

Biological Benefits of Hatchery Actions in LRT MOA									
Population	MOA Project Title	Proposed Hatchery Action	Course Screen Categorization	VSP Parameters Positively Affected				Summary of Potential Benefits (L,M,H)	Timeframe to Implement and benefit to be realized
				A	P	SS	D		
Lower Columbia Spring Chinook ESU Hatchery Benefits Summary									
Hood River	Master plan expansion and tributary weir development for hood river facility (Capital & O&M); Hood River Production O&M	Release up to 200k smolt for harvest augmentation and supplementation. Release up to 200 k smolt from 1 acclimation site in West Fork Hood River.	Group A Category 2	X		X		H -Produce approx. 2000 adults for harvest, brood stock and supplementation Important to maintaining naturally spawning population and tribal harvest opportunities.	Revised Master Plan and HGMP submitted spring, 2008. Parkdale hatchery improvements and one new acclimation site and two trapping facilities proposed to come on line during 2010 Ongoing program releases 125k smolt at 2 sites in West Fork Hood River and 1 site in Rogers Creek
Lower Columbia Steelhead ESU Hatchery Benefits Summary									
Hood River (winter)	Hood River Production O&M	Release up to 50k StW smolt for supplementation. Release at one acclimation site in East Fork Hood River and one site in Middle Fork. 2% SAR	Group A Category 3	X		X		H - Produce approx. 1000 adults for harvest and supplementation. Important to maintaining naturally spawning population and tribal/sport harvest opportunities.	Program is on-going

Mid Columbia Steelhead ESU Hatchery Benefits Summary									
Klickitat River	Klickitat Fishery YKFP Design (Capital & Expense) & O&M	Construct trap at Lyle Falls to collect local broodstock:Reconstruct Lyle Falls Fishway & Trap to meet Fed and State criteria.	Group A Category 3	X	X	X	X	H- Improves passage at Lyle Falls. Adds monitoring and steelhead broodstock capabilities for a newly developed conservation/integrated hatchery program. Install video digital imagery and PIT tag detection equipment to monitor escapement. Allows collection of wild brood per prudent HSRG/ YKFP protocols.	Design 90% complete. EIS process underway (dEIS issued March 2008). Final EIS and Permitting 0.75 years away. Possible construction mid 2008(9). Steelhead return 3-4 years post implementation.
	Klickitat Fishery YKFP Design (Capital & Expense) & O&M	Klickitat Hatchery Upgrades to reprogram 120,000 Skamania to local origin	Group A Category 3	X	X		X	H - Upgrade existing Klickitat Hatchery infrastructure (circa 1949) to incorporate YKFP/HSRG hatchery reforms for new conservation/integrated steelhead hatchery program using optimal rearing densities, increased adult holding capacity. Benefits allow for phased elimination of Skamania hatchery stock, which will help improve the native stock productivity, while continuing economically vital sports harvest in local community.	Preliminary Assessment completed. Final design, EIS, and permitting within 1.5 years. Full construction over a period of 3 years. Infrastructure to initiate test of initial phase (10+ wild steelhead) anticipated within 2 years. Steelhead return 3-4 years post implementation.
	Klickitat Fishery YKFP Design (Capital & Expense) & O&M	Castile Trap & Counting Station: Construct Castile Falls Counting Station and Trap in newly re-constructed Castile Falls Fishway; Install video digital imagery and PIT tag detection equipment to monitor escapement		X	X	X		H- Augments broodstock collection from Lyle Falls for 1 st and 2 nd phase of steelhead conservation/integrated hatchery program. Recent fishway improvements at Castile Falls opens aprx. 50 miles of high quality spawning and rearing habitat which will increase abundance and spatial structure.	Design 90% complete. BPA completing NEPA - Categorical Exclusion by 6/07. Tribal water code permits 2-mths. Construction of structure and PIT antenna approximately 4-mths. Steelhead return 3-4 years post implementation.

