

State of Washington  
Joint Legislative Audit & Review Committee (JLARC)



**Trout Production:  
Estimates Suggest Price Competitive  
Options are Available**

**Report 13-3**

February 20, 2013

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**Committee Approval**

On February 20, 2013, this report was approved for distribution by the Joint Legislative Audit and Review Committee.

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STATE OF WASHINGTON



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## REPORT SUMMARY

### **The Washington Department of Fish and Wildlife Produces Trout for Recreational Purposes but Lacks Needed Answers to Production Costs**

As part of its effort to enhance recreational fishing opportunities in the state, the Washington Department of Fish and Wildlife (WDFW) produces trout at some of its hatcheries and releases these fish in lakes throughout the state. The Department produces different species of trout, such as rainbow, cutthroat, and brown, and it produces different sizes of fish, from smaller fry and fingerlings to larger “catchables.”

WDFW uses a business-like approach to identify the species and sizes of trout to provide. The agency uses results from a survey that functions as market research to inform the Department about anglers’ preferences for fishing in Washington. The Department then uses fisheries management science principles to determine the quantity, species, and sizes of trout to stock. **However, WDFW does not collect corresponding trout cost information by species and size to determine the most cost-effective ways to reach its trout stocking objectives.**

### **Alternative Approaches to Trout Production Are Available**

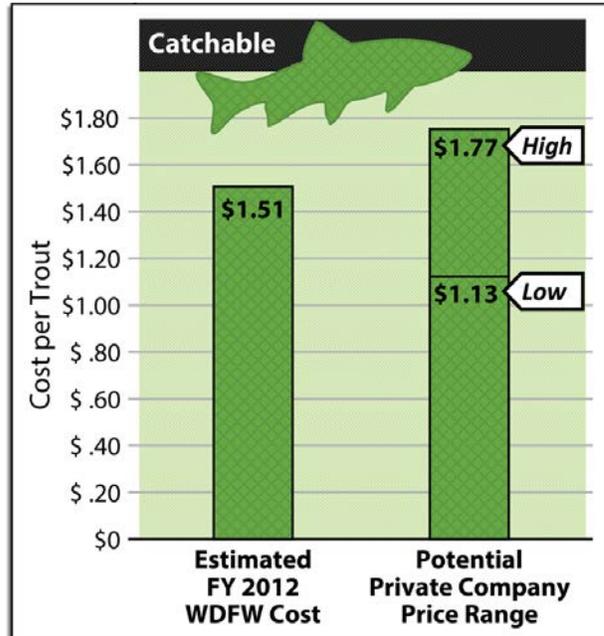
In the 2012 Supplemental Operating Budget (3ESHB 2127), the Legislature directed JLARC to identify the availability of alternative approaches to trout production and to compare WDFW’s costs with the costs of the alternatives. Alternative approaches are available, and the Department currently uses five for trout production:

- Leasing the operation of a state hatchery facility to a private company;
- Contracting with a private company to purchase trout the company grows;
- Cooperative agreements with county public utility districts, nonprofit groups, and a college;
- Partnerships with the federal government and Indian tribes; and
- Trading fish and fish eggs with other states at no cost.

## JLARC Developed a Price Comparison

To make the cost comparison the Legislature requested, JLARC needed WDFW cost information by trout species and size, the same kind of parameters that would be specified in a contract with a private company. Currently, WDFW does not routinely track hatchery cost information this way. At JLARC’s request, for the purposes of this study, the Department conducted a case study of various cost categories at its Spokane hatchery to grow one species (rainbow trout) of various sizes. JLARC reviewed this cost information and converted it to an estimated cost per fish. This estimated cost data allowed JLARC to make a comparison with the prices estimated by and contained in previous bids submitted to public utility districts from one major private company that produces and sells trout.

As shown in the exhibit at right, JLARC’s estimate is that WDFW and this private company can supply catchable-sized rainbow trout for similar prices. A similar analysis for fingerling-sized rainbow trout indicated WDFW’s estimated costs were less than the private company’s prices.



It is likely that the Legislature will not know with

certainty whether the results from this one price comparison apply more broadly until:

- 1) the Department collects hatchery cost information by species and size as recommended in this report, and
- 2) formal bids are available showing the prices private growers would charge the Department to purchase their fish.

## Other Top Trout Producing States Indicate Advantages and Disadvantages When Using Alternative Approaches

As part of a survey, JLARC asked 15 other states if they had an opinion regarding the purchase of trout from private growers. All but four states offered an opinion, suggesting there are both advantages and disadvantages to purchasing trout from private growers. Advantages stated include the ability of private industry to supplement trout production, supporting private industry, and decreasing the overall trout production costs for the state. Disadvantages noted include reliability, monitoring concerns, and stocking issues.

## Auditor Recommendation

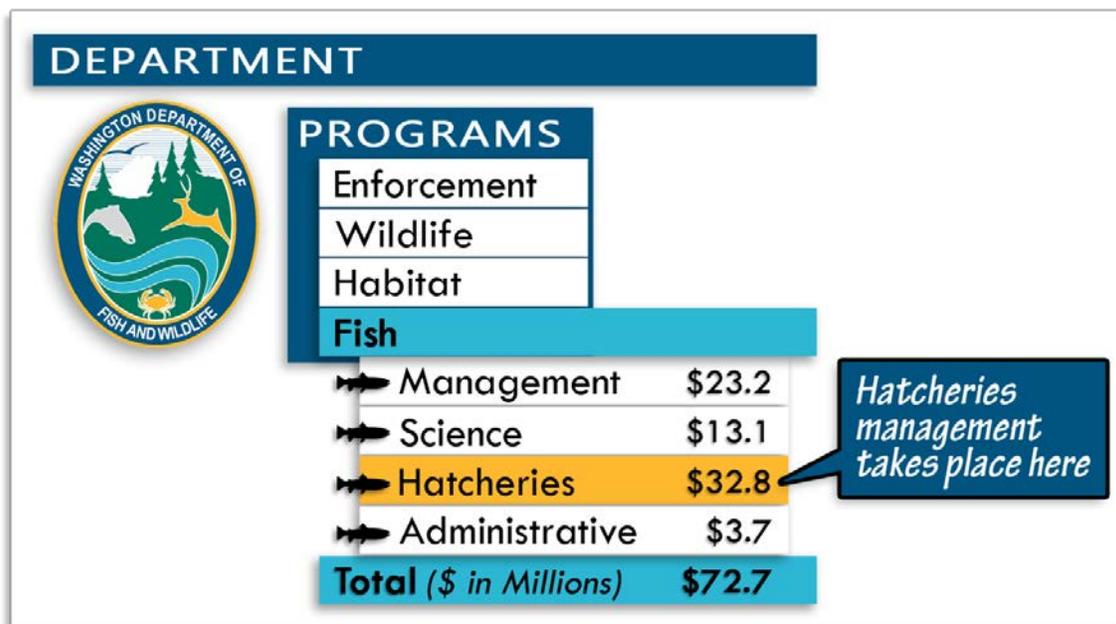
The Department of Fish and Wildlife should develop a plan to determine the most cost effective approaches to use to meet the Department’s stocking objectives. This plan should include a process to collect fish production cost data by fish species and size at each of WDFW’s hatcheries. This cost data should be stated in a manner that allows for reasonable comparisons to private sector prices. The Department should report to the Legislature on this plan by December 2013.

# PART ONE – THE WASHINGTON DEPARTMENT OF FISH AND WILDLIFE PRODUCES TROUT FOR RECREATIONAL PURPOSES BUT LACKS NEEDED ANSWERS TO PRODUCTION COSTS

The statutory mandate of the Washington Department of Fish and Wildlife (WDFW) includes direction for the Department to enhance and improve recreational fishing in the state (RCW 77.04.012). One way the Department accomplishes this is by producing fish at its own hatcheries for recreational harvest. The first hatchery in Washington was built in 1903 in Chelan County. Initially, the hatcheries were operated by counties and municipalities. The state became involved in fish production in the 1930’s when it created the Departments of Fisheries and Game.

WDFW’s Fish Program has three operating divisions: 1) Fish Management, which seeks to stock the state’s waters with the appropriate species and sizes of fish; 2) Science, which conducts research to inform staff in the Fish Program’s other divisions; and 3) Hatcheries, which operates WDFW’s 82 hatcheries located across the state. These hatcheries produce salmon, steelhead, warmwater fish, and trout for recreational, commercial, and tribal fishing. The Fish Program also supports conservation and recovery programs. Exhibit 1 below illustrates the Program’s structure and includes relevant expenditure information for Fiscal Year 2011.

