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Managing highly migratory species is an especially challenging task for fishery managers. This article, written by graduate student Jared Handelman from the School of Renewable Natural Resources highlights the regulatory challenges and steps that fishery managers take to effectively manage stocks that move across ocean basins and management zones.

How do we Define and Manage Highly Migratory Species in US Fisheries?

By Jared Handelman

The management of Highly Migratory Species (HMS) in U.S. fisheries requires coordination across state, federal and international boundaries. HMS includes species like tunas, sharks, marlins and swordfish, which travel far distances across oceans and often cross multiple Exclusive Economic Zones (EEZs). The definition and management of HMS requires a comprehensive approach that considers their species-specific migratory patterns and ecology. This article will explore how HMS are defined, the distinct roles of state and federal agencies in their management – including the challenges managers face and potential strategies for improving their conservation and sustainability.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the primary federal legislation governing the management of marine fisheries in U.S. waters. Under the MSA, HMS are defined as species that travel long distances through international waters and across multiple EEZs (ACT, A., 1996). These species are often targeted by both commercial and recreational fisheries, necessitating stringent management to prevent overfishing and ensure long-term sustainability. The MSA identifies groups of species, such as tunas, sharks, swordfish and billfish, based on their highly migratory nature. The definition of HMS is crucial as it informs the regulatory framework and management strategies for state and federal management.

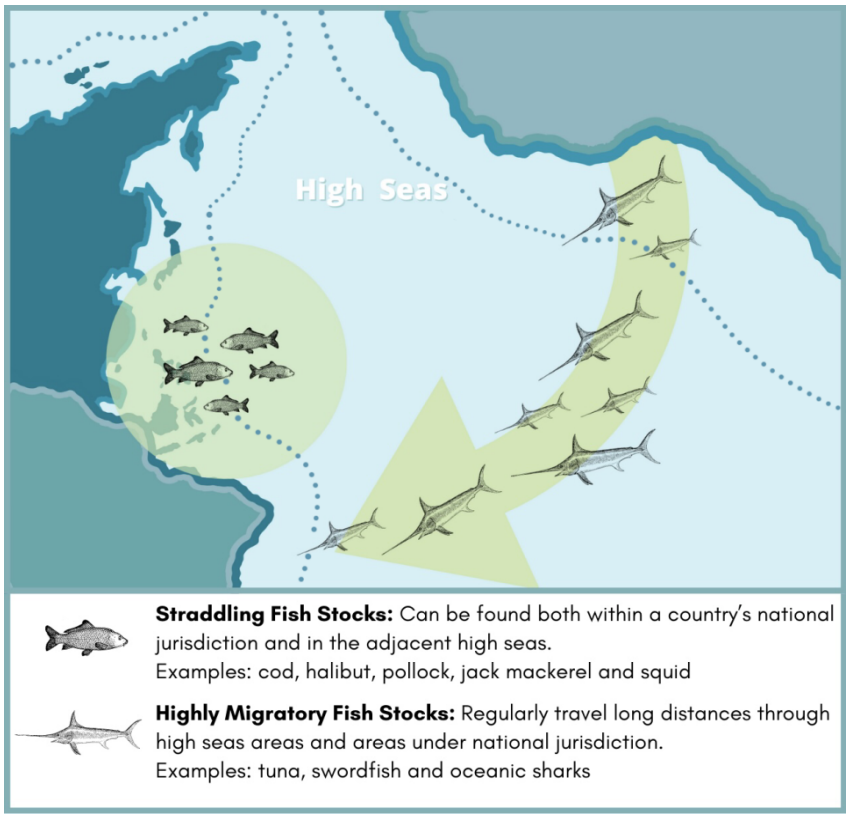

Image from *un.org/oceancapacity/unfsa*

At the federal level, the National Oceanic and Atmospheric Administration (NOAA) and its National Marine Fisheries Service (NMFS) have the primary responsibility for the management of HMS in the United States. The MSA mandates the development of Fishery Management Plans (FMPs) for these species, which are crafted and implemented by Regional Fishery Management Councils (RFMCs). These councils comprise representatives from the federal government, state agencies and other stakeholders. The FMPs outline regulatory measures necessary for the conservation and management of HMS, including

quotas, size limits, gear restrictions, and seasonal closures (Lent & Sutter, 1998). The decisions made by the regional councils are informed by scientific data and stock assessments conducted by NMFS and other research institutions. The quotas set under these plans are based on scientific assessments to prevent overfishing and to promote the recovery of overfished stocks.

