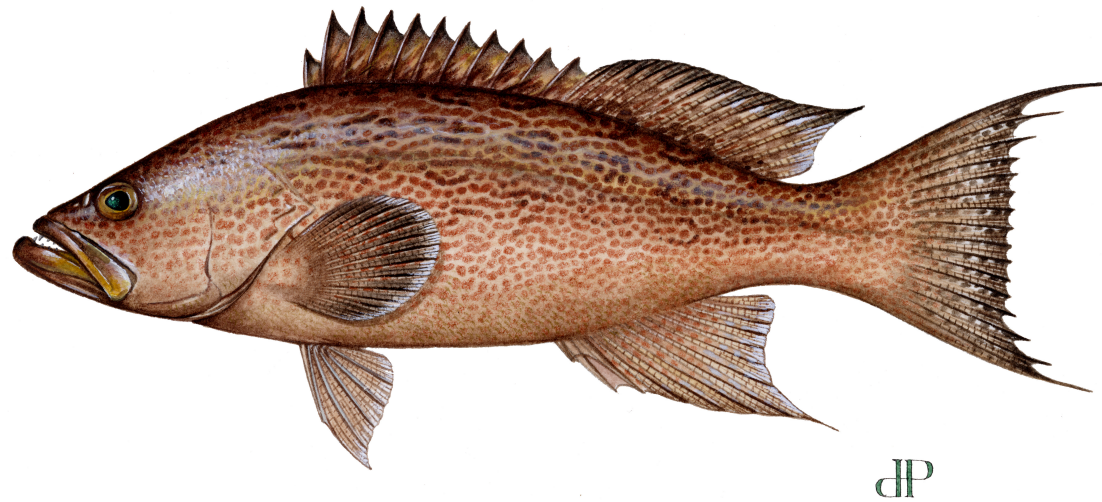


# SEDAR 68: Discard Mortality Ad-Hoc Working Group



SCAMP

*Mycteroperca phenax*

## Webinar 1

# Discard Mortality TORs

- Recommend discard mortality rates.
  - Review available research and published literature.
    - Consider research directed at scamp as well as similar species from the southeastern United States and other areas.
  - Provide estimates of discard mortality rate by fishery, gear type, depth, and other feasible or appropriate strata.
  - Provide estimates of uncertainty around recommended discard mortality rates
  - Document the rationale for recommended rates and uncertainties.



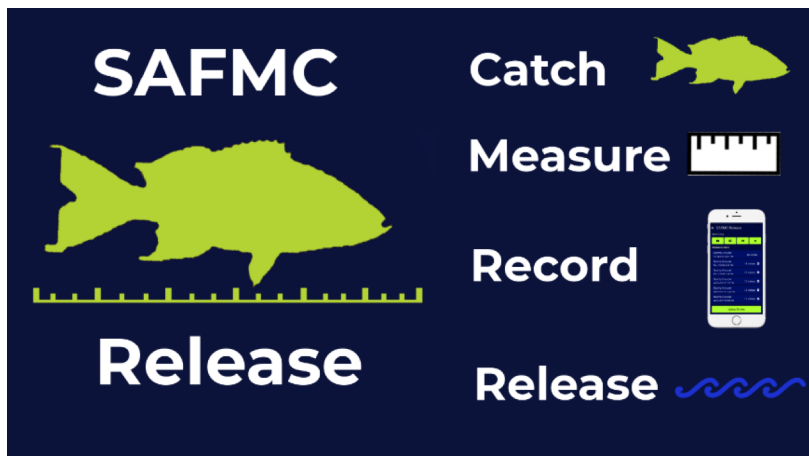
# Presentation Order

- SAFMC – Scamp Release App Data
  - *Julia Byrd, Mike Errigo, Chip Collier*
- FL-FWCC – State Survey Data
  - *Dominique Lazarre*
- NOAA – At-Sea Observer Data
  - *Sarina Atkinson, Kevin McCarthy*
- NCSU – Acoustic Telemetry Data
  - *Brendan Runde*
- MOTE – Electronic Monitoring Data
  - *Carole Neidig, Max Lee, Daniel Roberts*

# SAFMC

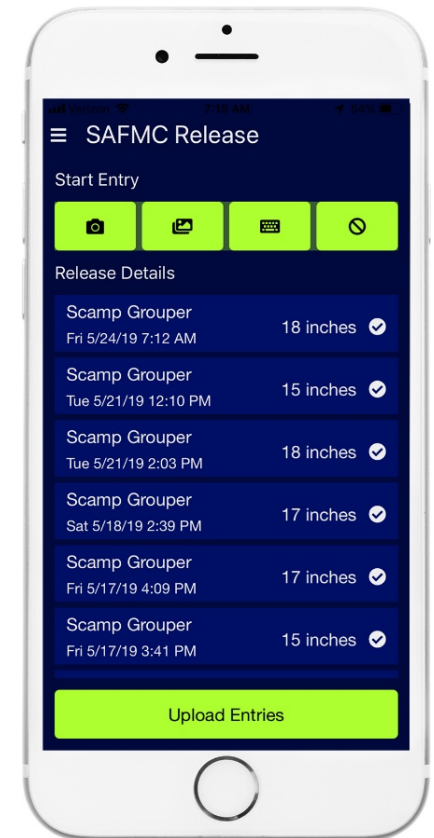
Julia Byrd, Mike Errigo, Chip Collier





## Pilot Project: *SAFMC Scamp Release* *SEDAR68-DW25*

- SAFMC's initial citizen science project
- Designed to collect info on scamp discards from commercial, for-hire, and recreational fishermen via mobile app
- SAFMC Release is the open access, free mobile app designed with guidance and feedback from fishermen
- Scamp chosen for pilot; will expand to other shallow water grouper in late 2020/2021
- **App launched June 20, 2019**
- Multiple avenues used for recruitment & promotion
- Continued focus on recruitment and retention of commercial, for-hire, and recreational fishermen



# ***SAFMC Scamp Release: Data Fields Collected***

## **Release Form**

---

- **Trip Type**
- **Trip Start Date**
- **Discard Time**
- **Latitude/Longitude**
- **Depth**
- **Species Name/ITIS code**
- **Fork Length (nearest inch)**
- **Photo**
- **Hook Type**
- **Hook Location**
- **Release Condition & Treatment**