**Exhibit 1 – WDFW’s Hatcheries Management of all Fish Species**



Note: Expenditure sum does not equal total due to rounding.

Source: JLARC analysis of WDFW data from the Legislative Evaluation and Accountability Program (LEAP) Fiscal Reporting System.

## **The Department Produces Different Sizes and Species of Trout**

During Fiscal Year 2011, 31 of the Department's 82 hatcheries devoted at least 10 percent of their production to trout. Of these:

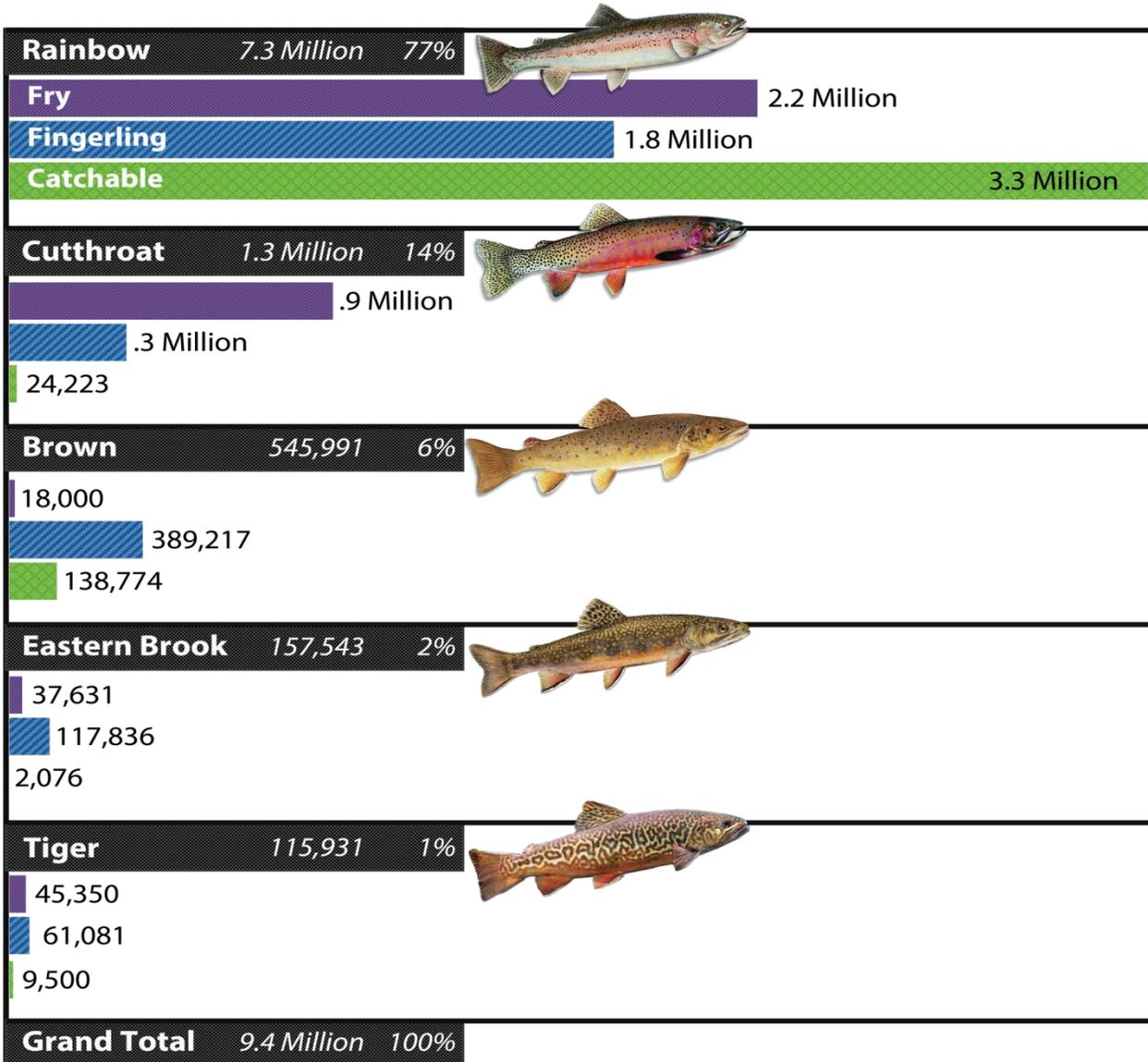
- 18 produced trout only. Of these 18, ten provided 81 percent of the Department's trout production as measured in pounds of fish;
- Three devoted over 50 percent of their production to trout but also produced salmon or warmwater fish species;
- Four produced primarily salmon but also devoted between 25 and 49 percent of production to trout; and
- Six produced primarily salmon but also devoted between 10 and 24 percent of production to trout.

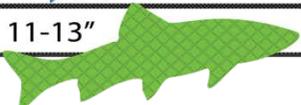
WDFW produces rainbow, cutthroat, golden, brook, brown, and tiger trout. The Department grows multiple sizes of trout. The three most common sizes are fry, fingerling, and catchable. Exhibit 2 on the following page shows, by species and size, the volume of trout the Department produced and released in Fiscal Year 2011. In addition, WDFW purchases some of the Department's triploid rainbow trout from a private grower. A triploid trout is sterile and has the potential to grow to trophy size.

Rainbow trout comprised 77 percent of the total number of trout produced by WDFW in Fiscal Year 2011. The Department states it produces more rainbow trout than other species of trout because rainbow trout are 1) easy to grow in hatcheries; 2) easier to catch than other species of trout, and anglers want a good chance to catch a fish; and 3) more adaptable to different lake habitats, doing well in most lake environments.

WDFW does not routinely isolate its total expenditures used to produce trout. At JLARC's request, the Department provided JLARC with expenditures for the Department's ten largest trout-only hatcheries. These ten hatcheries provide 81 percent of the Department's trout production. In Fiscal Year 2011, expenditures for these hatcheries totaled \$3.0 million (not including departmental capital or overhead), or 9 percent of WDFW's total hatchery expenditures.

**Exhibit 2 – Trout Produced and Released by WDFW Hatcheries in Fiscal Year 2011<sup>1</sup>**



Legend	Age	Size (average when released)
Fry	200 days	2" 
Fingerling	347 days	5" 
Catchable	529 days	11-13" 

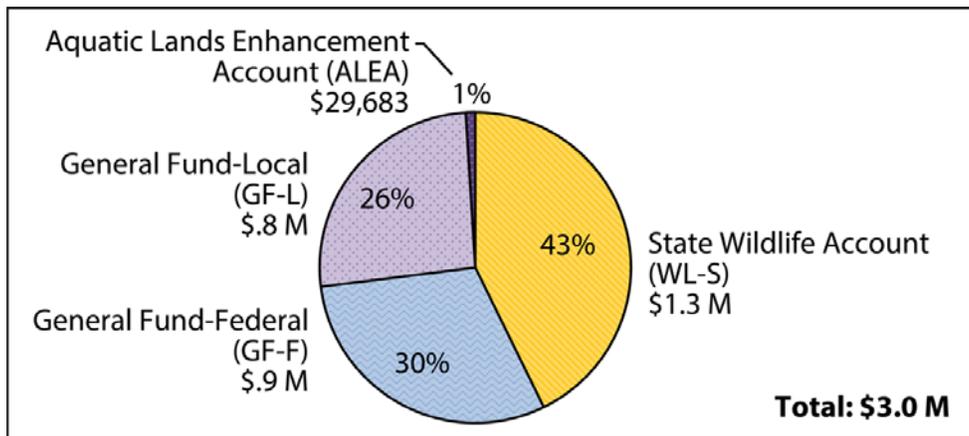
Source: JLARC analysis of WDFW data.

<sup>1</sup> WDFW also produces golden trout. During 2011, the Department did not release any golden trout so this species is not included above.

WDFW used four accounts to pay the expenditures for trout production at these ten trout hatcheries in Fiscal Year 2011: Wildlife Account-State, General Fund-Federal, General Fund-Local, and funds from the Aquatic Lands Enhancement Account (ALEA). One source for funds in the State’s Wildlife Account is revenues generated by recreational fishing license sales. During Fiscal Year 2011, WDFW sold 1.4 million licenses for all types of recreational fishing and generated revenues of \$20.3 million.

Exhibit 3 shows Fiscal Year 2011 expenditures for the ten largest trout-only hatcheries, by fund source.

**Exhibit 3 – FY 2011 Fund Sources for the 10 Hatcheries JLARC Reviewed**



Source: JLARC analysis of WDFW expenditure and revenue data.

