry Horse and Libby in average and below-average water years. This can result in increased spring and summer flows in the Columbia River without significantly increasing risk of flooding.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Provides more consistent water levels required for spawning, rearing, passage, etc.
59	Investigate adult headburn	TBD	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
79	Feasibility analysis of flood operations to benefit Columbia River ecosystem and salmon.	Placeholder	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
81	Investigate attraction of listed fish into wasteways from the Columbia Basin Project		Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
76	Agreements for uncontracted water or storage space at Bureau reservoirs		Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
87	Salmonid predation studies as required		Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
70	Water Quality Plan, 1-Year	The AA's through the Water Quality Team also develops an annual Water Quality Plan (WQP). The 5-Year has a longer range focus and describes advance planning measures to both improve survival rates for listed species and achieve compliance.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Improve water quality (lower levels of dissolved gases and temperatures) to enhance fish passage.

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83	Investigate water quality of each point of return flows from the Columbia Basin Project	Placeholder	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
66	Report on Unauthorized Use of BOR Water	This action item recognizes that the unauthorized uses of Reclamation supplied water are activities neither authorized, funded, nor carried out by Reclamation. Nevertheless, as part of its ongoing activities in water rights adjudications.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Provides more consistent water levels required for spawning, rearing, passage, etc.
65	BOR Water Conservation Improvements	Reclamation is currently evaluating prospective water conservation activities from the perspective of benefits to listed species. Reclamation has an existing water conservation staff dedicated to promoting the efficient use of water.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
63	Annual Water Management Plan (1-WMP)	Develop an annual Water Management Plan. The plan is coordinated with NMFS, USFWS, the States and Tribes. The 1-WMP describes pre-season planning priorities, refill and drafting priorities at storage projects, and flow and spill options.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
61	Fish Passage Plan (FPP)	The COE in coordination with PA, Fish Agencies, Indian Tribes and others. The Fish Passage Plan documents agreements that result from these discussions. The FPP provides operating instructions for such activities as fish passage facilities, etc.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
71	Water Quality Plan, 5-Year	The AA's through the Water Quality Team develops a 5-Year Water Quality Plan. The plan the upcoming years dissolved gas management plan, the dissolved gas and temperature monitoring program, a quality assurance and quality control program.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Improve water quality (lower levels of dissolved gases and temperatures) to enhance fish passage.
534	Report on new non-hydro generation resources	Annual Report to NMFS on proposed transmission line reinforcements associated with proposed new energy resources and their effects on hydro system operations.	Hydro	Systemwide	COLUMBIA BASIN SYSTEMWIDE	Provides more consistent water levels required for spawning, rearing, passage, etc.

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52	Adult Upstream Migration Studies	Ongoing adult migration studies to include: straying; temperature effects; unaccounted loss; fallback; entrainment in juvenile bypass systems; survival and reproductive fitness; Pacific lamprey; turbine and spillway passage; and migratory delay.	Hydro	Systemwide	COLUMBIA MAINSTEM	
77	Site specific consultations for BOR projects located downstream from Chief Joseph Dam	Placeholder	Hydro	Systemwide	COLUMBIA MAINSTEM	
22	Evaluation of Transportation Strategies	Evaluate post-release survival, behavior, migration characteristics and habitat use of juvenile salmon through the estuary, plume and near shore environment	Hydro	Systemwide	COLUMBIA MAINSTEM	It is essential to establish baseline data, monitor progress, and maintain improvements if salmon recovery goals are to be met.
62	One and Five-Year Operations and Maintenance Plan and Budget	The COE and BPA annually prepare a 1 & 5-Year Operations and Maintenance Plan for facilities at FCRPS dams. Regional coordination on these plans is done through the Fish Passage Operations and Maintenance Team (FPOM).	Hydro	Systemwide	COLUMBIA MAINSTEM	
			Hydro	Systemwide	SNAKE MAINSTEM	
53	Kelt Studies	Evaluation of survival through Snake River; transportation studies; adult monitoring	Hydro	Systemwide	SNAKE MAINSTEM	Improve survival of adult salmonids at mainstem dams
67	Water Acquisition from Reclamation's Upper Snake River Basin Projects	Reclamation continues efforts that have been ongoing since 1993 to acquire water from willing sellers to augment Snake River flows. Reclamation and NMFS are presently in active discussions about flow augmentation needs with the state of Idaho.	Hydro	Systemwide	SNAKE RIVER BASIN	Provides more consistent water levels required for spawning, rearing, passage, etc.
82	BOR shall install screens at the canal intakes to Burbank #2 and #3 pump plants.	Placeholder	Hydro	Unknown	UNKNOWN	
532	Schultz-Hanford Transmission Reinforcement	Transmission reinforcement project that enhances spring/summer water management flexibility.	Hydro	Unknown	UNKNOWN	Provides more consistent water levels required for spawning, rearing, passage, etc.

