

APPENDIX 7B

**IRON GATE HATCHERY EVALUATION—SUMMARY OF RECOMMENDED
OPERATIONAL AND FACILITY CHANGES**

BY

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Appendix 7B
Iron Gate Hatchery Operation and Facility Evaluation
Summary and Status of Past (FishPro 1992) and New Additional Recommendations

Topic	Recommendation	Action Taken	Action Needed	Comments
Spawning	•Add post-spawning live tank for steelhead and modify return chute entrance.	Built a holding tank 2 feet wide, 8 feet long and 2 feet deep.	A second tank or live cars are needed for larger run years. New grading is needed in the chute entrance.	
	Additional recommendation(s):	None		
Incubation	•Modify 16 tray incubator stacks into double 8 tray stacks with separate water supplies and drains.	Still using double Heath stacks, but only using 11-13 trays	None needed. The system is working fine.	Now only taking 11-12 million eggs rather than the 18 million when the Fishpro report was written.
	•Increase hatchery building water supply capacity to 3 cfs.	None	Current 10-inch line had a leak problem and more of the line is suspect for future problems. Would prefer a new 12-inch line installed to replace.	A 12-inch line would added needed flow capacity.
	•Establish maximum per tray egg loading densities of 7,500 for chinook, 7,000 for coho, and 10,000 for steelhead.	Done		
	•Install a 100 to250 micron pressure sand filter and remove incubation water supply recirculating system.	None	Should investigate the feasibility of various alternatives for filtration and install a practical system.	Currently the hatchery experiences a 30 percent incubation mortality. This is too high. A cleaner water supply to the incubators would lower mortality and reduce maintenance (cleaning frequency)
	•Revise hatchery building drain system.	Done		Now goes to the settling pond
	•Install salt treatment mix tank and brine delivery system.	No	Not necessary now. They don't use brine any more. They iodine treatment use now and have a system for that.	Egg disinfection is done with iodine now.
	Install incubation water heating system.	None	Could use 250 gpm of heated water	Would need about 25 percent of the incubation water heated to accelerate late spawner chinook and steelhead. Look into feasibility of tapping into powerhouse cooling water.
	•Investigate groundwater availability	Investigated and none was found near enough to the hatchery to be feasible		Fall Creek could be an alternative or additional incubation site. Fall Creek is largely spring fed and thus ideal for incubation of eggs.
	Additional recommendation(s):			
Juvenile Production	•Install six intermediate covered raceways.	None	Would add flexibility and more efficient use of the large raceways to have the smaller raceways for smaller fish lots.	
	•Modify adult holding ponds to allow juvenile fish production.	Done. Once when needed during rehabilitation of the raceways.	None. Did not work well when tried. Do not want to try again with or without modification.	Can use Fall creek raceways as backup.

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	•Evaluate effectiveness of reduced feed rations.	Done		Previous manager overfed the fish. Current manager has reduced rations with good results. Using new feed now as well.
	Additional recommendation(s): Fall Creek hatchery ponds need to be refurbished. The concrete is falling apart		new concrete added to the pond walls would be the least expensive fix.	Currently a CDFG facility. CDFG uses about 5 cfs to rear 180,000 yearling chinook. Limited by water quality regulations for settling ponds. There is no room for one.
Fish Marking and Release	•Purchase a mobile marking station with 4 or 5 substations.	None	Still needed. About 5 percent of the production is marked by CDFG. Have been using the old CDFG marking shed.	No marking required in the license
	Additional recommendation(s):			

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Intake Structure	•Repair control valve for the 70 foot inlet.	Done		
	Additional recommendation(s):			
Aeration Tower and Headtank	•Replace aeration tower.	Rebuilt/replaced		
	Additional recommendation(s):			
Exterior Piping	•Evaluate remaining life of facility pipelines.	Found to be ok near the valve that was repaired.	Still need to inspect the condition of the 24-inch line.	
	•Replace water supply valves.	Done		
	•Replacement of 11 drainline slide gates.	Done		
	•Repair protective coating on exposed supply pipes.	None	Retar the 30-inch line next to the penstock	
	Additional recommendation(s):			

