

AQUACULTURE PRODUCTION, FARMGATE VALUES, JOBS & WAGES IN THE UNITED STATES & GULF OF MEXICO REGION

ABSTRACT

In this issue, Dr. Posadas shows the official data on annual volume and farmgate value of total aquaculture production since 2010. The trends in imputed farmgate price were computed from value and output. The official data on jobs and wages were compiled during the past decade. Labor productivity was computed in pounds and real farmgate values per worker. The trade-off between real wages and farmgate prices was estimated. The annual production, farmgate values and prices, and wholesale and retail prices of the individual species will be covered in succeeding Newsletters.

KEYWORDS

Aquaculture; wages, salaries, and earnings; workers and owners; labor productivity.

ACKNOWLEDGEMENT

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AQUACULTURE INDUSTRY

Aquaculture is defined by NAICS (2021) sector 11251. This industry comprises of establishments primarily engaged in the farm raising and production of aquatic animals or plants in controlled or selected aquatic environments. These establishments use some form of intervention in the rearing process to enhance production, such as holding in captivity, regular stocking, feeding, and protecting from predators, pests, and disease.

U.S. AQUACULTURE SPECIES

Finfish Aquaculture Species

- ❖ [Catfish](#)
- ❖ [Salmon](#)
- ❖ [Striped bass](#)
- ❖ [Tilapia](#)
- ❖ [Trout](#)

Shellfish Aquaculture Species

- ❖ [Clams](#)
- ❖ [Crawfish](#)
- ❖ [Mussel](#)
- ❖ [Oyster](#)
- ❖ [Saltwater shrimp](#)

Miscellaneous Species

- ❖ Ornamental fish
- ❖ Alligators
- ❖ Algae
- ❖ Aquatic plants
- ❖ Eels
- ❖ Scallops
- ❖ Others

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Marine Aquaculture Species

- ❖ [Salmon](#)
- ❖ [Clams](#)
- ❖ [Mussel](#)
- ❖ [Oyster](#)
- ❖ [Saltwater shrimp](#)

Freshwater Aquaculture Species

- ❖ [Catfish](#)
- ❖ [Striped bass](#)
- ❖ [Tilapia](#)
- ❖ [Trout](#)
- ❖ [Crawfish](#)

U.S. AQUACULTURE PRODUCTION AND FARMGATE VALUE

- ❖ The source of raw data on production and farmgate values was NOAA Fisheries.
- ❖ The total production of all species in 2018 rose to 680 million pounds (Fig. 1).
- ❖ The annual growth rate of aquaculture production had been volatile, averaging less than zero (Fig. 2).
- ❖ The annual farmgate value consistently risen since 2013, reaching over \$1.5 billion in 2018 (Fig. 1).
- ❖ There are no current updates on production and farmgate value after 2018.
- ❖ The imputed farmgate price was estimated by dividing the total farmgate value by the total production.
- ❖ The rising trend in imputed average farmgate prices was cut short when prices started to fall in 2018 (Fig. 3).

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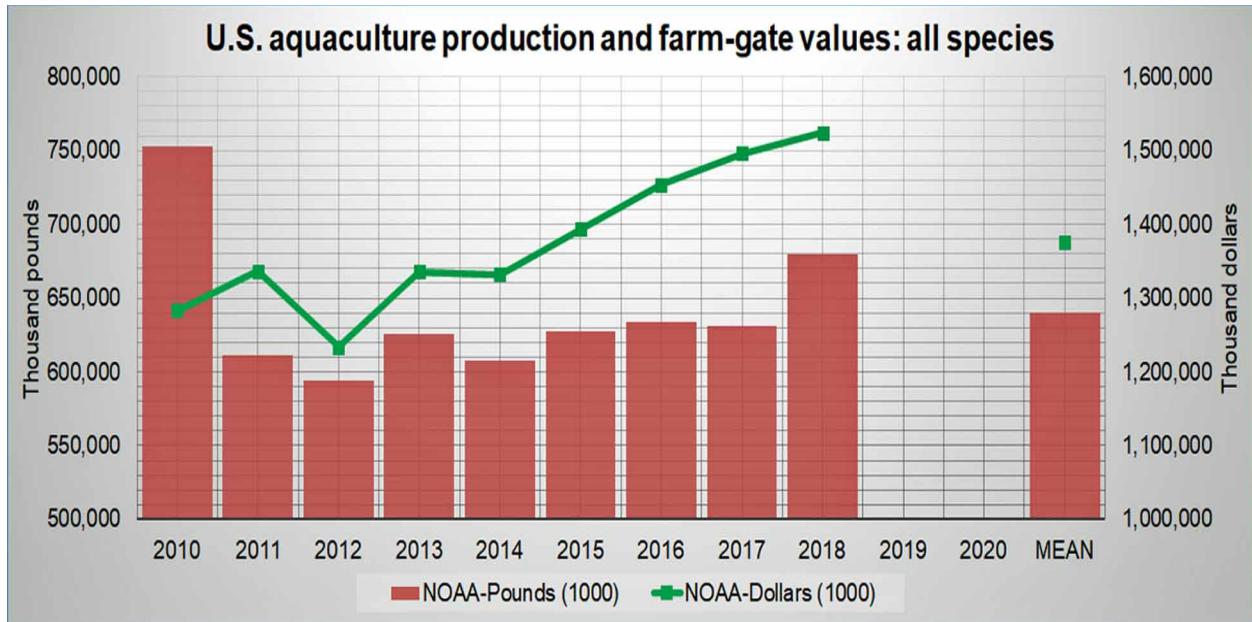


