

U.S. MARKET POTENTIAL FOR RED SNAPPER AQUACULTURE

ABSTRACT

This newsletter summarizes the Red snapper's long-term commercial landings and dockside values in the United States and major producing states. Shifts in landings were measured. It attempts to develop an approach to assessing the market potential of Red snapper for aquaculture. The trends in retail markets are compared by major categories. Empirical commercial landings and dockside price models are developed, identifying significant determinants.

KEYWORDS

Market potential, Red Snapper, Marine aquaculture.

ACKNOWLEDGEMENT

This newsletter is a contribution of the Mississippi Agricultural and Forestry Experiment Station and the Mississippi State University Extension Service. This material is based upon work that is supported in part by the National Institute of Food and Agriculture, U.S. Department of Agriculture, Hatch project under accession number 081730, and Mississippi-Alabama Sea Grant Consortium using federal funds under Grant NA24OAR4170090 from the National Sea Grant Office, NOAA, U.S. Dept. of Commerce. The statements, findings, conclusions, and recommendations are those of the author and do not necessarily reflect the views of the National Sea Grant Program, NOAA, U.S. Department of Commerce. This newsletter is a Mississippi-Alabama Sea Grant Publication number MASGP-24-057-04.

RED SNAPPER

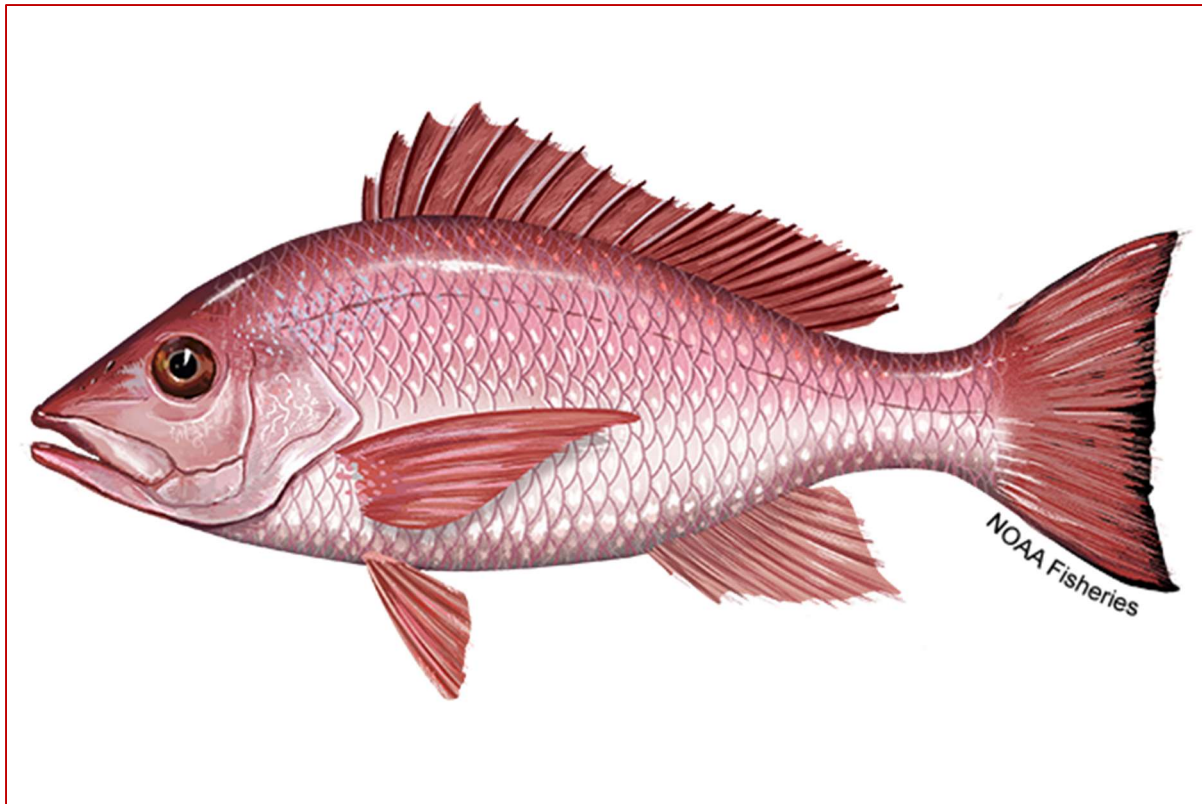
Scientific name: *Lutjanus campechanus*.

Source: <https://www.fisheries.noaa.gov/species/red-snapper>.

They are also known as Snapper, Genuine Red Snapper, American Reds, and Spot Snapper.

Two red snapper stocks are the Gulf of Mexico and the South Atlantic. According to the most recent stock assessments:

- The Gulf of Mexico stock is not overfished but is still rebuilding to target levels and is not subject to overfishing based on 2022 catch data.
- The South Atlantic stock is overfished and subject to overfishing.



STATUS OF RED SNAPPER AQUACULTURE

- The University of Miami in Florida has successfully conditioned red snapper (*Lutjanus campechanus*) broodstock to spawn volitionally on and off-season, producing tens of thousands of fingerlings and juveniles.
- This development has sparked interest in the possibility of raising the "American" species commercially for the first time in the U.S. or elsewhere.
<https://www.hatcheryinternational.com/florida-research-cites-breakthrough-in-american-red-snapper-culture/>.

