

### Hatchery Division Meeting in Vancouver WA

Region 5 hosted the spring Hatcheries Division Meeting on March 8, 2011. A total of 48 staff met at the Vancouver Office, Tuesday morning.

Division Manager **Heather Bartlett** opened the meeting and discussed prioritization of hatchery planting trucks maintenance/repair/replacement. A draft spreadsheet will be sent to regional Operations and Complex Managers for updates and corrections. **Neil Turner**, Hatchery Reform/Capital Projects Coordinator, will consolidate and prioritize the information, and the top 5 will be provided to **Ross Fuller**, in Assets Maintenance Management, by the end of March. While there is no money yet budgeted, it will at least be a good idea to be “standing in line” when the money does become available.

**Margaret Gordon**, from Human Resources, spoke about hiring practices for entry-level permanent Hatchery Specialist 1s. Margaret emphasized the need to keep criteria and settings for interviewing and testing consistent and justifiable among all the final candidates. Questions arose about using phone interviews vs. in-person interviews. In the case of a phone interview, if HR is contacted ahead of time, a proctored and monitored site may be set up to ensure that all candidates receive the same allotted time for interview and test-taking. Volunteers (**Glen Pearson**, **Mark Johnson**, **Ron Warren**, and **Jason Smith**) will review the

### Inside this issue:

Inland Fish Stocking	2
Managing well water	3
Operations & Maintenance Manual	4
Fish Commission Presentations	7
What’s the SCoRE?	7
Catie-Kelly Corner	5
Fish Health Notes	5
A Happy Fisherman	8
What Hatchery is this?	8
Staff Happenings	8



competencies that are needed for these specialist positions. These competencies (Knowledge, Skills, and Abilities) are important for determining the best-qualified candidates. This group will identify statewide competencies to be considered. Once finalized, these competencies can be modified specific to the facility/complex recruiting the position.



**Neil Turner** discussed the Hatchery Maintenance Portfolio Project. These would include *Operations and Maintenance Manuals* for each site that compiles the institutional knowledge for each site (see article on pg 4).

continued on page 6

## **Inland Fish Stocking** by Heather Bartlett, Hatcheries Division Manager

WDFW's Fish Program embarked on a project early last summer that allows us to re-evaluate our current Inland Fish Stocking, relative to our goal of improving the Inland Fish program and increasing recreational license sales. The project began with an Inland Fish Summit held in Spokane for two days in June 2010. The Spokane meeting included staff from both the **Hatcheries** and **Fish Management** divisions. The focus of the meeting was to establish a common ground of understanding about our current Inland Fish management program, both hatchery production and lake management, as well as evaluate our current strategy and identify actions we could take to improve upon what we currently do.

Between fall and early-winter 2010, Hatcheries Division and Fish Management Division staff within respective regions focused collaboratively on how to adjust current stocking – either through size, location or timing– to best meet restructured inland fish-stocking objectives. Following the regional collaboration, a second Summit was held in Olympia during the first week of January 2011, to provide an opportunity for regions to collaborate on a statewide basis on ways to most efficiently and effectively use our statewide hatchery system to meet more contemporary inland fish-stocking goals.

At the second Summit, the project team participants identified and set the following:

**GOAL:** Make Washington an inland fishery destination for both residents and non-residents.

**OBJECTIVES:** Increase angler participation and freshwater license sales.

**STRATEGIES:** 1) Provide consistent fish product; 2) Provide more and bigger catchable trout; 3) Provide diversity through trout and warmwater game fish, and 4) Develop an Inland Fish Marketing Plan.

Staff from both divisions have done a great job collaborating on how best to provide a consistent product as well as identifying actions that could be implemented to help produce “more and bigger catchable trout”. Given our challenging economic times, however, all participants were cognizant of the need to provide options to make progress towards our objectives at no cost, while also outlining the desired objectives and their associated costs. In general, the hatcheries could provide bigger fish than current production, but not necessarily more, and certainly not more in the absence of additional funding.

The next steps, which are already underway, include:

- 1) Regional Fish Management staff will set priorities for trout stocking using revised hatchery production tables, current funding levels, desired stocking objectives, and identified shortages;
- 2) Area and district fish biologists will develop an Integrated Fish Management Plan based upon allocation.