Figure 1. U.S. aquaculture production and farmgate value. Source of raw data: NOAA Fisheries.

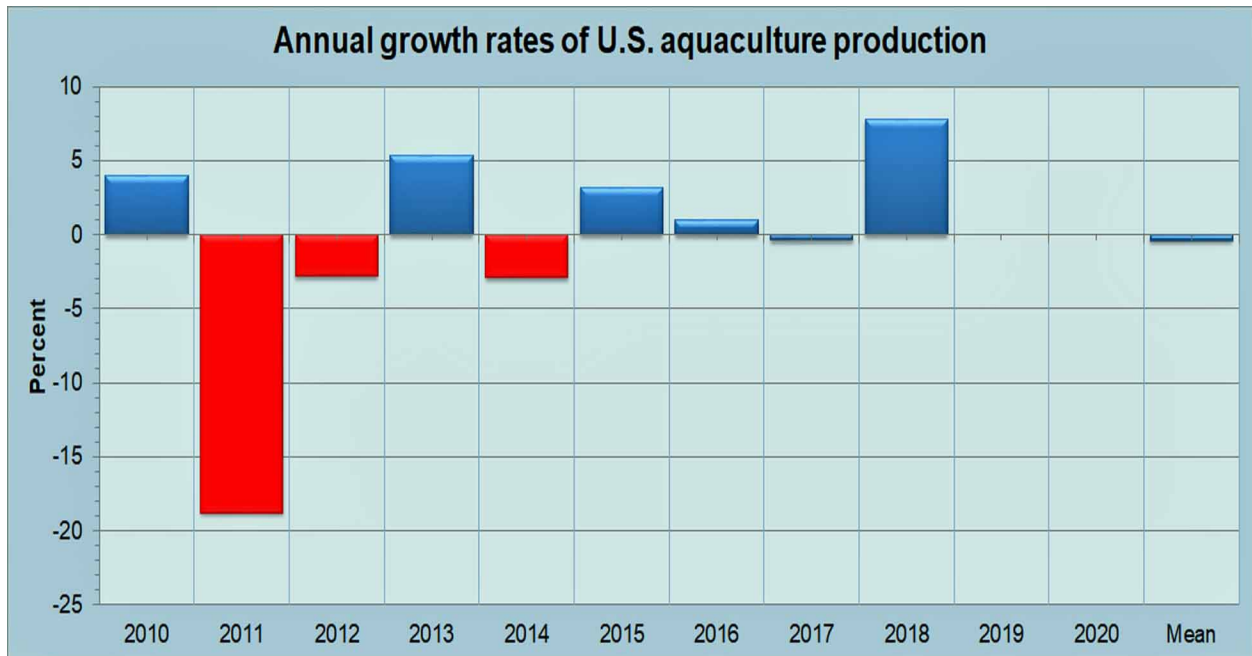


Figure 2. Annual growth rate of U.S. aquaculture production.