### **WDFW Uses a Business-like Approach to Identify the Species and Sizes of Trout to Provide to Meet Demand**

WDFW staff use a structured, business-like approach to decide which trout to produce and where to place these fish. The approach has two components: 1) an angler survey that functions as market research and 2) fisheries management science principles.

A sample of anglers who fished in Washington’s waters are surveyed every five years by a consulting firm. The most recent survey was conducted in 2008 and included completed telephone interviews with 1,517 anglers. The survey results, which showed no marked differences from the 2003 results, indicated that anglers are satisfied with WDFW’s fisheries management and support the Department’s continued involvement in producing and stocking fish to provide recreational fishing opportunities.

These surveys inform WDFW staff about anglers’ preferences for fishing in Washington. The Department then uses fisheries management science principles to determine the quantity, species, and sizes of trout it will produce and the lakes where it will place these trout. WDFW stocks trout in over 1,800 lakes statewide, including 1,000 high lakes, 600 lowland lakes, and 200 beaver ponds.

The Department states that the species and sizes of trout stocked in a particular lake depends on factors such as the lake’s characteristics (e.g. water temperature, water quality, presence of predator fish, etc.) and the type of trout most suited to surviving in the lake’s environment. WDFW also

considers how many anglers fish at a particular lake and those anglers' preferences for the fish they catch.

## **The Department Does Not Collect Data that Allows It to Calculate Trout Production Costs by Species and Size**

To align with its production plan, WDFW should have information to calculate trout production costs by species and size. Doing this would enable WDFW to determine if the agency is using the most cost effective processes to achieve its trout stocking objectives.

WDFW does not have this information. Instead, the Department tracks costs by hatchery. A hatchery may be producing other kinds of fish in addition to trout, and a trout-only hatchery generally produces multiple species of trout in various sizes. Traditionally, the Department's primary means of determining production costs has been to divide the total of a specific hatchery's expenditures by the number of pounds of all types of fish produced at that hatchery.

This methodology does not identify the disparities involved in producing different species or different sizes of fish. For example, once the eggs are hatched, it takes less than six months to raise a fry but almost 17 months to grow a catchable. The longer a fish stays in a hatchery before it is released, the more resources WDFW must invest to grow that fish, making it more costly.

In addition, without tracking costs by species and size, **WDFW has no cost data that can be compared to production costs of alternative approaches to trout production.** Thus, the Department cannot determine if an alternative approach is more cost effective than producing trout internally. This issue is discussed more in Part Two of this report.

To make WDFW's business-like approach to trout production more robust, WDFW needs to have internal cost production data that can be compared to private sector prices. This will allow the Department to determine whether it is more cost effective to produce certain types of fish internally or use alternative approaches for trout production.

### **Auditor Recommendation**

**The Department of Fish and Wildlife should develop a plan to determine the most cost effective approaches to use to meet the Department's stocking objectives. This plan should include a process to collect fish production cost data by fish species and size at each of WDFW's hatcheries. This cost data should be stated in a manner that allows for reasonable comparisons to private sector prices. The Department should report to the Legislature on this plan by December 2013.**



## PART TWO – ALTERNATIVE APPROACHES TO TROUT PRODUCTION ARE AVAILABLE; JLARC WAS ABLE TO MAKE ONE PRICE COMPARISON

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In the 2012 Supplemental Operating Budget (3ESHB 2127), the Legislature directed JLARC to identify the availability of alternative approaches to trout production and to compare WDFW's costs with the costs of the alternatives.

Alternative approaches to WDFW's producing its own trout are available, and the Department currently uses five for trout production. JLARC was able to estimate a price comparison between one WDFW trout hatchery and the purchase of trout from one major private company. That analysis shows that the Department and the private producer can supply catchable-sized rainbow trout for a similar price. A similar analysis for fingerling-sized rainbow trout indicated WDFW's estimated costs were less than the private company's prices.

JLARC also identified four examples of issues for the Legislature to be aware of if it considers expanding the use of alternative approaches.

### **WDFW Currently Uses Alternative Approaches to Trout Production**

In addition to its own hatchery production, WDFW already uses five alternative approaches for trout production: 1) a lease agreement to manage one Department trout hatchery, 2) the purchase of triploid rainbow trout through a contract with a private grower, 3) cooperative agreements with county public utility districts, nonprofit groups, and a college, 4) partnerships with the federal government and Indian tribes, and 5) trading fish and fish eggs with other states.

#### ***Lease Agreement for Rocky Ford Hatchery***

Since 1987, WDFW has leased Rocky Ford Hatchery in Grant County to a private company that uses the hatchery to produce trout for its business. In exchange for use of the facility, the company pays WDFW in trout, which is allowed by statute (RCW 77.12.140). Currently, the contractual agreement requires the company to provide WDFW with 36,000 pounds of catchable-sized rainbow trout per year. At 2.5 fish per pound, WDFW staff said this equals approximately 90,000 catchable trout. Using the Spokane case study results as a benchmark, if these fish were priced at \$1.51 per fish, the value of the payment would be \$136,000 per year.

WDFW is unable to calculate what the annual expenditures for the hatchery likely would be if the agency still managed this hatchery and produced the same amount of fish. Thus, WDFW does not have the data needed to determine the cost effectiveness of the decision to lease this hatchery. Having the information necessary to understand whether alternative approaches such as this are cost effective options is one reason JLARC recommends that WDFW implement a process to identify its trout production costs by species and size of fish.

### ***Contract to Purchase Triploid Rainbow Trout***

WDFW also has a contract with the same company that leases Rocky Ford to purchase triploid rainbow trout. Currently, this contract provides the Department with 46,200 triploid trout at a cost of \$3.25 per fish. Although WDFW produces a limited number of triploid trout, the Department could not provide detailed cost information to enable a comparison with the private sector's price.

### ***Cooperative Agreements with County Public Utility Districts, Nonprofits, and a College***

The Department has several cooperative agreements with other organizations that assist WDFW to raise trout for recreational fishing. For example, each year, about 50,000 rainbow trout are transported from the Columbia Basin hatchery and released into net pen enclosures on the Potholes Reservoir. For five to seven months, these fish are fed and reared by volunteers until they are released in the spring.

### ***Partnerships with the Federal Government and Indian Tribes***

WDFW works with the U.S. Bureau of Reclamation to raise and release fish in Banks Lake. The Department provides the fish and technical expertise, and the federal government provides infrastructure, care, and feeding to raise 200,000 rainbow trout and 260,000 kokanee. The Department also works with two Indian tribes and a federal utility to operate 75 net pens that rear and release 750,000 triploid rainbow trout into Lake Roosevelt.

### ***Trading Fish and Fish Eggs with Other States***

WDFW has an informal agreement with other western states, such as Idaho and Oregon. When the states have a surplus, they can trade fish or fish eggs. For example, Washington may trade tiger musky to Idaho and, in return, receive black crappie.

### ***For Salmon Hatcheries, WDFW Uses Public/Private Partnerships***

WDFW has four public/private partnership agreements to manage four of its salmon hatcheries—Klickitat in Klickitat County, Mayr Brothers in Grays Harbor County, and McKernan and Satsop Springs, both in Mason County. Under these arrangements, WDFW provides:

- Limited operational funding,
- Staff support, such as pathology staff to inspect fish, provide medication, and assist with disease control, and
- Two full-time staff to operate McKernan hatchery.

The organizations involved in these agreements are expected to handle minor maintenance needed at the facilities and provide additional staffing, primarily through volunteers, to manage hatchery operations. WDFW does any major repairs required at the facilities.

WDFW and the organizations involved in these agreements cited these partnerships as working well. WDFW says it has not attempted to extend such arrangements to trout hatcheries because state statute (RCW 77.08.024) authorizes these agreements for salmon hatcheries only.

**If the Legislature directs WDFW to pursue additional alternative approaches for trout production, these partnerships could serve as one model to consider.**

## **To Make a Price Comparison with the Private Sector, JLARC Needed WDFW Trout Production Cost Information by Trout Species and Size**

Based on an analysis of previous bids, a contract with a private company to provide trout would likely specify a quantity of trout by species and size—such as a certain number of rainbow trout catchables—that the private company would be expected to deliver to WDFW or have ready for the Department to pick up on a predetermined schedule. JLARC reviewed previous bids submitted to public utility districts and estimated prices from a private sector provider to understand the likely process and to estimate a private-supplier price. To perform the price comparison requested by the Legislature, JLARC sought to identify what cost information the Department has by trout species and size that could be used to compare to prices provided by private fish growers.

