

The Intake

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From Old To New: Rebuilding Cowlitz Salmon Hatchery

By Larona Newhouse, FHS 4 at the new Cowlitz Salmon Hatchery



Aerial view of Old Cowlitz Salmon Hatchery



The Cowlitz Salmon Hatchery was constructed, funded and maintained by Tacoma Power. It is operated by WDFW employees to mitigate for the impact of Mayfield and Mossyrock dams on Cowlitz River salmon stocks. The hatchery began operations in 1967: 43-years later, the Cowlitz Salmon Hatchery has undergone some major changes.

The first construction meeting took place on June 12, 2008, to establish the start of the demolition and reconstruction of the hatchery. Tacoma Power Engineers contracted J.W. Fowler Construction, a firm out of Oregon, to do the rebuild. Work began the following week, with the demolition of the hatchery house on the west side of the hatchery to make room for the new adult holding ponds, Adult Spawning Building and new Visitors' Center, as well as new offices and a conference room for Tacoma staff.

Several different construction crews also began demolition in the old hatchery building. The existing freezer and thaw rooms were to be converted over to the new salmon incubation room in the Early Rearing Building. A different crew started demolition in the basement to make room for the extensive recirculation systems to supply pathogen-free water to both the new salmon and trout incubation rooms. Another crew began reconstruction of the Fish Separation Facility in February 2009. At any given time, construction crews numbered anywhere from 75 to 100 workers, all working in various areas of the hatchery. Safety regulations required that contractors, hatchery staff and visitors wear hard hats, safety glasses and florescent colorful vests, which became the new uniform worn at all times when coming to work for the following two years.

Fish culture became more challenging as hatchery staff worked around construction crews, construction work deadlines and the occasional "OOPS we broke something!" Only three water lines were broken during construction. None were life-threatening to fish, however, the hatchery smelled pretty bad for a few days while the contractors tried to put the abatement pond supply line back together again.

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Demolition of old hatchery house for new Spawning Bldg



Construction of adult holding ponds



Construction of new Adult Spawning Bldg

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Cowlitz Hatchery (continued from page 1)

By September 2009, the new salmon incubation room was not completed in time for spawning season. A majority of the Heath Stacks were removed from the old incubation room to be re-installed in the new salmon and trout incubation rooms. Thanks to **McKernan, George Adams** and **Elochoman** hatcheries, staff were able to install free style deep incubators for the fall Chinook and coho egg takes. This bought the contractors time to finish the new incubation room without having to move any production off-station.



Construction of new juvenile raceways



North juvenile raceways and Early Rearing Bldg



South juvenile raceways and Tacoma shop



Spawning Building and Fish Separation Facility

Construction of the north juvenile raceways began in April 2009 after the release of the yearling spring Chinook. The newly-ponded spring Chinook, fall Chinook and coho fry were all loaded in kettles and ponds on the south side of the hatchery along with the yearling coho production. Production loadings were heavy during this period of time until the fall Chinook juveniles could be released during the month of June.

Mass-marking of all stocks of fish was also a challenge during the construction due to all the heavy equipment and contractors working on the juvenile raceways. Things became especially interesting when hatchery staff had to transport just under 5-million spring Chinook and coho juveniles from the south side of the hatchery to the newly-completed north side juvenile raceways.

Pumping the juveniles via fish pump and irrigation pipe from the south side to the north side was done within a week, to avoid delay of the construction schedule. Due to the high densities from loading the fish populations into limited pond space, disease outbreaks started taking its toll on the spring Chinook and coho juveniles after this stressful event. Outbreaks of Cold Water Disease, *C. Shasta* and Bacterial Kidney Disease were sporadic. Once the construction of the south juvenile raceways was completed in December 2009, hatchery staff transferred juveniles to lighter loadings on both sides of the hatchery, which lowered the disease outbreaks. The use of salt and double vitamin packs in the fish feed helped get the juveniles back on track during and after the moves.

The construction on the newly rebuilt Cowlitz Salmon Hatchery was completed in April 2010. Now that all the construction crews and engineers have left the project, hatchery staff and Tacoma Power employees have been working together to fix some of the mechanical problems that have come to light after the fact. All in all, there have been several new improvements made, and we hope that future operations will work according to plan and design for a least another 43 years!