Upper Yakima & Naches	Yakima steelhead - acclimation facilities (Capital and O&M)	Construct acclimation sites adjacent to habitat improvement areas of emphasis and in tributaries where passage problems have been alleviated	Group A Category 4	X	X	X		M - distributes hatchery production to natural habitats capable of supporting natural spawning in conjunction with habitat improvement and in areas where tributary access has been restored	Acclimation sites may be subject to permitting; NOH adults return within 5 yrs of funding, F2 natural smolts emigrate within 7 yrs of funding.
	Program coordination & administration	Program coordination, administration, and data management functions for program implementation	Group A Category1						
	Recondition Wild Steelhead Kelt (and Evaluate their reproductive success)	Continue kelt reconditioning program and investigate reproductive success	Group A Category1	X	X		X	H - reduces high mortalities on repeat spawners and may rapidly increase abundance & productivity of natural spawning population	On-going pilot program. Annual escapements bolstered by 3-5% based on results to date. Long term benefits to be determined from reproductive success study. Study results available in two years for smolt production from reconditioned spawners and 5 years for adult returns.
Umatilla River	Umatilla Fish Passage Operations*; Umatilla Hatchery Satellite Facilities O&M**	Collect and transport broodstock (*), and provide eggs and acclimate smolts (**) for current program that uses local broodstock to produce 150,000 smolts released at three locations in the mid/upper Umatilla Subbasin		X	X	X	X	H - distributes hatchery production to natural habitats capable of supporting natural spawning in conjunction with habitat improvement actions. Also provides significant in-basin harvest.	Ongoing
Walla Walla River	Walla Walla Steelhead Supplementation Hatchery O&M	Initiate local broodstock program of 50K smolts - 25K direct stream released in both upper Walla Walla River and Mill Ck		X	X	X	X	H - distributes hatchery production to natural habitats capable of supporting natural spawning in conjunction with habitat improvement actions.	Brood could be collected in 2008. F1 returns would begin in 2011, F2 natural smolt emigration would begin in 2013.

Upper Columbia Spring Chinook ESU Hatchery Benefits Summary									
Wenatchee River	Wenatchee spring Chinook - Chiwawa River & Nason Ck acclimation - operate acclimation facilities (Capital & OM)	Construct semi-natural acclimation sites in upper Chiwawa River and upper Nason Creek in coordination with anticipated habitat improvements.	Supplementation Group A Category 3	X		X		M- Important in maximizing utilization of available spawning habitat in these 2 basins. Will also enhance spatial structure.	Acclimation sites may be subject to permitting; Adults return within 5 yrs of funding, F2 natural smolts emigrate within 7 yrs of funding.
	Wenatchee spring Chinook - Peshastin 100K smolts - operate acclimation facility (Capital & OM)	Develop incubation and rearing for 100k smolts to be released from acclimation sites in Peshastin Creek in coordination with habitat actions. Collect broodstock at Tumwater Dam or Peshastin Cr.	Supplementation Group B Category 3	X		X	X	M- Important in maximizing utilization of available spawning habitat. Will enhance spatial structure and diversity by restoring production to vacant habitat. 100-1,000 natural spawners at current SARs.	Incubation and rearing may be available currently; otherwise, construction could take two years. Acclimation sites may be subject to permitting; Adults return within 5 yrs of funding, F2 natural smolts emigrate within 7 yrs of funding.
	Upper Columbia spring Chinook - nutrient supplementation	Use nutrient analogs in upper watershed.	Group A Category 3	X	X			L - low-cost method to increase food production; intended to increase egg-smolt survival	Improves overwinter survival of juveniles. Can be implemented immediately, benefits accrue immediately.
	Wenatchee spring Chinook - Little Wenatchee 150K smolts - operate (Capital & OM)	Develop incubation and rearing for 150k smolts to be released from acclimation sites in Little Wenatchee River.	Supplementation Group B Category 3	X		X	X	M- Important in maximizing utilization of available spawning habitat. Will enhance spatial structure and diversity by restoring production to vacant habitat. 150-1,500 natural spawners at current SARs.	Incubation and rearing may be available currently; otherwise, construction could take two years. Acclimation sites may be subject to permitting; Adults return within 5 yrs of funding, F2 natural smolts emigrate within 7 yrs of funding.
Entiat River	Upper Columbia spring Chinook - nutrient supplementation	Use nutrient analogs in upper watershed.	Group B Category 4	X	X			L - low-cost method to increase food production; intended to increase egg-smolt survival	Improves overwinter survival of juveniles. Can be implemented immediately, benefits accrue immediately.

