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Department of Agricultural and Resource Economics, Fort Collins, CO 80523-1172
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UPDATE: ESTIMATING THE ECONOMIC CONTRIBUTION OF THE AQUACULTURAL SUPPLIERS OF RECREATIONAL FISH (ASRF) IN THE WESTERN UNITED STATES [1]

Daniel Deisenroth,[2] and Craig Bond [3]

Introduction

In 2006, with producer support, the Western Regional Aquaculture Center sponsored a project to assess the economic contribution of the Aquacultural Suppliers of Recreational Fishing (ASRF), an industry that has not previously had its role and economic impact on the region assessed in detail. This project is being administered by the Department of Agricultural and Resource Economics at Colorado State University in conjunction with participation of faculty members throughout the Western United States. The participants include faculty from the University of Arizona, University of California, Davis, University of Idaho, and New Mexico State University.

This analysis requires input from ASRF producers and their direct customers, as well as anglers. In 2008, a survey of ASRF producers was conducted, and preliminary results have been compiled. The survey examines the ranges of activities undertaken by ASRF producers and determines major issues facing the industry. This survey asks first about the general size of operations, and then about a variety of sales outlets and locations. These questions are followed by questions regarding costs incurred within the ASRF operation and the values and purchases of a variety of assets.

This document aims to summarize several key pieces of information regarding the ASRF industry.

Section 1: Survey Methodology

Surveys were administered to all permitted ASRF producers in the western United States during 2008. Surveys were administered according to the Dillman Total Design Method. This involves sending an introductory letter, followed by a survey and a detailed explanation of the study. This is followed by a thank you/reminder post card, which is then followed by a second survey. All survey packets include a pre-paid envelope for return mail. Finally, for all who have not responded, a phone call is made to producers to encourage participation in the survey process.

Response Rate

In total, 344 surveys were mailed. Of these, 170 producers indicated that they were not actually in the ASRF business. This left 174 possible producers, of which 50 actually completed a survey, implying a 29% response rate. Surveys are still being mailed back, however, and response rates are expected to be near 40% when the process is finished. Response rates are summarized in figure 1.

[1] Project Sponsors: The Western Regional Aquaculture Center.

[2] Research Assistant and corresponding author: B 320 Clark Building, Department of Agricultural and Resource Economics, Colorado State University; T: 530-400-0179; E: Daniel.Deisenroth@colostate.edu; F: 970-491-2067

[3] Assistant Professor in the Department of Agricultural and Resource Economics, Colorado State University.