## **No Releases Form**

---

- **Trip Type**
- **Trip Start Date**
- **Comments**



# *SAFMC Scamp Release*

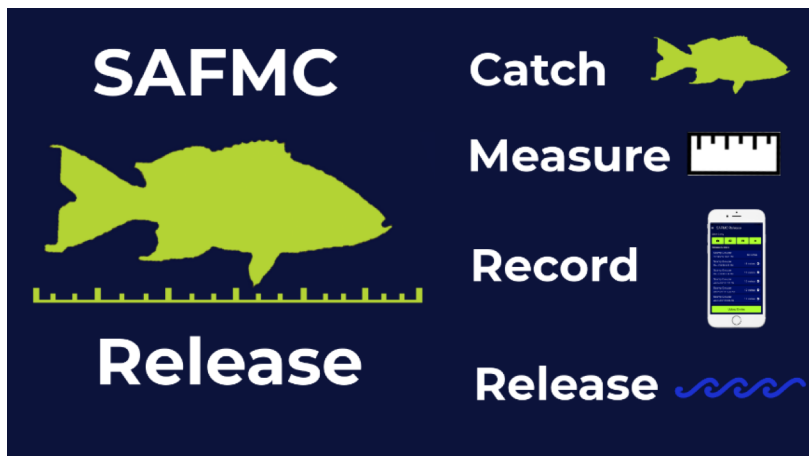
## User accounts by state

State	# of User Accounts	% of User Accounts
North Carolina	17	32.7%
South Carolina	20	38.5%
Georgia	6	11.5%
Florida	9	17.3%
<b>TOTAL</b>	<b>52</b>	<b>100%</b>

## User accounts by sector

Sector	# of User Accounts	% of User Accounts
Commercial	10	19.2%
Commercial / Recreational	6	11.5%
For-Hire	19	36.5%
Recreational	14	26.9%
Unknown	3	5.8%
<b>TOTAL</b>	<b>52</b>	<b>100%</b>





# *SAFMC Scamp Release:* Data Summary

## **6 scamp reported released**

- Size Range: 16-22 inches
- Depth Range: 80-132 feet
- Typically hooked in jaw
- Reported use of circle offset, circle non-offset, and j-hooks
- All released alive
- 4 reported use of barotrauma reduction devices

## **19 'No Release' reports**

- Several were trips where Scamp were kept but not released
- Depth range for kept Scamp: 80-265 feet



# *SAFMC Scamp Release:* **Anecdotal Information**

- **Scamp Grouper releases are not common during the open shallow water grouper season (May – December).** The reason for discards during the open season is **typically due to undersized fish** (size limit in the South Atlantic is 20in TL), not due to possessions limits. Many indicated they do not typically see undersized fish. Some thought that could potentially be due to where they are fishing (depths and locations) or bait or hook size.
- Several fishermen, in particular for-hire and recreational fishermen, noted they **don't fish as much in the winter and typically bottom fish less when the shallow water grouper season is closed (January – April).** Some noted they are more likely to release Scamp Grouper in early spring when fishing effort is starting to increase, but the shallow water grouper closure is still in place.
- Several fishermen noted that **Scamp Grouper catches** have become **less common in recent years.** Some indicated this could potentially be due to abundance, others noted it was hard to get bait to the bottom where you would typically catch grouper due to large numbers of Red Snapper.
- Scamp Grouper tend to be in **deeper water than some other shallow water grouper species.** This may impact the number of encounters with Scamp compared to other shallow water grouper species (e.g. Gag, etc.).







## *MyFishCount* **SEDAR68-DW26**

- Voluntary reporting program for recreational anglers
- Developed by SAFMC, Angler Action, and Elemental Designs
- First available in 2017 as web portal for Red Snapper mini-season
- Expanded in 2018 to collect information for a variety of species
- Focus during 2019/2020 on recruitment and retention of participants
- Information on the program is available on the [Council's website](#)



# *MyFishCount*: Data Fields Include

## Trip Info

---

- **Trip Name**
- **Trip Type**
- **Target Species**
- **Departure Date**
- **Arrival Date**
- **Nearest City/State**
- **Port Type**
- **Hours/Minutes Away from Dock**
- **% Time with Hooks in Water**
- **Vessel Name/#**
- **Abandon Reason**
- **Abandon Date**
- **# of Anglers**

## Catch Info

---

- **Species**
- **Catch Status (Kept or Released)**
- **Caught Time**
- **Length/Length Type**
- **Weight**
- **Depth**
- **Hook Type**
- **Hooking Location**
- **Reason for Release**
- **Release Treatment**
- **Latitude/Longitude**
- **Comments**



# *MyFishCount* Scamp Data Summary

- 27 Scamp were reported from 6 trips; all were kept
  - Size range: 22-28 inches
- Most trips reporting scamp departed from SC (92%); most trips reporting in MFC departed from FL (54%)
- Most Scamp reported being caught on non-offset circle hooks
- Scamp were caught in depths from 90-500 ft.



# Florida FWCC – State Survey Data

- Gulf Reef Fish Survey (2015-2020)
  - Mode: Private / Charter
  - Mail survey and dockside intercept survey on the Gulf Coast of Florida, excluding the Florida Keys used to estimate catch and effort of reef fish
- East Coast Biological Survey (2017-2020)
  - Mode: Private / Charter
  - Dockside Intercept survey on the South Atlantic Coast, including the Florida Keys used to collect biological samples of reef fish
- At-Sea Observer Survey (2005-2017)
  - Mode: Headboat / Charter
  - At-Sea observers monitor harvest and discarding on for-hire vessels



# Capture Depths

<b>Fleet</b>	<b>No. of Trips</b>	<b>Depth (m)</b>	<b>Stdev</b>
<i>Gulf of Mexico</i>			
Charter	28	87.7	255.3
Private	179	39.0	38.2
<i>South Atlantic</i>			
Charter	15	42.10	26.06
Private	8	45.91	10.19

- Gulf of Mexico – GRFS Survey
  - Charter boat trips that were positive for scamp were conducted in deeper water
- South Atlantic – East Coast Biological Survey
  - Charter and Private boat trips that were positive for scamp were conducted in similar depths, but Charter trips had a greater standard deviation