Methow River	Methow spring Chinook - Methow, Twisp, Chewuch acclimation - operate facilities (Capital & OM)	Construct semi-natural acclimation sites adjacent to habitat improvement areas of emphasis in the upper Methow, Twisp, and Chewuch watersheds.	Group B Category 3	X	X	X		M - distributes hatchery production to natural habitats capable of supporting natural spawning in conjunction with habitat improvement actions.	Acclimation sites may be subject to permitting; NOH adults return within 5 yrs of funding, F2 natural smolts emigrate within 7 yrs of funding.
	Upper Columbia spring Chinook - nutrient supplementation	Use nutrient analogs in upper watershed.	Group A Category 3	X	X			L - low-cost method to increase food production; intended to increase egg-smolt survival	Improves overwinter survival of juveniles. Can be implemented immediately, benefits accrue immediately.
Upper Columbia Steelhead ESU Hatchery Benefits Summary									
Wenatchee River	Wenatchee steelhead - Wenatchee, Peshastin, Chumstick, Mission acclimation - operate facilities (Capital & OM)	Construct semi-natural acclimation sites adjacent to habitat improvement areas of emphasis in the upper Wenatchee watershed, Peshatin, Chumstick, and Mission creeks.	Group A Category 3	X	X	X		M - distributes hatchery production to natural habitats capable of supporting natural spawning in conjunction with habitat improvement actions.	Acclimation sites may be subject to permitting; NOH adults return within 5 yrs of funding, F2 natural smolts emigrate within 7 yrs of funding.
	Upper Columbia Steelhead Kelt Reconditioning	Develop kelt reconditioning program using RID, PRD and wild broodstock collections.	Group A Category 4	X			X	H - reduces high mortalities on repeat spawners and may rapidly increase the abundance of natural spawners in the natural escapement	200 wild kelts taken at RIS, PRD, and recovered after use as broodstock may produce 175-575 wild adult offspring at current SARs.
	Upper Columbia steelhead - nutrient supplementation	Use nutrient analogs in upper watershed.	Group A Category 3	X	X			L - low-cost method to increase food production; intended to increase egg-smolt survival	Improves overwinter survival of juveniles. Can be implemented immediately, benefits accrue immediately.
Entiat River	Upper Columbia Steelhead Kelt Reconditioning	Reprogram Entiat NFH to support UCR kelt reconditioning.	Group A Category 2	X			X	H - reduces high mortalities on repeat spawners and may rapidly increase the abundance of natural spawners in the natural escapement	200 wild kelts taken at RIS, PRD, and recovered after use as broodstock may produce 175-575 wild adult offspring at current SARs.

	Upper Columbia steelhead - nutrient supplementation	Use nutrient analogs in upper watershed.	Group A Category 3	X	X			L - low-cost method to increase food production; intended to increase egg-smolt survival	Improves overwinter survival of juveniles. Can be implemented immediately, benefits accrue immediately.
Methow River	Upper Columbia Steelhead Kelt Reconditioning	Develop kelt reconditioning program using Wells and RRD broodstock collections.	Group A Category 3	X			X	H - reduces high mortalities on repeat spawners and may rapidly increase the abundance of natural spawners in the natural escapement	100 wild kelts collected at Wells, RRD, and recovered from broodstock may produce 85-290 wild adult offspring at current SARs.
	Methow steelhead - Methow, Twisp, Chewuch acclimation (Capital and O&M)	Construct semi-natural acclimation sites adjacent to habitat improvement areas of emphasis in the upper Methow, Twisp, and Chewuch watersheds.	Group A Category 3	X	X	X		M - distributes hatchery production to natural habitats capable of supporting natural spawning in conjunction with habitat improvement actions.	Acclimation sites may be subject to permitting; NOH adults return within 5 yrs of funding, F2 natural smolts emigrate within 7 yrs of funding.
	Methow steelhead - reprogram Winthrop for release of 100k smolts in upper watershed	Reprogram Winthrop NFH on-station release of 100k smolts to acclimated releases in upper watershed	Group B Category 1	X			X	M - distributes hatchery production to natural habitats; increases natural spawner abundance, spatial diversity, and potential for local adaptation.	Adults return to spawning grounds within 1-3 yrs of release; F2 natural smolts emigrate within 5 yrs of initial action.
	Upper Columbia steelhead - nutrient supplementation	Use nutrient analogs in upper watershed.	Group A Category 3	X	X			L - low-cost method to increase food production; intended to increase egg-smolt survival	Improves overwinter survival of juveniles. Can be implemented immediately, benefits accrue immediately.
Snake River Spring Chinook ESU Hatchery Benefits Summary									

