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2012 NWFCC in Portland

By Gary Marston HEAT

The U.S. Fish and Wildlife Service and the Oregon Chapter of the American Fisheries Society hosted the 63rd Annual Northwest Fish Culture Conference on December 11-13, 2012. This three day event, held at the Portland Marriott Downtown Waterfront in Portland, Oregon, focused on progressive fish culture in the Northwest. Approximately 350 fish culture professionals attended.

Although WDFW staff were not a large presence at the conference, the Agency was well-represented by several featured presentations. On Wednesday (Day 2), WDFW's **Christina Iverson**, of the **Hatchery Evaluation and Assessment Team (HEAT)**, gave an oral presentation on [Cowlitz Hatchery Program Modifications Using Modeling Technology](#) (see sidebar on [pg 6](#)). **Mitch Combs**, (FHS3, **Sherman Creek Hatchery**) gave his oral presentation on [White Sturgeon US Conservation Aquaculture on the Trans Boundary Reach](#) on Thursday (Day 3) (see sidebar on [pg 6](#)). In addition, **Gary Marston** and **Beata Dymowska** (HEAT) provided a poster presentation on *Washington State Hatcheries Fisheries Contribution Derived from Coded-Wire Tag Data*.

One of the hot topics at the conference included the use of recirculating aquaculture systems (RAS). Presenters showed that these RAS circular tank systems were effective at conserving water and electricity, while also fostering improved fitness of cultured fish.

Additionally, a number of talks discussed the causes and implications of increased rates of mini-jacks produced in hatcheries. These presentations showed that increased growth rates led to increased mini-jack rates, and also that colder winter water temperatures slowed growth and reduced mini-jack rates. In a case study with the White River Spring Chinook conservation program (Wenatchee Basin), approximately 71% of males are maturing as mini-jacks and displaying high rates of straying throughout the basin, leading to lost production of this highly-endangered population. Another topic discussed the [Effects of Initial Feed Timing on Triploid Rainbow Trout Fry at Grace Fish Hatchery](#) (by **Beau J. Gunter**, Assistant Hatchery Manager, Idaho State Department of Fish and Game's Grace Fish Hatchery). This talk looked into the most successful and cost-effective timing for initial feeding to obtain the greatest benefits during early-rearing for triploid rainbow trout. The study showed that the best results were achieved by beginning the initial feeding at 25 days after hatching. Mr. Gunter is interested in continuing the study with other species and at other hatcheries; this will be an interesting study to follow and possibly see WDFW hatcheries participate.

Several noted presentations by the tribal Co-managers, included [Artificial Propagation of Pacific Lamprey: Lessons Learned and Path Forward](#) by **Patrick Luke** of the Yakama Nation (Yakama/Klickitat Fish Project, **Klickitat Salmon Hatchery**). This talk discussed the ongoing efforts to restore Pacific Lamprey in the Columbia River basin (see <http://vimeo.com/wemayfly/asum>), and the challenges to developing successful propagation techniques, including the best feeds to use and the variable survival due to different incubation and rearing methods. **Michael McLean** from the Confederated Tribes of the

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The Semi-Annual Hatcheries Division Meeting, hosted by **Region 6**, is scheduled for **Tuesday, April 23**.



Hatchery Facilities in the Green River Basin

On February 13, members of the **Hatchery Evaluation and Assessment Team (HEAT)** toured the hatchery facilities in the Green River system. Unit Lead **Brian Missildine** arranged the tour with Region 4 Hatchery Reform Coordinator **Brodie Antipa** and **Mike Wilson**, FHS4 from **Soos Creek Hatchery**, to help HEAT members familiarize themselves with Agency and tribal facilities in the watershed. The tour provided the unit with valuable insights into the facilities and their relationship to each other, as well as the specific needs and challenges faced by hatchery staff in the continued implementation of the 2009 Fish and Wildlife Commission Hatchery and Fishery Reform Policy (C-3619). This perspective is particularly helpful as we navigate the various Hatchery and Genetics Management Plans (HGMPs) the unit oversees for WDFW hatchery programs. We hope that this is only the first of many site visits.



L: Christina Iverson and Gary Marston view fry rearing in the shallow troughs in the Soos Creek Hatchery Building. **C:** Brian Missildine, Brodie Antipa and Gary at the asphalt ponds. **R:** The water intake system is scheduled for replacement during renovations.