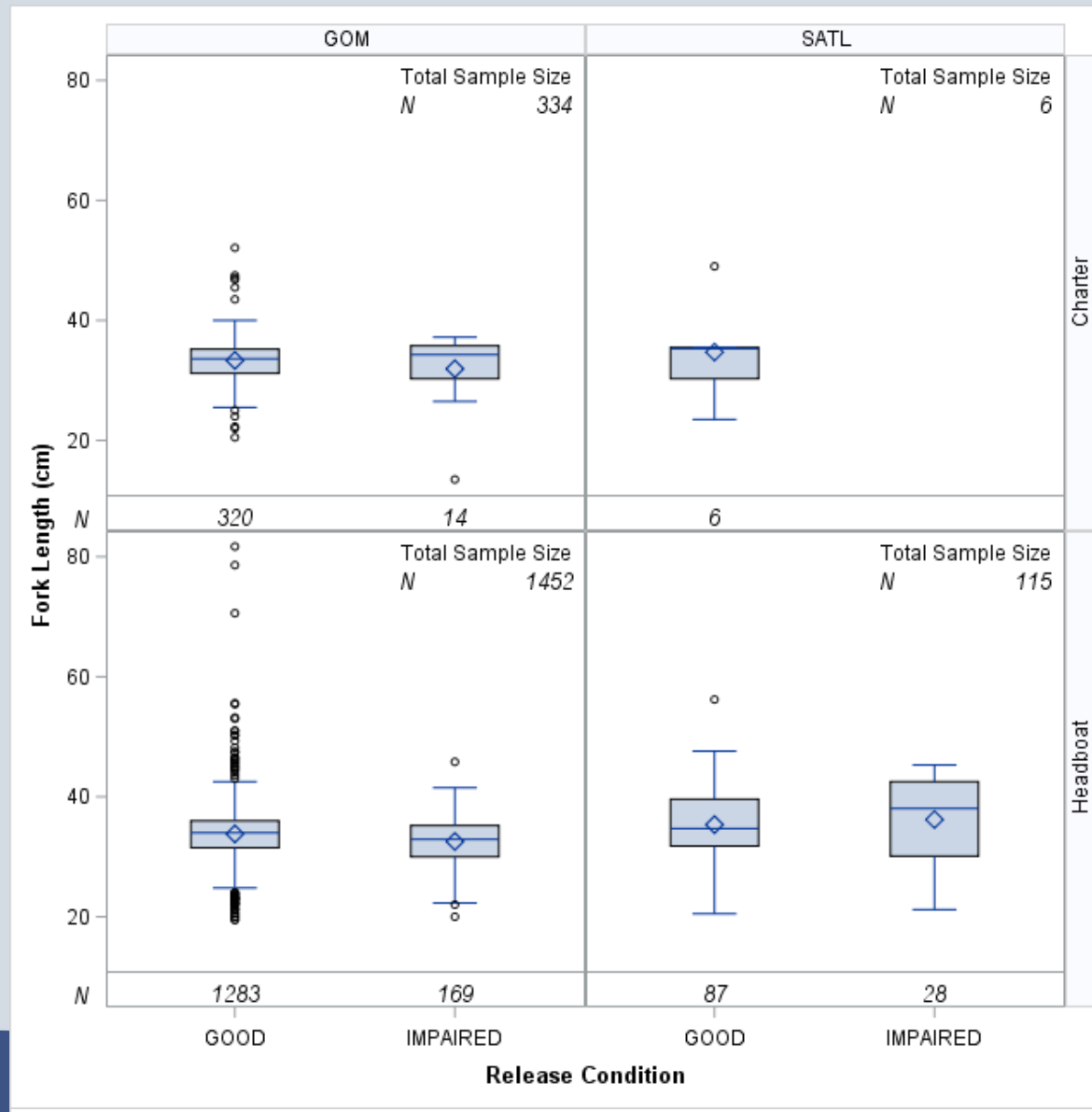


# At-Sea Observer Discard Variables

- Fleet Coverage
  - Charter – West Florida (2009-2017) / East Florida (2013-2015)
  - Headboat – 2005-2017
- Variables
  - Length – Fork Length (cm)
  - Release Condition
    - Good – Immediately swam away, no apparent impairment
    - Fair – Swam away after displaying some impairment
    - Bad – Floated at the surface upon release
    - Dead – Preyed upon immediately upon release or released dead
  - Hooking Location
    - Lip, Foul, Gill, Throat, Intestine