The federal government also cooperates with other countries to manage HMS, as many of these species migrate beyond U.S. waters. The United States is a member of several international organizations and treaties, such as the International Commission for the Conservation of Atlantic Tunas (ICCAT) and the Western and Central Pacific Fisheries Commission (WCPFC). These organizations play a crucial role in setting international quotas, coordinating research efforts and implementing conservation measures across the range of HMS (Juan-Jordá, Murua, Arrizabalaga, Dulvy, & Restrepo, 2016). Compliance with these international agreements is essential for the effective management of HMS, as unilateral measures by individual countries would be insufficient to ensure their sustainability.

Monitoring and enforcement are critical components of federal management. NMFS employs various tools and technologies, such as vessel monitoring systems (VMS), observer programs and dockside inspections, to ensure compliance with regulations. The U.S. Coast Guard also plays a role in patrolling U.S. waters and enforcing fishing regulations. Effective enforcement is vital to prevent illegal, unreported, and unregulated (IUU) fishing, which poses a significant threat to HMS conservation (Riddle, 2006).

State-level management of HMS in state waters happens within three nautical miles of the coastline and plays a significant role in the broader management framework. State agencies implement regulations that complement federal measures, such as state-specific quotas, size limits and gear restrictions that align with federal FMPs. These regulations help manage the impact of recreational and commercial fisheries on HMS populations within state waters. Additionally, state agencies conduct research and monitoring activities to support HMS management. These efforts include tagging programs, biological sampling and data collection on recreational and commercial catches.

States also aim to engage local stakeholders, including commercial and recreational fishers, conservation groups and coastal communities, in the management process. Stakeholder engagement is crucial for the successful implementation of management measures, as it ensures that the perspectives and interests of those directly affected by the regulations are considered. Effective communication and collaboration between state and federal agencies are essential to align management strategies and avoid conflicts or redundancies.

Despite the comprehensive management framework in place, the management of HMS in U.S. fisheries faces several challenges. One significant challenge is the complex jurisdictional overlaps that require coordination across multiple levels of governance, including federal, state and international bodies. This complexity can lead to inconsistencies and difficulties in ensuring effective management measures. Additionally, data gaps and scientific uncertainty pose challenges to the accurate assessment of HMS populations. The wide-ranging movements and often low abundance of these species can make data collection difficult, leading to uncertainties in stock assessments and management decisions.

Ensuring compliance with regulations across vast ocean areas is another significant challenge. IUU fishing remains a substantial threat to HMS conservation, as illegal fishers exploit regulatory loopholes and evade enforcement efforts. Strengthening international cooperation and enhancing enforcement capabilities are critical to addressing this issue.

Despite these challenges, there are several opportunities for improving the management of HMS. Advances in technology offer new opportunities for enhancing data collection, enforcement and stock assessments. Electronic monitoring systems, satellite tracking, and genetic analysis are examples of technologies that can provide more accurate and timely data on HMS populations and their movements. These technologies can also improve enforcement by enabling real-time monitoring of fishing activities and enhancing the detection of IUU fishing. Strengthening international collaboration through organizations like ICCAT and WCPFC is essential for the effective management of HMS. Collaborative research, shared data, and coordinated enforcement efforts can improve the conservation of these species. International agreements and treaties play a crucial role in setting global conservation measures and ensuring compliance across the range of HMS.

Moving towards ecosystem-based management approaches can also enhance the conservation of HMS. These approaches consider the broader marine environment and the interactions between species, recognizing the interconnectedness of marine ecosystems. Ecosystem-based management aims to manage fisheries in a holistic manner, taking into account the impacts of fishing on the entire ecosystem, rather than focusing solely on individual species.

In conclusion, the management of Highly Migratory Species in U.S. fisheries requires a coordinated effort between federal and state agencies, as well as international cooperation. The federal government, through NMFS and Regional Fishery Management Councils, plays a primary role in developing and implementing FMPs, setting quotas and ensuring compliance. State agencies complement these efforts through research, stakeholder engagement, and enforcement within state waters. Despite the challenges posed by jurisdictional overlaps, data gaps, and enforcement difficulties, there are opportunities for improving the management of

HMS through advances in technology, strengthened international collaboration, and ecosystem-based approaches. Ensuring the sustainable management of these species is crucial for the health of marine ecosystems and the livelihoods of those who depend on them.