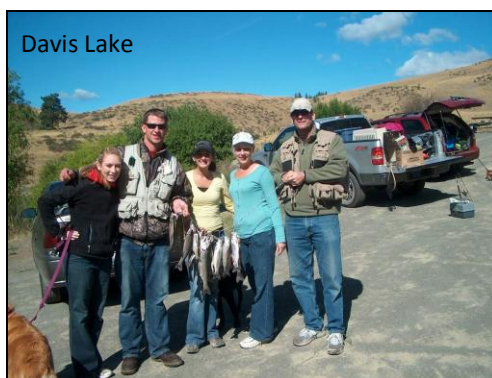
As the Integrated Fish Management Plan takes shape, Fish Management staff may give a presentation about it at the next Hatcheries Division meeting to keep the collaboration continuing on how our hatchery system can best meet fish management's stocking desires for both trout and warmwater fish.



Park Lake



Davis Lake



Davis Lake



Caliche Lake

Opening Day at various lakes in Grant County.

Photos by Jeff Korth and Bob Jateff

## Save Your Well Water by Managing Flows and Casing Elevation

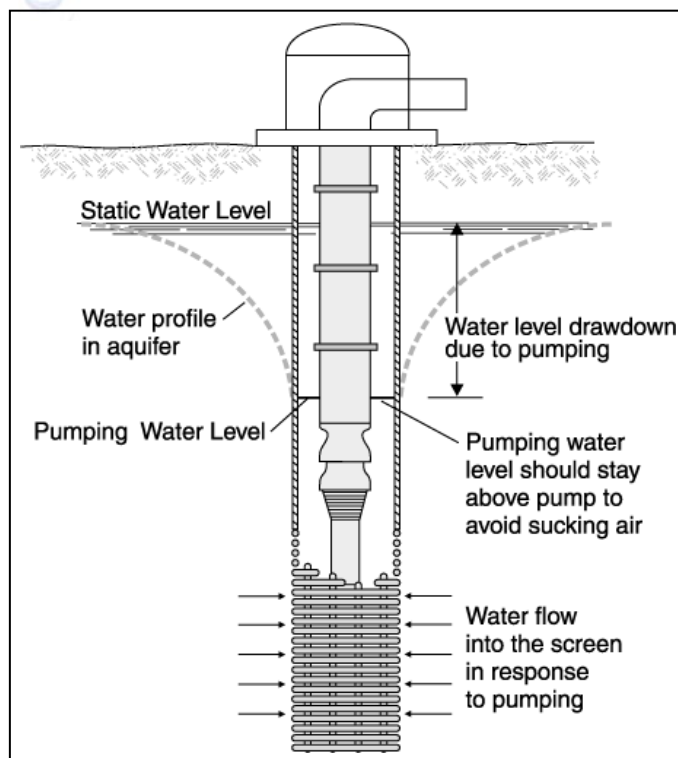
By Dan Witczak (FHS3), Hurd Creek Hatchery

Managing water use in a fish hatchery in today's environment is almost as important as the fish being raised. The water we use needs to be preserved, protected and managed to last as long as possible, because of water-right issues of use and the virtually impossible chance of obtaining new water, or the difficulty of getting capitol funds to update, fix and or build new intake structures and/or drill new wells. For some, the question of how to operate your well might be obvious, but new Hatchery Specialists, who may not have been trained on or exposed to well operations at their facilities, need to know.

Before I came to work in Hatcheries with the old Department of Fisheries (WDF) in 1983, I spent several years working in the oil fields of southern California. I worked on drilling new wells, and rebuilt and rehabbed old wells. This gave me an understanding of how wells are constructed as well as a working knowledge of what can contribute to reductions in flow and eventual failure. Oil and water wells are basically constructed the same way: a well is drilled to a depth determined by geological formations to take advantage of the abundance of the resource. Also important is liquid's ability to flow through the substrate at a recoverable rate; this is referred to as the "conductivity of the well." Some formations have an abundance of fluid, but the substrate it is in will not allow it to flow into the well at a rate that is economically recoverable. With water, a substrate of coarse sand and/or gravel is the best formation to allow the most amount of water to pass through continuously.