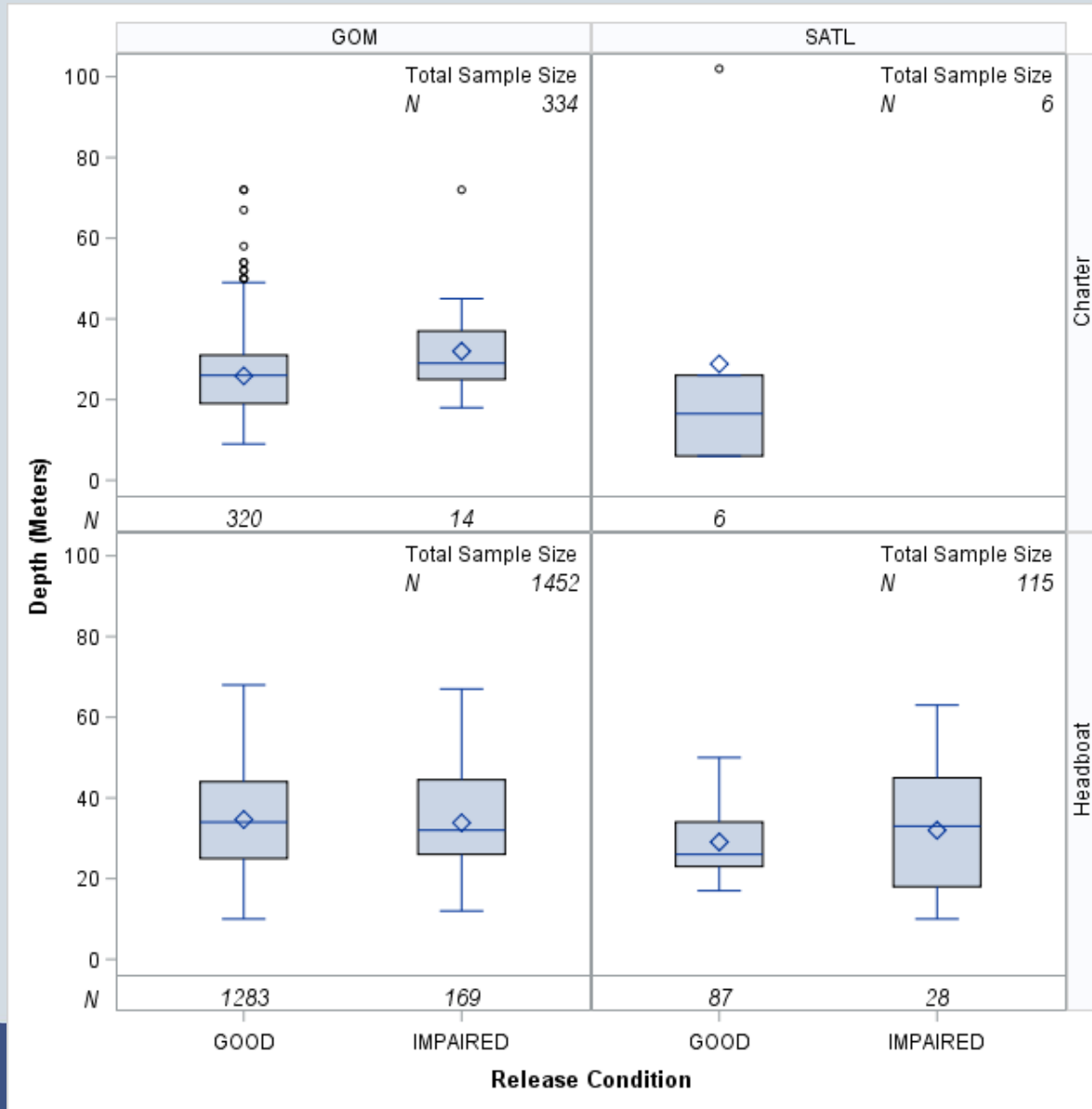
# Release Condition by Fork Length



- No discernable difference in release condition as a function of fork length



# Release Condition by Depth



- No discernable difference in release condition as a function of capture depth

# Capture Depth Summary

Fleet	Gulf of Mexico			South Atlantic		
	<i>No. of Fish</i>	<i>Depth (m)</i>	<i>Stdev</i>	<i>No. of Fish</i>	<i>Depth (m)</i>	<i>Stdev</i>
Charter	334	26.13	9.85	6	28.83	36.79
Headboat	841	34.58	12.95	31	29.94	12.39

- At-Sea station level depths show similar fishing depths for trips positive with scamp discards between the Gulf and South Atlantic coasts of Florida
- Dockside intercept data presented earlier, shows some more deep water trips for Charter vessels in the Gulf of Mexico than seen within this survey



# Hook Injury

Hook Location	Gulf of Mexico				South Atlantic			
	<i>Charter</i>	<i>%</i>	<i>Headboat</i>	<i>%</i>	<i>Charter</i>	<i>%</i>	<i>Headboat</i>	<i>%</i>
Lip	326	97.90	661	97.93	5	83.33	25	100.00
Foul	2	0.60	6	0.89	0	0.00	0	0.00
Gill	2	0.60	2	0.30	0	0.00	0	0.00
Throat	2	0.60	5	0.74	0	0.00	0	0.00
Intestine	1	0.30	1	0.15	1	16.67	0	0.00
<i>Total</i>	<i>333</i>	<i>100.00</i>	<i>675</i>	<i>100.00</i>	<i>6</i>	<i>100.00</i>	<i>25</i>	<i>100.00</i>

- Scamp rarely record hook injury, the majority of discarded fish are recorded fish were hooked in the lip
- Hook data started being collected in 2009, does not represent the full time series of the Florida At-Sea Observer Survey



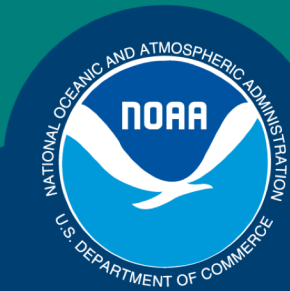
# Immediate Mortality Proxy

Release Condition	Gulf of Mexico				South Atlantic			
	<i>Charter</i>	<i>%</i>	<i>Headboat</i>	<i>%</i>	<i>Charter</i>	<i>%</i>	<i>Headboat</i>	<i>%</i>
Good	320	95.81	1283	88.36	6	100.00	87	75.65
Fair	6	1.80	92	6.34	0	0.00	18	15.65
Bad	7	2.10	46	3.17	0	0.00	7	6.09
Dead	1	0.30	31	2.13	0	0.00	3	2.61
<i>Total</i>	<i>334</i>	<i>100.00</i>	<i>1452</i>	<i>100.00</i>	<i>6</i>	<i>100.00</i>	<i>115</i>	<i>100.00</i>

- Create binary impairment release condition category
  - Collapse all release categories with any impairment noted into a single category
    - Good – Fish that were able to submerge and swim away immediately after release
    - Fair – Fish that re-submerged and swam away with minor difficulty
    - Bad – Fish released that demonstrated extreme difficulty re-submerging or swimming
    - Dead – Fish that were released dead, preyed upon by mammals or preyed upon by birds



*Science, Service, Stewardship*



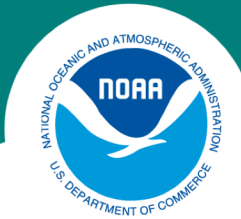
# Using Reef Fish Observer Data to Estimate Immediate Discard Mortality

NOAA

**NOAA  
FISHERIES  
SERVICE**

Southeast Fisheries Science Center  
Fisheries Statistics Division

Presenters: Sarina Atkinson, Kevin McCarthy



## Background

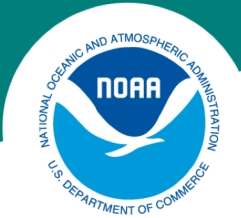
CONDITION CODES (AS BROUGHT ONBOARD)	FATE CODE
1 - LIVE: NORMAL APPEARANCE	K - FISH KEPT
2 - LIVE AIR BLADDER/STOMACH PROTRUDING	D - DISCARD DEAD
3 - LIVE: EYES PROTRUDING	A - DISCARD ALIVE
4 - LIVE: COMBINATION 2 AND 3	B - KEPT FOR BAIT
5 - DEAD ON ARRIVAL	U - UNKNOWN DISCARD
9 - NO DATA OR UNKNOWN	X - UNKNOWN IF KEPT OR DISCARDED

### Lower Bound:

- Dead on Arrival

### Upper Bound:

- Dead on Arrival
- Live Air Bladder/Stomach Protruding
- Live: Eyes Protruding
- Live: Combination 2 and 3
- Discard Dead



## Gulf of Mexico – Bottom Longline

Lower bound of release mortality using only onboard condition

Depth Bin (m)	Number of Scamp Discarded	Number of Trips	Percent Alive*	Percent Dead
<70	74	46	97.3 %	2.7 %
71-100	124	53	91.1 %	8.9 %
>100	30	12	93.3 %	6.7 %
<b>Total</b>	<b>228</b>	<b>95</b>	<b>93.4 %</b>	<b>6.6 %</b>

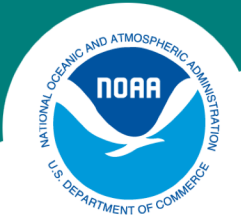
\* Including scamp alive with barotrauma

Upper bound of release mortality using a combination of onboard condition and disposition

Depth Bin (m)	Number of Scamp Discarded	Number of Trips	Percent Alive	Percent Dead*
<70	74	46	32.4 %	67.6 %
71-100	123	52	27.6 %	72.4 %
>100	30	12	40 %	60 %
<b>Total</b>	<b>227</b>	<b>94</b>	<b>30.8 %</b>	<b>69.2 %</b>