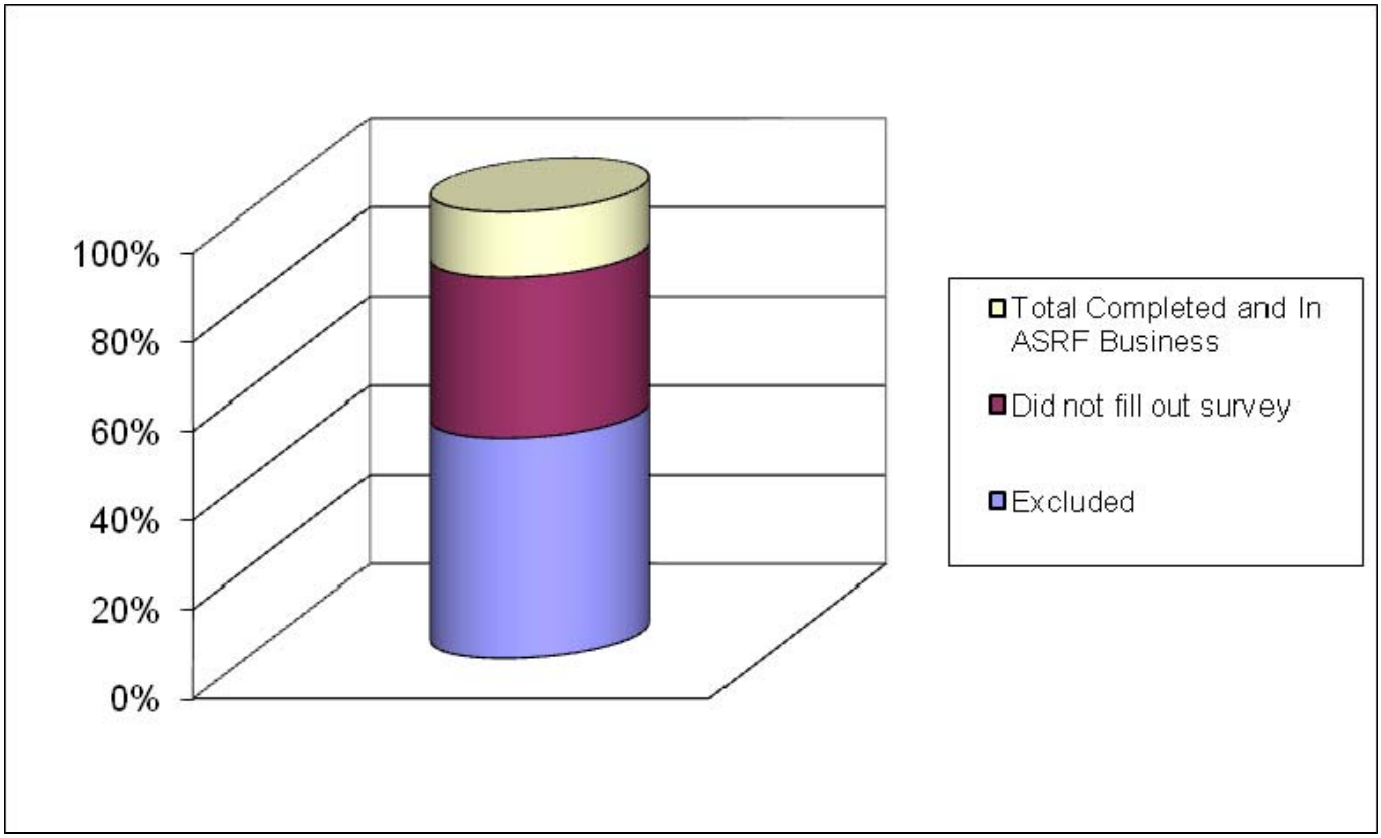

Figure 1: Survey Response Rate

Table 1: Demographic Statistics	
Age	55
% Male	90%
Years in ASRF Business	21
Years in Aquaculture in General	23
Size of Household (Persons)	3.2
% Married	88%
% Who Live On-Site	82%
Earnings as a % of Total Income	46%

Section 2: Personal and Farm Data

Demographic Statistics

Table 1 summarizes the demographic statistics of the ASRF industry. The average age of producers is 55, and 90% of producers are male. On average, producers have been in business over 20 years. 88% of producers are married, and the average household size is 3.2. Finally, 82% of ASRF producers live on-site, and ASRF earnings represent, on average, 46 percent of household income.

Sources of Water and Water Rights

Water in many western states, and in regions in all western states, is becoming increasingly scarce as population growth encourages development and ultimately municipal purchase of water rights from agricultural uses. The

ASRF industry is one which certainly relies on its water rights. Most ASRF producers (63%) use ground water, with 21% of producers using on-farm surface water and 16% of producers using off-farm water (from any of the following sources: federal supplier; irrigation district; mutual, private; cooperative or neighborhood ditches; commercial company or municipal or community system). Regardless of use, 92% of water rights are owned by ASRF producers (the remainder being leased). Figure 2 summarizes water use behavior among ASRF producers.

Section 3: Purchase and Sales Location Information

Location of Purchases and Sales

Ultimately, this study endeavors to estimate the sales multipliers associated with ASRF production. A multiplier of 1.5 for example means that for every $1.00 of fish sold, $1.50 is generated in the local or regional economy. High multipliers are generated by high proportions of purchases and sales in-state or in-region. Conversely, if most purchases and sales are done out of the region, low multipliers are expected. Figure 3 indicates that most purchases and sales are done in-state or in-region. 89% of material purchases, such as fish, eggs, or feed, are made in state or in the western region. 92% of Salmonids are sold in-state or in the western region, and 100% of warm and cool water fish are sold in state.

Sales Outlets

For ASRF producers, many sales outlets are available. Producers may sell their fish to public or private recreational outlets, or they may sell their fish to a broker, who in turn sells to some recreational outlet. Fish may also be sold as food items. For example, ASRF producers who sell warm water fish generate 65% of their sales dollars from food fish sales. Most Salmonids, conversely, are sold to either private or public recreational outlets. Figure 4 summarizes the sales outlets for Salmonids and for warm and cool water fish.

