
Introduction

OVERVIEW

The 2005 Census of Aquaculture expanded the aquaculture data collected from the 2002 Census of Agriculture and provides a current and comprehensive picture of the aquaculture sector at the State and national level. The aquaculture census collected detailed information relating to production methods, surface water acres and sources, production, sales, point of first sale outlets, aquaculture distributed for restoration, conservation, or recreational purposes, and farm labor.

HISTORY

The 2005 Census of Aquaculture is the second national census conducted by the U.S. Department of Agriculture (USDA), National Agricultural Statistics Service (NASS), to collect data about the aquaculture industry. The first aquaculture census was conducted in 1998 in response to the need for an accurate measure of the aquaculture sector. NASS tracks the catfish and trout industries through monthly catfish processing, semi annual catfish production, and annual trout surveys. Limited aquaculture statistics from the 5-year census of agriculture have been presented since 1974.

USES OF CENSUS DATA

The census of aquaculture is the primary source of aquaculture data at the State and national levels. Aquaculture census data have a wide variety of uses and are used by many different groups and individuals including growers, aquaculture organizations, service and supply dealers, federal, State, and local government representatives and agencies, extension agents, colleges, universities, industry researchers, and others. The data are used for evaluating industry trends and determining the economic impact of aquaculture.

Understanding the economic impact, based on sales and employment, is critical to industry representatives when asking for legislation, providing justification for research and outreach project ideas, funding proposals, evaluating industry trends, supporting regulatory changes, and evaluating and determining government agency support resources.

Census data are used by many people concerned with the aquaculture industry in the following ways:

- Growers use the data to determine what to raise, whether or not to expand production, and to compare their operation's production volumes, pricing points, and culture methods with State and U.S. averages.
- Suppliers to the aquaculture industry use the data to plan for the production and marketing of new products.
- Aquaculture businesses use the data to develop market strategies and to determine locations of facilities that will serve aquaculture producers.
- Government, extension, and university representatives use the data to determine research needs. They also use the data as justification for funding research, the extension service, and other programs to develop new and improved methods of increasing aquacultural production and profitability.
- Drug companies use production data to determine whether or not to develop new drugs beneficial to the aquaculture industry.
- Farm organizations need sound data when lobbying Congress or State legislatures for funding and support for industry related programs.

- Banks and other lending institutions need production and sales data to justify loans.
- Insurance companies need production and sales data to establish the need for insurance and to help set rates.
- Provides a comparison of the economic contribution of the Aquaculture industry in relation to wild harvest fisheries.
- News media and Aquaculture associations use the data as background material for articles.

AUTHORITY

The census of agriculture is required by law under the "Census of Agriculture Act of 1997," Public Law 105-113 (Title 7, United States Code, Section 2204g). The law authorizes the Secretary of Agriculture to conduct surveys deemed necessary to furnish annual or other data on the subjects covered by the census. The 2005 Census of Aquaculture was conducted under the provisions of this section.

TARGET POPULATION AND MAIL LIST DEVELOPMENT

The target population for the 2005 Census of Aquaculture was all commercial or noncommercial places from which \$1,000 or more of aquaculture products were produced and either sold or distributed during the census year. Commercial operations qualified with sales greater than or equal to \$1,000. Noncommercial operations included operations that produced an estimated value of \$1,000 or more of aquaculture products, but released or distributed their production for purposes of restoration, conservation, or recreation. Examples of noncommercial operations included Federal, State, and tribal hatcheries.

The list of farms was created from operations on the NASS list frame that were identified as having aquaculture. The majority of these operations were identified as the result of the 2002 Census of Agriculture and the annual catfish and trout surveys conducted by NASS. The list of names was supplemented from various list sources obtained by NASS. Improved list coverage should be considered

when comparing 2005 totals to 1998 totals. Mollusks are a primary example of NASS obtaining list sources for the 2005 Census of Aquaculture that were not utilized for the 1998 census. As a result, data users will notice significantly larger farm counts and sales when reviewing mollusk data across census years.

DATA COLLECTION

The 2005 Census of Aquaculture used a combination of mail, telephone, and personal interviews. Respondents also had the opportunity to complete their report form over the internet. The report forms were mailed in mid-December 2005 to all identified aquaculture producers on the census mail list. Follow-up of mail nonresponse began in January 2006 and continued into the month of May. Four different versions of the report form were used. Catfish and trout farmers located in states participating in NASS annual catfish or trout programs received one of three report forms designed to collect information required for the annual NASS programs and the census. The remaining operations on the census mail list received the other report form. All mailings included a cover letter and a postage-paid return envelope. Follow-up telephone calls and personal interviews were used to collect data from non-respondents.