### ***WDFW Does Not Routinely Track Cost Information by Trout Species and Size; Instead, WDFW Tracks Costs by Hatchery***

JLARC's initial focus was on the ten trout-only hatcheries that provide 80 percent of the Department's total trout production. WDFW could provide detailed expenditure information for operating costs for each of these hatcheries. The Department also could estimate overhead costs for each hatchery. However, the Department's cost information by hatchery is not collected in a way that allows a breakdown of the expenditure information by trout species and size, the information needed to make a comparison with private sector prices.

## **Spokane Hatchery Case Study Provides WDFW Cost Information for One Species by Size of Trout**

To obtain estimates that could be compared with private sector prices, at JLARC's request, WDFW completed a case study of the estimated costs to grow rainbow trout at its Spokane hatchery during Fiscal Year 2012. Rainbow trout was the focus of the case study because it accounts for over 75 percent of the total number of trout released by WDFW. The Spokane hatchery was selected for the case study because it:

- Is the largest trout-producing hatchery the Department operates, producing almost one-quarter of all pounds of trout produced annually by WDFW;
- Produces and releases all fish sizes to meet fisheries management objectives;
- Distributes fish, upon release, to a broad area, which makes it a suitable example of transportation and fish stocking costs; and
- Has a diversified funding base, with funding provided from multiple sources.

WDFW provided a detailed estimated cost breakdown for each size of fish, including the costs for labor, fish feed, utilities, transportation, and other (e.g. vaccinations and chemicals). JLARC analyzed this data and, to allow for a comparison with private sector prices, added estimates for overhead (as reported by WDFW) and capital expenditures (based on a four-year average of actual

capital expenditures at the hatchery) and removed the cost of transportation. Appendix 3 provides more detail on how JLARC calculated the price comparison.

JLARC’s analysis focused on the three sizes of fish that are most commonly released by WDFW. JLARC estimated that during Fiscal Year 2012, the Department spent the following amounts per fish to produce rainbow trout at the Spokane hatchery:

- Fry ..... \$0.04
- Fingerlings ..... \$0.19
- Catchables ..... \$1.51

This estimated cost data by size of fish allowed JLARC to make comparisons to private sector prices for rainbow trout.

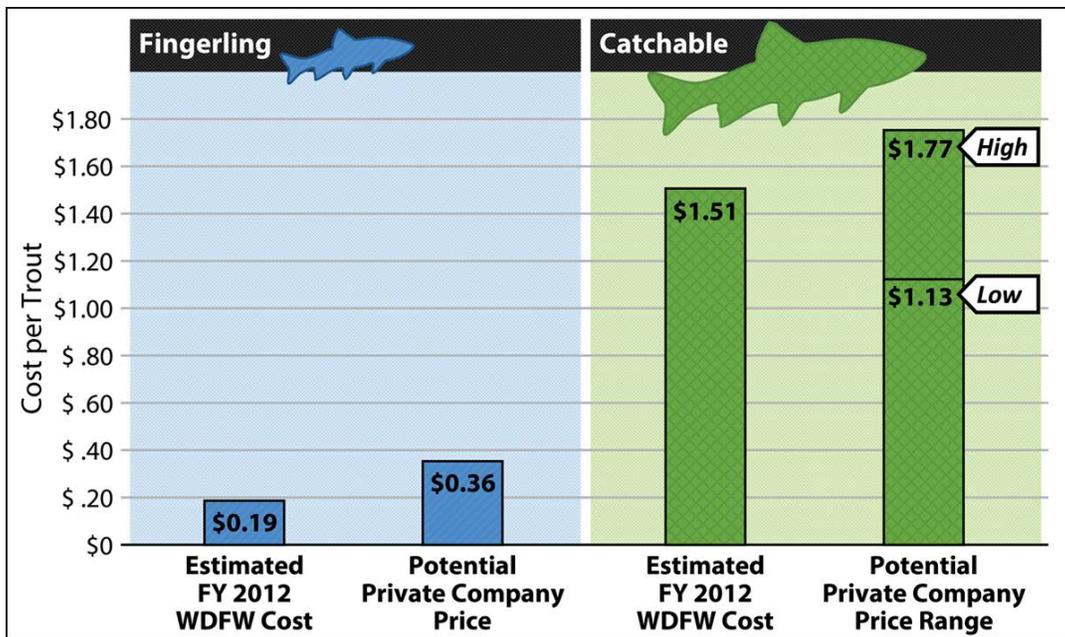
### JLARC Price Comparison – WDFW’s Spokane Trout Hatchery with One Private Sector Provider

JLARC estimates that WDFW and the private company can supply catchable-sized rainbow trout at similar prices. The price estimates, as calculated by JLARC, indicate that:

- WDFW may be able to produce catchable-sized rainbow trout for **about the same** as the price that the private company may be willing to sell to the Department.
- WDFW may be able to produce fingerling-sized rainbow trout for **less than** the private company may be willing to sell to the Department.

Exhibit 4 shows the estimated price details and Appendix 3 provides more detail on how JLARC calculated the price comparison.

**Exhibit 4 – Estimated Price Comparison of Fingerling and Catchable-Sized Rainbow Trout**



Source: JLARC analysis of WDFW and private sector provider data for rainbow trout.

There are three concerns with this price comparison:

- It is unclear how representative the prices offered by this one private company are of the prices that might be offered by other private companies. JLARC also requested information from additional private fish growers in Washington. While three noted an interest in selling trout to the Department, only one is both certified (meeting disease control standards) and currently produces trout. Of the other two companies, one does not currently produce trout, and neither company is a certified grower, according to information available to JLARC. All three companies declined to provide JLARC with price estimates.
- Costs at the Spokane hatchery may be lower than costs at other Department trout hatcheries. According to WDFW there are several reasons for this:
  - Economies of scale because Spokane is the Department's largest trout hatchery;
  - Reduced expenditures for electricity because water for the Spokane hatchery is gravity fed rather than pumped; and
  - Fewer expenditures for fish feed because staff has been able to identify less costly feed alternatives that are suitable for Spokane's operations but not all other hatcheries.
- The cost for transporting trout from the hatchery to the location(s) at which Department staff release the trout is not included in the JLARC estimated price comparison. How these costs are included would need to be discussed between the Department and the private company. It is unknown how these additional costs may affect this price comparison.

**It is likely that the Legislature will not know with certainty whether the results from this one price comparison apply more broadly until: 1) the Department collects hatchery cost information by species and size as recommended in this report, and 2) formal bids are available showing the prices private growers would charge the Department to purchase their fish.**

## **Contracts for Catchable-Sized Rainbow Trout Could be an Immediate Option**

If additional contracts to purchase trout from the private sector are awarded, WDFW would most likely contract for rainbow trout, particularly catchable-sized, in the short-term. From Fiscal Years 2008 to 2011, rainbow catchables accounted for 32 to 35 percent of WDFW's total trout production, and rainbow fry and fingerlings accounted for 42 to 49 percent of total trout production.

JLARC contacted ten private growers who are members of the Washington Fish Growers Board and/or are listed by WDFW as certified fish growers in Washington and requested information about their companies' operations. Three of these companies noted that they currently have catchable-sized rainbow trout available to sell to the Department, and two noted they could also sell some rainbow fry and fingerlings to the Department. These two are certified growers, and one company already sells fish to WDFW. The third company is not certified and could not sell fish to WDFW at this time.

## **If the State Wants to Expand the Use of Alternative Approaches to Trout Production, Several Issues May Need Consideration; JLARC Offers Four as Examples**

JLARC learned that if WDFW expands the use of alternative approaches to trout production, at least four issues may need to be considered: WDFW's salmonid disease control policy; restrictions on the use of federal funds; the Department's need for more than just rainbow catchables; and hatchery involvement with the local communities.

### ***Salmonid Disease Control Policy Requires Private Growers to be Certified before Doing Business with the State***

Statute requires the Department to develop a program of disease inspection and control for aquatic farmers (RCW 77.115.010). WDFW has a Salmonid Disease Control Policy that private fish growers, including trout producers, must comply with if they want to do business in Washington. The policy, which is designed to protect the health and safety of the state's fish and waters, has requirements private growers must comply with to be certified, such as:

- Establish a three-year negative history of regulated and reportable pathogens in the hatchery's water.
- Have a management plan for biosecurity measures designed to ensure that the hatchery will be operated in a manner that minimizes the likelihood of biological problems with the fish or water.
- Routinely monitor the health of mature fish used for breeding purposes (fish broodstock).
- Meet the criteria listed above, as well as other criteria noted in WDFW's Fish Health Policy, and provide documentation to WDFW verifying compliance.