Upper Grande Ronde	Snake River Safety Net Program	Initiate a small scale "safety net" program for these three individual stocks in order to provide a production source in extreme low run years	New project - Not in Coarse Screen list	X		X	X	H - these two populations experienced conditions which necessitated implementation of captive broodstock programs in the 90's and have a TRT A/P rating of "High Risk". By maintaining a small scale captive brood program with each of these stocks it would provide an immediate production source in case run levels return to those observed in the 90's.	All three of these stocks have ongoing captive brood programs associated with them but are in various stages of being phased out. Maintain captive programs at the 100 fish/brood year level.
	Grande Ronde Supplementation Operations and Maintenance	Assist in captive brood par collection and provide in-basin smolt acclimation for partnership project that continues captive broodstock smolt production for Upper Grande Ronde and Catherine Creek until phased out by comanagers.	Safety Net - Group A, Category 2	X		X	X	H - Important to sustaining population and increasing abundance. Benefit is to ESA listed population. This population is at high risk of extinction with low productivity and abundance.	During term of BiOp - First release of juveniles in 2000. F1 return in 2002, F2 adults begin return in 2006-07
	Grande Ronde Supplementation Operations and Maintenance	The MOA Project provides a critical element of the overall actions benefitting this population by collecting broodstock and providing in basin smolt acclimation for partnership project that continues conventional broodstock smolt production for Upper Grande Ronde.	Supplementation - Group A, Category 2	X		X	X	H - Important to sustaining population and increasing abundance. Benefit is to ESA listed population. Increases abundance of fish spawning naturally. Operates weir for collection of conventional broodstock (hatchery and natural) and acclimation facility for juveniles.	During term of BiOp - First release of juveniles in 2000. F1 adults began returning in 2002. F2 adults begin return in 2006-07.

	Grande Ronde Supplementation Operations and Maintenance	The MOA Project provides a critical element of the overall actions benefitting this population by collecting broodstock and providing in basin smolt acclimation for partnership project that implements NEOH.	Supplementation - Group A, Category 3	X		X	X	L to M - increases abundance of UGR production by 10,000. Improves hatchery rearing environment. This project will improve rearing conditions by freeing up space at Lookingglass Hatchery - fish will no longer have to be transported to Bonneville, Irrigon for rearing. Rearing of captive broodstock progeny will also benefit. Increases abundance of fish spawning naturally.	During term of BiOp - Construction complete by 2009. BY09 would return F1 adults in 2013. F2 adults would return in 2015-17
Catherine Creek	Snake River Safety Net Program	Initiate a small scale "safety net" program for these three individual stocks in order to provide a production source in extreme low run years	New project - Not in Coarse Screen list	X		X	X	H - these two populations experienced conditions which necessitated implementation of captive broodstock programs in the 90's and have a TRT A/P rating of "High Risk". By maintaining a small scale captive brood program with each of these stocks it would provide an immediate production source in case run levels return to those observed in the 90's.	All three of these stocks have ongoing captive brood programs associated with them but are in various stages of being phased out. Maintain captive programs at the 100 fish/brood year level.
	Grande Ronde Supplementation Operations and Maintenance	Assist in captive brood par collection and provide in-basin smolt acclimation for partner project that continues captive broodstock smolt production for Upper Grande Ronde and Catherine Creek until phased out by comanagers.	Safety Net - Group A, Category 2	X		X	X	H - increases abundance of integrated population and fish spawning naturally, lowers risk of extinction. Benefit is to ESA listed population. This population is at high risk of extinction with low productivity and abundance.	During term of BiOp - First release of juveniles in 2000. F1 return in 2002, F2 adults begin return in 2006-07.

Lookingglass Creek	Grande Ronde Supplementation Operations and Maintenance	The MOA Project may contribute to the overall actions benefitting this population by collecting broodstock for this partnership program that implements NEOH. NEOH will include about 400,000 more smolts for total program of 1.4M and implements operational improvements that improve hatchery survival. Target use of up to 250,000 of these hatchery parr/smolts for use into Lookingglass Creek using Catherine Creek stock. Constructs new hatchery on Lostine River, modifies Lostine River weir and modifies Imnaha satellite facility.	Supplementation - Group A, Category 3	X		X	X	H - increases abundance of integrated population and fish spawning naturally, reintroduction of Lookingglass population - increases spatial structure of MPG. Increases production 250,000 smolts. Benefit is to ESA listed MPG - reintroduction and restoration of functionally extirpated population.	D - Construction complete by 2009. BY09 would return F1 adults in 2013. F2 adults begin return in 2015-17
Snake River Steelhead ESU Hatchery Benefits Summary									
Average "B" population									
Average "A" population									
	Snake River Kelts (Capital & Expense)	Expand the kelt reconditioning program and research activities into the Snake River	Group A Category1	X	X		X	H - reduces high mortalities on repeat spawners and may rapidly increase abundance & productivity of natural spawning population. Maintains the natural life-history trait.	Based on the on-going Yakima River pilot program results. Annual escapements improvements are estimated at 3-5% . Long term benefits to be determined from reproductive success study.
Snake River Fall Chinook ESU Hatchery Benefits Summary									