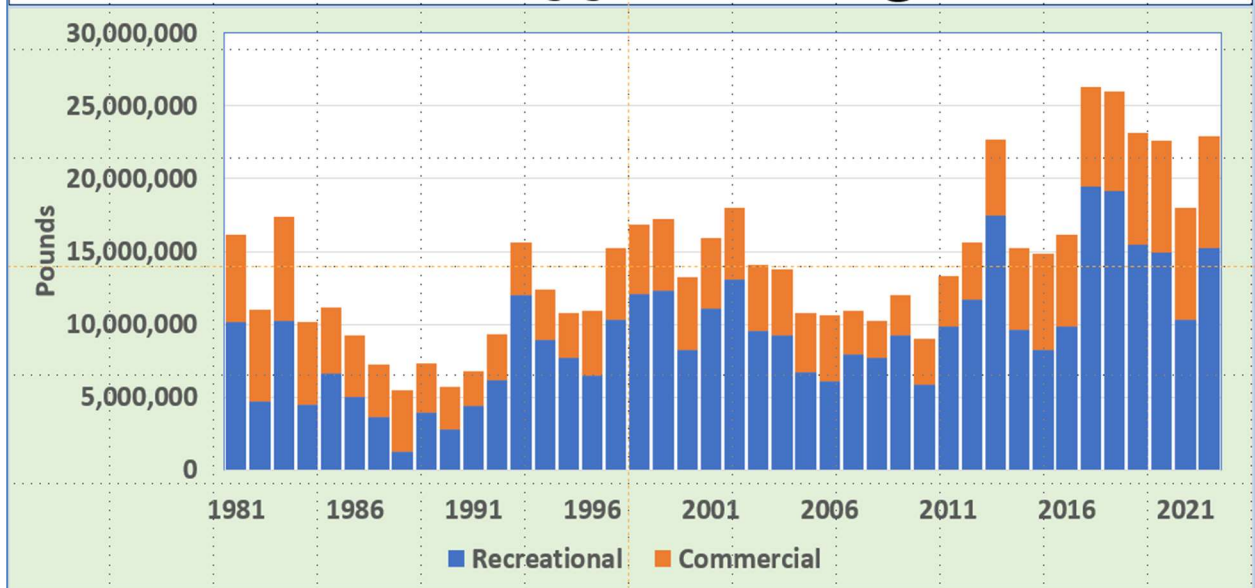
LET US START OUR MODELING EFFORT!

- The commercial landings and dockside values of Red Snapper in the United States since 1950 were compiled from the NOAA Fisheries website.
- Major producing states were identified, and shifts in landings were measured.
- Nominal dockside prices (\$/lb) are imputed from commercial landings (lb/yr) and dockside values (\$/yr).
- Empirical commercial landings and dockside price models are developed, identifying significant determinants.

U.S. COMMERCIAL AND RECREATIONAL RED SNAPPER LANDINGS

- In Fig. 1, NOAA Fisheries data show commercial and recreational landings of Red snapper in the U.S. since 1981.
- Combined landings peaked in 2017 at more than 26 million pounds.
- Recreational landings contributed to an average of 67% of total landings since 2010.

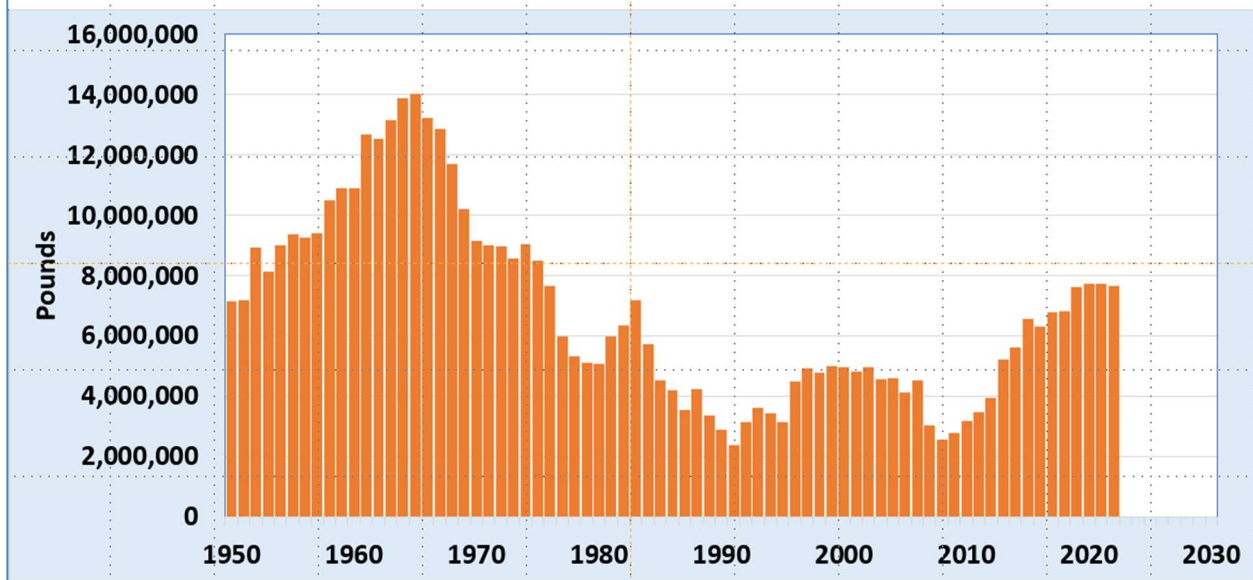
Fig. 1. U.S. commercial and recreational Red snapper landings