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LDWF, CCA and Raising Cane's Owner and Founder Todd Graves Partnering to Install Artificial Reef in Grand Isle

The Louisiana Department of Wildlife and Fisheries, CCA Louisiana and Raising Canes has installed a new inshore artificial reef near Grand Isle, La., thanks to a $100,000 donation from Raising Cane's founder, Todd Graves.

"As a native Louisianan, I grew up fishing in these waters and know first-hand the importance marine conservation plays in the livelihood of this state," said Graves. "When Hotel Sid was decommissioned and removed last year, it left a great void in the area impacting not only the marine ecosystem and fishing opportunities for anglers, but also businesses in the surrounding communities dependent on anglers to make a living. I'm excited to partner with CCA Louisiana to install more than 10,000 square feet of living reef that will benefit marine life and anglers alike for years to come."

The new reef named Raising Cane's Hotel Sid, will be made of 10,000 square feet of 3D printed ExoForms, known as "Cajun Coral." Designed by technology company Natrx, Cajun Coral is a highly flexible module that is printed and installed by Danos. The technology promotes habitat growth and ecological benefits that strengthen over time. The reef will consist of four areas and utilize more than 500 modules – each weighing more than 400 pounds – to create more than 10,000 square feet of living reef, in turn providing a home for all marine species up and down the food chain.

"As someone who grew up fishing these waters, this project hits close to home and is a testament to the power of collaboration. Together with our partners, we are committed to ensuring that future generations of sportsmen and women can enjoy the great fishing experiences that our waterways offer. This project not only restores vital habitats but also strengthens the connection between our community and the natural environment that we care about," said Eric Danos, Danos owner and CEO of Danos Ventures.

This reef will create complex structure and habitat for a variety of aquatic organisms including popular recreational species like redfish, speckled trout, black drum, sheepshead and flounder.

"CCA is incredibly proud to partner with our friend Todd Graves and Raising Cane's as well as the department to make this project a reality," said Rad Trascher, executive vice president of CCA Louisiana. "Hotel Sid has been a focal point for this fishing community for as long as anyone can remember, so rebuilding this iconic spot is something our entire membership can be proud of."

The reef will replace a decommissioned oil and gas platform called the Hotel Sid just off the coast of Grand Isle. This will be the largest reef that CCA Louisiana has installed since 2018.

"LDWF understands the importance that artificial reefs offer to fisheries habitat and to our many generations of recreational anglers, from parents to grandparents and kids to grandkids," said LDWF Secretary Madison Sheahan. "Replacing decommissioned oil and gas platforms with artificial reefs is more important now than ever, and we are proud to help restore this once-loved fishing site. We would like to thank Todd Graves, CCA, Danos, Natrx, BCT, and Shell for their continued partnership and investment in our Sportsman's Paradise."

Reef Coordinates:

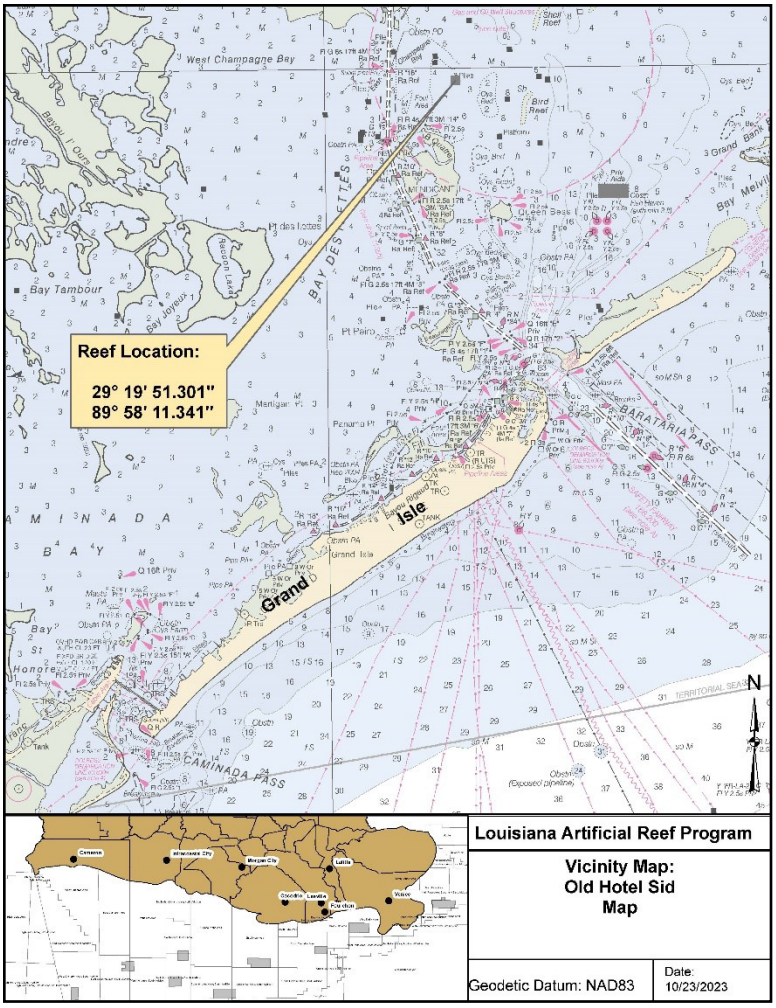
Center
Latitude: 29° 19' 51.301" Longitude: 89° 58' 11.341"

NW Corner
Latitude 29° 19' 54.607" Longitude: 89° 58' 15.025"

NE Corner
Latitude 29° 19' 54.529" Longitude: 89° 58' 07.569"

SE Corner
Latitude 29° 19' 47.996" Longitude: 89° 58' 07.658"

SW Corner
Latitude 29° 19' 48.073" Longitude: 89° 58' 15.113"



August 2024 Council Meeting Summary

The Gulf of Mexico Fishery Management Council met in Biloxi, Miss., Aug. 19-22, 2024. Three new council members, Juan 'John' Sanchez, Troy Frady and Jason Osborne, and two returning council members, J.D. Dugas and Billy Broussard, were inducted for a three-year term. The council elected J.D. Dugas as chair and Dr. Kesley Banks as vice chair, each for a one-year term. The following is a summary of the council's actions:

2024 NOAA Fisheries Draft Ecosystem Based Fisheries Management Road Map

The council reviewed a draft comment letter that was developed with recommendations from its Ecosystem Technical Committee on the updated 2024 NOAA Fisheries Draft Ecosystem Based Fishery Management (EBFM) Road Map. The road map is being developed to guide NOAA Fisheries' efforts to implement EBFM policy over the next five years and to advance climate-ready decision-making. The council's comment letter, which applauds the increased emphasis on social and economic considerations, commends efforts to improve understanding of ecosystem processes, and encourages further coordination with management partners, will be sent to NOAA Fisheries as soon as practicable.

Acceptable Biological Catch Control Rule

The council's Acceptable Biological (ABC) Control Rule is a systematic way to determine sustainable harvest levels that consider scientific uncertainty. The current ABC Control Rule does not adequately account for uncertainty in the scientific data which could potentially result in overfishing. In response, the council's Scientific and Statistical Committee is working with NOAA's Southeast Fisheries Science Center (Science Center) to develop a new ABC Control Rule that better addresses the limitations of the current approach. The council supports the Science Center's plan to evaluate potential approaches to improve the ABC Control Rule procedures which is expected to be completed within two years.

For-Hire Data Collection Program

The council continued work on a draft amendment that considers developing a new for-hire data collection program. The council decided to move forward with a non-technical approach to validating effort that would not require the use of Vessel Monitoring Systems (VMS). Instead, a combination of trip declarations, pre-landing notifications, approved landing's locations, logbooks submitted before offloading catch, dockside intercepts and "did not fish" reports is expected to provide validation of trip effort. The council also considered the collection of economic data and modified options in the document by reducing the proportion of trips that could be subjected to an economic survey. The council expects to continue work on this document during its November 2024 meeting.

Shrimp

The council heard a presentation on the Southeast Shrimp Strategy and Planning meeting hosted by Sea Grant and the Gulf States Marine Fisheries Commission. The meeting brought regional stakeholders from both Gulf and South Atlantic regions together to address the challenges facing the shrimp industry. Two of the goals of the meeting were to assist the industry in developing strategies and identify policy changes that may aid in overcoming those challenges. The meeting's outputs will also be incorporated into NOAA Fisheries ongoing Shrimp Futures Project.