\* Including scamp with barotrauma and released dead





## Gulf of Mexico – Vertical Line

Lower bound of release mortality using only onboard condition

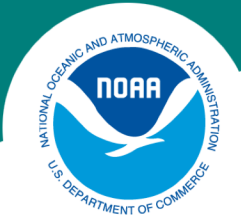
Depth Bin (m)	Number of Scamp Discarded	Number of Trips	Percent Alive*	Percent Dead
<40	251	92	100 %	0 %
41-80	216	107	100 %	0 %
>80	125	23	100 %	0 %
<b>Total</b>	<b>592</b>	<b>202</b>	<b>100 %</b>	<b>0 %</b>

\* Including scamp alive with barotrauma

Upper bound of release mortality using a combination of onboard condition and disposition

Depth Bin (m)	Number of Scamp Discarded	Number of Trips	Percent Alive	Percent Dead*
<40	248	91	82.7 %	17.3 %
41-80	216	107	55.6 %	44.4 %
>80	125	23	14.4 %	85.6 %
<b>Total</b>	<b>589</b>	<b>202</b>	<b>58.2 %</b>	<b>41.8 %</b>

\* Including scamp with barotrauma and released dead



## South Atlantic – Vertical Line

Lower bound of release mortality using only onboard condition

Depth Bin (m)	Number of Scamp Discarded	Number of Trips	Percent Alive*	Percent Dead
<40	146	24	100 %	0 %
41-60	343	24	100 %	0 %
>60	2	15	99.4 %	0.6 %
<b>Total</b>	<b>491</b>	<b>43</b>	<b>99.8 %</b>	<b>0.2 %</b>

\* Including scamp alive with barotrauma

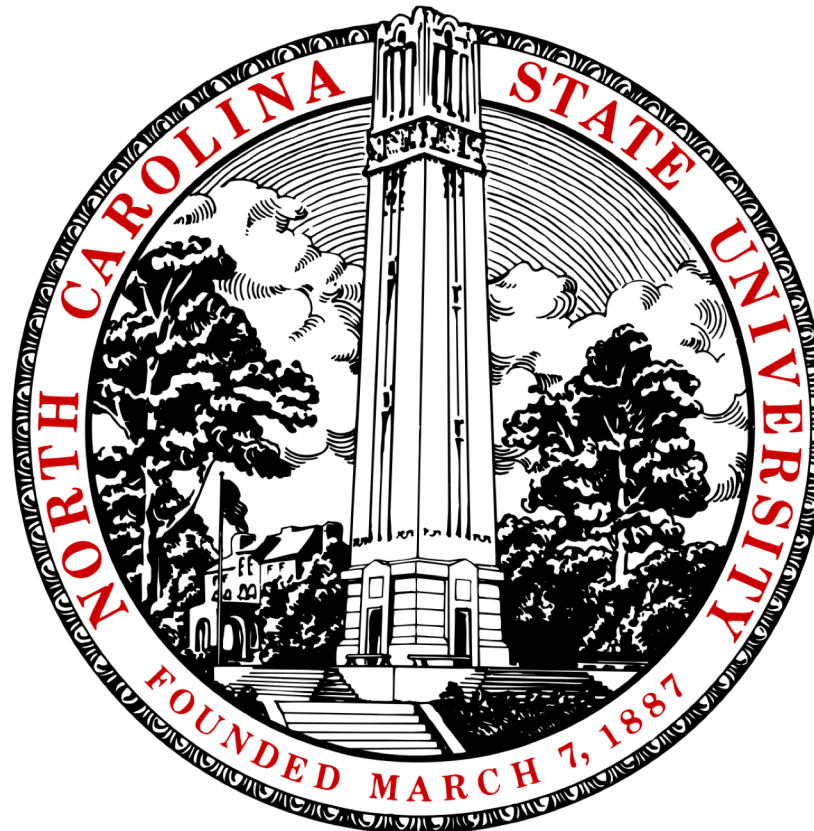
Upper bound of release mortality using a combination of onboard condition and disposition

Depth Bin (m)	Number of Scamp Discarded	Number of Trips	Percent Alive	Percent Dead*
<40	146	24	84.9 %	15.1 %
41-60	343	24	76 %	24 %
>60	2	15	89.7 %	10.3 %
<b>Total</b>	<b>491</b>	<b>43</b>	<b>83.5 %</b>	<b>16.5 %</b>