WDFW provided JLARC with a list of private growers who are certified. This list did not include several private growers who are members of the Washington Fish Growers Board. Unless these growers go through the process to become certified, they will not be eligible to sell fish to WDFW. If they do begin the process, WDFW indicated it could take several years before they achieve certification.

### ***Restrictions on Federal Funds May Limit Funding for Alternative Approaches***

As noted previously, 30 percent of WDFW's funding for the ten trout hatcheries reviewed in this study is provided by the federal government through the U.S. Fish and Wildlife Service Sportfish Restoration Act (Dingell-Johnson) funds. Use of these funds is restricted by federal requirements.

Purchasing fish from private growers using Dingell-Johnson funds and then stocking these fish in state waters may require the Department to obtain an environmental assessment as part of the National Environmental Policy Act process. WDFW believes that such an assessment likely would be a lengthy and costly process. If federal approval was not provided, funding available for alternative approaches may be limited to Wildlife Account State funds. During Fiscal Year 2011, 43 percent (\$1.3 million) of trout hatchery funding at the ten study hatcheries was provided by the Wildlife account.

### ***Certified Private Growers Could Immediately Begin Selling Rainbow Catchables to WDFW, but the Department Needs More Than Rainbow Catchables***

As noted previously, certified private growers may be able to provide catchable-sized rainbow trout in the short-term. One company indicates it also has smaller sized rainbow trout available but would prefer not to sell these without a long-term contract. Another company is limited in the number of smaller sized rainbow trout it could sell to WDFW immediately and indicated it would need a long-term contract to provide larger numbers. To provide WDFW with any other species of trout, regardless of size, private growers indicated that their companies would need long-term contracts.

Focusing on one species in one size does not meet WDFW's needs. The Department explained that to maintain the ecological balance they strive for, multiple species of trout are needed for the state's lakes. For example, brown trout are effective predators, and WDFW uses this species to reduce populations of unwanted fish.

In addition, WDFW stocks fry and fingerling-sized trout because these are less expensive to produce. However, to meet angler demand, WDFW needs to ensure a certain number of catchables are also produced.

Thus, to meet ecological needs, angler demand, and cost considerations, WDFW appears to need a combination of trout species and sizes.

### ***Communities Surrounding Hatcheries Tend to be Involved in Hatchery Activities and May Oppose Changes in Hatchery Operations***

In May 2012, WDFW announced its intention to discuss a possible lease of its Puyallup hatchery, which produces trout, to a private company. Due to community opposition, the Department subsequently decided not to pursue a lease.

According to WDFW staff, the communities throughout the state where the hatcheries are located have an active interest in the hatcheries' management and activities, which include community outreach programs such as the following:

- Tours for school children and others;
- Support, including supplying fish, for children's fishing events and derbies;
- Presentations to local civic groups and sportsman clubs; and
- Job training or internships for students of fish culture techniques.

WDFW could require a private company operating an existing WDFW hatchery to maintain a community presence. It is unknown what impact this might have on the price the company would charge for their fish.

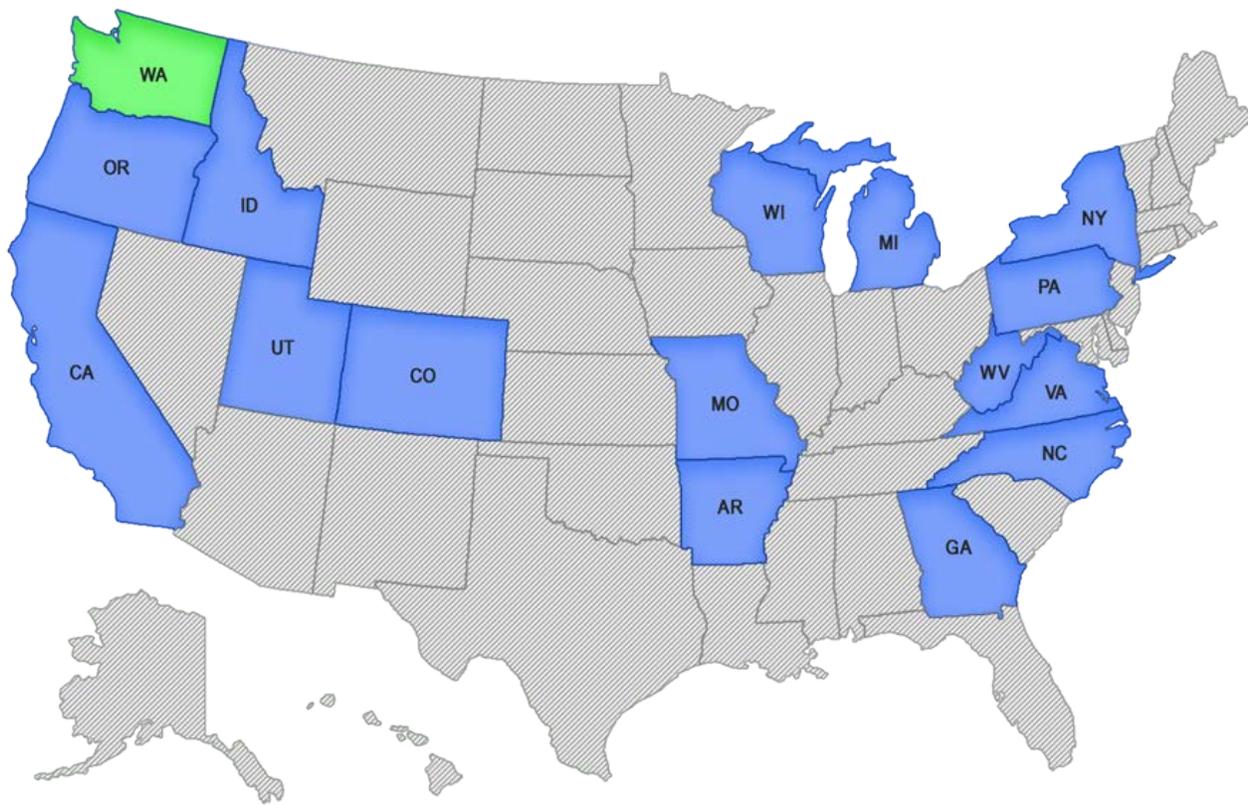


# PART THREE – JLARC’S SURVEY OF 15 OTHER TOP TROUT PRODUCING STATES INDICATED THERE ARE ADVANTAGES AND DISADVANTAGES TO CONSIDER WHEN USING ALTERNATIVE APPROACHES

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The Legislature asked JLARC to learn about other states’ experiences with using alternative approaches other than a state producing all of its own trout for recreational purposes. JLARC surveyed the 15 other states identified by the U.S. Department of Agriculture as top trout producing states.

**Exhibit 5 – 16 Top Trout Producing States**



Source: U.S. Department of Agriculture, National Agriculture Statistics Survey.

The survey questions posed to each state were intended to provide JLARC with information about alternative approaches the states may use, the percentage of trout obtained through the alternative methods, and opinions on the advantages and disadvantages of purchasing trout from private growers.

## Five of the States Surveyed Purchase Trout from Private Growers

The 15 states surveyed vary in how they obtain trout eggs and trout for stocking, using one or more of the following approaches:

- The purchase of trout from private growers in addition to producing their own trout;
- The production of all of their own trout; and
- An agreement with the federal government, another state, a county, or a nonprofit organization in addition to producing their own trout.

Exhibit 6 provides the details.