Shallow and Deep-Water Groupers

The council worked on Reef Fish Amendment 58, which considers modifying management measures for the shallow-water and deep-water grouper complexes.

The shallow-water grouper complex is comprised of scamp, yellowmouth grouper, black grouper and yellowfin grouper, and is currently managed with a single annual catch limit. The complex can no longer be managed in this way because a stock assessment (SEDAR 68) and catch recommendations were completed for scamp and yellowmouth grouper separate from the remaining species. Catch limit recommendations for scamp and yellowmouth grouper represent a considerable decrease in allowable harvest, while catch limit recommendations for black and yellowfin grouper remain unchanged. Splitting the complex requires the council to establish criteria used to determine if the new sub-complexes are overfished or experiencing overfishing and set allowable harvest and accountability measures for each new sub-complex. Additionally, the council will consider a recreational season and establishing new commercial individual fishing quota (IFQ) program share categories, allocations, and accountability measures for each sub-complex.

The deep-water grouper complex is comprised of warsaw grouper, snowy grouper, yellowedge grouper and speckled hind, and is currently managed with a single annual catch limit. The council's Scientific and Statistical Committee (SSC) reviewed the most recent stock assessment on yellowedge grouper (SEDAR 85) which determined that while yellowedge grouper is not overfished, it is experiencing overfishing. The SSC updated catch limit recommendations for yellowedge grouper based on SEDAR 85 and updated the catch limits for other three species in the deep-water grouper complex. New catch limit recommendations for the deep-water grouper complex represent a decrease in allowable harvest. The deep-water grouper complex can continue to be managed as a single unit because catch recommendations for each species are in the same data units.

The council decided to split the document into two separate amendments and expand the management options being considered. The council expects to continue work on both documents during future meetings.

Charter For-Hire Red Snapper Fishing Season and Buffer

The council reviewed draft options for a framework action that considers adjusting the federal for-hire fishing season and the buffer between the federal for-hire component red snapper annual catch limit and annual catch target. After hearing public testimony, the council decided not to adjust the buffer between the red snapper annual catch limit and annual catch target. The council also added an alternative that would consider opening the federal for-hire fishing season on May 15 each year and removed an alternative that would determine the start date each year by forecasting the length of the season backwards, if the season is expected to be open longer than 92 days. The council does not expect that any potential changes in this document could be implemented in time for the 2025 fishing season and will continue work on it during its November council meeting.

Commercial Individual Fishing Quota Program

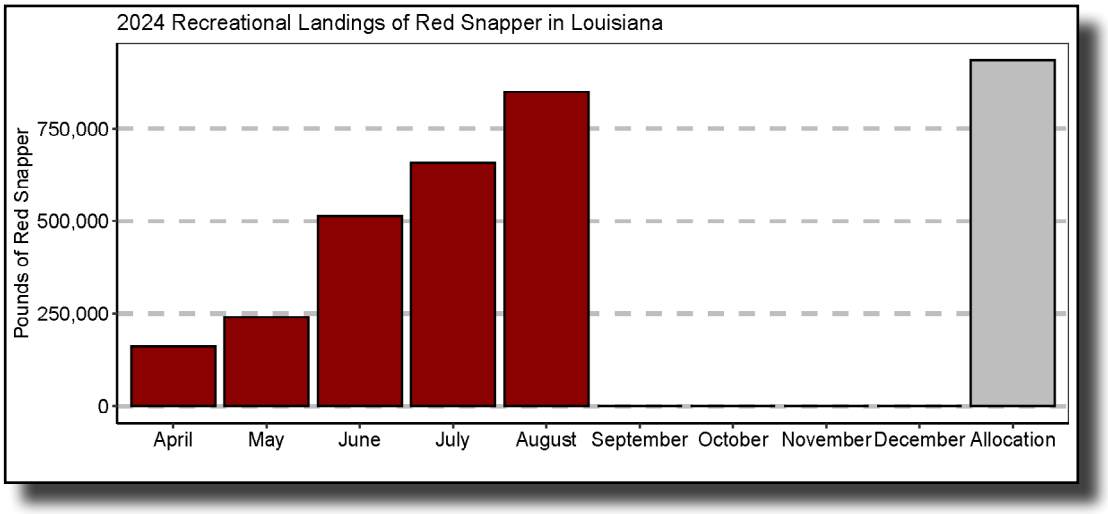
The council continued work on Reef Fish Amendment 59, which aims to improve opportunities for new participants by modifying requirements for participation. Actions in the document consider requiring a commercial reef fish permit to open or maintain a shareholder account, obtain or maintain shares and obtain and maintain annual allocation. There is also an action that considers requiring shareholders to land a portion of their annual allocation to demonstrate fishing activity. The council plans to continue work on individual fishing quota program modifications during its November 2024 meeting.