\* Including scamp with barotrauma and released dead

# North Carolina State University

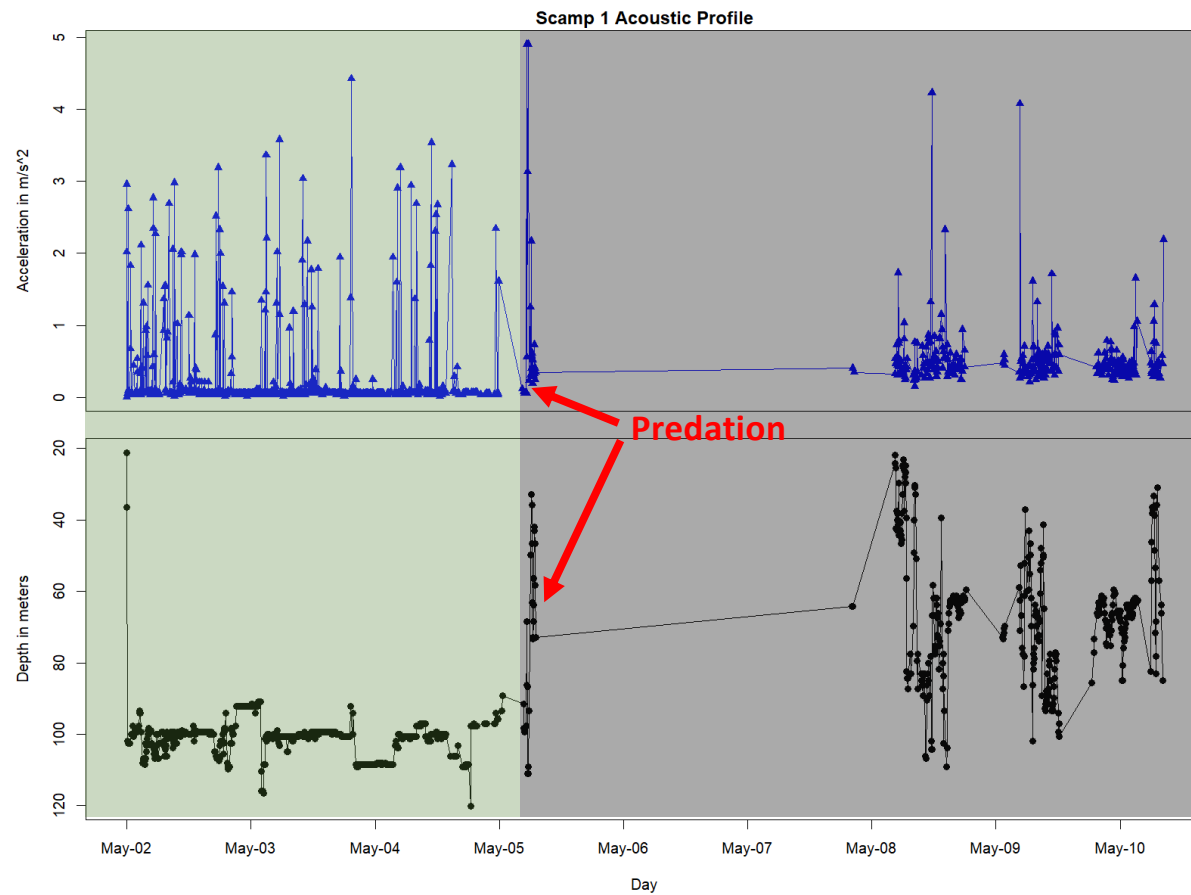
Brendan Runde



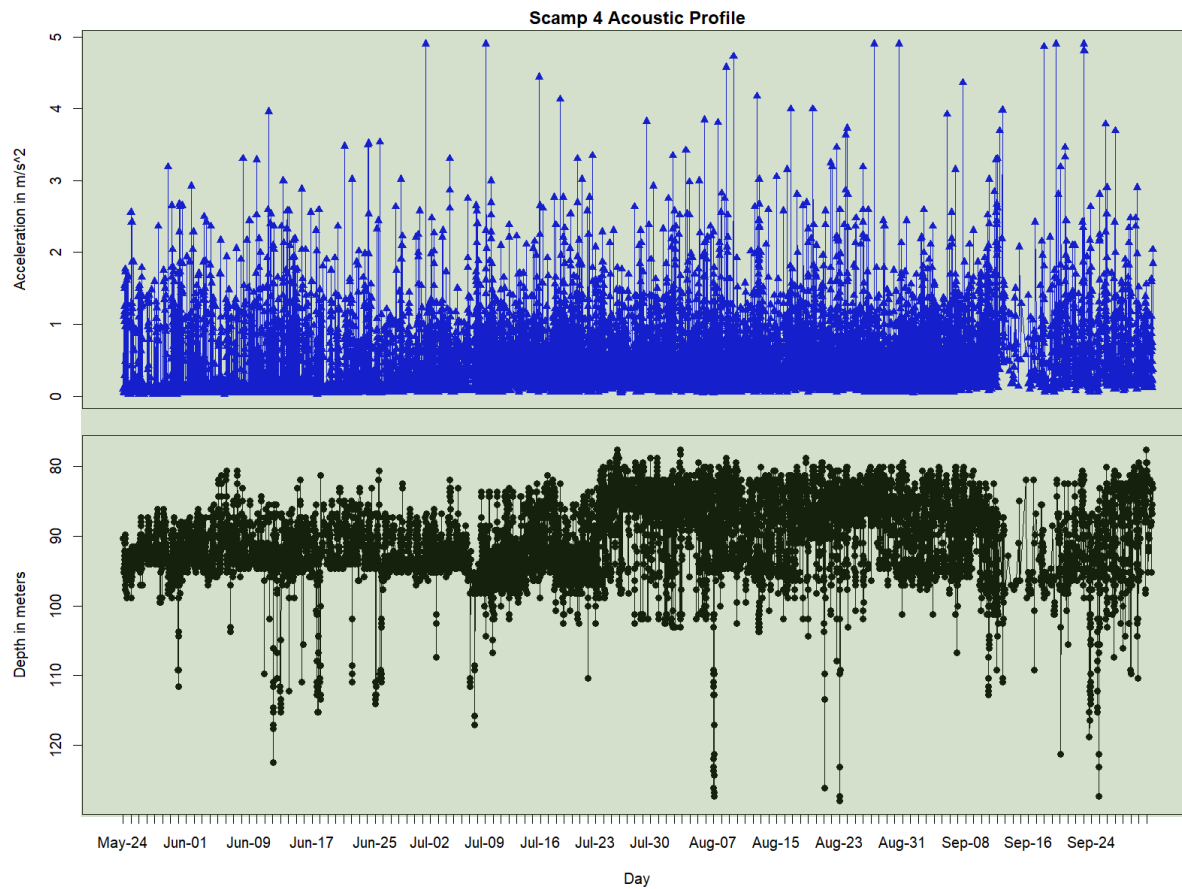
# NC State scamp data – Methods

- 2015 and 2018 studies
- Hook-and-line capture
- Depths: 195-380' (60-116 m)
- Acoustic telemetry (V13AP tags)
- Descended fish with SeaQualizer
- 3-state hidden Markov model to identify predation/scavenging event
- Compared acceleration/depths of released-alive fish to sacrificial known-dead releases