After the well is drilled, the walls of the hole are kept from collapsing by either cementing the wall or driving steel pipe into it. To take advantage of the fluid formations a screen is placed in the wall of the well. A pump and supply pipe are placed inside of the well casing. The well screens are just like a hatchery intake screen: they allow fluids to flow into the well and keep sand, gravel and other materials from being drawn in. The screens are set in formations specific to the desired fluid that you want to utilize. On an oil well, the screens are usually set in the oil formation and the well is cased or sealed to prevent water from above the oil from flowing into it; oil is recovered without having to pump water with it. For water wells, the screens are typically placed in the sand and gravel formations that hold the most amounts of water, and steel pipe is placed from the screens to the top of the well. The amount of water that will flow into the well without having the water elevation drop below the top of the screens is the well's operational flow rate, or *conductivity*. This means that you can pump a certain amount of water 24 hours a day without the casing elevation dropping below the top of screens. New wells are pump-tested to develop flow rate, i.e. how much water will flow continuously without drawing down the aquifer from which you are pumping or from the neighbors well, and without drawing down the casing elevation below the top of the screens.

Wells should never be run wide open with the elevation of the water below the top of its screens. When the water casing



elevation is above your screens, water flows through submerged screens like a full hatchery intake. If you draw the water casing elevation down below the top of your screens, sand, gravel, and other material will collect on the outer side of your screens, just like a hatchery intake during dirty high water, where material collects on the outside of your screens, and slowly plugs off your intake. Operating a well for an extended period of time in this manner will end up reducing the amount of water that the well will deliver; for example, a well that used to pump 1000 gpm and will now only pump 800 gpm, even if wells are run correctly.

The casing elevation needs to be monitored with a well depth gauge or well logger. To adjust your casing elevation, turn down the valves on the well or the well line to your hatchery until the casing elevation comes up to the level covering your screens. This will be the flow rate at which the well should run. At Hurd Creek, on the control panel for our five wells there is a number written on each well, which represents the elevation of the top of the screens plus 3 ft, as we operate our wells with a 3 ft buffer above the wells screens. For example, the top of the screens for Well 5 is 55 ft, so we operate Well 5's casing water elevation no lower than 52ft, three-feet higher is 3ft less the depth of the water from the ground or top of the well.

continued on page 4

## Facilities Operations and Maintenance Manual

By Neil Turner, Hatchery Reform Capital Projects

For many years, hatchery staff have suggested that an Operations Manual be created for each site. Currently, some facilities have *Operation and Maintenance Manuals* from which employees can learn, understand and refer to when they have questions about a facility's operating systems. Unfortunately the number of facilities without one is greater than the number of facilities that have them.

The first step to compiling a manual is to have a complete and accurate site plan to use for reference. I have been working with CAMP (Capital Asset Management Program) to update our facility site plans to include all plumbing, septic, electrical and alarm wiring systems. CAMP has currently completed draft site plans for **Minter Creek** and **Skookumchuck** hatcheries. These site plans have been delivered to the facilities for comments and to check for accuracy. The final site plans can be used to assemble the physical part of the *Hatchery Operations Manual*.

The site plans are in CAD form (Computer Aided Design) and different (layers) – such as piping, electrical, etc. – can be added or subtracted. CAMP will have the ability to provide the hatcheries with whatever layers they need to reference their operations manuals. A final CAD, specific to each facility, will be laminated for posting on-site for easy reference.

All valves on a hatchery should have an associated number assigned to them. Procedures need to be established for correct operation of the valves to navigate water to various locations on a hatchery. In some cases, a flow chart can be used to illustrate how to move various water supplies to different locations on the hatchery facility. In other cases, specific directions may be easier: for example, “In order to get gravity water to the bank of raceways, close valve # 34 (pumped water supply), and open valve #26 (gravity water supply).”

An important component of a good operations manual is to ensure that maintenance needs at the facility are clearly defined. This includes an outline of correct procedures required (including frequency) to complete the facility's maintenance and operation. In addition, the manual should cover any potential problems that may occur in an emergency: procedures for a high/dirty water event; precautions or procedures to follow during extremely cold weather; actions to take if the emergency generator won't start; etc. Compiling such comprehensive information will give hatchery staff all the tools necessary to properly run the facility under any conditions. The Hatchery Maintenance Log will document the work. The highest priority for completing the *manual/portfolios* goes first to state-funded facilities, followed by the mitigation-funded facilities. The plan is to have all manuals for all WDFW facilities by March 2012.