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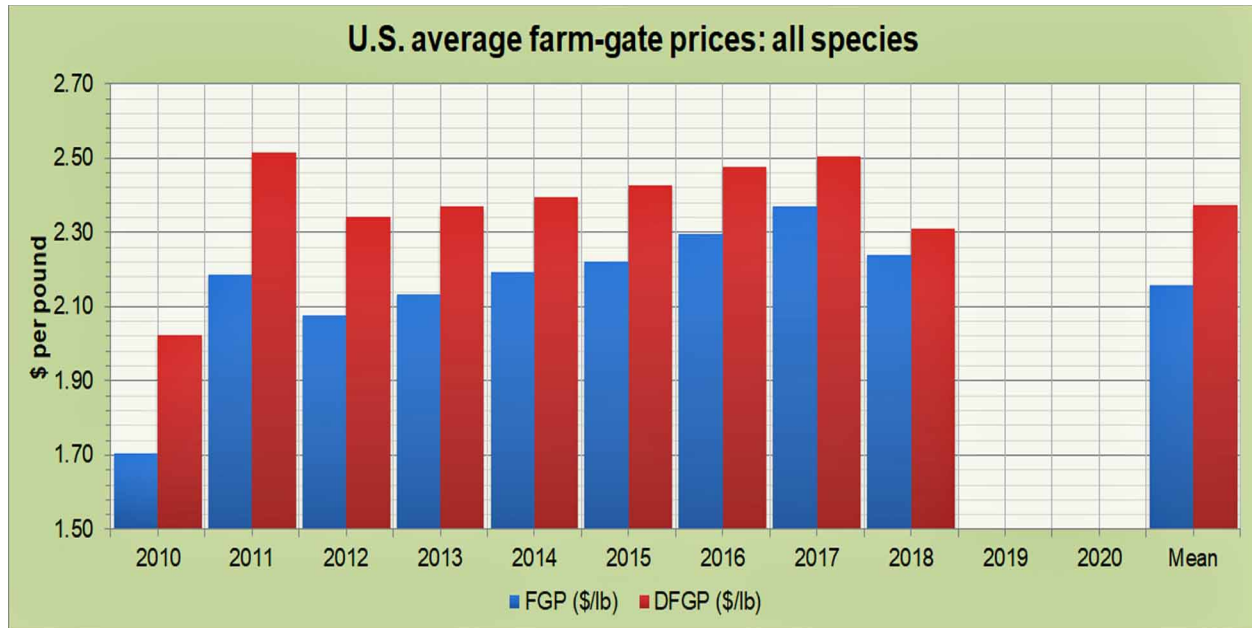


Figure 3. Average farmgate price of U.S. aquaculture production.

AQUACULTURE EMPLOYMENT AND WAGES

- ❖ The source of data of aquaculture jobs and wages was the Quarterly Census of Employment and Wages, Bureau of Labor Statistics.
- ❖ During the past decade, aquaculture directly provided over 6,300 jobs per year in the U.S. (Fig. 4).
- ❖ About -2.8 percent of aquaculture jobs in the U.S. were lost during the global pandemic in 2020 (Fig. 4).
- ❖ The five GOM states (AL, FL, LA, MS, and TX) added about 1,800 aquaculture jobs during the period (Fig. 4).
- ❖ An additional 2.1 percent of aquaculture jobs in the GOM were generated in 2020.
- ❖ Florida created an average of 454 aquaculture jobs since 2010 (Fig. 5). An additional 17.9% of aquaculture jobs were created in 2020.
- ❖ An average of 536 aquaculture jobs has been created in Mississippi (Fig. 5). Approximately -7.1% of aquaculture jobs were lost in 2020.

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- ❖ Texas generated an average of 361 aquaculture jobs during the period (Fig. 5). Approximately -1.8% of aquaculture jobs were lost in 2020.
- ❖ Louisiana created an average of 257 aquaculture jobs during the past decade (Fig. 5). About -3.7% of aquaculture jobs were lost in 2020.
- ❖ An average of 204 aquaculture jobs was generated in Alabama during the period (Fig. 5). No aquaculture jobs were lost or gained in 2020.

