

Louisiana Shrimp Bycatch Study Design

Purpose:

This study is intended to characterize the bycatch of the Louisiana commercial shrimp fishery. Fishery biologists of the Louisiana Department of Wildlife and Fisheries (LDWF) will act as observers on compensated commercial shrimping vessels to document incidental catch of all non-target species as well as shrimp landings.

Guidelines:

All commercial shrimp fishers operating out of Louisiana ports are eligible to participate in this study. An online portal will be created for those commercial fishermen willing to participate to sign up. Commercial fishers randomly drawn from this group will be compensated \$350 for each fishing trip where bycatch is observed by an onboard LDWF biologist.

Participating commercial fishers will have to agree to a set work schedule. Trips conducted during the day would leave port at 5:00 AM and return the LDWF observer by 5:00 PM. Trips conducted during the night would leave port at 5:00 PM and return the LDWF observer by 5:00 AM.

Vessels will be drawn from the pool of available vessels based on established criteria for sampling (see Methodology). A routine background check will be conducted on all vessels/captains chosen to participate in this study along with a visual seaworthiness and safety check by LDWF staff before each trip.

Methodology:

Sample Size Determination

This study will characterize the bycatch of the Louisiana commercial shrimp fishery. A minimum of thirty samples (i.e., observed trips) will be collected and distributed among the primary gear types fished (butterfly nets, otter trawls, and skimmer nets) proportional to historical effort (2015-2017). To allow characterization of bycatch for each gear type, a minimum of three samples will be collected per gear.

<i>GEAR</i>	<i>PERCENT</i>	<i>n</i>
<i>BUTTERFLY NETS</i>	<i>5.7</i>	<i>3</i>
<i>OTTER TRAWL, SHRIMP</i>	<i>16.9</i>	<i>6</i>
<i>SKIMMER NETS</i>	<i>77.4</i>	<i>24</i>

Representative Random Sampling

To allow representative sampling across the entire shrimp season and the Louisiana coast, samples by gear will be further allocated across the year and LDWF Coastal Study Areas (CSAs) proportional to historical effort (2015-2017) using the SAS SURVEYSELECT Procedure and the probability proportional to size with replacement method to randomly select samples.

Note: *Week_Season* represents the week of each season

Season 1 = Spring Inshore

Season 2 = Fall Inshore

Season 3 = Inshore Closed

GEAR	CSA	Week_Season	n
BUTTERFLY NETS	5	2.1	1
BUTTERFLY NETS	5	7.2	1
BUTTERFLY NETS	7	19.3	1
OTTER TRAWL, SHRIMP	1	2.2	1
OTTER TRAWL, SHRIMP	3	15.2	1
OTTER TRAWL, SHRIMP	3	23.3	1
OTTER TRAWL, SHRIMP	5	20.3	1
OTTER TRAWL, SHRIMP	6	9.2	1
OTTER TRAWL, SHRIMP	7	5.2	1
SKIMMER NETS	1	2.1	1
SKIMMER NETS	1	4.2	1
SKIMMER NETS	1	9.2	1
SKIMMER NETS	1	11.2	2
SKIMMER NETS	3	1.2	1
SKIMMER NETS	3	2.2	2
SKIMMER NETS	3	3.2	1
SKIMMER NETS	3	6.2	1
SKIMMER NETS	3	8.2	1
SKIMMER NETS	3	10.2	1
SKIMMER NETS	3	16.2	1
SKIMMER NETS	5	2.1	2
SKIMMER NETS	5	3.1	1
SKIMMER NETS	5	3.2	1
SKIMMER NETS	5	4.2	1
SKIMMER NETS	5	5.1	2
SKIMMER NETS	5	7.2	1
SKIMMER NETS	5	9.2	2
SKIMMER NETS	5	10.2	1

Sample Collection

Prior to the opening of the 2019 shrimp season, commercial vessels will be randomly chosen for each predetermined observer sample from the pool of participating fishers based on gear and CSA fished. Fishery biologists will act as observers aboard these trips and collect data on incidental catch of all non-target species relative to shrimp landings.

Bycatch data will be collected during the entire duration of the trip by sampling each tow. On vessels containing multiple nets (butterfly and skimmer nets), samples will be collected by alternating which net the sample is collected from after each tow. Any observed interactions with sea turtles will be documented, regardless of which net is sampled.

Once each tow is released on a sorting table or the boats deck, the LDWF observer will collect a random sample from the catch. Each sample will be collected by completely filling a .7-bushel fish basket using a wide mouthed shovel. The LDWF observer will use their professional judgement on the optimal method to collect the random sample from each tow. One method would be to collect each shovel load from different areas of the sorting table or deck. Large specimens that are not well-sampled by this method (i.e. large black drum, rays and sharks etc.) will be recorded from the entire net.

After the random sample is collected, shrimp will be separated from the bycatch, weighed to the nearest gram, and returned to the fishers after the data is recorded. The remaining bycatch will be sorted by species and weighed to the nearest gram. For managed and commonly harvested species (see list below), up to fifty randomly selected individuals will also be weighed to the nearest gram. If the entire sample cannot be processed before the next tow is retrieved, the sample or unprocessed remainder of the sample can be bagged, tagged, and iced to be processed after the trip is complete.

Managed and Commonly Harvested Species

Atlantic Croaker
Blue Crab
Black Drum
Gulf Menhaden
Red Drum
Sheepshead
Spotted Seatrout
Striped Mullet

Trip Planning

The vessel/captain information selected for each sample will be provided to each CSA manager so vessel inspections and scheduling can be initiated as soon as possible. This will allow each CSA to make contact with participating captains well before each trip and work out the details of the sampling trip itself.

Funding Source

The expenditure for this shrimp bycatch study will come from the designated 10% sustainability money in the artificial reef fund. The expenditure code used for the shrimp bycatch study will be ARTIFICIAL REEF-SEAFOOD CERTIF (Shrimp Bycatch Project) or SCBP. Current coding for this expenditure can be found in our 2017-2018 Office of Fisheries Expenditure Codes or at the following link:

http://intranet/doc/pdf/omf_fiscal_forms/omf_fiscal_forms_Fisheries%20Expenditure%20Codes%20FY2017-18.pdf or below:

Fund – 51400W0402

WBS – W.900000.419