Snake River	Snake River fall Chinook - modify ponds @ Lyons Ferry to improve adult holding	Modify adult holding ponds at Lyons Ferry Hatchery to increase fall Chinook brood holding capacity and flexibility. LSRCP program. Supported by local co-managers. Submitted by Umatilla.	Group A, Category 3					Facility improvement - should increase hatchery survival. Benefit is to ESA listed population and survival benefits could help achieve mitigation goals	During term of BiOp
<u>Non-ESA Species</u>									
Mid Columbia Spring Chinook ESU Hatchery Benefits Summary									
Klickitat River	Klickitat Fishery YKFP Design (Capital & Expense) & O&M	Integrate hatchery reform measures using local broodstock of Spring Chinook		X		X		Integrated spring Chinook production will increase abundance of natural spawners, associated ecological benefits, and Harvest. Recent fishway improvements at Castille Falls opens approx. 50 miles of high quality spawning and rearing habitat which will increase abundance and spatial structure.	
Deschutes River	White River Supplementation program (spring Chinook)	Raise approx. 300k smolts at WSNFH. Acclimate and release at one site in White River. Assume a SAR of 0.03%	Group B Category 3	X		X		M- Produces 500-1,000 fish for tribal harvest	Acclimation sites may require 2 years for permitting and construction. Will require construction of additional raceways at WSNFH
Umatilla River	Umatilla Fish Passage Operations*; Umatilla Hatchery Satellite Facilities O&M**	Collect and transport broodstock (*), and provide eggs and acclimate smolts (**) for current program that uses local broodstock to produce 810,000 smolts released into the upper Umatilla Subbasin		X	X	X	X	H - distributes hatchery production to natural habitats capable of supporting natural spawning in conjunction with habitat improvement actions. Also provides significant in-basin harvest.	Ongoing

Walla Walla River	NEOH Walla Walla Hatchery - Three Step Master Planning Process (capital); NEOH Walla Walla Hatchery - Three Step Master Planning Process (expense); NEOH Walla Walla Hatchery - Three Step Master Planning Process (O&M beginning in 2011); Umatilla Hatchery Satellite Facilities O&M*	Increase CHS program from 250K to 500K - build SFWW Hatchery and transfer program from LWS. Provide eggs and smolt acclimation for program once established (*)		X	X	X	X	H - enhances reintroduction effort for CHS in the Walla Walla Basin by increasing hatchery production available for natural spawning in near pristine habitat that is under seeded. Also anticipate an increase in SARs over existing out of basin direct stream release program by rearing fish in basin at a high water quality facility.	The WW Hatchery Master Plan has identified 2011 as the completion date for the hatchery. Brood year 2011 fish would be released in 2013 with adults returning from 2014-2016.
Columbia River Fall Chinook ESU Hatchery Benefits Summary									
Klickitat River	Klickitat Fishery YKFP Design (Capital & Expense) & O&M	of fall Chinook for a segregated hatchery program and transition releases releases into the lower basin to protect high quality spawning and rearing habitat in the mid basin for native spring chinook and steelhead.		X				Fall Chinook rearing and release at WHAF will reduce species interactions and ecological impacts on natural steelhead and spring chinook populations from harvest augmentation production	Transitioned in later years.
Lower Yakima	Yakima fall Chinook - JDM move 1.7M URBs from PR to Prosser - operate	Move 1.7m URB in JDM program from Priest Rapids Hatchery to the Prosser Hatchery and Acclimation Facility	Group B Category 4					Provides proven hatchery facility above McNary Dam to take over John Day Mitigation program that must be removed from PRH when new FERC license issued to Grant Co. PUD.	Immediate

