Analysis of the Economic Benefits of the Maryland Shellfish Aquaculture Industry

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EXECUTIVE SUMMARY

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Executive Summary

The Maryland shellfish aquaculture industry has demonstrated increasing trends for both the number of leases and acreages of bottom culture and water column culture of oysters (429 leases and 6,930 acres in 2019). Corresponding with this increase in farming activity has been an increase in the total volume of harvested oysters in Maryland, reaching a peak of 74,066 bushels in 2017. The average annual growth rate of the Maryland shellfish industry from 2013 to 2017 was 36%; however, total harvest did decrease by 22% in 2018. The five-year period from 2013 to 2018 saw average growth rate of 24%. It is believed that low salinity in the Chesapeake Bay, as the result of rainfall, was responsible for the decreased harvest in 2018.

This project performed an economic impact assessment of the Maryland shellfish industry. The shellfish industry in Maryland consists of a multi-layered supply chain that includes: hatcheries, production farms, packing/processing plants, and wholesaler/distributors. Each level of the supply chain provides essential functions that produce impacts as a result of their activities. Data on the expenditures of Maryland shellfish producers were obtained from a survey completed over the summer of 2019. Surveys were developed and conducted for each segment of the Maryland shellfish industry to collect data on expenditures, employment, and revenue. Participation in the study was confidential, as are all individual respondent data. The response rate for the study was 33% by the number of hatcheries and farms, and 5% of wholesalers/distributors. The coverage rate of water column culture captured by the farm responses was 72%, and 37% for bottom culture. This is similar to response rates for other recent shellfish aquaculture studies. In order to preserve confidentiality of respondents, all study results were reported as aggregates of each respective activity. Data from a 2018 survey of Maryland oyster farms (Engle and van Senten 2018) were included in the dataset to inform the development of cost structures for water column culture and bottom culture farms.

Due to low response rates and data quality concerns, data from processors and wholesalers/distributors were not included in the estimation of economic impacts. Non-response values were estimated using per-bushel estimates of expenditures. Enterprise budgets, adjusted for non-response, were utilized to calculate the coefficients of the different expenditures resulting from shellfish farming activities. These coefficients were used to develop the IMPLAN industry spending pattern for water column culture and bottom culture of oysters in Maryland. In addition to farming activities, expenditures for nursery/hatchery and equipment manufacturing activities were also included in the analysis of impacts. Separate industry spending patterns were developed for each of these activities. Estimation of impacts was performed using an analysis by parts (ABP) approach; which allows for more accurate estimation of shellfish aquaculture impacts.

The total output effect of the Maryland shellfish industry was estimated at $8,141,589 in 2018. The total employment effect of the Maryland shellfish industry was estimated at 133 people; with a direct effect of 103 jobs, indirect effect of 12 jobs, and induced effect of 18 jobs.

There were some limitations to this analysis, and as a result the estimates presented are underestimating the impacts of the Maryland shellfish industry. Low response rates amongst processors and wholesalers/distributors, lower harvest values in 2018, and leaking of impacts to other states all contribute to the underestimation of 2018 impacts. It should be noted that this impact estimate represents only the nursery/hatchery, equipment, and farm levels of the Maryland shellfish industry.

For comparison, an estimation was performed of the 2017 economic impact of the Maryland shellfish industry. This analysis revealed increased impacts of a total output effect of $9.7 million. The total effect for employment was 167. The greater estimated impacts for 2017 are reflective of the lower total harvest in 2018.

In conclusion, the growth of oyster farming in Maryland has provided valuable employment opportunities for watermen and others in coastal areas of the state. It has also increased total economic activity, and increased the economic value added, especially in rural coastal communities. Moreover, the Maryland oyster industry supports a wide variety of other economic sectors, from real estate and wholesale trade through direct expenditures by oyster farms to medical services and food and beverage sectors as wages and salaries paid throughout the oyster supply chain multiply in Maryland's economy.

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