### Exhibit 6 – Details on Other States’ Approaches to Produce Trout

<b>Purchase Trout from Private Growers – Five States</b>	
<b>California</b>	<ul style="list-style-type: none"> <li>• Statutory requirements to purchase trout for urban fishing programs.</li> <li>• Small fraction of statewide plan.</li> <li>• When the state cannot purchase the trout needed for urban fishing, the fish comes from state production.</li> </ul>
<b>Colorado</b>	<ul style="list-style-type: none"> <li>• Purchases a small percentage of eggs due to lack of availability from state production during certain times of the year.</li> </ul>
<b>Idaho</b>	<ul style="list-style-type: none"> <li>• In addition to a cooperative agreement with other states, Idaho also purchases eggs to compensate for shortfalls when the state cannot produce enough eggs.</li> </ul>
<b>Missouri</b>	<ul style="list-style-type: none"> <li>• Purchases a small quantity of trout for stocking urban fishing areas for the winter season.</li> <li>• Cities pay half the cost.</li> </ul>
<b>Oregon</b>	<ul style="list-style-type: none"> <li>• Statutory requirement to purchase \$400,000 worth of trout from the private sector per biennium.</li> </ul>
<b>Produce All of Their Own Trout – Four States</b>	
<b>Michigan</b>	
<b>North Carolina</b>	
<b>Pennsylvania</b>	
<b>West Virginia</b>	

<b>Agreement with Another Entity – Seven States</b>	
Seven states use a variety of alternative agreements with the federal government, another state, a county, or nonprofit organizations to obtain trout and trout eggs or assist in the production of trout. These agreements are in addition to producing their own trout.	
<b>Arkansas</b>	<b>Mitigation Agreement with Federal Government</b>
<ul style="list-style-type: none"> <li>• Receives fingerlings and eggs from U.S. Fish and Wildlife Service.</li> <li>• Two federal hatcheries provide about 50 percent of trout stocked.</li> </ul>	
<b>Georgia</b>	<b>Partnership with Federal Government and Memorandum of Understanding (MOU) with South Carolina</b>
<ul style="list-style-type: none"> <li>• Receives 4 inch trout from federal government which the state grows to 9 inches.</li> <li>• Supply of eggs from federal government.</li> <li>• Assists South Carolina with egg extraction from brood stock and receives eggs in return.</li> </ul>	
<b>Idaho</b>	<b>Cooperative Agreement with Other States</b>
<ul style="list-style-type: none"> <li>• In addition to the purchase of eggs, Idaho also receives donated eggs from other states through a cooperative agreement.</li> </ul>	
<b>New York</b>	<b>Agreement with a County</b>
<ul style="list-style-type: none"> <li>• State provides a county with fry and fingerling sized trout. The county grows out the trout and places them for the state or assists the state with placement.</li> <li>• Accounts for a very small number and percentage.</li> </ul>	
<b>Utah</b>	<b>Cooperative Agreement with Other States</b>
<ul style="list-style-type: none"> <li>• Receives donated eggs from other states through a cooperative agreement.</li> </ul>	
<b>Virginia</b>	<b>Cooperative Agreement with Other States and Federal Government</b>
<ul style="list-style-type: none"> <li>• Receives donated eggs from other states and the federal government through a cooperative agreement.</li> </ul>	
<b>Wisconsin</b>	<b>Agreement with Nonprofit Organizations</b>
<ul style="list-style-type: none"> <li>• State provides nonprofits with fingerling sized trout. With assistance from the state, the nonprofits grow the trout until they are larger and then stock them.</li> <li>• Accounts for 10 or 15 percent of trout production.</li> </ul>	

Source: JLARC analysis of other states’ survey information.

## **States’ Views on Price Comparisons with the Private Sector**

JLARC obtained some of the 15 states’ perspectives on how their own production costs compare to prices in the private sector for acquiring trout. Nine states do not have cost information to allow them to compare prices. No state commented that they could determine their state’s prices are more than the private sector.

	# States
<b>Do Not Have Information on Price Comparisons:</b>	<b>9</b>
<p><b>Cannot Determine</b></p> <ul style="list-style-type: none"> <li>• Colorado concluded that it cannot compare costs.</li> <li>• Georgia conducted research and concluded that it could not determine a cost comparison.</li> </ul>	2
<p><b>Study in Progress</b></p> <ul style="list-style-type: none"> <li>• Arkansas is conducting a study that will compare the state’s prices to those of the private sector.</li> </ul>	1
<p><b>No Related Comments</b></p> <ul style="list-style-type: none"> <li>• Idaho, Missouri, New York, North Carolina, West Virginia, and Wisconsin did not provide comments regarding price comparisons with the private sector.</li> </ul>	6
<b>About the Same</b>	<b>4</b>
<ul style="list-style-type: none"> <li>• Michigan, Oregon, and Pennsylvania conducted research indicating their state’s prices are about the same as those of the private sector doing business in their states. Oregon and Pennsylvania both noted they could not determine an accurate comparison.</li> <li>• California concluded that the prices are about the same but could not determine a true comparison.</li> </ul>	
<b>State Costs Less</b>	<b>2</b>
<ul style="list-style-type: none"> <li>• Utah and Virginia conducted research and determined that the state’s prices are less than the private sector.</li> </ul>	

## Other States Identified Advantages and Disadvantages with Purchasing Trout from the Private Sector

As part of the survey, JLARC asked the 15 states if they had an opinion regarding the purchase of trout from private growers. Eleven states offered an opinion, suggesting there are both advantages and disadvantages to purchasing trout from private growers. Advantages stated include the ability of private industry to supplement trout production, supporting private industry, and decreasing the overall trout production costs for the state. Disadvantages noted include reliability, monitoring concerns, and stocking issues.

The most frequent advantage, stated by three states, is the ability of the private sector to supply trout at a large size. For example, one state noted that the private sector seems to have a supply of trout on hand and can provide more mature trout. Of the three states noting this advantage, two currently purchase trout from private growers.

The most frequent disadvantage, stated by eight states, is the lack of reliability by the private sector to provide the quality and quantity of trout a state needs. For example, one state noted that at times the private sector is unable to provide fish. Another state commented that the private sector cannot guarantee volume, numbers, and size. Of the eight states noting this disadvantage, four currently purchase from the private sector.

# PART FOUR – CONCLUSION AND AUDITOR RECOMMENDATION

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Currently the Department of Fish and Wildlife uses a business-like approach to identify the species and sizes of trout to provide to meet angler demand. However, the Department does not currently collect data that allows it to calculate trout production costs by species and size. Instead, the Department tracks costs by hatchery. A hatchery may be producing other kinds of fish in addition to trout, and a trout-only hatchery generally produces multiple species of trout in different sizes.

A contract to purchase trout from a private company likely would specify a quantity of trout by species and size, such as a certain number of rainbow trout catchables. In order to make a price comparison with a private sector alternative, JLARC needed WDFW trout production cost information by trout species and size. At JLARC's request, the Department completed a case study of the estimated costs to grow different sizes of rainbow trout at one of its hatcheries for Fiscal Year 2012. This allowed JLARC to make the one price comparison presented in this study, with one private sector company.

Absent hatchery cost information by trout species and size, the Department is missing key information it needs to determine the most cost-effective way to provide the trout it needs to meet angler demand. This includes determining the best use of its own array of hatcheries in trout production and having the information that would allow a comparison to a private sector alternative.

## **Auditor Recommendation**

**The Department of Fish and Wildlife should develop a plan to determine the most cost effective approaches to use to meet the Department's stocking objectives. This plan should include a process to collect fish production cost data by fish species and size at each of WDFW's hatcheries. This cost data should be stated in a manner that allows for reasonable comparisons to private sector prices. The Department should report to the Legislature on this plan by December 2013.**

At a minimum, cost data should reflect those developed in the Spokane hatchery case study discussed in this report. The plan should identify how the analysis performed at Spokane could be replicated at other WDFW hatcheries to generate fish production cost data by species and size at each hatchery. The plan should also include how to identify the related operating, capital, and overhead costs and how to identify the disparities that cause variations in costs among the hatcheries.

The plan should include mechanisms to routinely update the fish production cost data for each hatchery so that it remains current and readily comparable to prices provided by private sector companies. This will allow the Department to make appropriate choices about the most cost effective approaches for meeting its stocking objectives.

<b>Legislation Required:</b>	None
<b>Fiscal Impact:</b>	JLARC assumes WDFW can prepare the plan using existing resources. The plan should identify the resources needed to collect and maintain cost information.
<b>Implementation Date:</b>	December 2013.

# APPENDIX 1 – SCOPE AND OBJECTIVES

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## TROUT PRODUCTION COSTS AT WDFW

### SCOPE AND OBJECTIVES

JULY 18, 2012

STATE OF WASHINGTON



JOINT LEGISLATIVE AUDIT  
AND REVIEW COMMITTEE

#### STUDY TEAM

Tracey Elmore  
Elisabeth Donner

#### PROJECT SUPERVISOR

John Woolley

#### LEGISLATIVE AUDITOR

Keenan Konopaski

Joint Legislative Audit &  
Review Committee  
1300 Quince St SE  
Olympia, WA 98504-0910  
(360) 786-5171  
(360) 786-5180 Fax

#### Website:

[www.jlarc.leg.wa.gov](http://www.jlarc.leg.wa.gov)  
e-mail: [JLARC@leg.wa.gov](mailto:JLARC@leg.wa.gov)

## Why a JLARC Study of the Costs of Trout Production?

The Department of Fish and Wildlife (WDFW) spent \$32.8 million in fiscal year 2011 to operate 82 hatcheries to produce salmon and trout. In the 2012 Supplemental Operating Budget, the Legislature directed the Joint Legislative Audit and Review Committee (JLARC) to assess **WDFW’s costs specific to trout production activities**. The Legislature also directed JLARC to consider the availability of alternative approaches to trout production, compare WDFW’s costs to the costs of the alternatives, and review other states’ experiences in alternative approaches to trout production.

