Our fisheries are dependent on accurate and comprehensive data. However, there are many questions on how that data is collected. This essay, written by Emily Hura, a School of Renewable Resources graduate student, outlines the different data that are collected for managers to make critical decisions to keep fishers fishing.

How Managers Use Fisheries Independent Data

By Emily Hura

What are Fisheries Independent Data?

Fisheries dependent and independent data are two different forms of information that fisheries managers collect to make various management decisions. Fisheries dependent data is collected directly from fisheries operations from vessels self-reporting and through fisheries observer data collected on these vessels. Data are also collected on recreational fisheries through in-person and phone surveys. Fisheries managers use this data to help gauge the impact of fishing on target and nontarget species and create total allowable catches for the species' stock. A fishery stock refers to a specific population or grouping of fish species based on geography. Fisheries dependent data is useful, yet commercial and recreational fisheries are not the only activity impacting fishery stocks. Factors that impact stocks can include available prey resources, available habitat, water temperatures and water quality. This is where fisheries independent data can be used, as fishery independent data includes an overall ecosystem assessment concurrent with a broad measurement of the density and diversity of fish and invertebrates. Fisheries dependent data are generated through fishing that is targeted on a single or group of species. Thus, relying on fisheries data may not give an overall view of ecosystem structure in a region. For example, larger mesh sizes have been implemented in trawl fisheries to release smaller unwanted catch. Thus, information on smaller individuals will not be found using data from this fishery. It may even be juveniles of this fisheries species too small to be caught in typical fishing activities. Therefore, to gather information on species or individuals that may not be encountered in normal fishing activities, fishery independent surveys are performed.

Fisheries independent surveys may include gears such as ones used in commercial fishery like longlines, gillnets, traps and trawls but also can also include newer technologies such as camera traps and eDNA monitoring. This monitoring collects more comprehensive data than fisheries-dependent studies and is standardized to be compared over wide scales of regions in which they are performed. Fisheries-independent monitoring may also occur over decades enabling scientists to compare historical species populations with those of today. Having this data allows managers to understand the causes of population-level changes whether it be from a changing climate, loss of habitat, or a combination of multiple factors.

Expansive Data Collection

In independent fisheries studies more measurements of species tend to be taken such as length and weight. Otoliths, a fish's ear bone, are obtained for many species that may not be collected during fisheries dependent surveys and used for aging. Individuals caught are also categorized down to species. Other data collected include information like stomach contents used for quantifying species-specific diets, or fin clips for genetic identification. Genetic information can inform scientists on subpopulations or genetically distinct stocks.

How is this Data Used?

Having this nuanced information from fisheries independent surveys allows managers to make informed decisions in concert with fisheries dependent data. For example, otoliths collected during fishery independent surveys. Scientists count concentric rings that appear in the otolith, much like that of a tree rings, to age these fish. This age can then be compared to the fish's length to estimate a fish's growth rate. This data can then be used to determine how long it may take a fish to grow to a "keeper" length. By combining this data with natural mortality rates and fishery harvest rates, managers can determine if fishing rates are sustainable, and if the population is healthy enough to sustain harvest. The combination of fishery dependent and independent data is critical for future fisheries success, as both data provide unique snapshots of the status of our living resources.

From a small shrimp to a young sandbar shark, fisheries independent surveys sample a wide variety of species.

A gill net being set out for a fisheries independent survey.

Flounder Season Closed Oct. 15 to Nov. 30 for Commercial and Recreational Sectors

The annual closed season for the recreational and commercial harvest of southern flounder, from Oct. 15 through Nov. 30 of each year, is here. This statewide closure for southern flounder is for all sectors and all gear types, including any flounder caught as bycatch in any other fishery. The Louisiana Wildlife and Fisheries Commission (LWFC) was granted the authority by the Legislature to modify the shrimping bycatch exemption if the flounder stock is overfished and/or undergoing overfishing. Southern flounder stock is presently considered to be overfished. Therefore, exemptions that previously existed for southern flounder caught as bycatch on a shrimping trip are still no longer applicable.