Section 4: Sales Information

Sales and Brokered Levels

Figures 5 and 6 demonstrate the fact that the distribution of sales is skewed towards the high end. For example, if there are three producers, with two producing $100,000 per year in sales, and the third producing $2.8 million per year in sales, the average between the three will be $1 million per year. However, the median, or the middle producer, only produces $100,000 per year. So it is with

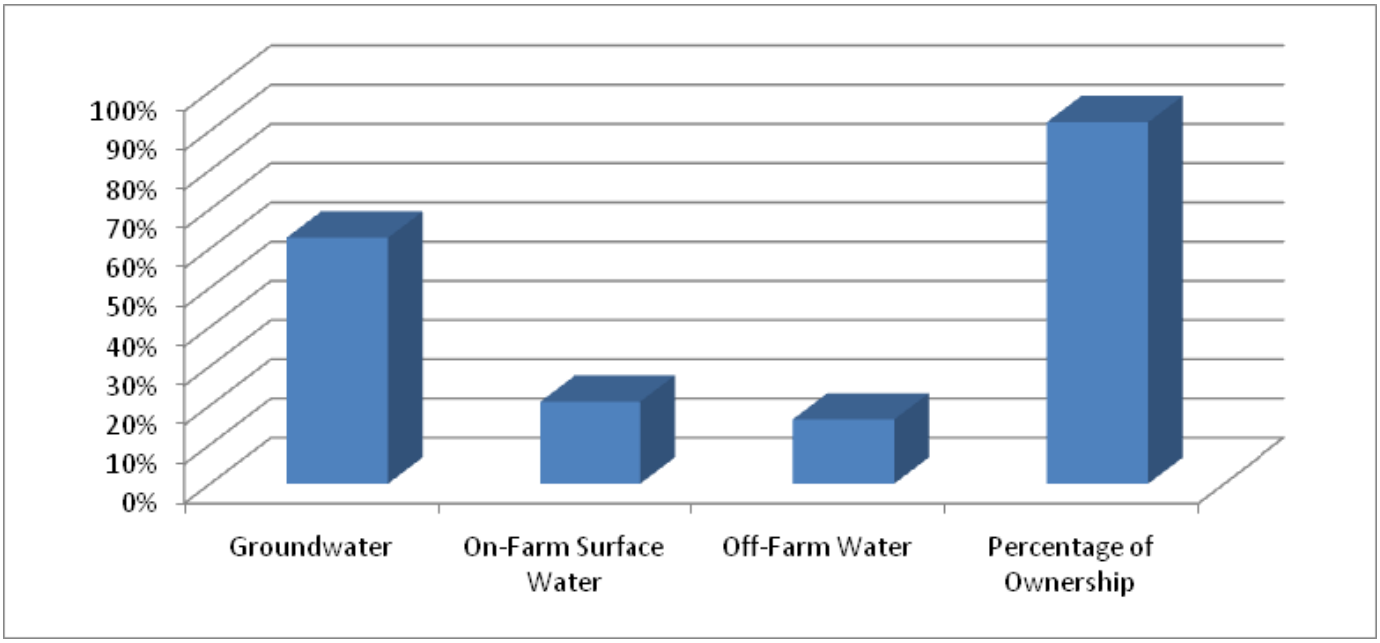

Figure 2: Water Usage and Ownership

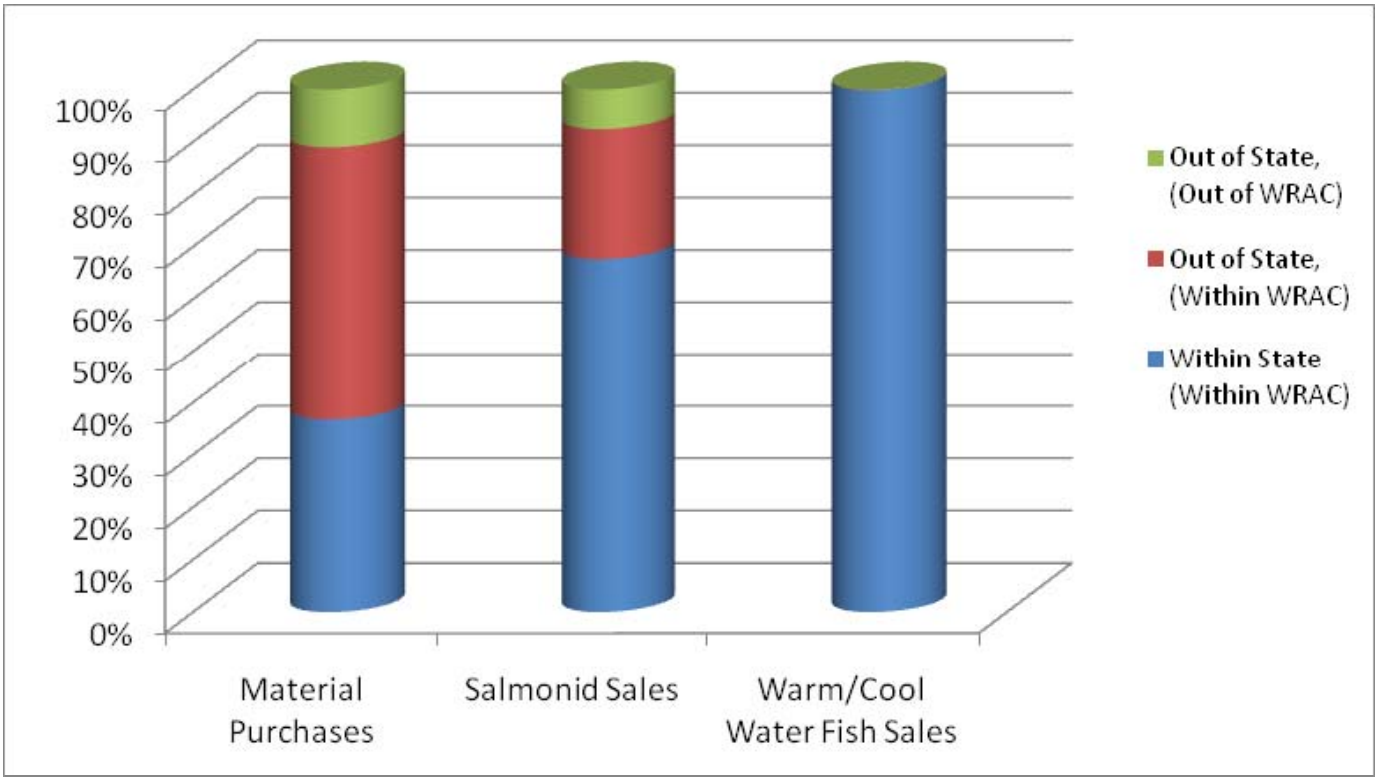

Figure 3: Location of purchases and sales

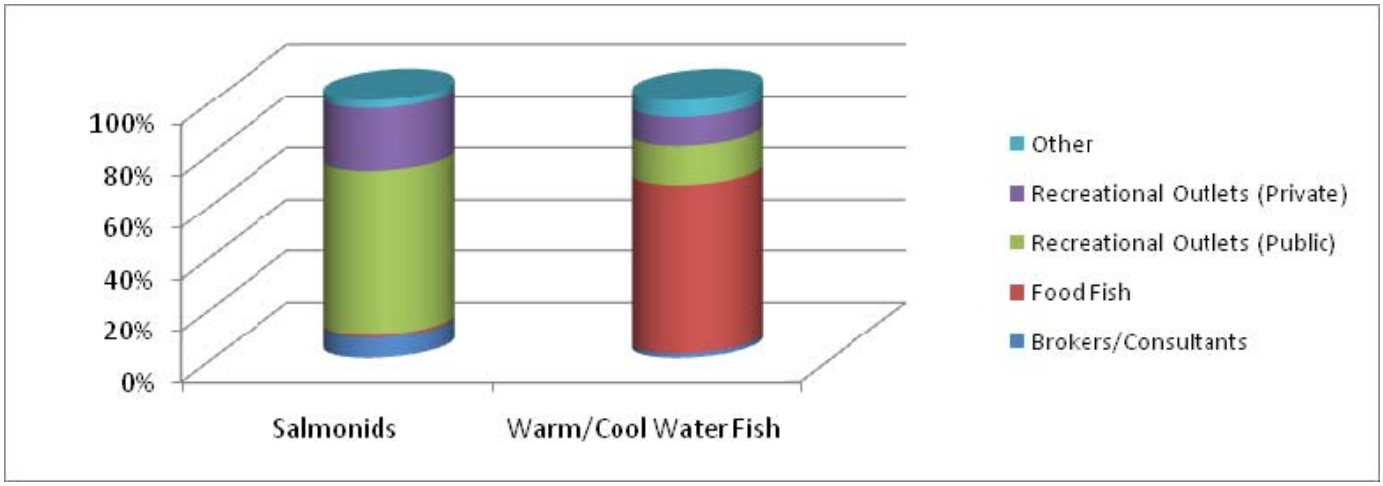

Figure 4: Sales Outlets

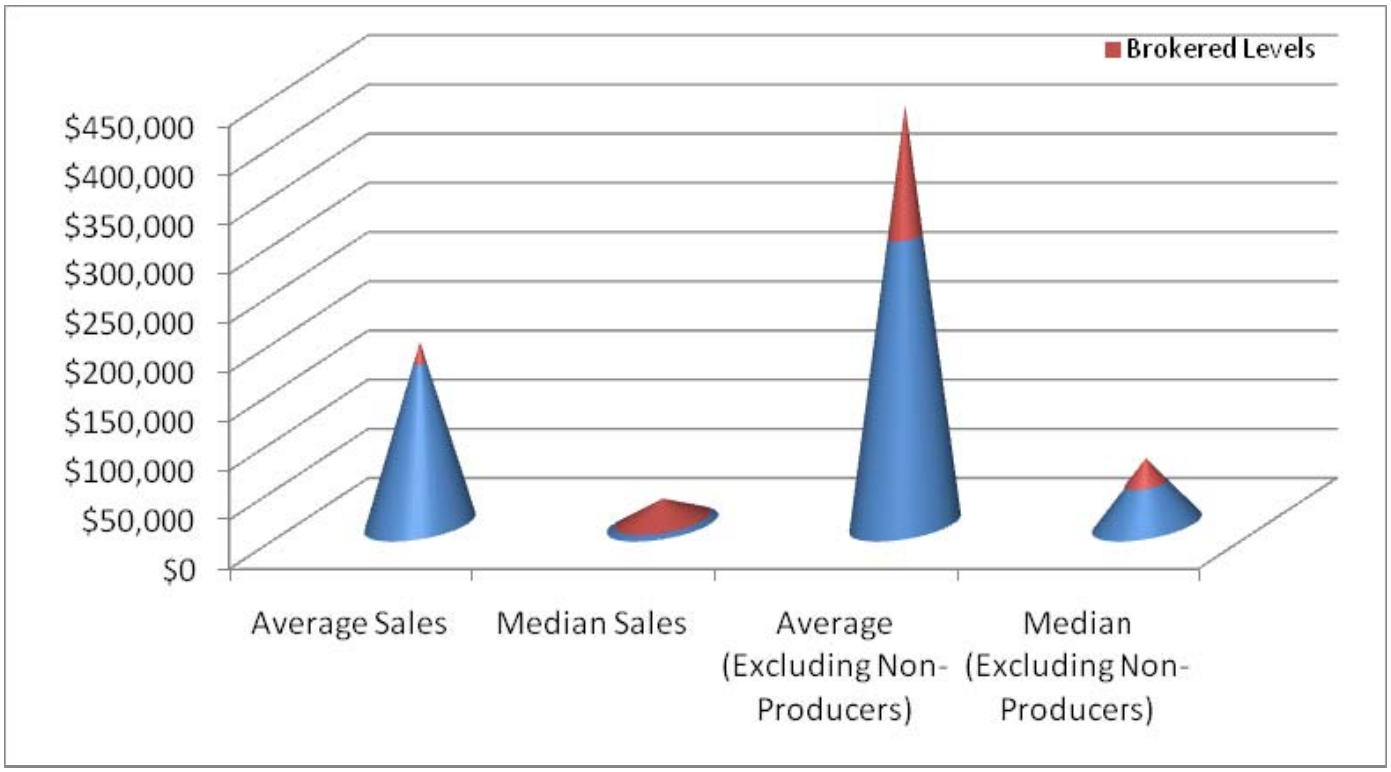

Figure 5: Sales and Brokered Levels of Salmonids

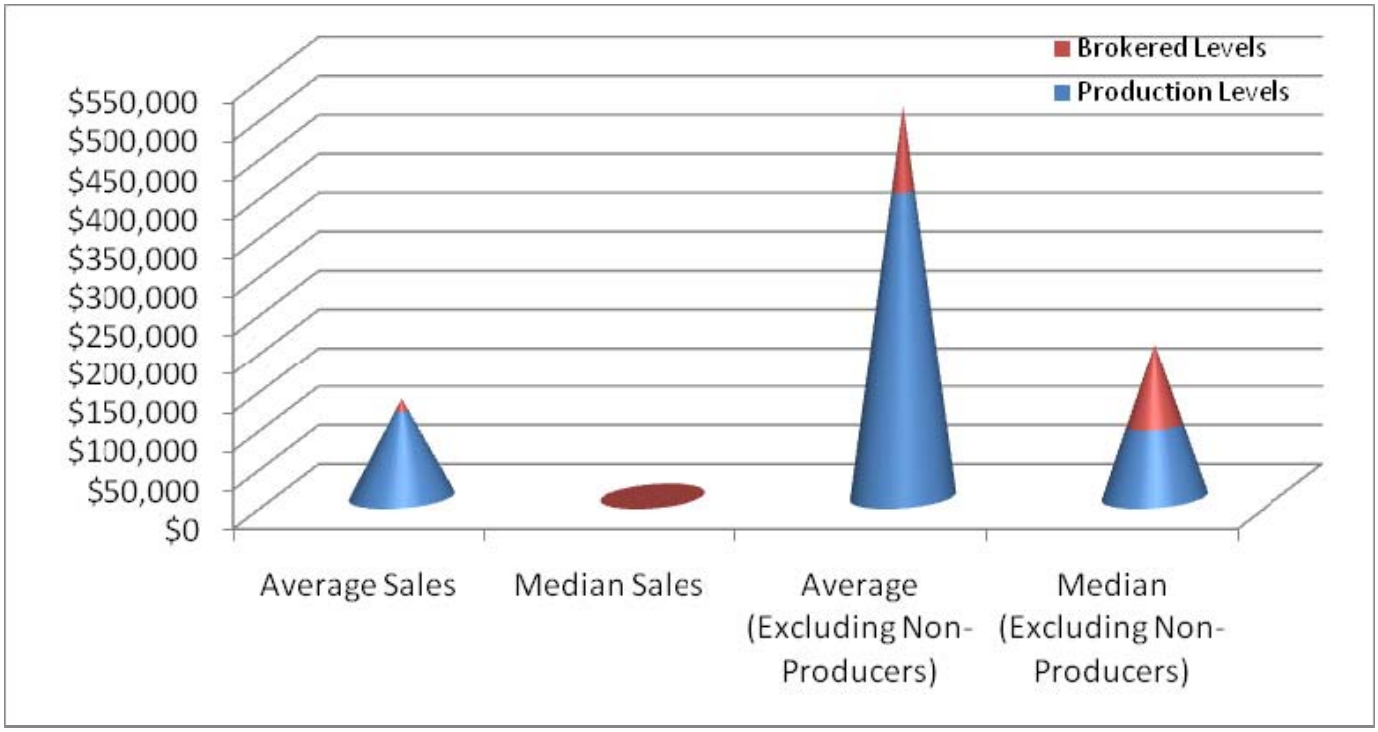

Figure 6: Sales and Brokered Levels of Warm and Cool Water Fish

the ASRF industry, where the median producer sells between $100,000 and $150,000 annually, the average producer may sell upwards of $500,000 annually.

Furthermore, the many producers only produce one type of fish, either salmonid or warm and cool water fish. Therefore, those producers who do not produce or sell any warm or cool water fish will "pull down the average." Therefore, four statistics are provided: the average and median of a particular fish category for all producers, and the average and median for only those producers who produced that type of fish. Note that some producers generate income from both types of fish.

Breakdown by Sales Category

Figures 7 and 8 outline the breakdown of sales by category, such as catchables, sub-catchables, and trophy size fish. These are broken down as in the previous figures into four statistics: the average and median of a particular fish category for all producers, and the average and median for only those producers who produced that type of fish.