## WDFW Produces Trout for Recreational Fishing

The state’s Fish and Wildlife Commission oversees the work of the Department of Fish and Wildlife and has the duty to maximize fishing, hunting, and outdoor recreational opportunities compatible with healthy and diverse fish and wildlife populations (RCW 77.04.055).

The Commission establishes recreational fishing seasons and prescribes the time, place, manner, and methods that may be used to catch game fish in the state. In its 2012-2013 Sportfishing Rules, the Commission has authorized the recreational harvest of several different kinds of trout, including brown, rainbow, and cutthroat.

To help provide for this recreational fishing opportunity, WDFW produces trout at some of the hatcheries it operates. The department estimates that 18 of the state’s 82 hatcheries are focused solely on trout production, with at least 13 others producing some trout. The trout produced are stocked in the state’s lakes, where they are available for anglers to catch. The study will seek to identify the amount the Department spends specifically for trout production.

## Private Sector Also Involved in Trout Production

Privately owned aquatic farms also produce trout in the state. WDFW relies on private sources for some of its trout production activities. For example, the Department has a hatchery that is operated through a public/private partnership, and all triploid trout (sterile Rainbow trout that can grow to trophy size) are purchased from a private grower. In the 2012 Supplemental Operating Budget, the Legislature directed WDFW to “identify additional opportunities for partnerships in order to keep fish hatcheries operational. Such partnerships shall aim to maintain fish production...with less reliance on state operating funds.”

## Study Scope

The study will focus on an assessment of WDFW’s costs to produce trout. The study will also describe any alternative approaches to trout production, compare the state’s costs to the cost of the alternatives, and describe other states’ experiences with alternative approaches.

## Study Objectives

This study will address the following three questions:

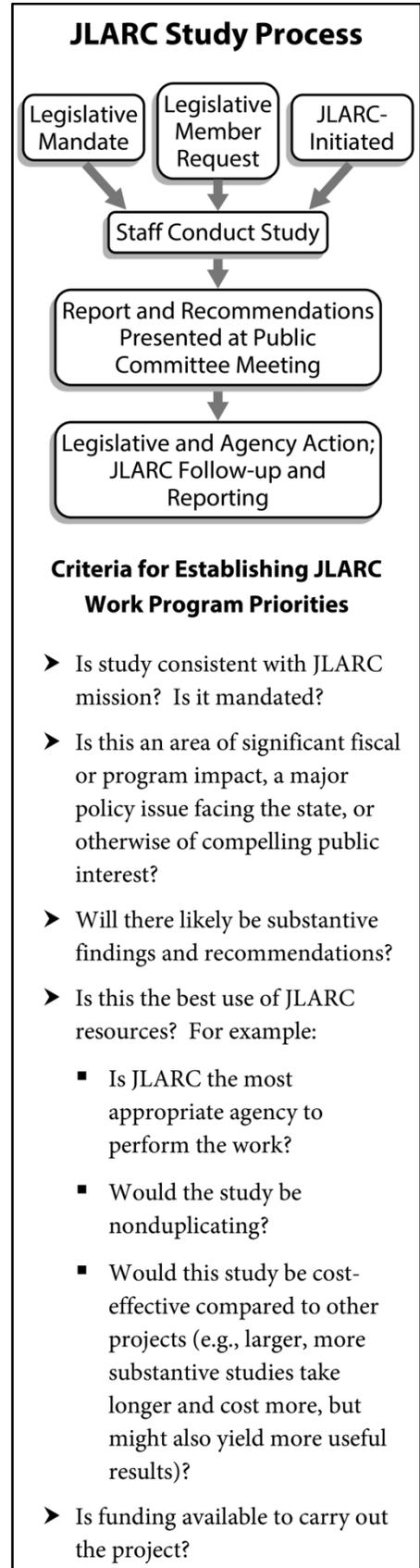
- 1) What are WDFW’s total costs to produce trout at WDFW’s hatcheries?
- 2) What alternative approaches to trout production are available, and what are the costs of these approaches?
- 3) What have other states’ experiences been in contracting or using other alternative approaches to trout production?

## Timeframe for the Study

Staff will present the preliminary report at the JLARC meeting in December 2012. The final report will be presented in January 2013.

## JLARC Staff Contact for the Study

Tracey Elmore (360) 786-5178 tracey.elmore@leg.wa.gov  
 Elisabeth Donner (360) 786-5190 elisabeth.donner@leg.wa.gov



## APPENDIX 2 – AGENCY RESPONSES

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- Washington Department of Fish & Wildlife
- Office of Financial Management





State of Washington  
**Department of Fish and Wildlife**

Mailing Address: 600 Capitol Way N, Olympia WA 98501-1091, (360) 902-2200, TDD (360) 902-2207  
 Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia WA

December 10, 2012

Mr. Keenan Konopaski  
 Legislative Auditor  
 Joint Legislative Audit and Review Committee  
 1300 Quince St. S.E.  
 P. O. Box 40910  
 Olympia, Washington 98504

Dear Mr. Konopaski:

**SUBJECT: Washington Department of Fish and Wildlife Response –  
Preliminary Report – Trout Production: Estimates Suggest Price  
 Competitive Options are Available**

Thank you for the opportunity for the Washington Department of Fish and Wildlife (Department) to provide a response to the Joint Legislative Audit and Review Committee’s (JLARC) preliminary report. We concur with the recommendation provided in the preliminary report:

RECOMMENDATION	AGENCY POSITION
The Department of Fish and Wildlife should develop a plan to determine the most cost effective approaches to use to meet the Department’s stocking objectives. This plan should include a process to collect fish production cost data by fish species and size at each of the WDFW’s hatcheries. This cost data should be stated in a manner that allows for reasonable comparisons to private sector prices. The Department should report to the Legislature on this plan by December 2013.	Concur

The recommendation to develop the costs analysis Plan is consistent with the Department’s continued efforts to (a) optimize trout production through efficient hatchery operations; (b) ensure the “best-use” of license revenue; (c) minimize the risk of disease transmission to our wild trout, salmon, and steelhead; (d) rely on public/private partnerships when appropriate and cost effective; and (e) provide Washington’s anglers with quality trout fishing opportunities. Angler satisfaction requires providing disease free, high quality fish in the numbers, species and sizes needed at specific times throughout the year for delivery in waters throughout the state.

Mr. Keenan Konopaski  
December 10, 2012  
Page 2

We view the species and size cost analysis as another step forward in our current and ongoing efforts to make the “best-use” of our recreational fishing license revenue.

The Spokane Case Study described in the report found that the Department’s costs for catchable trout were competitive with the private sector, and that Department costs were lower than the private sector for smaller fish. This reflects, in part, our current and continual review to ensure cost effective operations. During the last two years we have completed a comprehensive review of our trout program to ensure that we are producing and releasing the right species, the right number, at the right size, at the right time, and at the right location to maximize angler participation. The importance of the trout program has been underscored by the challenging economic environment of recent years and the more than 33 percent reduction in state General Fund support for the Fish Program. Simply put, the Department cannot be successful over the long-term without a successful trout program generating strong recreational fishing license sales. The recommended cost analysis will be a useful tool to further increase the effectiveness of Washington’s trout program. Since the desired product is trout in a lake or stream (not at the hatchery), our analysis of public and private sector costs will include the cost of trucking the fish to the release location. Washington’s trout hatcheries are distributed throughout the state to minimize trucking costs and maximize the survival of fish released into our lakes and streams.

We would like to emphasize, however, that a simple cost comparison will not capture the breadth of benefits provided by our hatchery system. In communities throughout the state, our hatcheries are often a source of civic pride. As described in the preliminary report (page 15), the hatcheries often provide a wide variety source of community outreach programs, including:

- Tours for school children and others;
- Support, including supplying fish, for children’s fishing events and derbies;
- Presentations to local civic groups and sportsman clubs; and
- Job training or internships for students of fish culture techniques.

Thank you for the opportunity to review the preliminary report. We would also like to thank the JLARC staff for the thoughtful review and good communication with us throughout the review process. We look forward to receiving the final report.