Stock Assessment Process

The council heard a presentation on proposed changes to the stock assessment process. The changes aim to improve the flexibility, timeliness and quality of stock assessments. NOAA's Southeast Fisheries Science Center also aims to prioritize key stocks while allowing remaining stocks to be assessed using less time-consuming approaches.

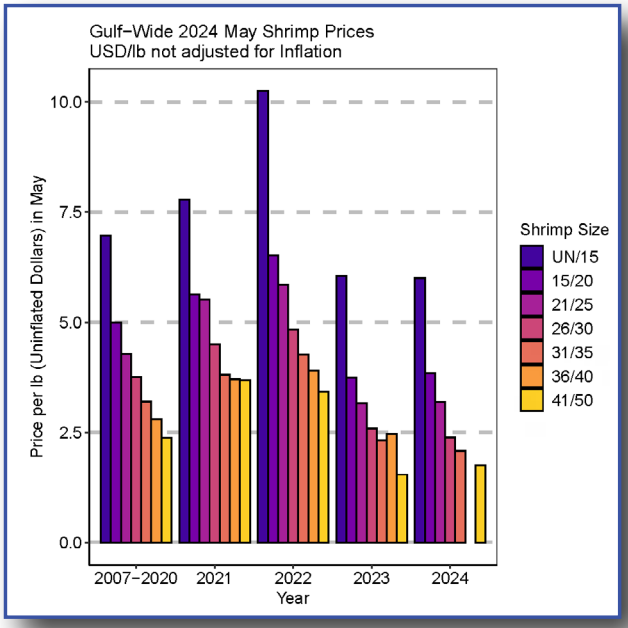
Louisiana Snapper Watch

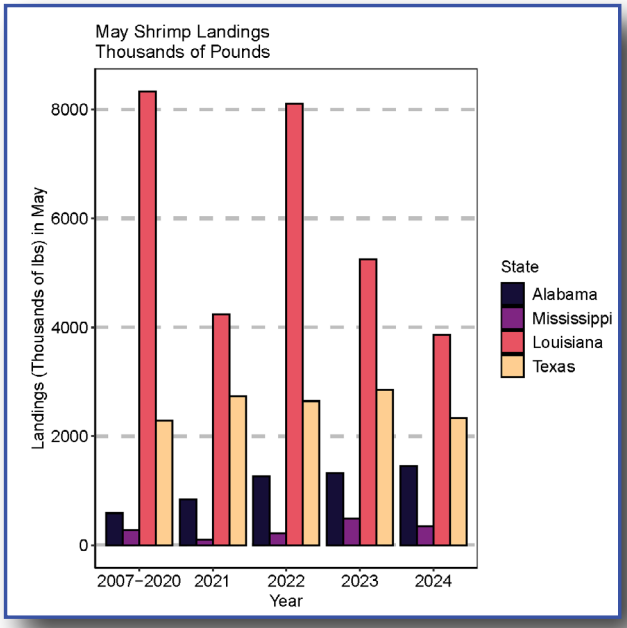
The Louisiana Department of Wildlife and Fisheries (LDWF) released the latest private recreational Red Snapper landing estimates through August 11, 2024. LA Creel, LDWF's near real-time landings data collection program, indicates that 849,993 pounds, or 91 percent, of Louisiana's 2024 annual private recreational allocation of 934,587 pounds have been harvested during the 2024 Red Snapper season.