Aaron Roberts and Eric Kinne examine examples of the CADs and Ops and Maintenance Manual at the Spring Hatchery Division Meeting in Vancouver WA.

## Managing Well Water (continued from page 3)

Keep in mind that aquifer levels can fluctuate with the seasons, requiring flow adjustment through the changes. Most wells have a blue print which tells you at what elevation the screens start and end. If the well or facility is old and no documentation exists or paperwork has been lost, call **Tim Wiseman** (Capital and Assets Management Program-Construction/Shops Division-Electrical & Pumps) or **WDFW Engineering Section** for the design parameters of your well. Operating a well wide open slowly reduces the amount of water it will deliver and it can damage the well and plug your screens permanently beyond repair. Well screens that have been plugged off such that sufficient water will not flow through may have to be reworked. To repair a damaged well, a drilling rig needs to be brought in and the supply pipe and pump pulled. Sometimes screen openings can be cleared using a large brush that is run down the well and pulled up and down to broom out the debris, just like brooming plugged intakes screens. If the well screens will not come clean, they may have to be removed and replaced, and changing out screens can cost as much as drilling a new well. In today's budget climate that might never happen unless the facility has mitigation funds. Needless to say, facilities should try to operate their wells within design parameters to maintain the conductivity and flow rates you need for your fish. While you might be able to run the well wide open and get the water you need, it will slowly fail, providing diminishing returns and a huge repair bill. There are a lot of available resources to learn from. USGS has a great web site: search for an article on their site titled [Ground Water and The Rural Homeowner](#) by Roger M. Waller. It is a very good read. Remember that most hatcheries facilities have been around for 50 years and if properly cared for, they could be around for another 50 years!



## Catie-Kelly Corner by Catie Mains and Kelly Henderson, Science Division/BDS-Hatchery Data Section

### Future Brood Document Process, Timelines and 2011 Meetings

The Future Brood Document (FBD) is a pre-season planning document for fish hatchery production in Washington State for the upcoming broodstock collection and fish rearing season (July 1, 2011 – June 30, 2012). The FBD is coordinated between WDFW, the Northwest Indian Fisheries Commission (NWIFC), United States Fish and Wildlife Service (USFWS), and the Treaty Tribes (Puget Sound, Washington Coast and Columbia River), for the operation of fish hatcheries throughout the state. Hatchery production by volunteers, schools, and Regional Fisheries Enhancement Groups (RFEGs) are represented by WDFW. The first draft of the 2011 FBD and past documents can be found at [http://wdfw.wa.gov/hatcheries/future\\_broad.html](http://wdfw.wa.gov/hatcheries/future_broad.html).

#### Time line of the FBD review process

Dates	Actions
Mid Jan	First Draft is posted on website; WDFW, Co-managers and Federal Facilities notified
Feb - May	Regional Meetings, Co-manager review, corrections, and discussions
Mid May	Second Draft is posted on website with corrections and modifications, with a call for final review
Jun – Jul	Final reviews, Brood Document Change Forms, and minor corrections
Late Jul	Final FBD is posted on website

#### 2011 FBD Meeting schedule, by Region

Region	Dates	Location
1	Wed, Apr 13	Spokane Office
2+3	Tue, Apr 12	Ephrata Office
4	Wed, Apr 20	Mill Creek Office
5	Wed, Mar 16	Vancouver Office
6	Tue, May 3	Eells Springs Hatchery

Please contact **Kelly Henderson** at 360-902-2684 or [Kelly.Henderson@dfw.wa.gov](mailto:Kelly.Henderson@dfw.wa.gov) if you have any questions.

See also article on Brood Document Change forms in *The Intake*: July 2010

## Fish Health Notes by John Kerwin, Science Division/Conservation Biology

### Bio-Security: Iodophor Water Hardening and Disinfection of Salmonid Eggs

Eggs may be contaminated with fish pathogens that can be transferred with them and infect fish at other locations. These pathogens may also cause disease in the fry which hatch from these eggs if eggs are not properly disinfected. Research has shown that treatment with iodophor (PVP-polyvinylpyrrolidone-buffered iodine) can greatly reduce pathogens associated with salmonid eggs. These treatments usually occur during water hardening and following eye-up or when transferring eyed eggs between facilities. Also review the section in the *Fish Health Manual* on isolation for further information on procedures during incubation and rearing.