U.S. COMMERCIAL RED SNAPPER LANDINGS

- Fig. 3 shows NOAA Fisheries data on commercial landing values of Red snappers in the U.S. since 1950.
- Commercial landing values peaked in 2022 at more than 37 million dollars.
- Commercial landing values have averaged more than 24 million dollars since 2010.

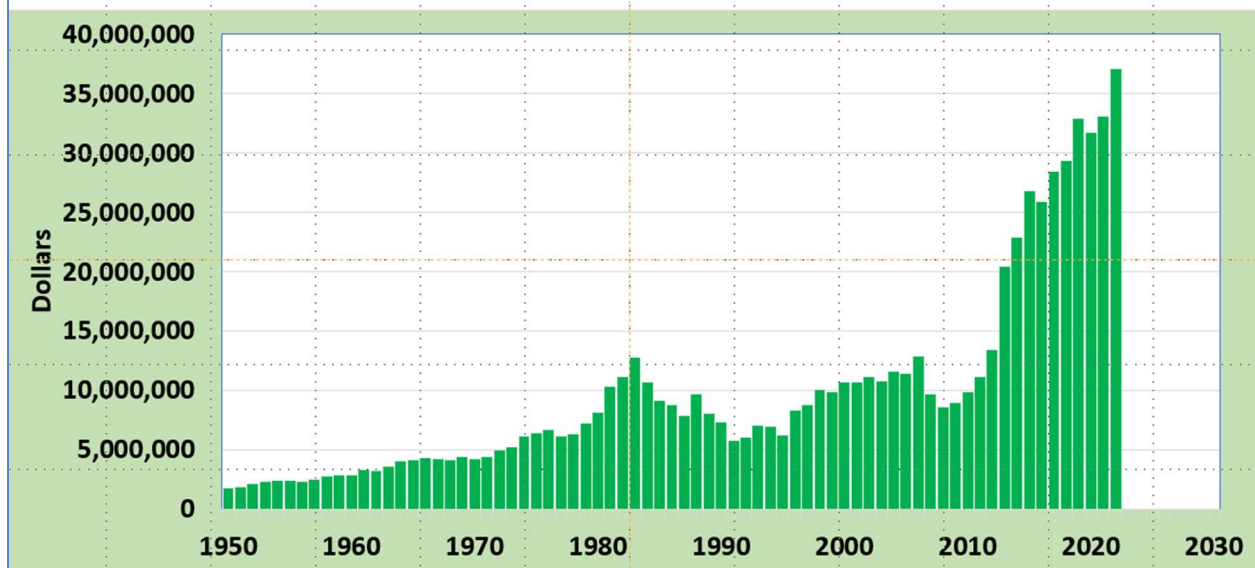
Fig.2. U.S. commercial Red snapper landings



U.S. COMMERCIAL RED SNAPPER LANDING VALUES

- Fig. 3 shows NOAA Fisheries data on commercial landing values of Red snappers in the U.S. since 1950.
- Commercial landing values peaked in 2022 at more than 37 million dollars.
- Commercial landing values have averaged more than 24 million dollars since 2010.

Fig. 3. U.S. commercial Red snapper landing values



MAJOR U.S. COMMERCIAL RED SNAPPER PRODUCING STATES

- Fig. 4 shows the major producing states from 2010 to 2022, including Florida's West Coast, Texas, and Louisiana.
- Limited landings were reported in Alabama, Florida's East Coast, Mississippi, North Carolina, and South Carolina.
- As Fig. 4 and 5 show, the Florida West Coast produced 2.1 million lb/yr from 2010 to 2019. Its share of total U.S. commercial landings rose from 38.7% in 2010-19 to 40.5% in 2020-22.
- Texas landed 1.8 million lb/yr in 2010-19. Its share of total U.S. commercial landings rose from 32.7% in 2010-19 to 35.6% in 2020-22.
- Louisiana landed 1.2 million lb/yr in 2010-19. Its share of total U.S. commercial landings fell from 21.1% in 2010-19 to 16.9% in 2020-22.