# NC State scamp data – Results

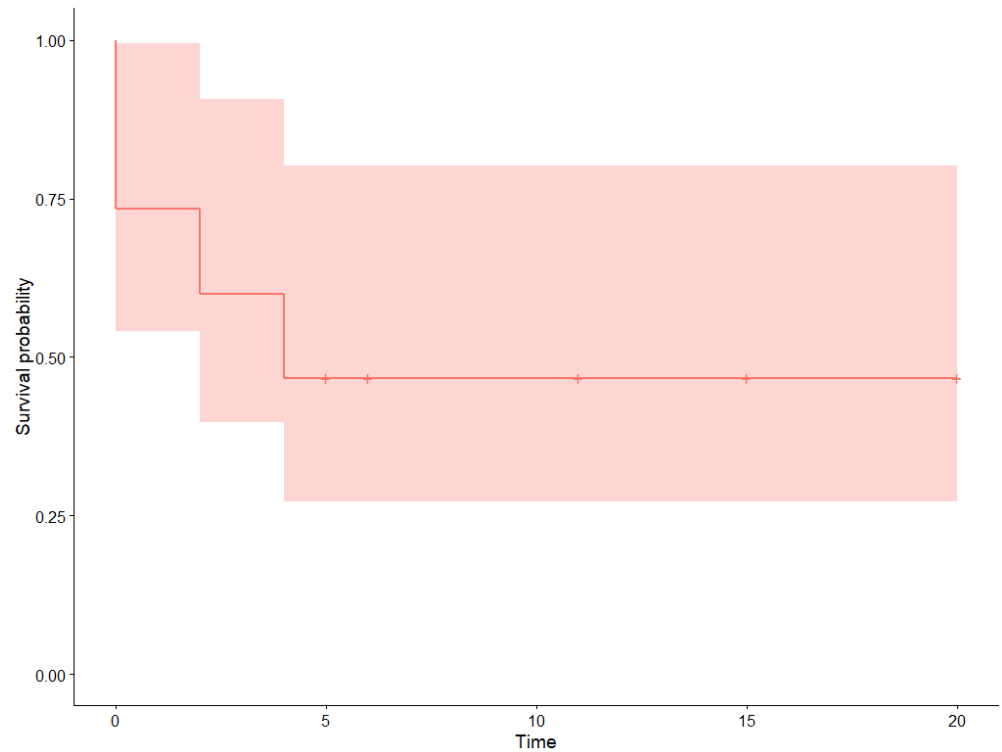


# NC State scamp data – Results



# NC State scamp data – Results

- 16 individuals descended
  - 1 fish never detected
  - Survival estimate for 15 scamp: 0.47 (0.27, 0.80)
- 2 individuals released at surface (no venting)
  - 1 floated
  - 1 swam, died same day





# Mote Marine Lab

Carole Neidig, Dan  
Roberts, Max Lee, Ryan  
Schloesser



# Eye on the Gulf - Electronic Monitoring: An Emerging Technology and Platform for Science in the Gulf of Mexico Snapper-Grouper Fishery

Carole Neidig<sup>1</sup>, Dan Roberts<sup>2</sup>, Max Lee<sup>1</sup>, Ryan Schloesser<sup>1</sup>

<sup>1</sup>Mote Marine Laboratory

Directorate for Fisheries and Aquaculture

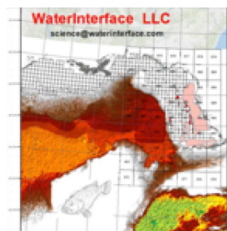
**Center for Fisheries Electronic Monitoring at Mote (CFEMM)**

1600 Ken Thompson Parkway, Sarasota, FL., 34236

<sup>2</sup>Waterinterface LLC., 1620 Surrey Trail, Wimauma, FL. 33598

**SEDAR 68 Scamp and Yellowmouth Grouper - Discards**

**May 1, 2020**



**MOTE.ORG**

<https://mote.org.research/program/fisheries-ecology-and-enhancement/electronic-monitoring-project>

## West Florida Shelf (WFS) Catch Composition August 2016 to July 2019 (n=804)

Common Name	Count	Cumulative (Count)	Percent	Cumulative (Percent)
Red Grouper	23766	27078	59.75260	68.0797
Red Snapper	4016	34743	10.09705	87.3510
Yellowedge Grouper	2443	3201	6.14220	8.0480
Blueline Tilefish	989	29732	2.48655	74.7524
<b>Scamp</b>	<b>804</b>	36968	<b>2.02142</b>	92.9451
Gag Grouper	603	35870	1.51607	90.1845
Atlantic Sharpnose Shark	521	30253	1.30990	76.0623
Mutton Snapper	469	37843	1.17916	95.1451
Jolthead Porgy	442	30727	1.11128	77.2540
Snowy Grouper	382	433	0.96043	1.0887

\* CFEMM >60,000 species annotation records Gulf-wide (WFS ~42,000)

6 WFS EM trips during this period had an Observer onboard

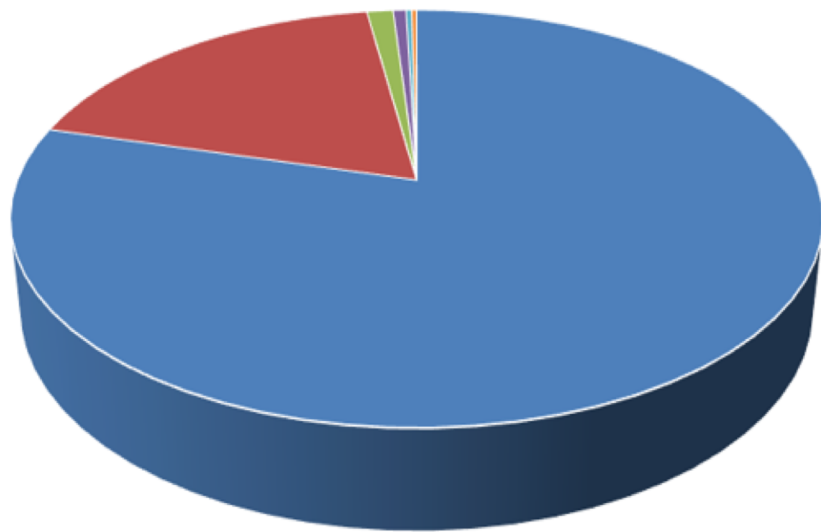
- Current available WFS data (7/2016-01/2020) is derived from 165 Trips, 901 Hauls, and 1,499 seadays fished



# Scamp Condition Upon Arrival (A) and Disposition (Fate) (B)

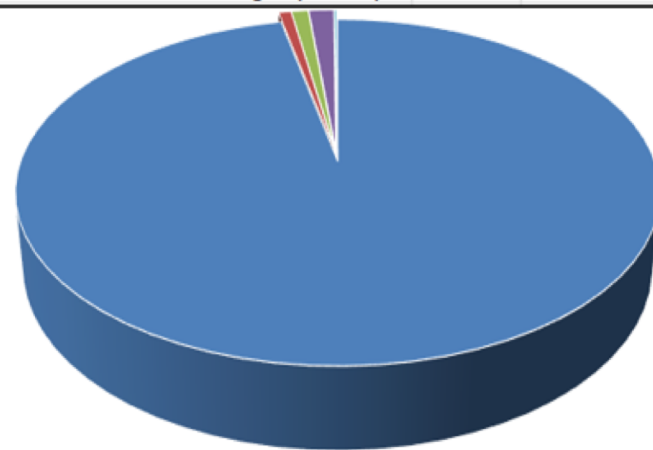
August 2016 to July 2019 (n=804)