Sincerely,



Philip Anderson  
Director

cc: Jim Scott, Assistant Director, Fish Program



STATE OF WASHINGTON  
OFFICE OF FINANCIAL MANAGEMENT

Insurance Building, PO Box 43113 • Olympia, Washington 98504-3113 • (360) 902-0555

January 7, 2013

**TO:** Keenan Konopaski, Legislative Auditor  
Joint Legislative Audit and Review Committee

**FROM:** Stan Marshburn  
Director

**SUBJECT: TROUT PRODUCTION: ESTIMATES SUGGEST PRICE COMPETITIVE  
OPTIONS ARE AVAILABLE – PRELIMINARY REPORT**

Thank you for the opportunity to respond to the Joint Legislative Audit and Review Committee’s preliminary report titled: “Trout Production: Estimates Suggest Price Competitive Options are Available.”

Recommendation	Agency Position	Comments
The Department of Fish and Wildlife should develop a plan to determine the most cost effective approaches to use to meet the Department’s stocking objectives. This plan should include a process to collect fish production cost data by fish species and size at each of WDFW’s hatcheries. This cost data should be stated in a manner that allows for reasonable comparisons to private sector prices. The Department should report to the Legislature on this plan by December 2013.	Concur	

Additional information on fish production costs by species and size will enable the Department of Fish and Wildlife to improve production decisions at its hatcheries.

Again, thank you for the opportunity to comment. Please don’t hesitate to contact Jim Cahill of my staff at 360-902-0569 with any questions.

cc: Phil Anderson, Director, WDFW  
Marc Baldwin, Deputy Director, OFM  
Jim Cahill, Senior Budget Assistant, OFM



# APPENDIX 3 – JLARC’S STEPS IN CREATING A PRICE COMPARISON

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To prepare a comparison of the estimated price for WDFW to produce trout with the estimated price of trout from the private sector, JLARC worked with WDFW staff and a private grower of trout in Washington. The three step process JLARC used is described below.

## **Step 1: JLARC Obtained Cost Estimates from WDFW for Different Sizes of One Species of Trout (Rainbow)**

WDFW’s current stocking plan recognizes different species and different sizes are required, with rainbow trout the primary trout type stocked. JLARC requested from WDFW the cost to produce different sizes of rainbow trout. WDFW was not able to provide this system-wide, so WDFW provided JLARC with the estimated cost of producing rainbow trout, by size, at the Department’s Spokane hatchery for Fiscal Year 2012. The Spokane hatchery is used for this purpose because, according to WDFW, it:

- Is the largest trout-producing hatchery the Department operates, producing almost one-quarter of all pounds of trout produced annually by WDFW;
- Produces and releases all fish sizes to meet fisheries management objectives;
- Distributes fish, upon release, to a broad area, which makes it a suitable example of transportation and fish stocking costs; and
- Has a diversified funding base, with funding provided from multiple sources.

## **Step 2: JLARC Obtained Price Estimates from a Private Company for Different Sizes of the Same Species**

To compare the estimated costs from WDFW with the price of trout from the private sector, JLARC worked with an established provider of live fish to both private and public entities.

This company’s estimated prices were used for comparison for two reasons:

- 1) The company is currently a large private supplier of live trout; and
- 2) The company is a certified grower in Washington, which means that it has met the required minimum state standards for disease-free fish and the safety of the water used for growing fish. This certification is required for WDFW to consider purchasing trout from a company.

JLARC used rainbow trout as the comparison product because that is the predominant type of trout currently produced by the private company and, in 2011, rainbow trout represented 77 percent of the total number of trout produced by WDFW.

The private company provided JLARC with previously submitted bids to public utility districts and price estimates based on the sale of 50,000 or more fish. JLARC assumes the prices account for overhead and capital.

JLARC requested information from other private fish growers in Washington through the Washington Fish Growers Board, an industry trade group. While three noted an interest in selling trout to the Department, only one is certified (meeting disease control standards) and could currently sell fish to WDFW. Of the other two companies, one does not currently produce trout, and neither company is a certified grower according to information available to JLARC. All three companies declined to provide JLARC with price estimates.

### **Step 3: JLARC Adjusted the Data for Comparison**

To compare the private company’s prices to WDFW’s cost estimates, JLARC identified the sizes of rainbow trout produced by the company that were similar to those produced by the Spokane hatchery and subsequently released. JLARC was able to compare fingerling (five inches) and catchable-sized (average weight per fish of 0.4 pounds) rainbow trout.

WDFW included the cost of transportation to stock trout; however, to compare the cost per fish with the company’s information, JLARC needed to remove the cost of transportation. JLARC subtracted this cost from the WDFW total to obtain a new base cost.

JLARC next added an estimate for WDFW overhead. WDFW provided JLARC with the amount of overhead for the Spokane hatchery which includes an indirect rate of 23.5 percent for federal funds and a program support rate of 18.5 percent for state funds (minus fish food and buildings expenditures). JLARC factored these figures into the information from the Spokane case study.

JLARC then added an estimate for WDFW capital costs. WDFW was unable to provide a figure for amortized capital expenditures or estimated values based on a life-cycle cost model or similar model. JLARC used the only capital information readily available by adding a four-year average of capital expenditures at the Spokane hatchery to the cost per fish calculation.

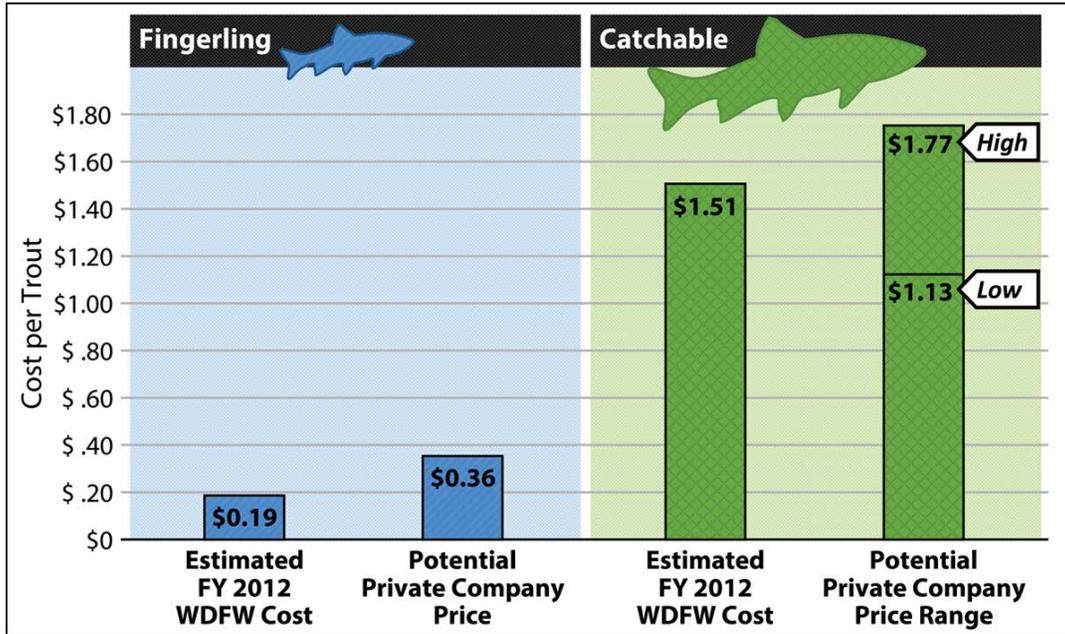
Finally, the comparable information from the private company did not include the cost of sales tax. However, based on invoices from WDFW paid to the company for the purchase of triploid rainbow trout, sales tax is included. JLARC staff took the average sales tax paid for 2011 invoices (8.6 percent) and added this to the comparable price estimates provided by the private company.

JLARC used the resulting cost estimates, per rainbow trout, by size, to compare WDFW to the private company.

## Details of the Comparable Prices

JLARC was able to compare fingerling and catchable-sized rainbow trout with the result as shown in Exhibit 7.

**Exhibit 7 – Estimated Price Comparison of Fingerling and Catchable-Sized Rainbow Trout**



Source: JLARC analysis of WDFW and private sector provider data for rainbow trout.

The private company provided JLARC with two price estimates for catchable-sized trout. These prices are based on the following information:

- \$1.13: A bid for the sale of 25,700 trout to a public utility district including a range of 2.5 fish per pound to “large trophy” fish per pound with an average weight per fish of 0.4 pounds.
- \$1.77: A bid for the sale of 55,068 trout to a public utility district including a range of 1.3 to 2.5 fish per pound with an average weight per fish of 0.4 pounds.

The resulting size comparisons are detailed in Exhibit 8.

**Exhibit 8 – Size Comparisons**

Fish Size	WDFW	Private Company
Fingerling	Length of 5 inches	Length of 5 inches
Catchable	Average weight per fish of 0.4 pounds	Average weight per fish of 0.4 pounds

Source: JLARC analysis of WDFW and private company price estimates and public utility district bids for rainbow trout.