Fig. 4. U.S. commercial Red snapper landings by state and pounds

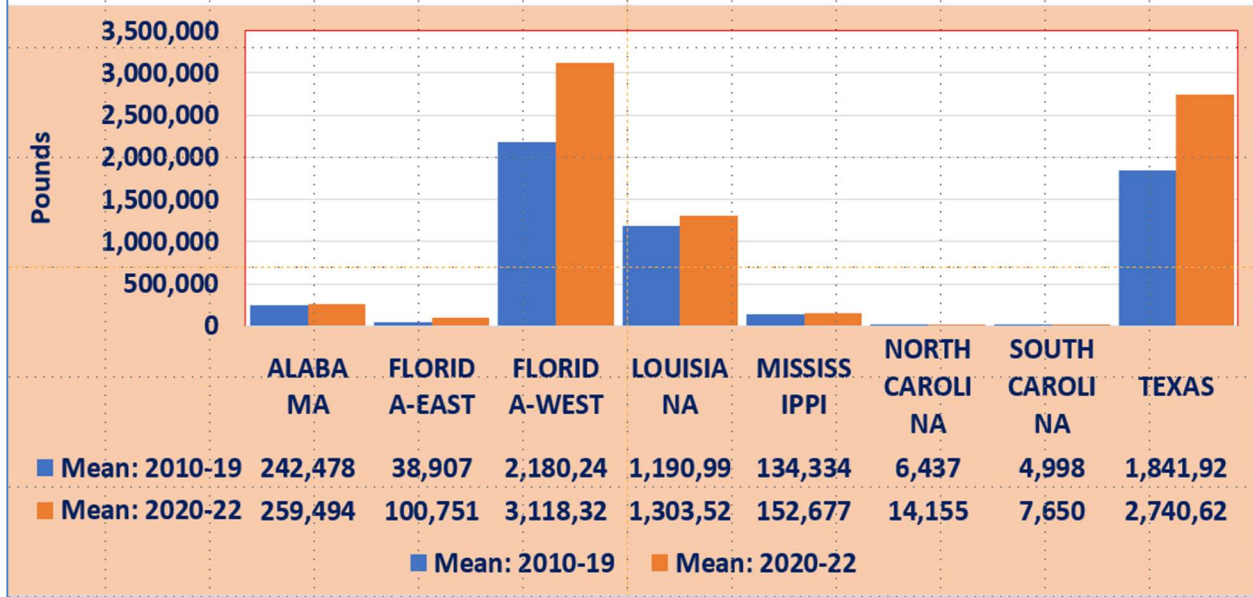
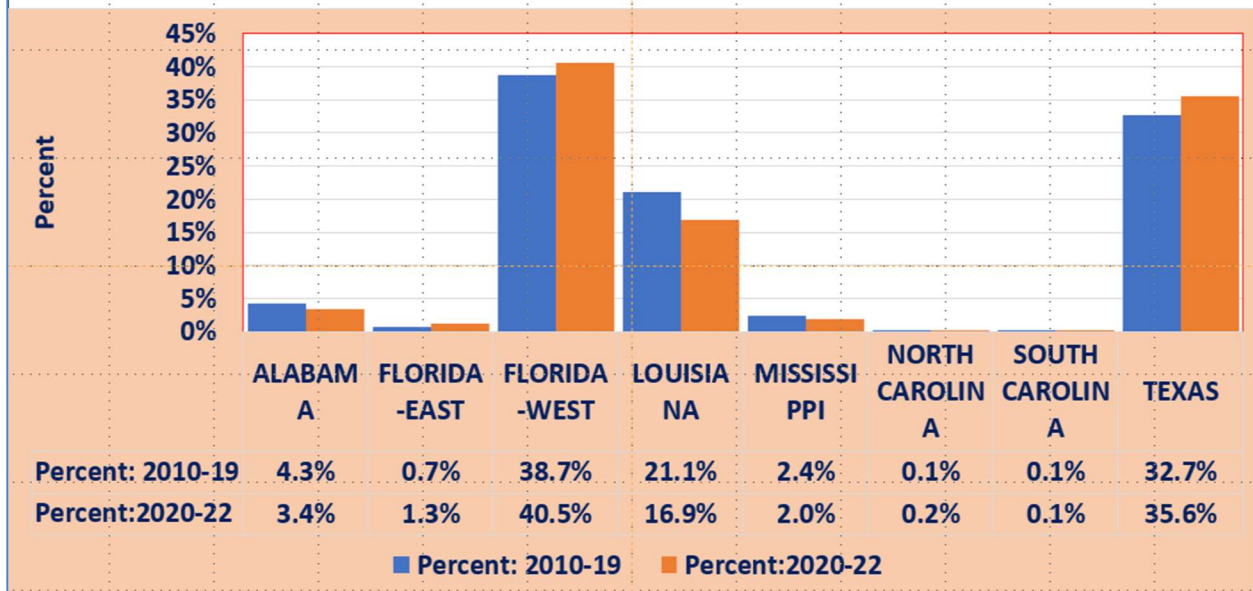


Fig. 5. U.S. commercial Red snapper landings by state and percent



U.S. RECREATIONAL RED SNAPPER LANDINGS BY STATE

- Fig. 6 shows the major producing states from 2010 to 2022, including Alabama, Florida's East Coast, and Florida's West Coast.
- Limited recreational landings were reported in Louisiana, Georgia, Mississippi, North Carolina, and South Carolina.
- As Fig. 6 and 7 show, Alabama produced 5.3 million pounds from 2010 to 2019. Its share of total U.S. recreational landings fell from 40.3% in 2010-19 to 35.1% in 2020-22.
- Florida West Coast landed 5.1 million lb/yr in 2010-19. Its share of total U.S. recreational landings rose from 38.9% in 2010-19 to 42.9% in 2020-22.
- Florida East Coast landed 1.4 million lb/yr in 2010-19. Its share of total U.S. recreational landings rose from 10.6% in 2010-19 to 14.9% in 2020-22.
- Mississippi landed 580,000 lb/yr in 2010-19. Its share of total U.S. recreational landings rose from 4.4% in 2010-19 to 5.4% in 2020-22.