One of the most important steps to protect eggs is to water harden them at the time of spawning. Surface-associated pathogen, such as IHN, can effectively be killed if this process is followed.

Following fertilization, briefly drain ovarian fluid and milt from eggs by holding eggs in a sieve, incubator basket or tray. Rinse eggs by passing a gentle shower of clean water or an iodophor solution containing not less than 75ppm iodine, pH 7.0, several times over the eggs. Drain briefly. Place the eggs in a bucket or incubator containing an iodophor solution of not less than 75ppm iodine. Most facilities use an iodophor solution containing 100ppm iodine based upon past experience that indicates no increased mortalities occur at these levels. The volume of iodophor should be twice the volume of iodophor to eggs (2:1) to provide adequate disinfection. Use as shallow a depth of eggs as possible during water hardening to minimize iodine depletion within the egg mass. It is preferable to have the eggs only two (2) layers deep so that every egg is in contact with the iodophor. If possible, gently circulate iodophor through each group of eggs being water hardened to increase egg exposure to iodophor. This can be done a number of ways, including, but not limited to, pumping iodophor from the bottom to the top of vertical or trough incubators or by using air stones in buckets. Care needs to be taken because iodophor will foam if circulated too vigorously. Care must also be taken not to agitate eggs during water hardening, or increased mortality may result. Following a minimum of one-hour immersion in iodophor (more time may be required for large masses of eggs to fully water harden), either drain the iodophor from the container or introduce freshwater to the incubator to dilute iodophor and begin incubation.



**Iodophor should not be reused** — discard it after one use, even if it appears dark brown.

## Hatchery Division Meeting (continued from page 1)

Hatchery Evaluations Manager **Mark Kimbel** delivered his annual spring reminders:

- Report any missing or damaged equipment in the tagging trailers, and make sure trailers are disinfected and cleaned before returning.
- Call the Olympia offices of Kelly Services for the number of staff you need and when, and specify if you have a preferred lead. Make sure you are fully-staffed and get a full day's work from the crew... "get in, get done, and get out."
- Use Web Works if tote tilts and R-detectors are needed.
- Call Mark or **Dan Thompson** if there are any problems.

Mark also discussed coho sub-sampling programs, which will help reduce impacts on staff time at both hatchery facilities (collecting) and in the Coded-Wire Tag Lab (processing). According to **Catie Mains**, staff did a great job on the paperwork this year.

Presentations from Region 5 staff included:

🐟 Overview of Mitchell Act-funded WDFW facilities and programs (production, fishery contribution, and smolt-to-adult survival ratios) in the Lower Columbia by **Mark Johnson**, Region 5 Hatchery Operations Manager. These facilities, built in the 1950s, include the **North Toutle**, **Kalama Falls**, **Washougal** and **Skamania** hatcheries. Additional Mitchell Act-funded programs include **Ringold**, **Beaver Creek** (Elochoman), and **Grays River** hatcheries.

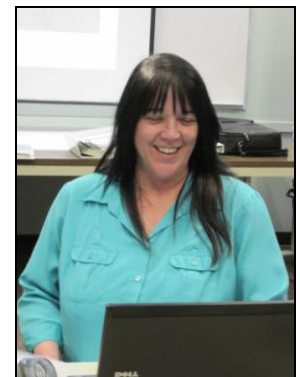
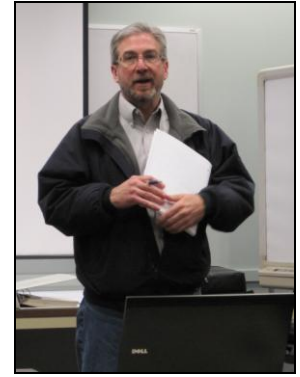
🐟 Lewis River Late-Winter Wild Steelhead broodstock program, by **Kevin Young**, **Merwin Hatchery** FHS4. This presentation also showed us the recent renovations at the **Lewis River Hatchery**.

🐟 **Larona Newhouse**, **Cowlitz Salmon Hatchery** FHS4, talked about the recently completed CSH renovations (see also article in *The Intake: October 2010*). She gave this presentation at the 2010 NW Fish Culture Conference in Portland OR, in December.