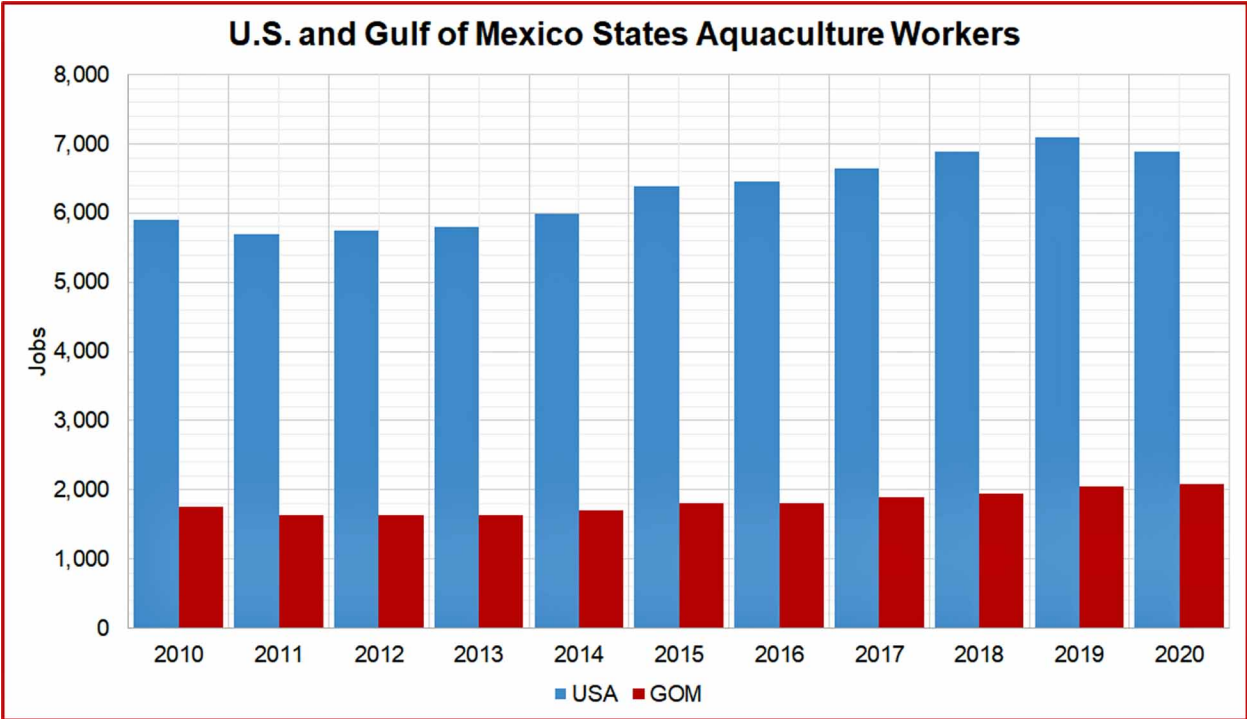


Figure 4. U.S. and GOM aquaculture workers. Source of raw data: Bureau of Labor Statistics.

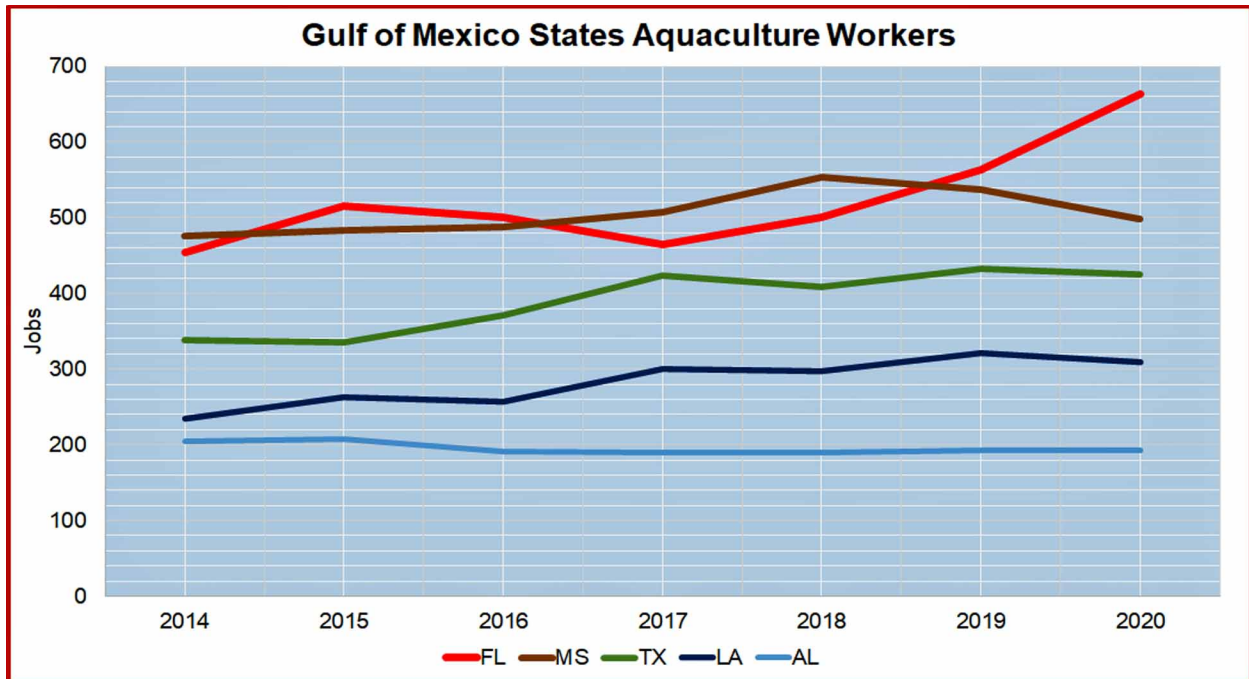


Figure 5. GOM states aquaculture workers. Source of raw data: Bureau of Labor Statistics.