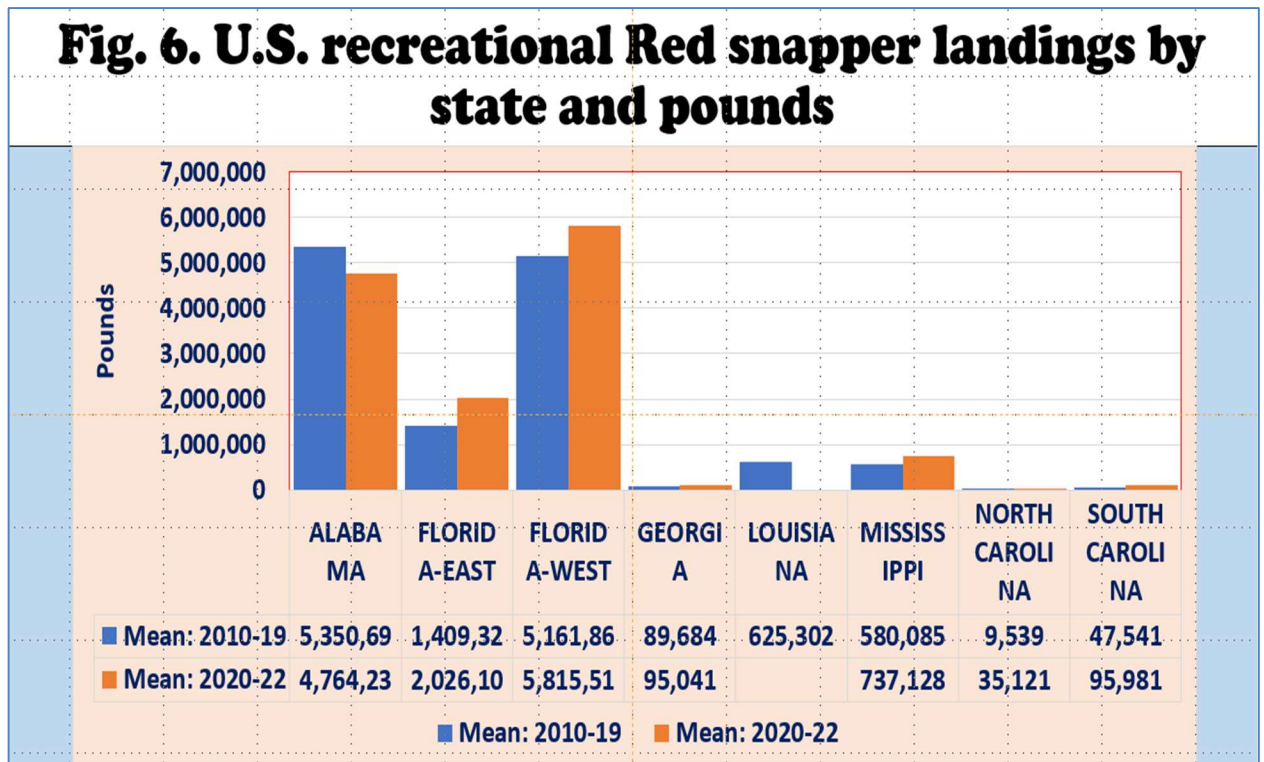
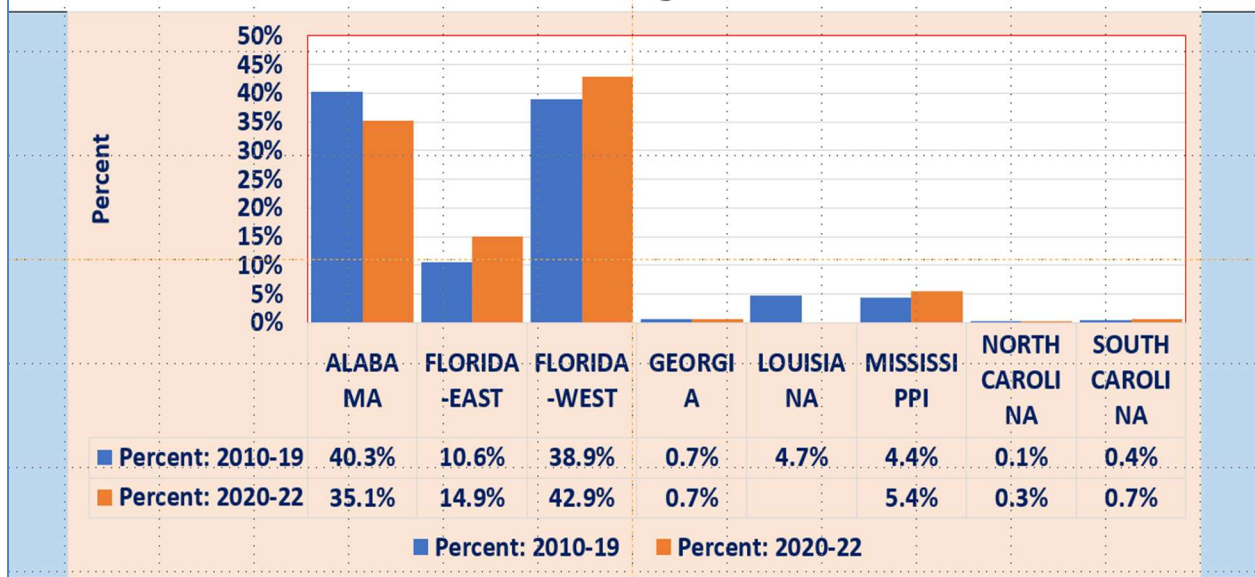