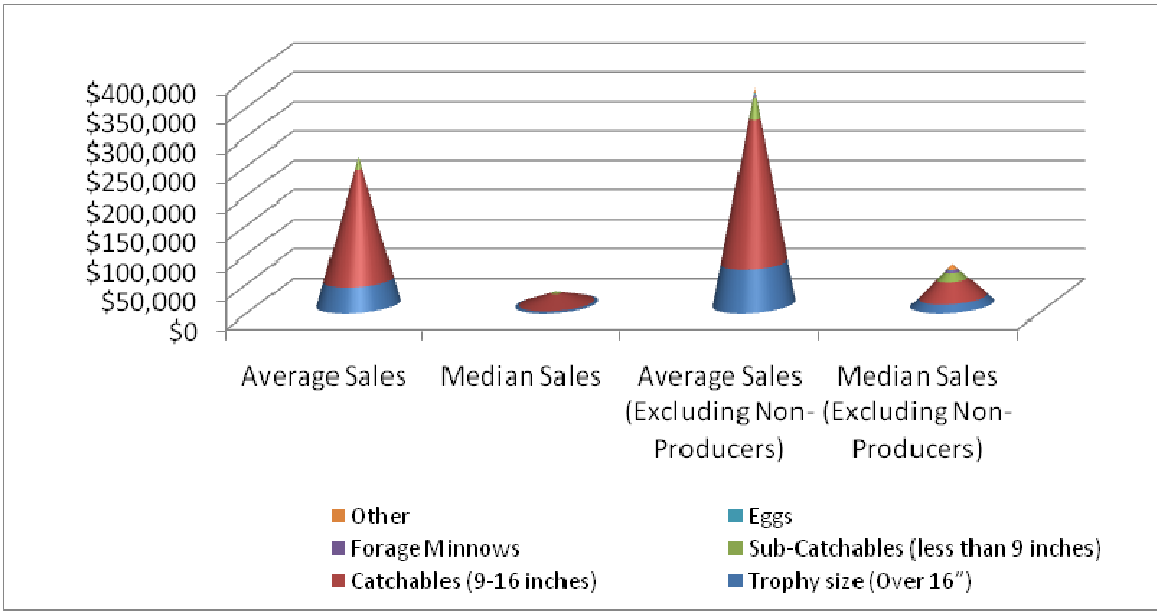

Figure 7: Breakdown by Category for Salmonids

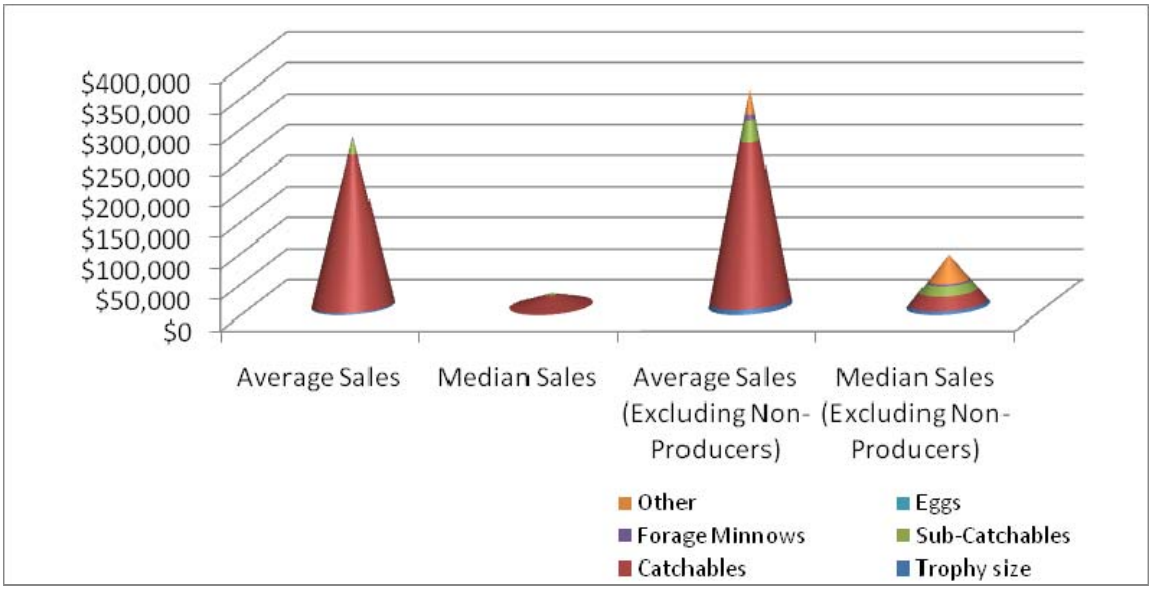

Figure 8: Breakdown by Category for Warm and Cool Water Fish