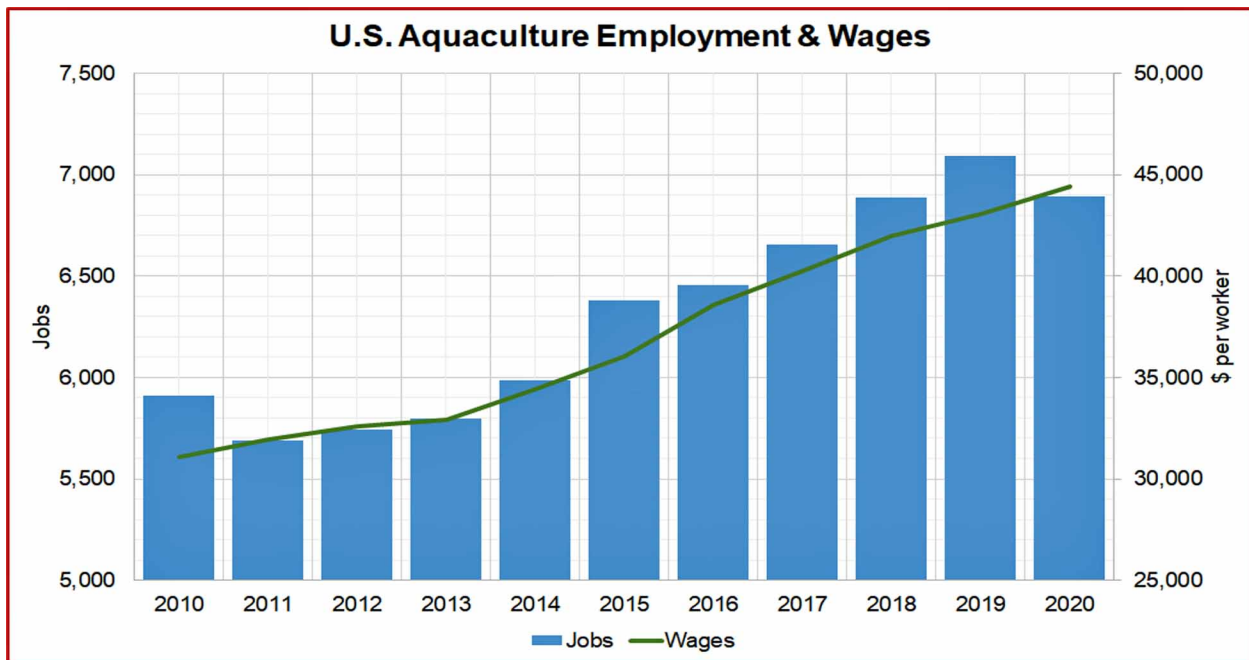


Figure 6. U.S. aquaculture workers and annual wages. Source of raw data: Bureau of Labor Statistics.

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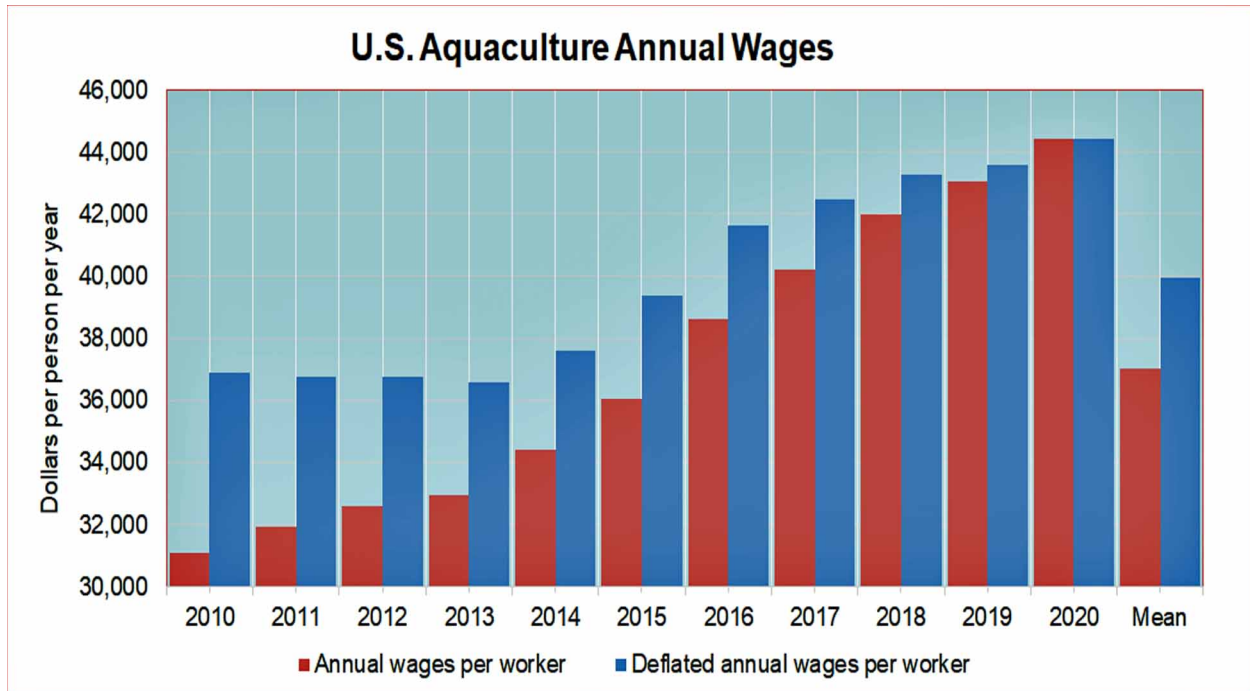