Fig. 7. U.S. recreational Red snapper landings by state and percent



IMPUTED U.S. COMMERCIAL RED SNAPPER DOCKSIDE PRICES

- The imputed dockside prices in the U.S. are shown in Fig. 8.
- U.S. dockside prices have continued to rise and peaked in 2022 at \$4.84 per pound.
- Fig. 9 shows the empirical relationship between the imputed real dockside prices.

IMPUTED U.S. COMMERCIAL RED SNAPPER DOCKSIDE PRICES AND COMMERCIAL LANDINGS

- and commercial landings in the U.S.
- The imputed real dockside prices tended to fall at higher commercial landings.
- When annual commercial landings rose above nine million pounds, the imputed real dockside prices tended to flatten out below \$3.00 per pound.

Fig. 8. Imputed U.S. commercial Red snapper dockside prices

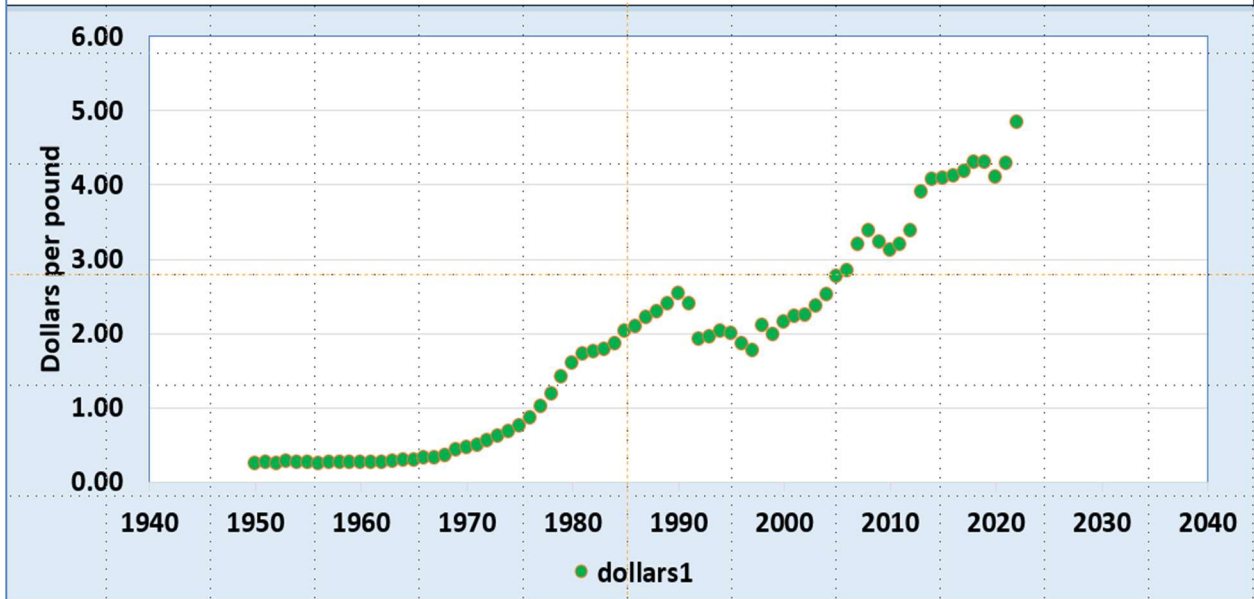
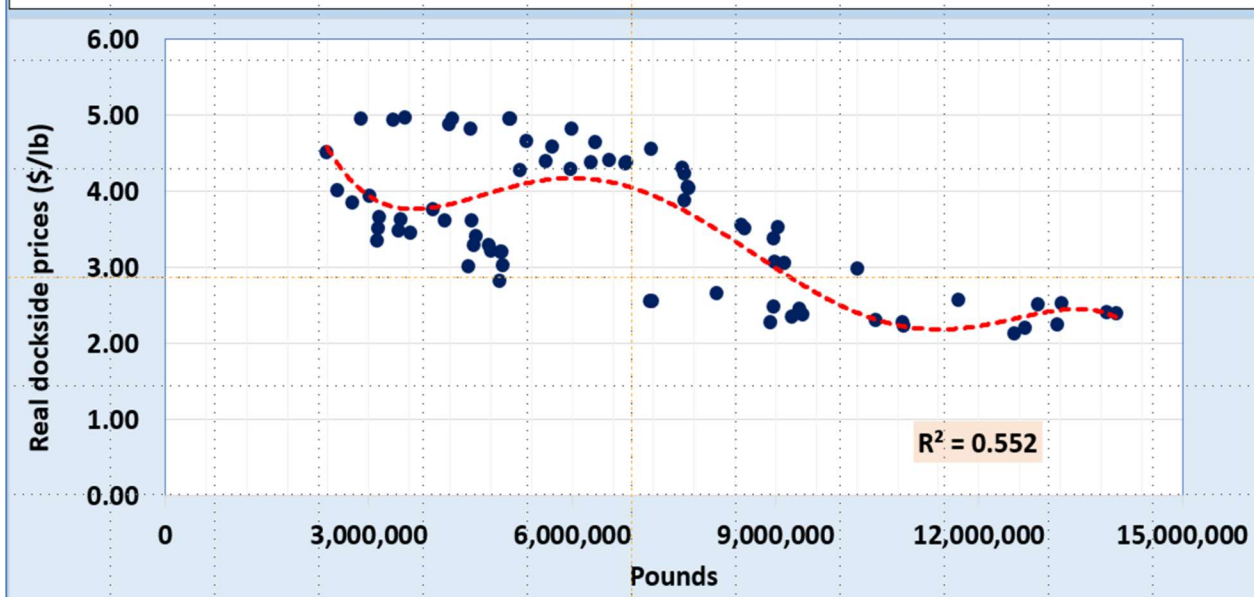


