

The Effects of Regulations on the U.S. Salmonid Industry: Colorado Findings*

Carole R. Engle & Jonathan van Senten,
VA Seafood AREC, Virginia Tech University
Gary Fornshell, University of Idaho

A national survey of the U.S. salmonid (trout, salmon, arctic char) industry was conducted in 2017–2018 to measure the farm-level costs of regulations. This fact sheet reports the findings from the state of Colorado (Figure 1).

The total statewide on-farm regulatory cost burden for Colorado was \$414,003 per year (adjusted for coverage). Per farm, annual regulatory costs averaged \$55,200 and \$1.28 per pound. The majority of the increased regulatory costs on farms were related to direct costs that included testing for fish health certificates and effluent discharges (71%), followed by manpower costs (16%). The cost of permits constituted only 2% of the regulatory cost burden (Table 1).

In addition to the increased on-farm costs, regulatory actions resulted in lost sales revenue that included: \$780,000 per year in lost market sales, and \$86,000 per year in lost revenue from reduced production capacity. There were no lost sales due to thwarted expansion attempts reported by respondents. Per farm, lost market sales were \$130,000/per year, and the value of lost production averaged \$14,310/per year. Regulatory costs on farms constituted 15% of total costs on Colorado salmonid farms and lost sales revenue 29% of total costs.

Respondents reported that the most problematic regulations were those associated with fish health testing required to obtain health certificates for

* Engle, C.R., J. van Senten, and G. Fornshell. 2019. Regulatory costs on U.S. salmonid farms. *Journal of the World Aquaculture Society* 50(3):522–549; DOI: 10.1111/jwas12604

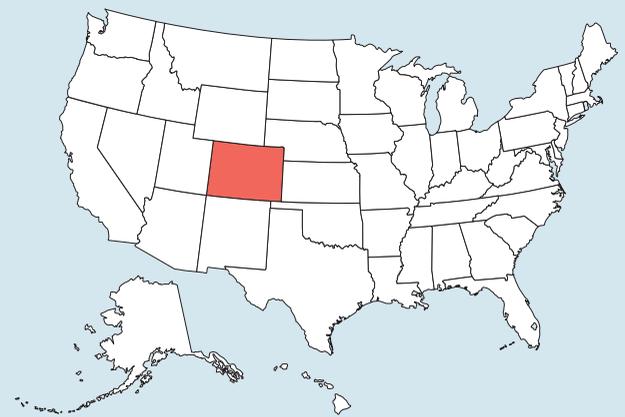


Figure 1. State surveyed

The total on-farm regulatory cost burden for Colorado was \$414,003 per year.

Table 1. Colorado on-farm regulatory costs

Cost category	% of total regulatory costs
Direct costs (testing, etc.)	71%
Manpower	16%
Farm-level changes	11%
Permits/licenses	2%

interstate transport, followed by state regulations (Figure 2). In terms of costs, water access was the most costly (58%), followed by other county and local regulations (23%), fish health testing to obtain certificates for interstate transport (14%), EPA effluent discharge regulations (5%), and food safety (<1%) (Figure 3).

In summary, the regulatory costs on salmonid farms in Colorado cost less, on average, per farm, more per pound of fish, and more as a percentage of total costs than the national average (Table 2). Salmonid farms in Colorado tend to be somewhat smaller on average than in some other states with a greater proportion selling to recreational markets. Thus, the average farm-level cost was lower than the national average, and the per-pound cost greater. Overall, regulatory costs accounted for a substantial percentage of total farm costs. Lost revenue as a percentage of total costs in Colorado was similar to that at the national level.

Study results showed that the regulatory cost burden on the U.S. salmonid industry has increased farm costs substantially and constrained the industry’s ability to increase product supply to meet strong market demand, which is being met by increasing trout and salmon imports. Innovative regulatory monitoring and compliance frameworks that reduce the on-farm regulatory cost burden are needed. The types of regulatory reforms with potential to reduce regulatory costs in Colorado include: reduced frequency of testing (for effluent discharge and fish health certificates), adoption of uniform fish health testing standards, adoption of risk-based approaches to environmental management, and development of clear appeals processes for aquaculture farmers (Table 3).

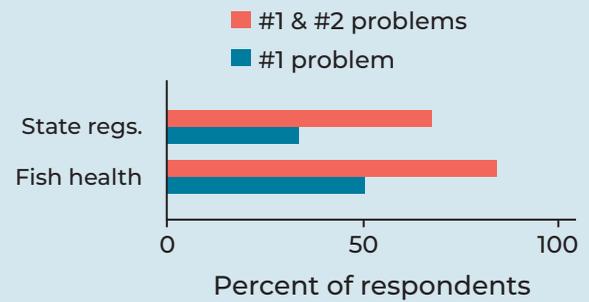


Figure 2. Most problematic regulations in Colorado

In summary, the regulatory costs on salmonid farms in Colorado cost less, on average, per farm, more per pound of fish, and more as a percentage of total costs than the national average.

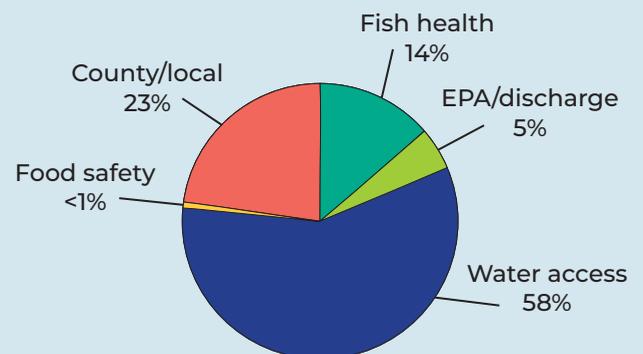


Figure 3. Types of regulations in Colorado: percent of total regulatory costs

Table 2. Summary of national and Colorado study results

Regulatory burdens and impacts	National findings	Colorado
BURDEN		
Total national on-farm regulatory cost burden	\$16.1 million/year	\$414,003/year
Per farm average regulatory cost	\$150,506/farm	\$55,200/farm
Average regulatory cost per pound of production*	\$1.23/pound	\$1.28/pound
Percent regulatory costs of total farm costs	12%	15%
IMPACT		
Lost market sales	\$7.1 million/year	\$780,000/year
Lost revenue from reduced production	\$5.3 million/year	\$86,000/year
Estimated lost revenue due to thwarted expansion attempts	\$40.1 million/year	\$0
Percent lost revenue sales of total costs	28%	29%
* Averaged by farm		

Table 3. Regulatory reforms with potential to reduce regulatory costs

Regulatory reforms
<ul style="list-style-type: none"> • Reduce regulatory redundancy • For farms with history of good performance: <ul style="list-style-type: none"> ◦ Reduce frequency of effluent testing ◦ Reduce frequency of fish health testing • Adopt uniform fish health testing standards • Develop clear appeal procedures for farmers • Adopt risk-based approaches to environmental management

For more information, contact Carole Engle at cengle8523@gmail.com or Jonathan van Senten at jvansenten@vt.edu.

This project was supported by the Western Regional Aquaculture Center award number 2014-38500-22309 from the United States Department of Agriculture National Institute of Food and Agriculture, the United States Trout Farmers Association, and USDA-APHIS Cooperative Agreement award number 422526.