Figure 7. U.S. aquaculture annual wages. Source of raw data: Bureau of Labor Statistics.

- ❖ The combined wages of U.S. aquaculture workers averaged about \$37,000 per job during the past decade (Fig. 7).
- ❖ Average annual wages have continued to climb since 2010 (Fig. 7).
- ❖ The average annual wages deflated by the consumer price index started to expand in 2014 (Fig. 7).
- ❖ The annual wages of aquaculture workers in the five Gulf of Mexico States averaged more than \$38,000 per person or 4% more than the national average.
- ❖ A long-term scatter plot since 2001 of aquaculture jobs and deflated annual wages showed that more jobs were supplied to the aquaculture industry at higher wages (Fig. 8).

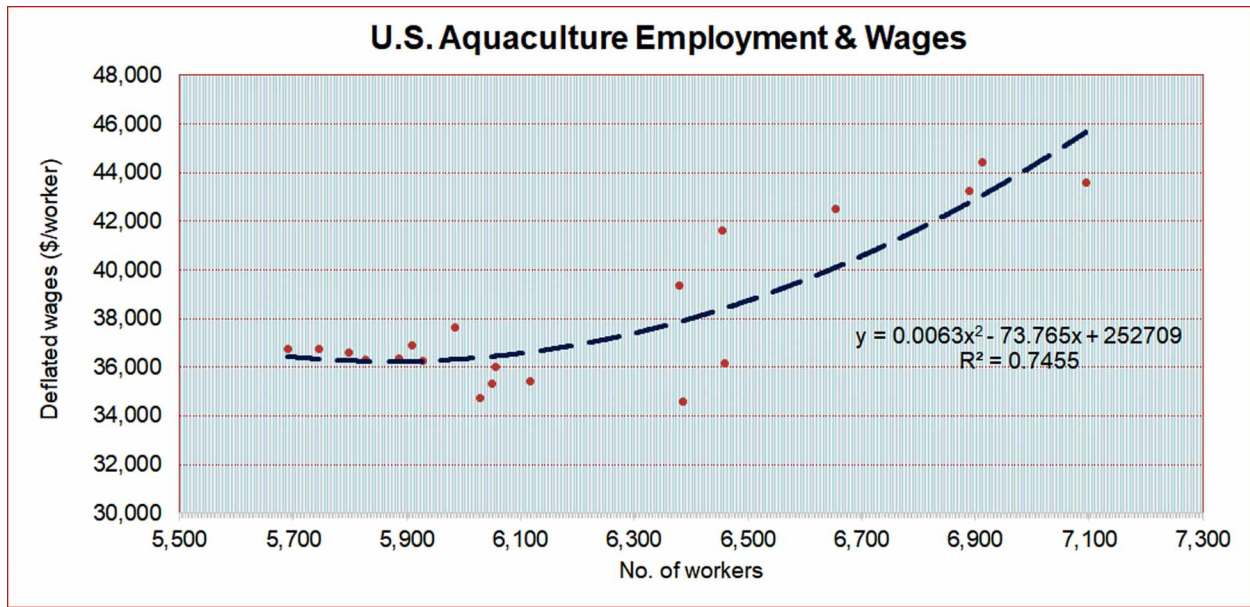


Figure 8. Scatter diagram of U.S. aquaculture wages and employment.

U.S. AQUACULTURE LABOR PRODUCTIVITY, WAGES, AND FARMGATE PRICES

- ❖ Labor productivity was estimated by dividing the total production and farmgate value by the number of jobs (Fig. 9).
- ❖ The average labor productivity was 104,000 pounds and 228,000 dollars per worker (Fig. 9).
- ❖ Labor productivity has consistently declined since 2010 (Fig. 9).
- ❖ Labor productivity (\$/worker) was stacked up against annual wages (\$/worker) for the past decade (Fig. 10).
- ❖ The ratio between labor productivity (\$/worker) and wages (\$/worker) averaged 6.35:1.00 since 2010 (Fig. 10).
- ❖ A long-term scatter plot between average farmgate prices of all aquaculture species and wages (Fig. 11) was created for the past decade.
- ❖ It showed that the average price rose over \$0.10 per pound for every \$1,000 increase in the average annual wages of workers (Fig. 11).