Fig. 9. Relation between the imputed real dockside prices and commercial landings of Red snapper



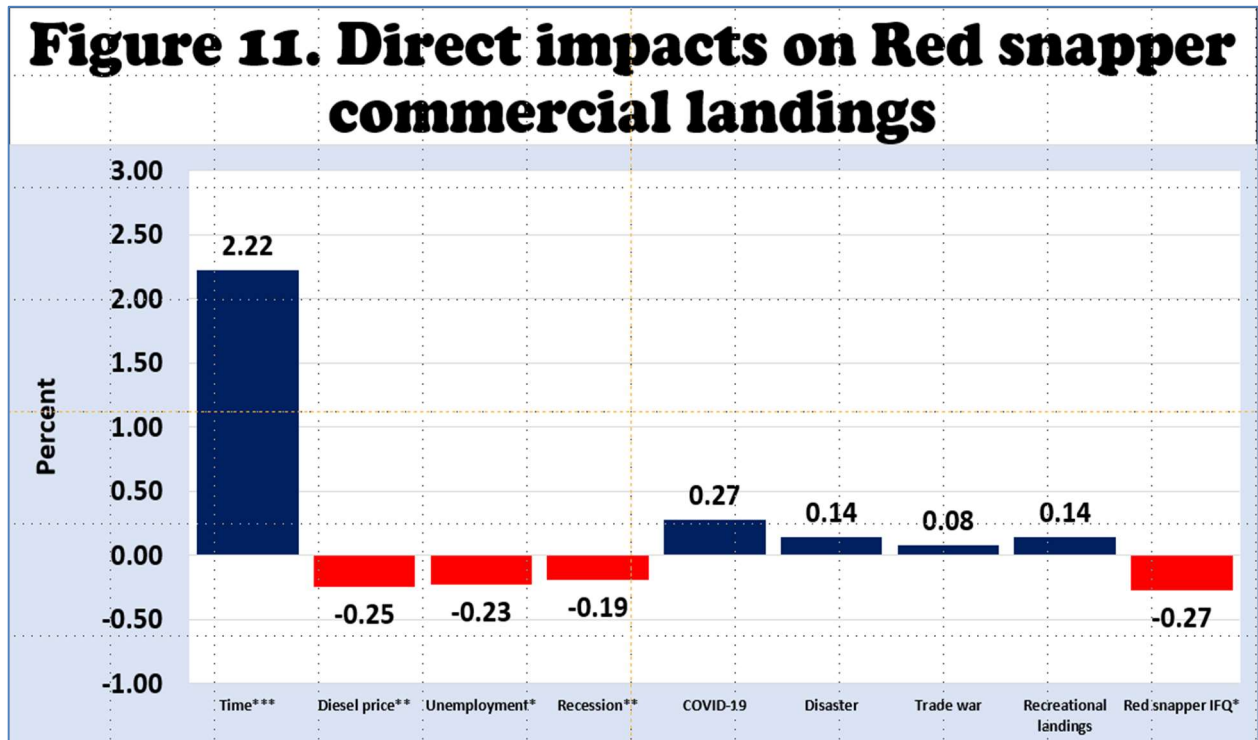
U.S. RETAIL SNAPPER MARKET

- Fig. 10 shows the average non-discounted retail prices of fresh and frozen snapper in the 26 locations Urner Barry Comtell (UBC) monitored.
- The U.S. retail prices compiled from UBC covered the period from January 1, 2019, to April 7, 2024.
- There were very wide fluctuations in retail prices among the 26 locations and over time.
- The national average fresh retail prices were significantly higher than the frozen retail prices.
- Frozen retail prices fluctuated more than fresh products.