Condition of Scamp upon Arrival at Vessel	Frequency table: Condition_On_Arrival (JustScamp in				Disposition of Scamp (Fate)	Frequency table: Catch_Fate JustScamp			
	Count	Cumulative (Count)	Percent	Cumulative (Percent)		Count	Cumulative (Count)	Percent	Cumulative (Percent)
Live - Healthy	637	637	79.22886	79.2289	Retained	777	777	96.64179	96.6418
Live - Stomach and/or Eyes Protruding	148	785	18.40796	97.6368	Discarded - Dead	6	783	0.74627	97.3881
Dead on Arrival - Undamaged	10	795	1.24378	98.8806	Discarded - Live and Healthy (Not Vented)	8	791	0.99502	98.3831
Dead on Arrival - Damaged	5	800	0.62189	99.5025	Discarded - Live and Healthy (Vented)	12	803	1.49254	99.8756
Unknown Condition	2	802	0.24876	99.7512	Discarded - Live and Damaged (Vented)	1	804	0.12438	100.0000
Live - Damaged	2	804	0.24876	100.0000					



- Live - Healthy
- Live - Stomach and/or Eyes Protruding
- Dead on Arrival - Undamaged
- Dead on Arrival - Damaged
- Unknown Condition
- Live - Damaged

A



- Retained
- Discarded - Dead
- Discarded - Live and Healthy (Not Vented)
- Discarded - Live and Healthy (Vented)
- Discarded - Live and Damaged (Vented)

B





# Scamp Arrival Condition

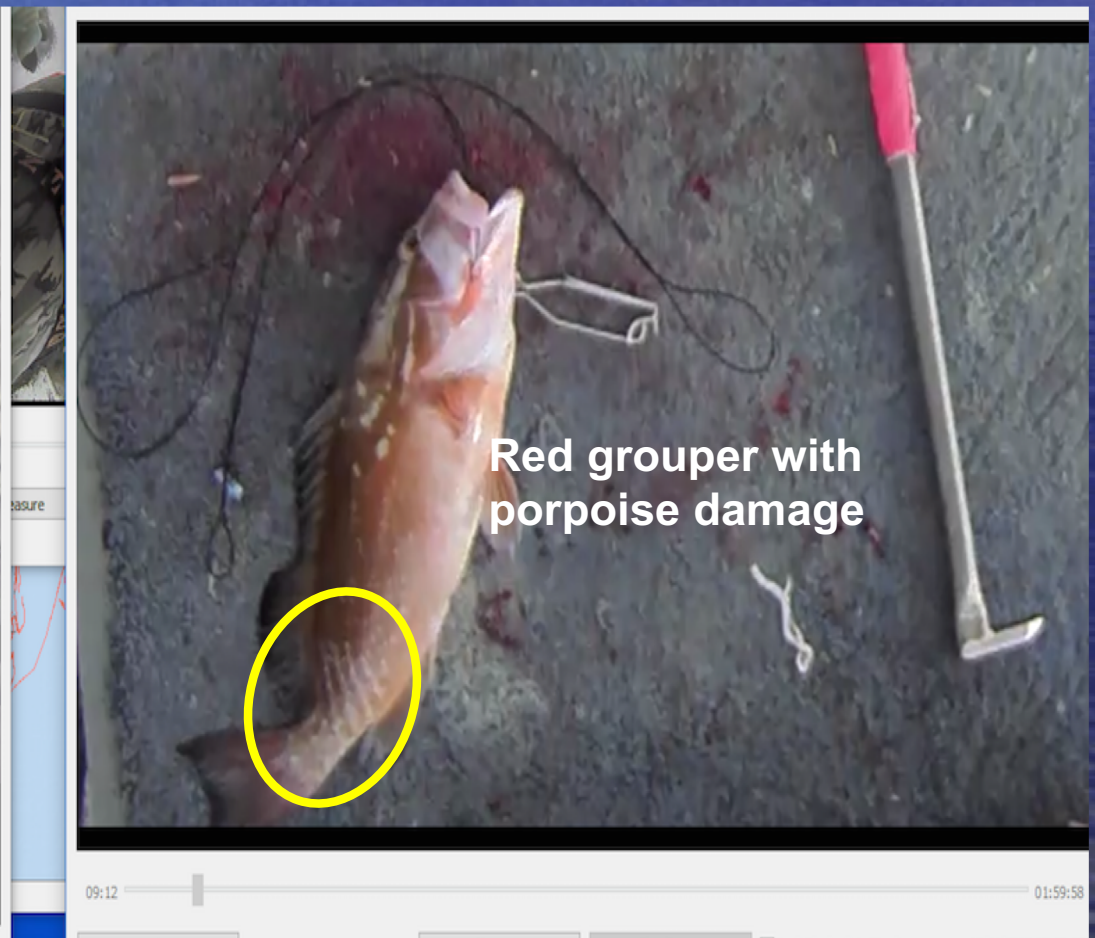
(n=804)

1.24% (10) arrived “Dead Undamaged”

\*0.62% (5) arrived “Dead Damaged”

\*0.24% (2) arrived “Live Damaged”

\* *possible depredation*





# Discard Summary

( $n=804$ )

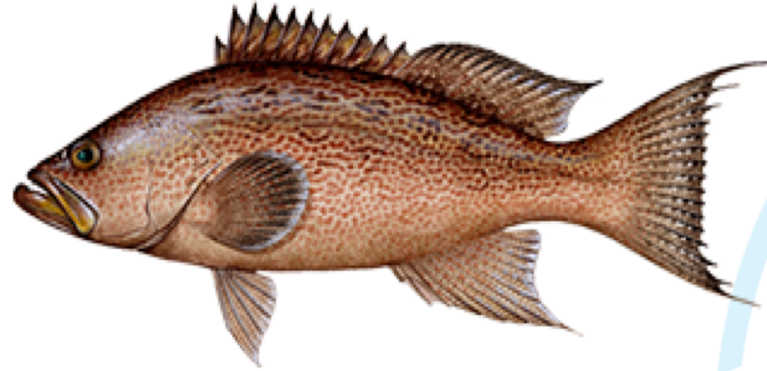
3.35% of all Scamp are Discarded

0.75% of all Scamp are Discarded Dead

22.2% of Scamp Discards are Dead Discards

25.9% of Scamp Discards are either Dead, or Live with Damage





We welcome feedback on subsets of data that would be most useful, given the CFEMM has data available from 7/2016 - 01/2020.

**\* Note: We now have a *full year of 2019 data* available that is not represented in the working paper (8/2016-7/2019).**

[https://docs.google.com/document/d/17s\\_o7N3AX3QRetG\\_bpspNumfgQo\\_4IF-L7C8YdzsCvk/](https://docs.google.com/document/d/17s_o7N3AX3QRetG_bpspNumfgQo_4IF-L7C8YdzsCvk/)



# Discard Mortality TORs

- Recommend discard mortality rates.
  - Commercial Rate –
    - Upper Bound –
    - Lower Bound –
    - Rationale –
  - Recreational Rate –
    - Upper Bound –
    - Lower Bound –
    - Rationale –