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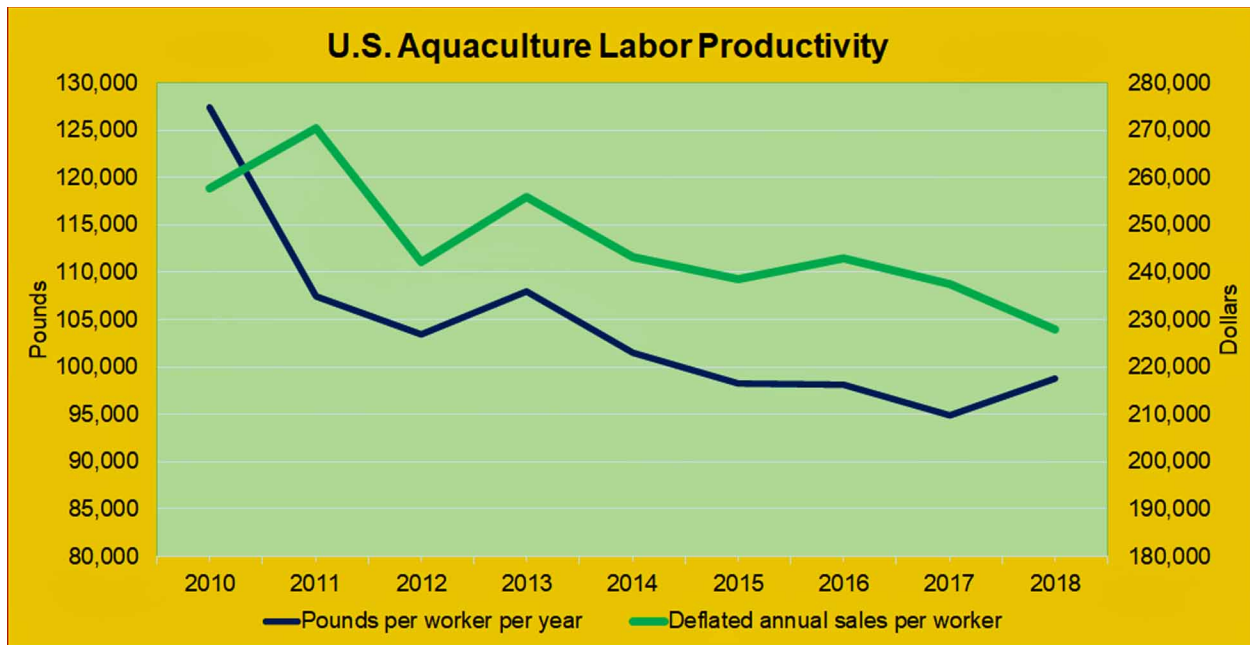


Figure 9. U.S. aquaculture labor productivity.