Figure 10. U.S. national non-discounted Red snapper retail prices		Source of raw data: Urner Barry Comtell. https://www.comtell.com/ .		
U.S. national nondiscounted snapper retail prices (\$/lb), Jan. 1, 2019 to April 7, 2024				
HORTICULTURE AND MARINE ECONOMICS OUTREACH	Product type	Mean	Standard deviation	Number of weeks
	Fresh	11.66	0.95	231
	Frozen	11.11	1.22	236
	Total	11.38	1.12	467
	Percent of Fresh over Frozen	5%		
	Coefficient of variation			
	Fresh	8%		
	Frozen	11%		

MARGINAL EFFECTS ON U.S. RED SNAPPER COMMERCIAL LANDINGS

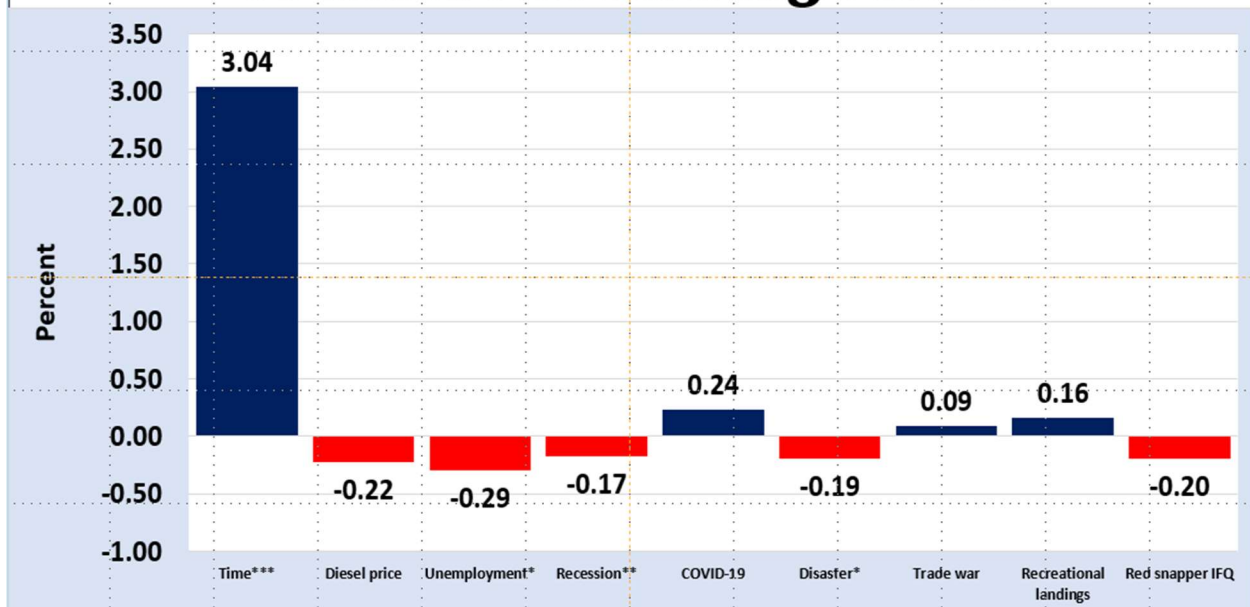
- A significant double-log regression equation was estimated with commercial landings as the dependent variable.
- The addition of diesel prices reduced the number of observations to 28, covering 1995 to 2022.
- The estimated equation explained 90% of the variations in commercial landings.
- Five independent variables significantly influenced commercial landings.
- Commercial landings strongly declined under the following conditions:
 - higher diesel prices,
 - increased in unemployment,
 - occurrence of recessions, and
 - imposition of Red snapper individual fishing quotas.



MARGINAL EFFECTS ON U.S. RED SNAPPER DOCKSIDE VALUES

- A significant double-log regression equation was estimated with commercial landings as the dependent variable.
- The addition of diesel prices reduced the number of observations to 28, covering 1995 to 2022.
- The estimated equation explained 93% of the variations in commercial landings.
- Four independent variables significantly influenced commercial landings.
- Dockside values significantly fell during the following conditions:
 - increased in unemployment,
 - occurrence of recessions, and
 - during disasters.

Figure 12. Direct impacts on Red snapper commercial landing values



SUMMARY, LIMITATIONS, AND IMPLICATIONS

- Since 2010, U.S. Red snapper commercial landings have averaged six million pounds annually, contributing 33% of total landings. The major commercial-producing states of Red snapper are Florida's West Coast, Texas, and Louisiana.
- Since 2010, U.S. Red snapper recreational landings have averaged 12.9 million pounds per year, with recreational landings contributing 67%. Alabama, Florida East Coast, and Florida West Coast are the major recreational-producing states of Red snapper.
- U.S. nominal dockside prices have continued to rise and peaked in 2022 at \$4.84 per pound.
- The national average fresh retail prices were significantly higher than the frozen retail prices. Frozen retail prices fluctuated more than fresh products.
- Commercial landings strongly declined under the following conditions:
- higher diesel prices,
 - increased in unemployment,
 - occurrence of recessions, and
 - imposition of Red snapper individual fishing quotas.
- Dockside values significantly fell during the following conditions:
 - increased in unemployment,
 - occurrence of recessions, and
 - during disasters.

SUGGESTED CITATION

Posadas, B.C. 2024. U.S. Market Potential for Red Snapper Aquaculture. Mississippi MarketMaker Newsletter, Vol. 14, No. 4. Mississippi State University Extension and Mississippi-Alabama Sea Grant Publication number MASGP-24-057-04. April 23, 2024. <https://extension.msstate.edu/newsletters/mississippi-marketmaker>.