This closed season is necessary to attempt to recover the stock of southern flounder, which is overfished based on results from the 2020 Southern Flounder stock assessment. The annual closed season in the fall allows mature female flounder to escape inshore waters and move offshore to spawn. This closed season is projected to create a 50 percent reduction in mature female southern flounder harvest. The closed season is an attempt to help the stock recover to a healthy biomass target by 2028.

Passive Recreational and Commercial Fishing Gear Marking and Tending Rules went into Effect on Oct. 20

Earlier this year, the Louisiana Wildlife and Fisheries Commission adopted notices of intent (NOIs) regarding the marking of traps in freshwater and rules for saltwater and freshwater recreational and commercial yo-yos, trigger devices, trotlines, limb lines, jugs and all other passive fishing devices containing a hook or hooks. The proposed rules have gone through the process of public comment and legislative oversight and went into effect Oct. 20, 2024.

Trap marking rule changes will expand on trap and net marking rules that are already in place and was effective on Oct. 20, 2024. Trap marking rules require the following:

- Recreational crawfish traps, cans, barrels and bream traps be marked with a waterproof tag or waterproof ink/paint on the buoy (if the gear has a buoy).
- Markings shall include the user's recreational/commercial license number.

The passive hooked gear rule modifications add requirements for passive recreational and commercial hooked gears in saltwater areas of the state and expand on freshwater rules for recreational and commercial passive hooked gears, which will went into effect on Oct. 20, 2024, with the following requirements:

- Waterproof tags with the angler's fishing license number must be attached on each set line.
- No more than 50 recreational yo-yos, trigger devices, trotlines, limb lines or floating devices containing a hook or hooks are allowed per angler.
- Each set line must be checked and rebaited every 24 hours, and all fish and any other animal caught, entangled, ensnared or hooked, shall be immediately removed from the device.
- Each set line must be removed from the waterbody immediately when no longer actively fishing, except for those devices that are attached to a privately owned pier, boathouse, seawall or dock.
- No metal object which is driven into or attached to the lake bottom, a stump, tree or the shoreline shall be used to anchor a set line. A metal object may be used strictly in the construction of a pier, boathouse, seawall, dock or a retrievable anchor not attached to the bottom to anchor set lines if it is attached to a pier, boathouse, seawall, dock or a retrievable anchor (that is not attached to the water bottom) as part of the typical construction of that structure or object.
- No driven or attached objects used to attach yo-yos, trigger devices, trotlines, limb lines, jugs or other passive fishing devices containing a hook or hooks shall be larger than two inches by two inches or two inches in diameter.
- All objects sourced from another location used to anchor set lines, which are driven into or attached to the lake bottom, a stump, tree or the shoreline, must be removed from the waterbody, along with the set lines, when not in use.
- On Black-Clear Lake, Bruin, Caddo Lake, Chicot Lake, Lake D'Arbonne, Lake Lafourche, Lake St. Joseph, Prairie Lake, and Lake Bruin:
    - You may set no more than 150 commercial hooks per trotline.
    - You may not use more than 50 commercial yo-yos or trigger devices, limb lines or jugs/noodles.
    - No object sourced from another location which is driven into the lake bottom, a stump, tree or the shoreline shall be used to anchor a yo-yo or trigger device, except for an object used strictly in the construction of a pier, boathouse, seawall, or dock.
- At any given time, no person shall set more than 150 hooks on all recreational trotlines, combined.
- All trotlines must have a cotton leader attached to each end.
- Recreational passive hooked gear is now required to be tagged with only the fishing license number.

All other rules regarding the passive nets, traps, and hooked gear remain in place and can be found in the published regulations: *https://www.wlf.louisiana.gov/page/seasons-and-regulations.*

LDWF Encourages Non-Resident College Students to Pick Up Hunting, Fishing Licenses at Resident Rates for the Fall

Hunting season is well under way in Louisiana and there is no better place than the Sportsman's Paradise to enjoy pursuing deer, waterfowl, squirrels or whatever your favorite game is. With that in mind, the Louisiana Department of Wildlife and Fisheries (LDWF) would like to encourage college students to purchase a license and explore the great outdoors.

"Louisiana is home to the best universities in the country. And as we attract the best and brightest to the state, we want to encourage students to take full advantage of our great hunting and fishing opportunities that can't be found anywhere else," said LDWF secretary Madison Sheahan. "And to all the students who now call Louisiana home, we invite you to explore our many WMAs and see what all our Sportsman's Paradise has to offer."