Soos Creek Hatchery is located half a mile upstream from the Green River, at 13030 Auburn-Black Diamond Road, three miles southeast of Auburn. This facility, built in 1901, was originally named the White River Hatchery and later renamed the Green River Hatchery; the hatchery was renamed the Soos Creek Hatchery in 1995. The facility is scheduled for renovations starting summer 2013. Plans include relocating the adult holding ponds (which will replace the current in-river pond – see article on [pg 6](#)), juvenile rearing ponds, pollution abatement ponds, and the hatchery building across the creek, out of the flood plain. These capital improvements, which also include renovated water intake structures, are funded by the “Jobs Now” bill passed by the Legislature in 2012 (see sidebar on [pg 6](#)). Soos Creek Hatchery currently produces 3.2-million fall Chinook, 600,000 coho, 30,000 summer steelhead, 35,000 winter steelhead, 18,000 native winter steelhead and 1,500 rainbow trout annually.

The **Muckleshoot Indian Tribe’s (MIT)** juvenile smolt trap is located upstream of the hatchery intake. The project, headed by MIT Fisheries biologist **Christa Heller**, began in March 2012, to monitor the juvenile outmigration from adults passed above the hatchery weir. This year, trap operation began in January.



Top: MIT’s rotary “screw” trap. **L:** Fiberglass troughs and earthen ponds at Crisp Creek Complex. **C:** Beata Dymowska, Gary, Brian, Christina and Brodie at Crisp Creek ponds. **R:** Crisp Creek’s spring-fed earthen ponds.

Crisp Creek Rearing Ponds is a three-acre complex adjacent to **Keta Creek Hatchery**. This facility was previously owned by WDFW, but is now operated by MIT as part of their Keta Creek Complex. The spring-fed facility contains two earthen ponds and five fiberglass rearing tanks, and raises coho and chum.

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Flaming Geyser (“Dick Brice”) Ponds, located in Flaming Geyser State Park, are two acclimation ponds used and maintained by Trout Unlimited’s (TU) Duwamish-Green Chapter. Originally constructed as part of a private resort for guest trout fishing, the ponds were improved in winter 1985 by TU’s South King County Chapter, with separate drains and water supply intakes from Christy Creek. The ponds were resurfaced with concrete in 1993, and are dedicated to the memory of TU-member Richard Brice, an avid angler with a passionate interest in steelhead conservation. Each pond is capable of holding approximately 10,000 steelhead smolts.



Icy Creek (“Pautzke”) Rearing Ponds, located off the Enumclaw-Franklin Road at river mile 48.5; was established in 1977 as a private trout rearing pond. The two earthen ponds are gravity-fed from shallow springs. WDFW currently uses the ponds to rear fall Chinook and summer, winter-run and native winter steelhead. As of 2003, a trap was installed at the mouth of Icy Creek to trap and remove marked hatchery-origin Chinook, and to release any unmarked, natural-origin Chinook salmon back into the Green River.



Palmer Rearing Ponds is located off SE 309th Street in Palmer, at RM 56. The 12-acre site became operational in 1969. There are one 1-acre and one 0.4-acre earthen ponds, as well as four 20-ft round ponds. All of the ponds are gravity-fed with spring water. In the past, the facility was used to rear summer- and winter-run steelhead. WDFW closed the facility in 2009, and the property is currently leased to MIT on a year-to-year basis for fall Chinook production.

Top L: “Dick Brice”/Flaming Geyser ponds. **Top R:** The eponymous “Flaming Geyser”(lower left) is fueled by a methane gas pocket 1000-ft below. **Center:** Icy Creek “Pautzke” Rearing Ponds. **Bottom:** WDFW closed Palmer Ponds in 2009 **(L)** earthen ponds **(R)** circulars.



Adult fishway at Tacoma Water Headworks.

Improvements to the Headworks, completed in 2006, included the addition of a new fish trap-and-haul facility to the Headworks diversion facilities. The **Tacoma Water Headworks** diversion dam and intake is located three miles downstream from the Howard Hansen Dam. The original Headworks was constructed in 1913 to divert water from the Green River to use as part of the city’s water supply system. The site is accessed through the massive construction site for Tacoma Water’s “Second Supply Project” new water treatment facilities.