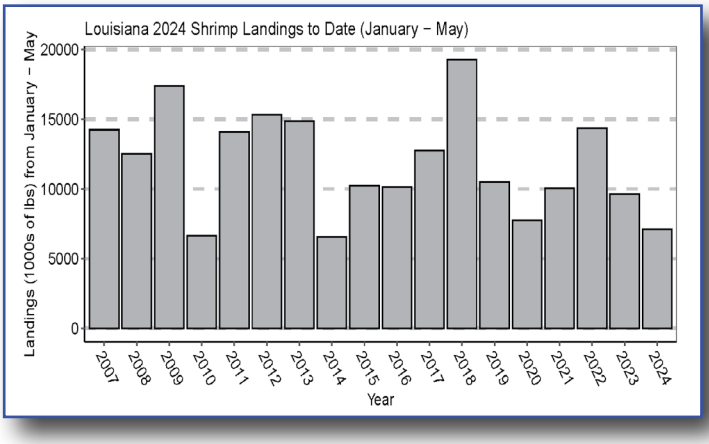


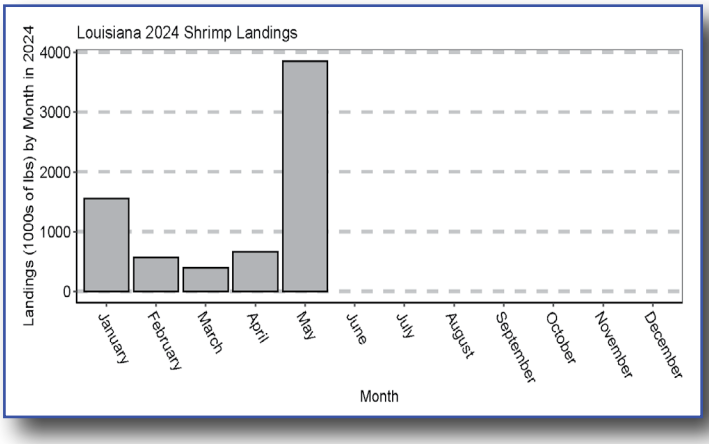
Louisiana Shrimp Watch

The shrimp watch data for the August issue includes data through May 2024. All landing data is based on trip ticket data provided by Gulf States Fisheries Commission and no estimations have been made.









THE GUMBO POT

Smoked Scamp Grouper Dip*

Recipe courtesy of retired Sea Grant extension agent Kevin Savoie
From Ms. Sarah: Thank you to Mr. Savoie for submitting his favorite gaspergou recipe!
We switched the fish to Gulf caught scamp. Feel free to substitute any smoked white fish for the recipe.
Please reach out to the editor with suggestions for recipes or ingredients to use in future editions.
We are always looking for feedback and improvement!

Ingredients:

- 1 lb smoked Grouper
- 1 block softened cream cheese
- 1 heaping tbsp mayo
- 1 tbsp Worcestershire sauce
- 1 tbsp lemon juice
- 1 tbsp lemon pepper
- 1/2 tbsp dill weed
- 1/2 tbsp chopped pickled jalapeños
- 1/4 cup chopped green onions
- 1 tbsp chopped parsley
- 1 tbsp Old Bay seasoning

Directions:

1. Using two forks, flake the smoked fish in a large bowl. Add the rest of the ingredients and mix until well combined.
2. Serve on crackers or on a piece of toast.
3. Enjoy!

*Total time: 10 minutes

Smoked Fish Recipe

If you have your own smoker, try out Ms. Sarah's Country Kitchen smoke recipe below!

Ingredients:

- 1 lb fish of choice
- 1/2 cup sea salt
- 2-quart water
- Woodchips of choice

Directions:

1. Cut fish filets into even portions and add to a large glass dish (large enough to hold 8 cups of liquid).
2. Make the saltwater brine by adding salt to the water and pour over filets. Brine the fish from 6-12 hours. Rinse the brine off the fish with freshwater before smoking.
3. Bring smoker up to 180 degrees. Add fish skin side down (we place the fish on aluminum foil before placing in smoker to reduce sticking) to the smoker. Spritz the fish with water every 30mins for 2 hours or until the fish has reached an internal temperature of 140 degrees. Keep a consistent, heavy smoke for the full 2 hours.
4. Remove the fish and enjoy!

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We would like to hear from you! Please contact us regarding fishery questions, comments or concerns you would like to see covered in the Lagniappe. Anyone interested in submitting information, such as articles, editorials or photographs pertaining to fishing or fisheries management is encouraged to do so.

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https://louisianalagniappe.wordpress.com/

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