<p>Lower Columbia River Chinook (Bonneville Pool Hatchery Fall Chinook) and Mid-Columbia Upriver Bright Fall Chinook</p>	<p>John Day Reprogramming and Construction</p>	<p>This project includes tribal participation in a multibenefit strategy for Columbia River fall Chinook production, ESA hatchery reform, and hydrosystem management including planning, improvements and operations needed to reprogram production at Spring Creek, Little White and Bonneville hatcheries and transition to long term in-place in-kind actions to mitigate impacts of spawning habitat lost from construction of John Day and The Dalles dams.</p>	<p>Group A Category 3</p>	<p>X</p>	<p>X</p>	<p></p>	<p>X</p>	<p>Because BPH Fall Chinook are the most representative of the historical Columbia Gorge tule population whose habitats were inundated by mainstem dams, preserving their genetic resources is an important function of these programs.</p>	<p>Immediate</p>
<p>Umatilla River</p>	<p>Umatilla Fish Passage Operations*; Umatilla Hatchery Satellite Facilities O&M**</p>	<p>Collect and transport broodstock (*), and provide eggs and acclimate smolts (**) for current program that uses local broodstock to produce 480,000 1+ and 600,000-age smolts released at three locations in the mid/upper Umatilla Subbasin</p>		<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>M - distributes hatchery production to natural habitats capable of supporting natural spawning in conjunction with habitat improvement actions. Also provides in-basin harvest.</p>	<p>Ongoing</p>
<p>Lower Columbia River Coho Salmon</p>									
<p>Klickitat River</p>	<p>Klickitat Fishery YKFP Design (Capital & Expense) & O&M</p>	<p>Construct the Wahkiacus Hatchery and Acclimation Facility (WHAf)</p>	<p>Group A Category 1</p>				<p>X</p>	<p>M - Providing acclimation site for 1M coho smolts released pursuant to US v OR agreements will reduce identified straying problem into the lower river ESU by increasing homing fidelity to Klickitat River.</p>	<p>Design 60% complete. NOAA BA complete. Portion of water right obtained. Final design and NEPA permitting 1.5 years away. Construction 2.5 years away.</p>
<p>Mid/ Upper Columbia River Coho Salmon</p>									

Umatilla River	Umatilla Hatchery Satellite Facilities O&M	Acclimate smolts(*) for current program produces 1,500,000 smolts released into the mid Umatilla Subbasin		X	X	X	X	M - distributes hatchery production to natural habitats capable of supporting natural spawning in conjunction with habitat improvement actions. Also provides in-basin harvest.	Ongoing
Upper Yakima River-Naches River	Yakima coho production facility (Constructin and O&M)	Construct one small scale satellite watershed hatchery, with facilities capable of rearing 300,000 coho pre-smolts.	Not reviewed - new project	X		X	X	H - distributes hatchery production to natural habitats capable of supporting natural spawning in conjunction with habitat improvement actions. By having a small satellite facility, coho would be raised from egg to smolt on Upper Yakima River water thus possibly increasing adult returns with full acclimation covering all life stages	Acclimation sites may be subject to permitting; NOH adults return within 18 months. Funding benefit would be realized immediately. Construction in one year, raise fish to smolt the second year and first adult return 3 year.
	Yakima/Naches coho - mobile acclimation units (Capital and O&M)	Develop and deploy a series of small mobile acclimation units capable of holding up to 10,000 coho smolts for up to 4 weeks adjacent to small tributaries	Not reviewed - new project	X		X	X	H - Ability to use mobile acclimation on small tributaries would utilize the higher smolt to smolt and smolt to adult survival for adult spawners. This would be a stream seeding proposal used for 3 generations in each target tributary.	10,000 coho smolts released at each site may produce up to 120 returning adults using current 1.2% SAR for hatchery coho.
	Yakima/Naches coho - nutrient supplementation	Utilize hatchery carcasses to increase productivity in spawning/rearing tributaries.	Not reviewed - new project	X	X			H- Low-cost method to increase food production; intended to increase egg-smolt survival in areas where marine-derived nutrients have been absent for up to 100 years.	Improves overwinter survival of juveniles. Can be implemented immediately, benefits accrue immediately.
	Yakima coho production marking	Mark hatchery smolts to exclude from broodstock as returning adults.	Not reviewed - new project		X		X	M - intended to prevent hatchery-line broodstock collection at upriver capture sites.	Feasibility study can be implemented immediately; results in first year. Program implementation immediate with immediate benefits.