WSP/E’s Green River screw trap monitoring trap is located on the Green River, just upstream from the confluence with Soos Creek. WSP/E has operated a juvenile salmon out-migrant trap in the Green River mainstem each spring since 2000. The project focuses primarily on freshwater production and survival of Chinook salmon, but also provides estimates of abundance and biological characteristics of juvenile migrant coho, pink, chum, and steelhead in this watershed.

Hatchery Maintenance: New Fish Tankers!

By Neil Turner, Hatchery Reform Capital Projects

Three WDFW hatchery facilities have new planting trucks!

Ringold Springs Hatchery had a cab and chassis but no tank. The Ringold crew worked with our contract vendors, Valley Freightliner and Reiff Manufacturing, to size and build a tank that fit the truck and kept it within its gross vehicle weight (GVW).

In addition, near the end of the 2012 fiscal year, funds were available to purchase a new truck and tank, and to buy and install a tank on a surplus truck, for **Whitehorse** and **Ford** hatcheries. The specs from the Ringold truck were used to purchase a new cab and chassis through Valley Freightliner, and the agency was able to “piggyback” the contract with Reiff to build a second tank exactly like the one for Ringold. The truck was delivered on June 29, and the tank was completed on June 30.

Because it was near the end of the budget cycle, there was no time to spec and bid the tank for the third truck. Instead, WDFW’s **Lacey**

Construction Shop built an insulated aluminum tank with a 12-inch pneumatic flanged outlet for a surplus truck from **Tucannon Hatchery** (see article below). All three trucks have pneumatic outlets which eliminate the need to get on top of the truck. The tank cradle, booms and other hardware for the Whitehorse and Ford trucks were installed by the Lacey Construction Shop.

Congratulations to Ringold, Whitehorse and Ford for your new or slightly-used trucks!



New trucks! **Left:** Ford Hatchery. **Top:** Ringold Hatchery. **Right:** Whitehorse Hatchery.



The Lacey Construction Shop fabricates a fish tank for the “new” Ford Hatchery truck

By Neil Turner

The **Lacey Construction Shop** staff -- **John Frost** (CMPS), **Robert Baker** (Welder), **Mike Castaneto** (Welder), and **Steve Niccolson** (Maintenance Mechanic 1) -- provided pictures of the progression of the build for the Ford Hatchery tanker truck.

#1. Tank sub-frame on truck.



#2. Tank frame.



#3.-5. Installing the inner lining.



#6. The insulation.



#7. Tank with the outer skin. Installed.



#8 The air stone regulators



“Jobs Now” Bill Update

By Neil Turner

The “Jobs Now” Bill, passed by the Legislature in 2012, dedicated \$58,035,000 to make improvements at our hatchery facilities. The focus was to complete projects that would help our facilities stay environmental compliance.

Many projects have been designed and permitted. **Bingham Creek Hatchery** pipeline and pond replacement, and the **Hupp Springs** pollution abatement pond and rearing pond renovation have both been advertised and will have contractors assigned to them for construction this summer.

Other projects in the works:

- **Voights Creek Hatchery** rebuild: Plans are 90%; construction scheduled for summer 2013.
- **Eells Springs PA pond:** Constructed should begin summer 2013.
- **Forks Creek Hatchery** adult pond replacement: Constructed should begin summer 2013.
- **Sol Duc Hatchery** adult pond replacement: Constructed should begin summer 2013.
- **Issaquah Salmon Hatchery** intake replacement: Constructed should begin summer 2013.
- **Hoodspout Hatchery** tower and pipeline replacement: Tower is 75% completed; and should be ready to install summer 2013.
- **Minter Creek Hatchery** manifold replacement: 50% completed.
- **Soos Creek Hatchery** rebuild: In the permitting process; hope to begin construction summer 2014.
- **Tokul Creek Hatchery** intake replacement: In the permitting process; hope to begin construction summer 2014.

Soos Creek Hatchery in-river adult holding pond

Soos Creek Hatchery, originally constructed in 1901, has undergone complete rebuilds in 1907, 1926, and 1948. As part of the “Jobs Now” bill (see sidebar), the facility is scheduled for another major renovation in summer 2013. Part of the renovations includes constructing an adult holding and sorting pond that is not in mainstem Soos Creek. Currently, broodstock returning to Soos Creek are trapped and held in an in-stream, “run-of-the-river” pond formed by the natural stream channel framed by a two semi-temporary weirs. Returning salmon enter the pond through a V-shaped-entry in the downstream (lower) weir. Plans for the new facility include a fishway/ladder into five-bay adult holding and sorting ponds, and return-to-river piping for passing adult fish upstream.