Construction of new Adult Spawning Bldg



New broodstock ponds and Spawning Building



Hatchery crew in the new spawning room

HAIPs: Hatchery Action Implementation Plans By James Dixon, HEAT

Yes, that's right, another acronym! ☺ These plans represent basin-level, and in some cases watershed-specific, plans for aligning our hatchery programs with conservation goals for wild stocks in the area. They will also help the Department reach the goal that the Fish and Wildlife Commission set with their Hatchery and Fishery Reform Policy-C-3619. This policy states that the Department's hatchery programs will meet HSRG standards for broodstock management – pNOB, pHOS and PNI – statewide, by 2015.

The plans are developed between Regional Fish Management, hatchery and HEAT staff and, where appropriate, Co-Managers. Several Westside areas have draft HAIPs already in development or completed: Snohomish Basin, Nooksack Basin, Willapa Bay, Strait of Juan de Fuca, Grays Harbor and most Lower Columbia River sub-basins. Many of these drafts, and some additional plans, need to be in final form by the end of this biennium (June 2011).

All Coastal HAIPs – Willapa, Grays Harbor and the North Coast – need to be in final draft form by December 2010. The Straits HAIP, which includes the Dungeness, Elwha and all independent streams, also needs to be in final draft form in December 2010. Lake Washington and the Green River plans need to be in final draft in April 2011, and the Hood Canal HAIP needs to be in final draft by June 2011.

The majority of the direct hatchery involvement with this planning is taken care of by the Regional Hatchery Operations Managers (**Doug Hatfield, Rich Eltrich and Mark Johnson**) and the Regional Hatchery Reform Coordinators (**Brodie Antipa, Randy Aho and Eric Kinne**). However, your technical knowledge of the individual hatchery facilities and programs is indispensable, when it comes time to truth various production scenarios. Thanks to those of you who have already helped out with this process and those of you in the watersheds detailed above, thanks in advance!

Timeline for HAIPs

Region	Watersheds	Final Draft Due
N. Puget Sound	Snohomish, Nooksack	June 2010
Lower Columbia	LCR sub-basins	June 2010
Coastal	Willapa, Grays Harbor, North Coast	December 2010
Straits	Dungeness, Elwha, independent streams	December 2010
Puget Sound	Lake Washington, Green River	April 2011
Hood Canal	Skokomish, Mid-Hood Canal, Dabob Bay	June 2011

Catie-Kelly Corner By Catie Mains and Kelly Henderson, Science Division/BDS-Hatchery Data New Brood Document Change Forms

Brood Document Change Forms are proposals for changes to hatchery programs as outlined in the **Future Brood Document** (available at http://wdfw.wa.gov/hat/reports/future_brood.htm). The Brood Document Change Form (BDCF) process gives managers such as Fish Health, Regional Fish Program Managers, Hatchery Evaluation Assessment Team, Hatchery Managers and Co-managers a chance to review and comment on program changes.

The most significant changes to the forms are the addition of required information. New boxes provides information such as watershed, water quality, names of pre-approving co-managers, Equilibrium Brood Document compliance (currently a place holder), and fish health. Most of these sections apply to all areas of the state. The Co-Managers Contact List is intended for Regions 4 and 6, which have requirements of pre-approvals, but **ALL FORMS SHOULD BE APPROVED** prior to the implementation of permanent program changes.

Helpful tips:

- Complete a separate change form for each facility in which a change is occurring.
- **Brood Document Change Forms** have instructions on the second page.
- **In-Season Change Forms** are for changes in the current brood year and that is only a one-time occurrence.
- **Permanent Forms** are for long term changes to a program beginning in the next brood year.

The “**Permanent Brood Document Change Form**” is still to be used for long-term changes or permanent changes that will not occur until the next brood cycle. The “**In-Season Brood Document Change Form**” is still to be used for one-time only in-season changes. This form is only for unforeseen changes to your programs on a temporary basis.

Instructions on form completion and submission are located on the second page. The forms are currently available on the WDFW intranet forms library or directly from me.

These changes were instituted on **May 1, 2010**. Please contact me at kelly.henderson@dfw.wa.gov or 360-902-2684 with any questions.

Temporary Hatchery Specialist vs. Hatchery Technician

By Heather Bartlett, Hatcheries Division Manager

Temporary hires are crucial to achieving the overall work performed in our hatchery facilities given the seasonal nature and peak workload times that exceed the capability of our permanent staff to fully implement. In addition, given the number of temporary staff currently employed in the Hatchery Division and the anticipate number of positions that will need to be filled on a temporary basis because of the current hiring freeze in place by the Governor, Hatchery Division staff recognized there was a need to use consistent points of reference or decision tree across the division for when it is appropriate to hire a Hatchery Technician vs. a Hatchery Specialist.