In addition, fall is the perfect time for fishing in Louisiana as the state offers a wide array of options, including freshwater, estuarine and saltwater species to pursue.

For non-resident students to qualify for student licenses at resident rates, you:

- Must be a non-resident
- 18 years old and up
- Enrolled in an accredited Louisiana college or university full-time or public/private high school (part or full-time).

If you're not a Louisiana resident, are 18 and older and are a full-time student enrolled in an accredited college or university with a physical campus in Louisiana, you may purchase recreational fishing and hunting licenses for the cost of resident licenses.

To purchase a license at the reduced rate, you must provide LDWF with verification of your full-time status. You must have your student identification card indicating current full-time status in your possession while fishing or hunting under your student license.

If you're not a Louisiana resident, are 18 years of age or older, and enrolled full- or part-time in a public or private high school in Louisiana, you may purchase recreational hunting licenses for the cost of resident licenses.

To purchase a license at the reduced rate, you must provide LDWF with verification of your enrollment status in a Louisiana high school. You must have your student identification card indicating current enrollment status in your possession while hunting under your student license.

To purchase a student license:

- Download and complete the application: *www.wlf.louisiana.gov/assets/Licenses_and_Permits/Files/student_license_app.pdf.*
- In-Person: Student licenses are available from LDWF Headquarters at 2000 Quail Drive in Baton Rouge during normal business hours, 8 a.m. to 4 p.m., Monday through Friday.
- Mail: You can also mail your application with all required documents and a check, money order, or cashier's check for your license fees to:

  LDWF
  Attn: Sports License
  PO Box 98000
  Baton Rouge, LA 70898-9000

For more information, visit *www.wlf.louisiana.gov/page/special-licenses-and-permits* or call (225) 765-2887.

Students who are Louisiana residents can purchase their licenses at *https://louisianaoutdoors.com/*.

Squirrel and rabbit hunting, now open in Louisiana until Feb. 28, is a perfect gateway into the sport. Squirrel and rabbit hunting are relatively inexpensive and there are many LDWF public lands on which hunting opportunity is available. Hunting on an LDWF wildlife management area requires a WMA access permit and you must check in and out of the WMA.

Deer and waterfowl hunting are also available on many of LDWF's WMAs.

For a complete list of WMAs and public lands open to squirrel and rabbit hunting and more information on WMA squirrel and rabbit hunting, go to *www.wlf.louisiana.gov/assets/Resources/Publications/Regulations/2024-2025-Hunting-Regulations.pdf*.

All visitors to LDWF WMAs must have either a WMA Access Permit, Senior Hunting/Fishing License, Louisiana Sportsman's Paradise License or Lifetime Hunting/Fishing License. Go to *www.wlf.louisiana.gov/page/wmarefugeconservation-area-licenses-and-permits* for more information.

Biden-Harris Administration, NOAA Announce $2 Million for Partnerships to Support Red Snapper Recovery

The Biden-Harris administration and NOAA announced they will award approximately $2 million in Inflation Reduction Act funds to collect data and improve modeling through partnerships with the Gulf States Marine Fisheries Commission and the Cooperative Institute for Marine and Atmospheric Studies at the University of Miami. These partnerships are critical to NOAA Fisheries' work to improve scientific data and management decisions for red snapper in the Gulf of Mexico.

Collecting more fisheries data will enable NOAA Fisheries and state partners to better understand and adapt to the impacts of climate change, increase data reliability and adjust management decisions that will support red snapper populations.

"This $2 million investment, made possible thanks to President Biden's historic Inflation Reduction Act, will boost NOAA's ability to support red snapper populations by expanding scientific partnerships that improve data collection and help us understand and mitigate the impacts of climate change on fisheries in coastal regions nationwide," said U.S. secretary of commerce Gina Raimondo.

Approximately $1 million of this funding will go to the Gulf States Marine Fisheries Commission to expand the for-hire at-sea program into the western Gulf of Mexico. NOAA Fisheries and the commission will deploy at-sea samplers in the Louisiana and Texas for-hire fishery, extending the coverage of at-sea data collection programs. This effort will enhance recreational discard data, a key priority for NOAA Fisheries, and for the first time in history all five Gulf states will have active at-sea data collection programs for for-hire fisheries in federal waters.