The Soos Creek Hatchery program processes a lot of fish! During the 2012 spawning season, approximately 12,500 adult Chinook and 37,350 adult coho returned to the facility. Hatchery staff and volunteers collected 5.3-million Chinook and 1.6-million coho eggs, and released over 1,200 Chinook and 1,260 coho upstream. Carcasses and eggs are collected by the fish buyer; food grade fish are donated to the food bank.



L: Soos Creek Hatchery sorting spawning shed and in-river pond (September 2010).
R: Mike Wilson (FHS4), with hatchery staff and volunteers, work up Chinook.



HEAT staff helped out during the coho spawning season in November 2012. **L:** Coho in the adult holding pond. **R:** Weir on the upper end of the stream channel. Photos by Gary Marston



L: Fish are seined and hauled into the sorting shed for spawning. **R:** There are so many fish, a “Genie” fork lift holding a large dip net, is used to “scoop” fish out of pond for spawning and sorting. Each scoop holds enough fish to fill one tote. Photos by Gary Marston

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Umatilla Indian Reservation (**Umatilla Hatchery**) gave a presentation on the [Practical Application of Electro-Anaesthesia in the Field](#) as an alternative to the use of drugs as anesthetics. This method, which uses electro-narcosis, reduced handling times and when compared to other standard anesthetics and demonstrated no significant impacts to the fish. Additionally **Becky Johnson's** (Fisheries Production Manager with the Nez Perce Tribe) presentation [Integrating Conservation Hatchery Principles with Tribal Treaty Reserved Harvest Opportunities](#) focused on mitigation and treaty obligation to produce fish in the upper Columbia and Snake rivers.

Every year, at the end of the conference, several fish culture professionals are added to NWFCC Hall Of Fame. The 2012 recipients, all retired from the USFWS, included **Joe L. Banks**, **Wesley H. Orr** and **Gary A. Wedemeyer**. It was inspiring to learn about the recipients' passionate careers and even more interesting to hear their humble speeches, which spoke to the value of information exchange. Their collective reflections about attending past conferences portrayed the significance of sharing ideas, and how these men benefited from that sharing throughout their careers. This conference helps to bridge gaps in the fish culture community; participation in which all WDFW Hatcheries staff could find beneficial.

WDFW Hatcheries in the news! *Minter Creek Hatchery*

On February 6, 2013, the *Tacoma News Tribune* published a very nice article about WDFW's own [Minter Creek Hatchery](#)! FHS4 **Jorge Villarreal** talked about the 1.3-million salmon eggs (coho, chum, and Chinook) the facility incubates each year for on-station releases and co-operative enhancement programs, as well as the "art and science" behind managing hatchery operations and staff. In addition to producing 500,000 coho, 2-million chum and 1.7-million Chinook, Minter Creek Hatchery incubates and rears eggs for **Tumwater Falls Hatchery**, on the Deschutes River.



Top: Jorge Villarreal during HEAT visit to Minter Cr Hatchery, May 2012 (Photo by L Kishimoto). **Bottom:** Chum salmon caught in Minter fisheries (Photo by Gary Marston).

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Cowlitz Hatchery Program Modifications Using Modeling Technology - Christina Iverson (with Pat Fraser and Eric Kinne)

The Lower Columbia River Mitchell Act Hatchery programs have historically provided important fisheries in the lower river and coastal fisheries in Oregon and Washington. In 2009 the Hatchery Scientific Review Group (HSRG) and Lower Columbia River Salmon Recovery planning process began to shape a new regional approach to both the continued recovery of salmon and steelhead populations, and delivery of sustainable fisheries for local communities. Subsequently, WDFW developed management tools to support the application of these principles. The primary analytical tool used was the "All-H Analyzer" (AHA), a Microsoft Excel-based application that allows managers to explore potential outcomes of alternative strategies in balancing hatcheries, harvest, habitat and hydroelectric system constraints. The HSRG set standards to limit impacts of hatchery programs on naturally produced populations, and provided suggested solutions. WDFW utilized the AHA tool to analyze additional alternatives for program modifications, and to develop a comprehensive plan that strategically redesigned hatchery production programs in the lower Columbia River to achieve both HSRG standards and support sustainable freshwater and ocean fisheries.