A team of hatchery division folks from across the state collaborated in an effort to develop very explicit criteria for use by us all to ensure a consistent approach and application for what level to hire temporaries for our hatchery system. Team members were Mike Lewis, Doug Maxey, Pat Phillips, Rich Watson, Jason Smith, Jayson Wahls, Glen Pearson, Cory Cuthbertson, Doug Hatfield, Rich Eltrich, Mark Johnson, Heather Bartlett

The following criteria form the basis for determining appropriate job class for all future temporary hatchery position hires. The team recognized we would not be able to address all situations with the criteria, but through the formalization of the criteria, we did believe we significantly narrowed the scope of what would need to be considered or justified on a case by case basis.

As a basic element of the discussion, the team agreed that for temporary positions, the qualifications outlined in the job class descriptions were desirable not minimum.



Criteria for hiring a temporary Hatchery Technician:

- Position hired to address a workload peak.
- Seasonal hire e.g. operates a trap or fish transfers/releases.
- No independent work. *The definition of “independent” refers to the position establishing or setting any or all of their daily work priorities/activities. It does not relate to the employee working w/out supervision.*
- Job duties are specific or task oriented.
- Standby obligations, if they exist, are rudimentary. *Rudimentary is defined as situations in which facilities have:*
 - No alarm
 - A gravity feed intake
 - Only one life stage on station
 - There is an alarm and permanent hatchery staff back-up. *A permanent back-up would also be in a standby rotation for the hatchery or within the complex and be readily accessible by phone or in person to provide direction and instruction. Direction and instructions on how to respond will be provided by a supervisor or lead worker on how to respond to an alarm, if after carrying out the instructions the proper response did not work, then a permanent staff will be called for backup.*

Criteria for hiring a temporary Hatchery Specialist:

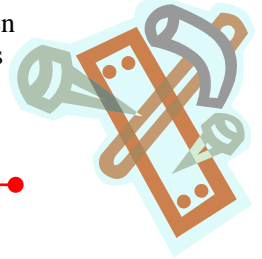
- Temporary is a backfill of a permanent position.
- Standby obligations exist and there is no permanent employee back-up.
- Position works independently. The definition of “independent” refers to the position establishing or setting any or all of their daily work priorities/activities. It does not relate to the employee working w/out supervision.
- If two or more of the above criteria have a “yes” answer, then the position should be hired as a Specialist unless there is clear justification that the scope of the work is at the technician class^[1].

^[1] If a position is best suited to be hired as a Specialist and the Technician class is preferred, then the scope of work should be appropriately adjusted such that independent work and/or permanent back-up for standby occurs to meet the criteria and justification for the Technician class.

Hatchery Maintenance By Neil Turner, Hatchery Reform Capital Projects

A monthly maintenance schedule was developed by a group within the past year to document how much time and resources were needed to maintain hatcheries, both with hatchery staff and business services construction crews. While the monthly maintenance schedule is a good tool to document the need, it was shown to not be a very effective tool for hatchery staff: it was a very large document that many facilities didn't even have the ability to print! Currently a draft has been developed that pared down a lot of information from the monthly maintenance schedule, and it is expected to be used by hatchery staff to document maintenance activities at their facilities and ensure that all necessary maintenance is completed at a hatchery level.

Adequate funding to complete hatchery maintenance needs has been a challenge. Coordination between headquarters and regional staff is key to determining: what each hatchery requires maintenance-wise; identifying the cost to complete those routine activities; then laying out a schedule outlining when maintenance needs to occur. This helps the agency more explicitly describe our needs and the reasons for them. It also ensures that when we receive maintenance money, everyone – from legislators to the Director, to hatchery staff – knows where it will be spent. I will continue to work with a team of hatchery staff to develop individual hatchery maintenance schedules for completion this fall. If you have any questions or ideas, please contact me (neil.turner@dfw.wa.gov).



Staff Happenings By Rachel McDaniel, Hatcheries Division Admin. Assistant

With best regards, we wish the following employees success in their new positions:

Josh Lewis, Acting FHS3, Kendall Creek **John Hyde**, FHS2, Washougal **Grant Sill**, FHS1, Cowlitz Trout

Please join me in wishing all the very best to **Ken Jansma** (Mt. Baker Complex/Kendall Creek Hatchery) in his well-deserved retirement and new venture.