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Fish Ladders	•Replace timbers used to catch rock fall at the exit of the main ladder.	None	Still need to replace many of the timbers in the next year or two	
	•Replace crowder in auxiliary trap with aluminum tubing crowder.	None	Redo rack and liftgate. Not critical but would be good for PR.	
	Additional recommendation(s): The auxillary trap should be modified so that the salmon don't beat themselves up so much. This is a public viewing area and it doesn't look good to allow fish to injure themselves due to poor design.		A redesign of the water delivery point to the trap may alleviate the problem	This is a PR problem, not a biological problem. It just looks bad. The fish can sustain this kind of beating without dying prior to spawning for the most part. A few might die, though.
Adult Holding Facilities	•Repair cracks at corners of channel entrances in adult holding ponds.	None		
	•Patch spalling at adult holding pond Pond 2.	None	Needs repair in the next 3-5 years in all ponds	Only the bottoms need repair
	•Replace corroded flume gates.	None	Manager doesn't think they need replacing	
	•Replace remaining electric operators with electric winches.	Done		
	Additional recommendation(s): Replace bottom grates in next few years			
Raceways	•Repair rock pocket in raceway.	Done		
	•Rehabilitate raceway walls.	Did this but the raceway coating/lining is sloughing off in sheets. This needs to be redone	Might be best to just replace the raceways rather than try to fix with a different solution.	
	Additional recommendation(s):			
Spawning Building	•Replace roof insulation in spawning building.	None	Put solid insolation (foil coated styrofoam) over the existing insolation.	
	•Ventilate spawning building roof.	None	Not needed	

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	•Replace visitors gallery framework in spawning building.	Some enlargements but ADA compliance not achieved yet.	May need ADA approved grating for the observation deck	
	•Upgrade spawning building electrical system.	Breakers have been upgraded for safety	Need replacement of the limit switch for the crowder	O&M
	•Evaluate interior structure of spawning building.		Should be structurally sound	
	Additional Recommendations: Replace rails for crowder wheel track			
Hatchery Building	•Repair, replace and finish hatchery building metals.	None		Salt no longer used. Re-inspect periodically
	•Replace damaged insulation in hatchery building		No near-term need, but rehabilitation would be good for relicense.	
	•Add hatchery building ventilation system.		No need	
	•Add laboratory room ventilation system.	Done		
	•Modify old hatchery building freezer to contain chemical spills.		No longer relevant.	The few chemicals used now. Chemical are stored in a cabinet.
	•Relocate stairway access to laboratory roof.	None	Low priority. Leave as is or explore other options.	
	•Replace hatchery building electrical system.	Some upgrades have been made such as electrical outlets, lights, and switches.	Redo entire system with relicense. Could use more power to the building.	
	•Install monitoring and alarm system.	None	Manager does not think it is needed.	The alarm system for the main water supply water serves the same function for the hatchery building.
	Additional recommendation(s): A floor drain running the length of the hatchery building would be highly desirable. Drainage is presently a problem. The water manifold needs to be replaced. As well as the 10-inch mainline (Upgraded to 12-inch).			

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Administration Building and Freezer	•Modify storage space above office.		Low priority. Only needs some floor planks for safety.	
	•Install conference room improvements.		Not needed	Staff like it the way it is.
	•Construct containment basin for flammable storage shed.	Done		
	•Construct new freezer with loading platform.	None	ok for now but may need to be enlarged and forklift friendly if production goals change during relicensing and require more moist diet than used now.	
	Additional recommendation(s):			
Vehicle Storage Building	•Install ventilation system in vehicle storage building for welding fumes.	Done		
	Additional recommendation(s):			
Residences	•Add a 3/4 bathroom at each of four residences.	None	Still need the upgrade	
	•Insulate garages at four residences.	Done		
	Additional recommendation(s):		Heat pumps have been installed	
Domestic Water Supply	•Install shutoff valves.	Two done	Two more needed	
	•Replace domestic water supply piping.	Done		
	Additional recommendation(s): Need new lawn irrigation system installed. Need U.V. treatment for domestic water. Bacteria problems in past.			Don't want to deal with chlorination system
Domestic Wastewater System	•Arrange pumping of two septic tanks.	Problem solved		

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	<ul style="list-style-type: none"> •Construct handicap-accessible public restrooms and new drainfield. 	None	Still needed	
	Additional recommendation(s):			
Roadways and Sitework	<ul style="list-style-type: none"> •Provide asphalt surfacing of hatchery complex. 	In process of being done - some each year.		
	<ul style="list-style-type: none"> •Provide improved handicapped access throughout facility. 	In process.	Need a ramp down to the auxillary trap	
	Additional recommendation(s):			