White Sturgeon US Conservation Aquaculture on the Transboundary Reach - Mitch Combs

The Lake Roosevelt White Sturgeon Recovery Project (LRWSRP) is a cooperative effort by WDFW, the Spokane Tribe of Indians, and the Colville Confederated Tribes to identify the factors limiting white sturgeon recruitment in the Transboundary Reach of the Columbia River. The project also began operation of a conservation aquaculture program to produce juvenile white sturgeon for Lake Roosevelt. The program was developed with two primary goals, (1) to restore recruitment of white sturgeon to the river, and (2) to ensure preservation (to the greatest degree possible) of genetic diversity currently found in the wild population. This program was designed as a stop-gap measure to prevent further decline of the population until factors affecting natural recruitment are identified and corrected.

The culture program has evolved from outsourcing eggs to rearing wild larvae collected each July. Larvae are reared at Sherman Creek Hatchery until large enough for tagging and release into Lake Roosevelt. Initial results have been positive for both survival of conservation aquaculture-released fish and genetic representation, as indicated by the ongoing testing of adults and hatchery releases.

Catie-Kelly Corner: Future Brood Document Planning Meetings 2013

By Catie Mains and Kelly Henderson, Science Division/ BDS-Hatchery Data Section

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, 2013 – June 30, 2014). 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 2013 FBD and past documents can be found at http://wdfw.wa.gov/hatcheries/future_brood.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

2013 FBD Meeting schedule, by Region

Region	Dates	Location
1	Wed, Apr 10	Spokane Office
2+3	Tue, Apr 09	Ephrata Office
4	Wed, Mar 20	Mill Creek Office
5	Tue, Mar 26	Vancouver Office
6	Wed, Apr 24	Hoodsport Hatchery

Please contact **Kelly Henderson** at 360-902-2684 or Kelly.Henderson@dfw.wa.gov if you have any questions.

Staff Happenings By Jill Cady, Hatcheries Division Admin Assistant

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

Region 1

Steven Collie, FHS1-in training, **Ford Hatchery**
Guy Powell, FHS1-in training, **Ford Hatchery**

Region 6

Deirdre Bissonette, FHS3, promoted to **George Adams Hatchery** from **Eells Springs Hatchery**
Benjamin Cease, FHS1-in training, **Eells Springs Hatchery**

Region 2

Lee Jakob, FHS2-in training, **Chelan Hatchery**
Elliot Rocio, FHS2-in training, **Chelan Hatchery**
Matthew Joki, FHS2-in training, **Chelan Hatchery**

Headquarters – Olympia (NRB)

Erin Gunderson, FB2, CWT & Mass-Marking
Joseph Coutu, FB2, CWT & Mass-Marking

Heather Bartlett, former **Hatcheries Division Manager**, accepted the **Deputy Director** position for Field Operations in the **Drinking Water Office** at the **WA Department of Health**. Her last day with WDFW was November 15, 2012.

Also, please join me in wishing all the very best to the following on their well-deserved retirement and new adventures:

James Bauer, former FHS4 at **Naselle/Nemah Hatcheries**, on December 16, 2012.

Dan Adkins, former FHS4 at **Eells Springs Hatchery**, on March 1, 2013.

What's New with Fish Program's Hatcheries Support Section – Headquarters (Olympia)



On January 4, 2013, **Assistant Director Jim Scott** decided that, rather than fill the vacant **Hatcheries Division Manager** position, **Hatcheries Division** staff will now report to **Deputy Assistant Director Kelly Cunningham**. This step unifies all Hatcheries system staff -- from Olympia or those reporting in the Regions through the RPMs -- under one position.



Brian Missildine, **NRS3 Hatchery Evaluation and Assessment Team (HEAT)**. Brian was hired as the new **HEAT Unit Lead** on November 5, 2012. He worked several years for the USFWS, handling Section 7 and Section 10 consultations for Federal actions. Most recently, he worked for a local environmental consulting firm, focusing on restoration projects. Brian is a graduate of the Evergreen State College, with a BS in Salmon Ecology, and and MES in salmon toxicology. He is also the President-elect of the Washington-British Columbia Chapter of the American Fisheries Society.