Did you know...? By Josh Benton, HS2 at Puyallup Hatchery

- ...why adding salt during transport is beneficial?

✦ In a nutshell, adding salt (at the right concentration, about 0.9%), equalizes the level of salt in the blood and in the water, therefore eliminating the need for osmoregulation (water balance).

Two things will happen when handling and transporting fish: added stress and loss of the mucous coating. Both of these events will lead to increased salt leakage from the blood and already stressed fish will have to work harder to counteract this. Excessive salt loss can lead to heart failure, nerve damage and muscle spasms. Adding salt reduces energy demands and diffusion leakage while providing a large supply of environmental salts for re-absorption and replacement of lost blood salts. Click [here](#) (from the University of Kentucky) and [here](#) (from the University of Florida) for more detailed info.

- ...when & where the first aquaculture is thought to have taken place?

✦ The indigenous *Gunditjmara* people in Victoria, Australia may have raised eels as early as 6000 BC. There is evidence that they developed about 100 square kilometers (39-sq mi) of volcanic floodplains in the vicinity of Lake Condah into a complex of channels and dams, that they used woven traps to capture eels, and that capturing and smoking eels supported them year round. Click [here](#) for more info.

- ...the largest King Salmon on record?

✦ 97 lbs – 4 ounces. It was nearly five feet long and had a 37.5” girth. Caught May 17, 1985 by Les Anderson of Soldotna, AK. It was said that he left it in the boat and then in his truck for a total of seven hours after the catch so it may have been 100+ lbs before dehydration!

Before dams, the Columbia and Elwah Rivers were said to have 100-pounders and a German tourist caught and released a 99.1 lb. Chinook on B.C.’s Skeena River.



Salmon in the Classroom

By Lisa Wood, Habitat Program/Regulatory Services, and Nora Wood Worley (age 9)

Everyone wants to be in Mrs. Cindy Tobeck's third-grade class at East Olympia Elementary School because of the salmon. Every year, her classroom has received WDFW hatchery salmon eggs to raise in their classroom. This year, it almost didn't happen because of disease problems at the hatchery. **Ron Warren** and **James Chandler** scrambled to find eggs for class to raise and release, and found trout eggs from Eells Springs Hatchery. The aquarium was placed out in the pod so that the rest of the third-grade classes could enjoy the project too.

"We had the eggs in the front right-hand corner of the tank. When they got to alevin, they tried to swim up then dived down because their fins were too small for them to use. Fry have little stripes that will blend in with the grey rocks. Some trout ate the other trout. Mrs. Tobeck said that the salmon she usually gets don't eat each other. Fred ate some small trout. Fred was a giant trout. He had the other fish's tail sticking out of his mouth. I named one Ashley. One of the other trout was named Squishy because his egg looked squished, but it wasn't."

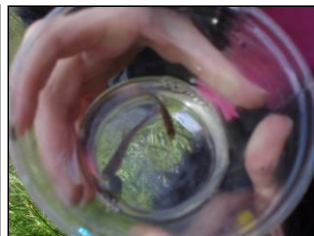
On the morning of June 9, 2010, Mrs. Tobeck's class released the fry at Millersylvania State Park (Deep Lake). "It was fun. They will eat insects and bugs and underwater plants. I'm going to go back there in our kayak with my mom to try and see them.

I learned that they have little, small mouths and they have egg sacs. I got to clean the tank."

Salmon in the Classroom is a great program. The kids enjoyed raising the fish, and I am impressed how much the students learned about salmonids and their life cycle. The

small investment into this truly meaningful program has instilled ecological awareness in the kids, and therefore the community, and maybe helped inspire some future biologists.

Photos by Lisa Wood and Lori Kishimoto



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The Washington Department of Fish and Wildlife (WDFW) serves Washington's citizens by protecting, restoring and enhancing fish and wildlife and their habitats, while providing sustainable and wildlife-related recreational and commercial opportunities.

Comments are always welcome and much appreciated. This newsletter is for you; to keep us connected, share information, and motivate us to new levels of scientific exchange and hatchery management. Suggestions are being taken for future articles. Tell us what you want to read about!
– Contact: Lori Kishimoto.

What hatchery is this?



Answer: Samish Hatchery, circa 1940