Additionally, approximately $1 million will be distributed to NOAA's Cooperative Institute for Marine and Atmospheric Studies at the University of Miami to develop next-generation surveys using acoustic technology to improve red snapper detection. This research will focus on leveraging advanced technology and artificial intelligence to enhance red snapper surveys and abundance estimates in the Gulf of Mexico. Harnessing the power of advanced technology and artificial intelligence is pivotal to improving the clarity and credibility of fisheries data.

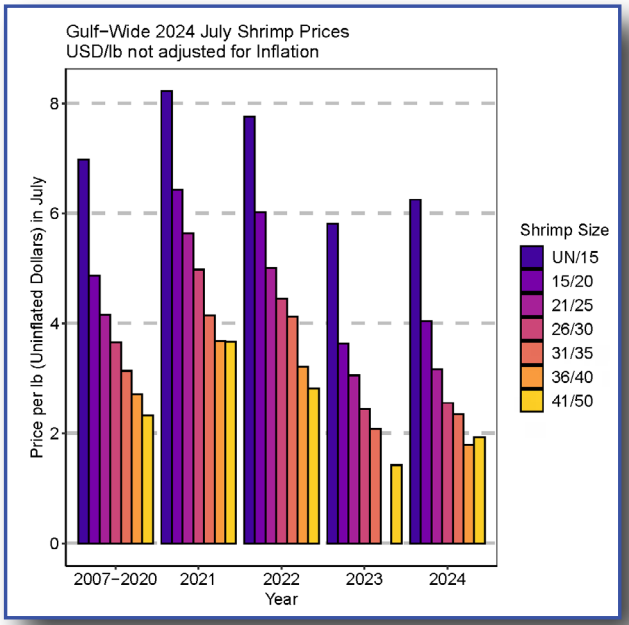
"NOAA Fisheries' collaborations with state and academic organizations are a critical part of strengthening scientific rigor and improving data collection for recreational fisheries, leading to more timely and accurate information for managing red snapper and other reef fish," said Janet Coit, assistant administrator for NOAA Fisheries. "Greater data certainty will enable NOAA Fisheries and state partners to better address the effects of climate change on fisheries and fishing communities."

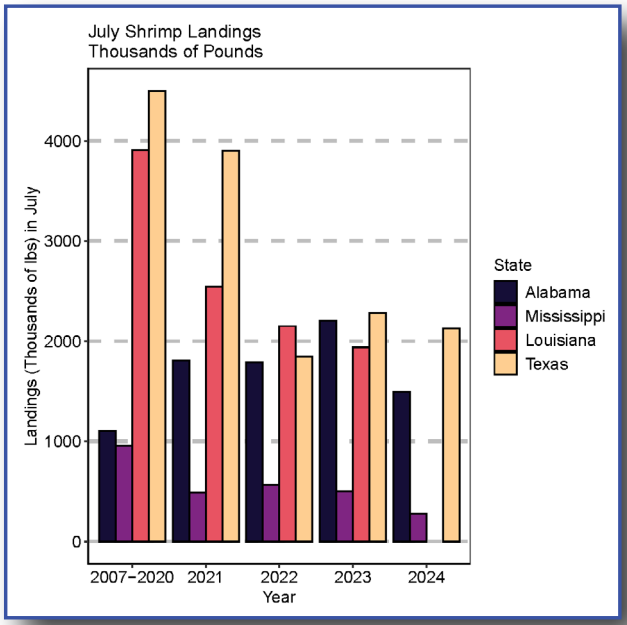
This funding is part of NOAA Fisheries' red snapper recovery efforts first announced in October 2023. These investments are part of the historic $3.3 billion in Inflation Reduction Act investments first announced in June 2023, which are focused on ensuring America's communities and economies are ready for and resilient to climate change.