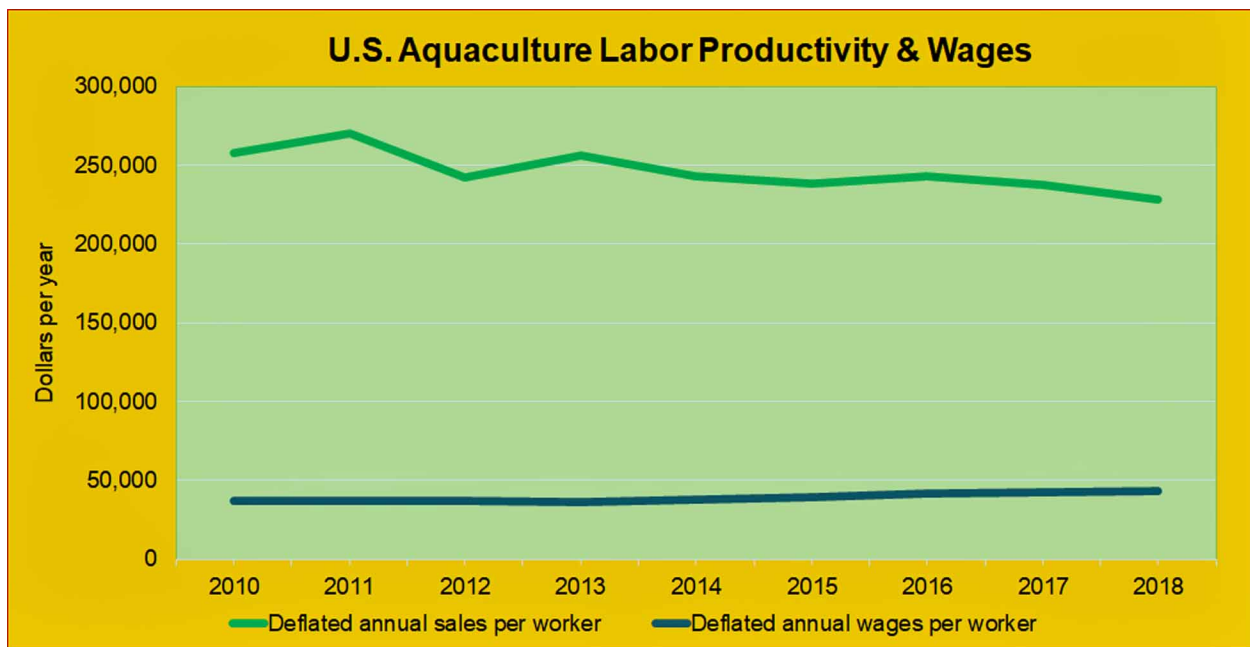


Figure 10. Scatter diagram of U.S. aquaculture labor productivity and wages.

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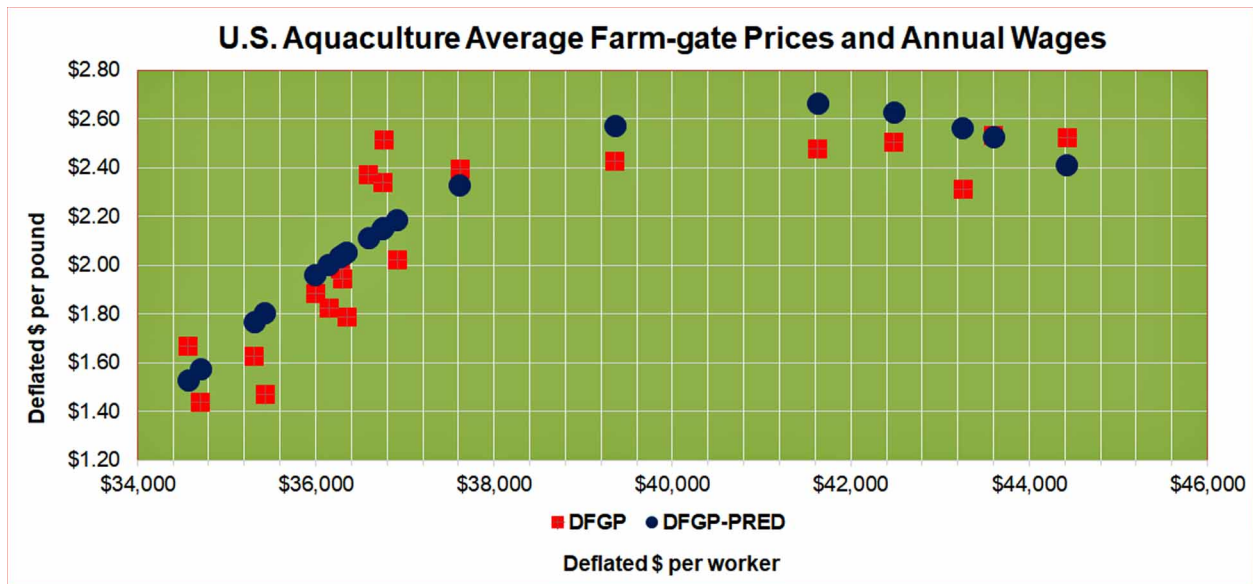


Figure 11. Scatter diagram of U.S. aquaculture wages and farmgate prices.

SUMMARY

- ❖ Total U.S. aquaculture production of all species in 2018 rose to 680 million pounds.
- ❖ The annual growth rate of U.S. aquaculture production had been volatile, averaging less than zero.
- ❖ Total farmgate value consistently rose since 2013, reaching over \$1.5 billion in 2018.
- ❖ Aquaculture in the U.S. provided an average of 6,300 jobs during the past decade.
- ❖ The global pandemic eliminated -2.8% of the aquaculture jobs in 2020 as compared to the 2019 level.
- ❖ The global pandemic also caused significant reductions in aquaculture jobs in Texas, Louisiana, and Mississippi.
- ❖ The average labor productivity was 104,000 pounds and 228,000 dollars per worker.
- ❖ Labor productivity has consistently declined since 2010.

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- ❖ The ratio between labor productivity (\$/worker) and wages (\$/worker) averaged 6.35:1.00 since 2010.

MY ECONOMICS OUTREACH ON AQUACULTURE

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SUGGESTED CITATION

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