Jill Cady, AA3. Jill was hired on October 25, 2012, to fill the **Hatcheries Division** Administrative Assistant position vacated when **Ami Hollingsworth** (AA4) transferred to the vacant AA position in **Science Division**. Jill has over 12 years of experience as an administrative assistant in the private sector, working with real estate and civil engineering. She has AS degree in Information Technology, with a focus on Microsoft Office applications.

Spring – Time for mass-marking and tagging!

By Mark Kimbel, Hatchery Evaluations Manager, and Dan Thompson, (FB4) CWT and Mass-Marking

The big white trailers will soon be rolling into hatcheries across the state as we get ready for another busy spring marking and tagging season! Mass-marking and mark-selective fishing emerged as a way to deal with the complexity of providing fish for harvest while protecting natural stocks. Mass-marking, in this sense, means clipping the adipose fin. The presence or absence of an adipose fin provides a visual cue allowing differential retention of marked fish while requiring the release of unmarked fish in mark-selective fisheries. Mass-marking also provides a valuable tool for assessing stocks because hatchery-origin and natural-origin fish can be distinguished when captured in fisheries, and when they return to hatcheries and spawning grounds. Almost all Chinook, coho and steelhead produced at WDFW and tribal hatcheries are mass-marked; about 100 million fish annually. Exceptions are fish used for Double Index Tag (DIT) groups and conservation programs.

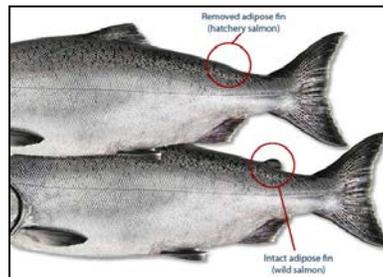
Coded-wire tagging has been used for many years to identify particular groups of fish for hatchery and fishery evaluations and other research and management purposes. WDFW coded-wire tags (CWTs) approximately 16 to 18-million juvenile hatchery Chinook and coho each year.

WDFW uses *AutoFish* systems almost exclusively for CWT application, although the systems have mass-marking capabilities as well. Our fleet of 25 manual marking trailers, staffed with contracted labor, do the majority of the mass-marking.

For those of you that haven't seen the marking or tagging operations, we encourage you to stop by a hatchery and have a look or contact us for approximate times and places in your area.

Dan Thompson 360-902-2586, or
Daniel.Thompson@dfw.wa.gov.

Mark Kimbel 360-902-2406, or
Mark.Kimbel@dfw.wa.gov

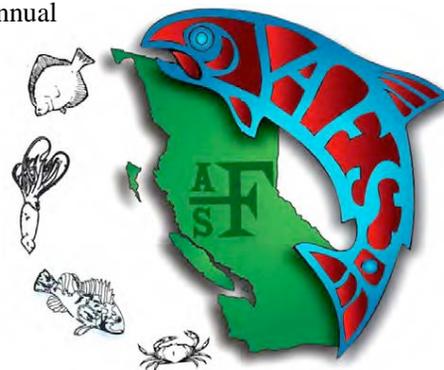


Upcoming 2013 AFS Meeting

By Brian Missildine, HEAT Unit Lead, AFS WA-BC Chapter President-elect

The **Washington/British Columbia Chapter of the American Fisheries Society's** Annual General Meeting 2013 will be held at the Campbell's Resort in beautiful Lake Chelan March 25-28. Some of the presentation topics include: Hatcheries in the 21st Century, Past, Present and Future; Upper Watershed Life History Patterns; Mid-Columbia Basin and Fisheries Management; bull trout; and pacific lamprey. Of course there will also be talks on general fish biology, life history, and other relevant fisheries topics. We encourage other topics dealing with shellfish, cetaceans, and other marine/freshwater critters as well.

We are still accepting abstracts until March 10, so if you have a topic or a poster, please consider submitting your work. The meeting website is <http://agm2013.wabc-afs.org/>. If you have any questions, please contact me at 360-902-2676, or Brian.Missildine@dfw.wa.gov.



Washington Department of Fish and Wildlife Hatcheries Division
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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

The Intake is also available on the [WDFW web page](http://wdfw.wa.gov/hatcheries/newsletter.html) at <http://wdfw.wa.gov/hatcheries/newsletter.html>

<mailto:fishpgm@dfw.wa.gov>

<http://wdfw.wa.gov/fish/management/hatcheries.html>

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