🐟 Hatchery Reform activities in the Lower Columbia, by **Eric Kinne**, Region 5 Hatchery Reform Coordinator. These included the recent Mitchell Act review, Conservation and Sustainable Fisheries Plans (C&SFPs), and Facilities and Management improvements.

🐟 Region 5 Fish Program Manager **Pat Frazier** finished the day with a presentation on the Lower Columbia Alternative Gear Study (see also article in *The Intake: January 2011*).

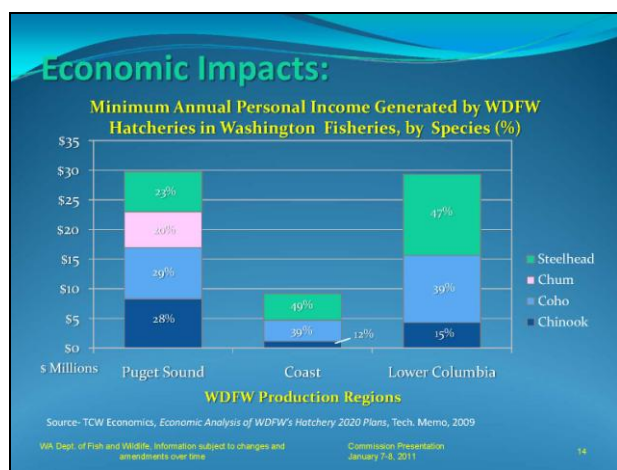
The next Division Meeting will be at the end of August; Region 3 will host. Hope to see you all there!



## Overview of State Hatcheries: Fish Commission Briefings

The Hatcheries Division was asked to do a series of briefings at the Fish Commission meetings. Originally scheduled December 2010 through February 2011, these talks addressed the history and role of the Washington State Hatchery System. Division Manager **Heather Bartlett** gave the first presentation, an overview of the *Historical Context and Legal Foundation*, on December 2, 2010. The first hatchery in Washington State was built on the Kalama River in 1895. Hatcheries were originally developed as a way to compensate for land use decisions that permanently altered large areas of fish-producing habitat. Almost all salmon hatchery production is linked to fulfilling state-tribal salmon management agreements or federal requirements for mitigation from habitat loss or damage (dams and culverts construction, pollution or deforestation, and altered waterways). In recent years, state hatcheries also have taken on an important role in helping to recover and conserve the state's naturally-spawning salmon populations. Over 20 hatcheries are involved in recovery actions for 20 currently-listed Endangered Species Act (ESA) stocks.

On January 7, 2011, Hatcheries Evaluation and Assessment Team (HEAT) Unit Leader, **James Dixon**, gave the second presentation, *Historical and Contemporary Production, and Economic Value*. WDFW currently operates 87 hatchery facilities, of which 75-80% are dedicated to producing salmon and/or steelhead and another 20-25% rear trout and other gamefish. While recent decades have shown a general downward trend in Washington state salmon/steelhead production/releases, WDFW still provides over 60% of the current production in Puget Sound, Coastal, and Columbia



River systems. Economic value varies by region, influenced by species and production. Steelhead contributes primarily through recreational fisheries, while salmon contributes significantly to both recreational and commercial fisheries (trout/kokanee were not included in this presentation and will be addressed in a future Inland Fish Plan briefing). Statewide, local personal-income is collectively estimated at \$14.4 million in commercial fisheries and \$53.9 million in sport fisheries. Non-economic measures include the cultural value of associated with fishing, and ecological value (i.e. nutrient enhancement).

The third and final briefing was rescheduled for the Commission meeting on June 3-4, 2011. Copies of the first two slide shows (modified for viewing without benefit of a narrator) are available on the Hatchery Division web page, in the [Salmon Hatcheries Overview](#) section.

## What's the SCoRE? by Brodie Cox, Science Division/BDS Unit

Over the past year, the **Biological Data Systems (BDS)** Unit in the Fish Science Division has been developing a centralized fish data distribution site known as SCoRE (Salmonid Conservation Reporting Engine). When released later this year – hopefully this Spring – Phase 1 of this system this system will consist of a series of interconnected Fish Program databases with a web front-end. Although it will eventually incorporate most major Fish Program datasets, Phase 1 is constructed around FishBooks and our **Hatchery Evaluation and Assessment Team's (HEAT)** work on the Hatchery Performance tables. These tables give a one-stop snapshot of our facilities and the wild salmonid populations with which they interact.