Wenatchee River	Mid Columbia Coho Restoration (Capital and O&M)	Implement Broodstock Development Phase II of the Mid-Columbia Coho Restoration Master Plan	Group A Category 1	X	X	X	X	H- Encourage continued local adaptation of the broodstock by moving broodstock capture sites further upstream where stamina and run-timing constrains of the founding stock may be reaching their limits.	We expect the minimum duration of Broodstock Development Phase II to last 4 years. The actual time line will be influence by permitting, the rate of continued selection, and out-of basin factors beyond the control of this program.
	Mid Columbia Coho Restoration (Capital and O&M)	Implement Habitat Restoration Phase of the Mid-Columbia Coho Restoration Master Plan	Group A Category 3	X	X			Will seek funding and implement habitat improvement projects which are expected to improve productivity an capacity for coho salmon. This action will be closely coordinated with the implementation schedule being developed for the UCSRB.	The Habitat Improvement Phase is expected to last 10-15 years. The timeframe to realize the full extent of benefits is unknown but some benefits would be realized immediately.
	Mid Columbia Coho Restoration (Capital and O&M)	Implement the Natural Production Phases (Natural Production Implementation and Natural Production Support phases) of the Mid-Columbia Coho Restoration Master Plan	Group A Category 3	X	X	X	X	habitat areas predicted by EDT to be the most successful for coho . The Natural Production Phases (Implementation and Support) will focus on decreasing domestication selection and increasing the fitness of Wenatchee coho in the natural environment through furthering local adaptation and naturalization. We will accomplish this through the steady increase of NORs in the broodstock and decrease in hatchery release numbers to ultimate achieve a PNI value greater than 0.50.	The duration of the Natural Production Implementation Phase will last three years. The duration of the Natural production Support Phase is unknown but expected to be no less than 4 generations (12 years)
Methow River	Mid Columbia Coho Restoration (Capital and O&M)	Complete Broodstock Development Phase I as described in the Mid-Columbia Coho Restoration Master Plan	Group A Category 1	X	X	X	X	This action is designed to develop a Methow broodstock from lower Columbia River coho so that they become increasingly adapted to the longer migration to the Methow River. This phase focuses on elimination reliance on lower Columbia stocks and transitioning to a local broodstock.	BDPI is currently ongoing, the expect duration until this phase is complete is three years.

The Dalles Reservoir	Sturgeon Master Planning (Capital and Expense)	Provides for releases of yearling hatchery white sturgeon in years of poor/absent natural recruitment	N/A	X	X		X	Augments natural production to provide for continued recruitment to broodstock and stable recruitment to tribal and sport fisheries.	Likely 3-5 years of Master Planning and associated construction efforts necessary prior to initial year of production. Additional 15-20 years of growth by at large fish for fishery benefits and 25+ years for broodstock recruitment.
John Day Reservoir	Sturgeon Master Planning (Capital and Expense)	See above The Dalles	N/A	X	X		X	Augments natural production to provide for continued recruitment to broodstock and stable recruitment to tribal and sport fisheries.	See above
McNary Reservoir	Sturgeon Master Planning (Capital and Expense)	See above The Dalles	N/A	X	X		X	Augments natural production to provide for continued recruitment to broodstock and stable recruitment to tribal and sport fisheries.	See above
Ice Harbor Reservoir	Sturgeon Master Planning (Capital and Expense)	See above The Dalles	N/A	X	X		X	Augments natural production to provide for continued recruitment to broodstock and stable recruitment to tribal and sport fisheries.	See above
Lower Monumental Reservoir	Sturgeon Master Planning (Capital and Expense)	See above The Dalles	N/A	X	X		X	Augments natural production to provide for continued recruitment to broodstock and stable recruitment to tribal and sport fisheries.	See above
Little Goose Reservoir	Sturgeon Master Planning (Capital and Expense)	See above The Dalles	N/A	X	X		X	Augments natural production to provide for continued recruitment to broodstock and stable recruitment to tribal and sport fisheries.	See above
Mid Columbia Reservoirs	Sturgeon Management	YN effort coordinated with CRITFC sturgeon project. Provides for releases of yearling hatchery white sturgeon in Mid C reservoirs in years of poor/absent natural recruitment	N/A	X	X		X	Augments natural production to provide for continued recruitment to broodstock and stable recruitment to tribal and sport fisheries.	See above
Note: Associated RME Projects have not been identified in the above tables									