

# Researching the Best Fish Food



## EFFICIENCY SUCCESS STORY



Rifle Falls Fish Hatchery

DUSTIN DOSKICIL/CPW

CPW produces almost 3 million catchable rainbow trout per year to stock throughout the state for anglers to catch and take home. Creating this opportunity is a time- and resource-intensive endeavor that occurs through a tremendous amount of effort every year. The Aquatic Research Section at CPW, headed by Dr. George Schisler, conducts research and development work not only to advance science in the fisheries world, but to identify more efficient practices for managing fisheries populations and providing angling opportunities throughout the state. This was a perfect melding of need for information, and response to that need through science.

Behind the scenes, methods for spawning and rearing fish are continuously evolving. A key component of the survival, growth and quality of the fish is the food they are fed while being reared in hatcheries. Purchasing fish food (commonly referred to as “feed”) is also one of the largest costs CPW incurs to operate its hatchery facilities.

However, using the cheapest feed does not always result in the

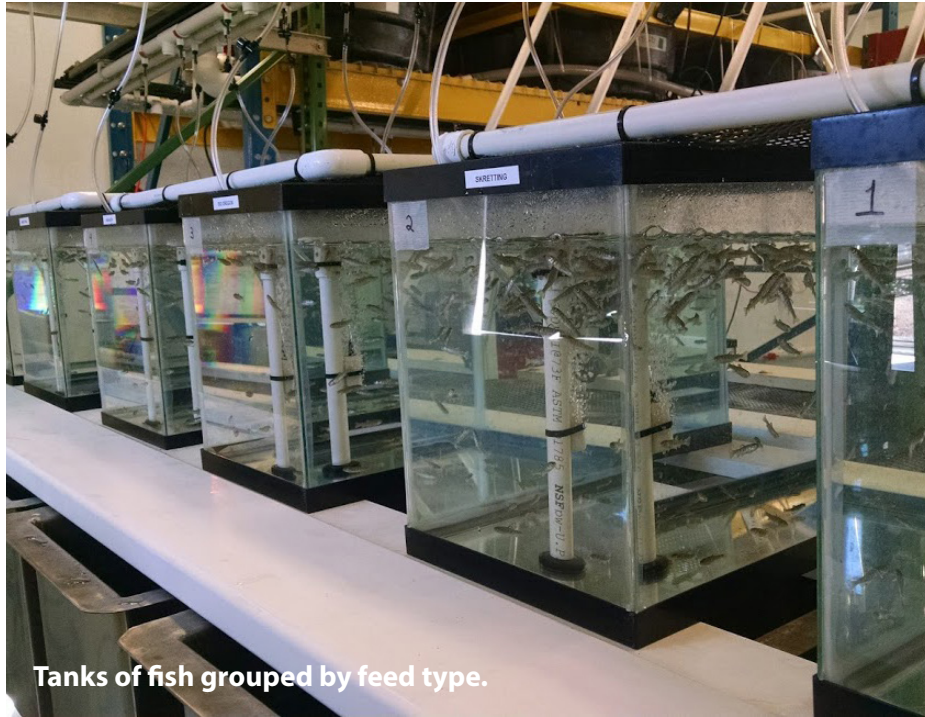
greatest long-term efficiency. Less expensive feed is generally lower quality, which translates to less nutritional value. This can result in lower rates of survival in the hatchery, meaning fewer fish are stocked for anglers to enjoy. Additionally, fish given lower quality feed may decrease angler satisfaction because they may be smaller, less healthy, exhibit excess fin wear and may not have the desired fillet color or taste. Furthermore, while saving

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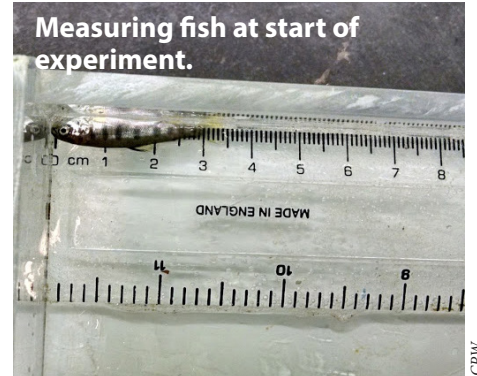
money initially, lower cost feed may not end up saving CPW money in the end, as fish may grow more slowly resulting in higher overall production and operational costs in the long-term.

To determine if costs of producing fish could be reduced while increasing angler satisfaction, Dr. Eric Fetherman

and the team at the Aquatic Research Hatchery assessed differences in growth, condition, appearance, taste and production cost per trout using different types of commercially-produced fish feed. They compared feed from four companies (Feed Company A, Feed Company B, Feed Company C and Feed Company D) by randomly assigning a particular feed company to tanks containing swim-up fry (juvenile fish).



Tanks of fish grouped by feed type.



Measuring fish at start of experiment.



Above: Chef-prepared pan-seared and smoked rainbow trout fillets for public taste test.  
Below: CPW hatchery stocking truck.



Twenty fish were individually measured and weighed before the first feeding to establish a baseline. Then, the same fish were weighed each week to adjust feed size and rate and estimate the rate of growth. At predefined time points throughout the experiment, data pertaining to other metrics such as fish health, fin wear and consistency in size were collected from fish given the different feed types. Once they had grown to a catchable size, professional chefs prepared fish from each feed tank for members of the public, who were asked to rate their level of satisfaction with appearance and taste.

The investigators then compared rates of survival, weight gain and several other metrics related to fish health and appearance between each of the feed companies. The team was also able to calculate the cost per fish stocked and total potential production cost if CPW used food from each company. Finally, the results of the appearance and taste tests were also incorporated into the overall comparison between feed companies.

Feed from Company C stood out from the rest. These fish grew faster, reaching catchable size two weeks to three months sooner than fish on other feeds, and required less total feed than those from companies A, B, or D. Participants in the taste test also preferred the taste and appearance of fish reared on feed from Company C. While the cost per individual fish, considering the price of the feed alone, using Company C was approximately twice that of the other feeds, this does not reflect the cost savings from several other efficiencies. Because fish can be grown more quickly and with less waste using the higher quality feed, there will be reductions in costs associated with equipment operation and maintenance, and employee costs associated with daily cleaning and feeding. Final cost calculations and the total cost savings will be completed this winter—stay tuned to hear more!