The website portion of this system will tell our Agency's story in terms of Wild Salmon Restoration efforts. The interconnected Fish Program datasets powering the website will be allow for MUCH easier and reproducible reporting internally, to the public and to our regional partners. Historically, databases have been created on an ad hoc basis, and did not link with one another. The proliferation of these garden-variety databases created inconsistencies in our formatting, reporting, and information delivery. For our Hatchery folks, this meant that information-seekers might receive different answers (i.e. preliminary numbers instead of final) depending on who was asked or what database was consulted, and/or multiple requests were issued for the same data from different people. The BDS team has worked with data providers and data users, and is in the process of creating and/or linking the following data bases into Phase 1 of the SCoRE site:

From Production & Hatchery Reform:

Fish Books

Water Quality

Website (internal access only): <http://legolas.dfw.wa.gov:8888/score/>

Broodstock plan implementation

CWT Data

HSRG Actions and strategies

## A Happy Fisherman Submitted by Jeremy Parker, FHS3 Humptulips Hatchery

It's always nice to receive encouragement from the public. The following letter and photo was sent to the Humptulips Hatchery.

January 4, 2011

To whom it may concern:

I think it's important for people who work hard at restoring salmon and steelhead to know their work is "GREATLY APPRECIATED"!!!!

I caught this 20-lb hatchery steelhead on November 21, 2010. I was looking for salmon...what a nice surprise.

You can't believe the fight/strength it had. I have fished all over Alaska for many years, and never had to work so hard to land a salmon/steelhead. What ever your [sic] doing up there is working!!!!

Thanks again.



## Staff Happenings

By Rachel McDaniel, Hatcheries Div. Admin Assistant

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

**Jon Anderson** - Acting Region 6 Hatchery Reform Coordinator

**Amanda Danielson** - FHS 3, North Toutle Hatchery

**Trude Sorebo** - FHS 3, Mckernan Hatchery

**Jim Trammell** - FHS 2, Kalama Falls Hatchery

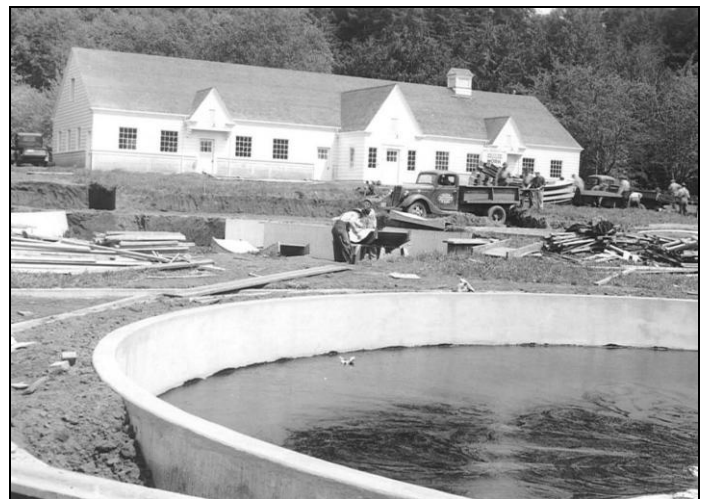
**Calvin Lehman** - FHS2, Naches Hatchery

**Jayson Wahls** - Acting Wells Complex Manager, March 5-26, 2011

**Guy Wiest** - Acting Wells Complex Manager, Effective March 27, 2011

Also, please join me in wishing all the very best to **Pat Phillips**, former Wells Complex Manager (Region 2), in his new venture.

## What hatchery is this?



Vanouver Hatchery, circa 1990s



Mail to: [fishpgm@dfw.wa.gov](mailto:fishpgm@dfw.wa.gov)

Website: <http://wdfw.wa.gov/hatcheries>

*The Intake* is also available on the [WDFW Publications \(Hatcheries\)](#) web page

## Washington Department of Fish and Wildlife Hatcheries Division 600 Capitol Way N., Olympia, WA 98501

*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