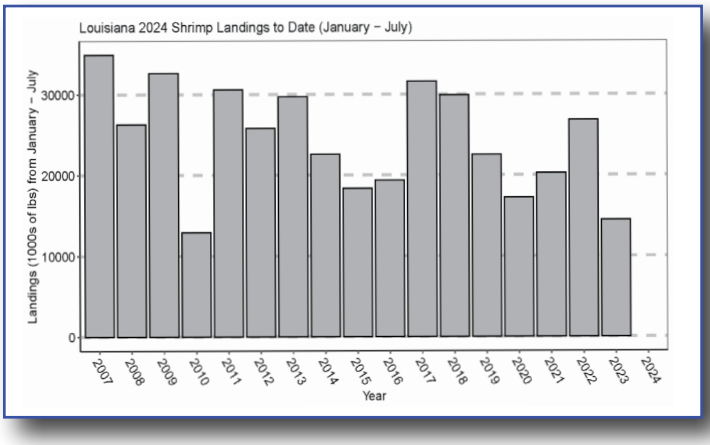
Visit the Inflation Reduction Act website to learn about current and future funding opportunities.

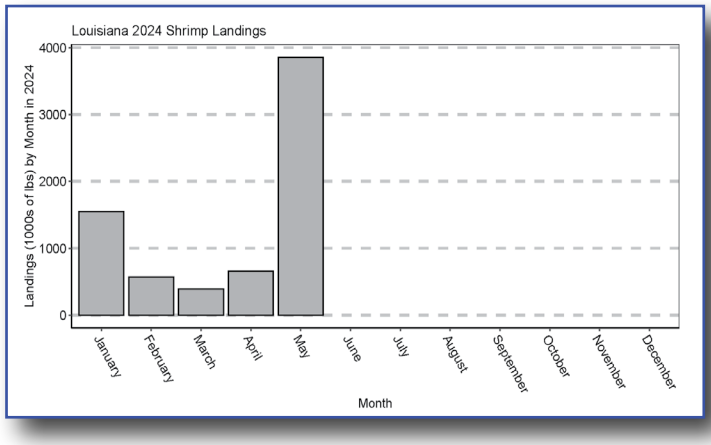
Louisiana Shrimp Watch

The shrimp watch data for the August issue includes data through June 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

Wonton Soup*

Recipe courtesy of Ms. Sarah's Country Kitchen

From Ms. Sarah: There is a lot of labor that goes into this dish, so grab a friend and have fun! Please reach out to the editor on suggestions for recipes or ingredients to use in future editions. We are always looking for feedback and improvement!

Ingredients:

For the broth:

- ¼ cup soy sauce
- ½ tsp sesame seed oil
- 48-64 oz chicken broth
- 1 tbsp minced garlic
- ½ cup Chinese cooking wine
- ½ tbsp minced ginger
- 3 green onions, thinly sliced (white and green parts)

For the filling:

- 1 tbsp soy sauce
- ½ tbsp sesame seed oil
- 2 tbsp Chinese cooking wine
- 5 green onions, thinly sliced (white and green parts)
- 1 tbsp minced ginger
- 1 lb ground pork
- 1 lb shrimp, chopped
- Small bowl of water for dipping
- 50 wonton wrappers

Directions:

1. Heat all the broth ingredients in a large pot over medium- low heat.

2. Make the wonton filling by combining all the ingredients together, stirring well to mix.

3. Bring a large pot of water to boil.

4. While waiting for the pot of water to boil, fill the wontons. On a flat work surface, lay a wrapper out in the shape of a diamond. Add 1 tbsp of filling into the center of the wrapper. Dip a finger into a small bowl of water and wipe all four sides of the wonton wrapper. Gently press the opposite points of the wrapper (north and south points) together to make a triangle. Bring the other two points (east and west points) against the two points already connected and press together. This should make an X looking shape. Press all along the four sides to make sure it's sealed. Place in a bowl or container while making the rest of the wontons. Continue until there are no more wonton wrappers. If there is left over filling, make the leftover filling into meatballs, by rolling the filling mixture into a ball.

5. Once all the wontons have been filled, boil 10 at a time in the boiling pot of water for 4 minutes. Using a slotted spoon or strainer, remove the wontons after 4 minutes of boiling, let the excess water drain off the spoon, then add to the broth mixture. If there are meatballs remaining, boil these last for 6 minutes. The temperature of the filling should be 165 degrees F.

6. Serve with crunchy dried Lo-Mein noodles or extra green onions.

7. Enjoy!

** Total time: 90 minutes. Feeds 4-6 people.*

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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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