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384	Evaluate lambda for each ESU	Initiate at least three tier 3 studies (each comprising several sites) within each ESU (a single action may affect more than one ESU). At least more two studies focusing on each major management action must take place within the Columbia Basin	RME			
382	Staffing of TRTs	The Action Agencies and NMFS shall work with affected parties to establish regional priorities within the congressional appropriations processes to set and provide the appropriate level of FCRPS funding to develop recovery goals for listed salmon ESUs	RME			
437		Model operation changes as well as conducting IFIM studies in the Flathead. It also collects biological information during those changes in operations.	RME			
381	Produce population products necessary for the implementation of the RPAs	The Action Agencies and NMFS shall work with affected parties to establish regional priorities within the congressional appropriations processes to set and provide the appropriate level of FCRPS funding to develop recovery goals for listed salmon ESUs	RME			
380	Produce maps and descriptions of significant geographic features	Collect or produce appropriate maps and descriptions of the significant environmental ecoregions, geologic provinces, land tuypes, ownership, fish and wildlife distribution, other habitat features, etc.	RME			
379	Acquire and digitize aerial or satellite imagery	The Action Agencies and NMFS shall work within regional prioritization and congressional appropriations processes to establish and provide the appropriate level of FCRPS funding for a program to acquire and digitize aerial or satellite imagery	RME			
404	Study of fish use of plume	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to provide the appropriate level of FCRPS funding for studies to develop an understanding of juvenile and adult salmon use of the Columbia plume	RME			

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378	Implement Regional Monitoring Program	The Action Agencies and NMFS shall work within regional prioritization and congressional appropriation processes to establish and provide the level of FCRPS funding to implement a hierarchical monitoring program sufficient to assess performance standards.	RME			
377	Develop Regional Protocols for Data Collection	The Action Agencies and NMFS shall work within regional prioritization and congressional appropriation processes to establish and provide the level of FCRPS funding to develop a basinwide hierarchical monitoring program. The program will include protocol	RME			
436		Model operation changes as well as conducting IFIM studies in the Flathead. It also collects biological information during those changes in operations.	RME			
392	Fish Marking and Recapture Studies	The Action Agencies shall continue to fund and expand, as appropriate, fish marking and recapturing programs aimed at defining juvenile migrant survival for both transported and nontransported migrants and adult returns for both groups.	RME			
441	Acquire and Digitize aerial or satellite imagery	The Action Agencies and NMFS shall work within regional prioritization and congressional appropriations processes to establish and provide the appropriate level of FCRPS funding for a program to acquire and digitize aerial or satellite imagery	RME			
394	Ocean Entry Timing, Transported and In-river Migrants	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for studies and analyses to evaluate ocean entry timing	RME			

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395	Lower River PIT-tag studies	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for studies of PIT-tagged wild stocks from the lower river streams.	RME			
396	Passage History Analysis	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for studies to investigate the causes of discrepancies in adult return rates	RME			
400	Investigation of novel fish detection and tagging techniques	The Action Agencies shall investigate state-of-the-art, novel fish detection and tagging techniques for use, if warranted, in long-term research, monitoring, and evaluation efforts.	RME			
401	Physical model of plume	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for studies to develop a physical model of the lower Columbia River and plume.	RME			
402	Post-Bonneville mortality studies	The Action Agencies shall investigate and partition the causes of mortality below Bonneville Dam after juvenile salmonid passage through the FCRPS.	RME			
403	Study of fish use of estuary and restoration opportunities	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to provide the appropriate level of FCRPS funding for studies to develop an understanding of juvenile and adult salmon use of the Columbia estuary	RME			
393	Identifications of D ant its Causes	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for comparative evaluations of the behavior and survival of transported fish	RME			

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406	Implement Common Regional Data Link or Database Methodology	The Action Agencies will create a regional data link or database for the purpose of environmental research, monitoring and evaluation.	RME	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
415	Produce information on the migrational characteristics of Columbia & Snake river salmon & steelhead		RME	Systemwide	COLUMBIA BASIN SYSTEMWIDE	
405	Determine Common Regional Data Link or Database Methodology	The Action Agencies will convene a committee composed of representatives from federal, state, tribal and local governments in the PNW to explore a regional data link or database for the purpose of environmental research, monitoring and evaluation.	RME	Systemwide	COLUMBIA BASIN SYSTEMWIDE	