IMPACT OF HURRICANES

The 2005 Atlantic hurricane season was the most active on record. According to the National Hurricane Center, 28 named tropical storms were formed, breaking the old record of 21 in 1993. Three hurricanes (Katrina, Rita, and Wilma) reached Category 5 intensity (winds greater than 155 mph). All three of these hurricanes made landfall off the Gulf Coast of the United States between August 29, 2005 and October 24, 2005. The damage along the Gulf Coast was catastrophic and the impact upon data collection efforts for the 2005 Census of Aquaculture was significant.

The coastal areas of Louisiana were hit particularly hard by the hurricanes. Flooding and resulting property damage caused by the storms displaced producers from known addresses, which affected mail response rates in these areas. Telephone contact was hindered by phone lines that were down during data collection. Personal

interviewers were sent to the area in an attempt to find a means of contacting those producers who were displaced. If all attempts to locate a displaced producer failed, the operation was considered to have zero aquaculture sales in 2005.

EDITING DATA AND IMPUTATION FOR ITEM NONRESPONSE

All report forms were reviewed for legibility and data entry irregularities prior to keying. All data were passed through a computer edit to check for data integrity. Data entries of large magnitude were reviewed by statisticians and verified or corrected. Every effort was made to correct all inconsistencies, errors, or omissions in reported data. Editing of catfish and trout data utilized historical comparisons to previously reported NASS survey data for water usage, production, and sales. Data from the 2002 Census of Agriculture were also available during review. Nonresponse to particular questions on the reports was resolved by re-contacting the operation or by analyzing the population distribution for the specific item to determine an imputed value. Previously reported NASS survey data and 2002 Census of Agriculture data were used for comparison.

DATA PROCESSING

An Interactive Data Analysis System identified keying errors, missing data, and erroneous data entries to be corrected. Analysis included a review of the distribution of items in the data set, and outliers were investigated and verified or corrected. Prior to publication, tabulated totals were reviewed to identify any remaining inconsistencies.

CENSUS NONSAMPLING ERROR

Incorrect or incomplete responses to the census report form or to questions posed by an enumerator could introduce error into the census data. To reduce reporting error, each respondent's answers were checked for completeness and consistency by an edit. The accuracy of the census could also be affected by other non-sampling error sources, including incorrect data keying, editing, and imputing for missing data. Every effort was made to minimize these errors.

TABLES AND APPENDICES

Tables. Table 1 shows the number of farms and the market value of aquaculture products sold for each State and the United States. Table 2 provides a summary of aquaculture products sold by species and size category at the U.S. level. Table 3 provides a summary by value of aquaculture products sold at the U.S. level. Tables 4-19 and 22 present selected data items for operations with sales of aquaculture products at the U.S. and State level. Tables 20 and 21 provide information at the U.S. and State level, respectively, for operations that distributed aquaculture products for conservation, recreation, or restoration purposes. Throughout the publication average weight and average price data are published. These values are based on the number of aquaculture products sold, pounds sold, and total sales at the U.S. and State level. Average weight and average price data may vary considerably among farms.

Appendix A. Includes definitions of terms used in this publication, including items in the publication tables that carry the note "see text."

Appendix B. Provides a facsimile of the report form.

RESPONDENT CONFIDENTIALITY

In keeping with the provisions of Title 7 of the United States Code, no data are published that would disclose information about the operations of an individual farm. All tabulated data are subjected to an extensive disclosure review prior to publication. Any tabulated item that identifies data reported by a respondent or allows a respondent's data to be accurately estimated or derived, was suppressed and coded with a 'D'. However, the number of farms reporting an item is not considered confidential information and is provided even though other information is withheld.

SPECIAL STUDIES AND CUSTOM TABULATIONS

Special studies, such as the 2003 Farm and Ranch Irrigation Survey and the 2005 Census of Aquaculture, are part of the census program and provide supplemental information to the 2002 Census of

Agriculture in the respective subject area. Results are published in print and on the internet.

Custom-designed tabulations may be developed when data are not published elsewhere. These tabulations are developed to individual user specifications on a cost-reimbursable basis and shared with the public. The census Volume 1 on CD-ROM is an alternative data source that should be investigated before requesting a custom tabulation.

All special studies and custom tabulations are subject to a thorough disclosure review prior to release to prevent the disclosure of any individual respondent data. Requests for custom tabulations can be submitted via the internet from the NASS home page, by mail, or by e-mail to:

Associate Administrator
National Agricultural Statistics Service
1400 Independence Avenue, S.W.
Washington, D.C. 20250
or
HQ AA@nass.usda.gov

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used throughout the tables:

- Represents zero
- (D) Withheld to avoid disclosing data for individual farms
- (NA) Not available
- (X) Not applicable
- (Z) Less than half the unit
- g.p.m. Gallons per minute