



# Citizen Science

## Citizen Science Program Update

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Snapper Grouper AP  
October 2022

# Program Activities

New CitSci Project Coordinator: Meg Withers

SMILE Project

Dolphin Stakeholder Workshops

CitSci Initial Program: Evaluation Interviews

SAFMC Release

FISHstory pilot project



# SMILE Pilot Project

- Partners: REEF, SECOORA, UCSD Engineers for Exploration & SAFMC
- Partnering with recreational divers to collect length information on data limited species



# Dolphin Stakeholder Workshops

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Focus on gathering information on preferences, priorities & concerns with dolphin fishery to evaluate future management strategies

- Week of October 4<sup>th</sup>, 2020: South Florida
- Week of October 31<sup>st</sup>, 2022: Rhode Island & New York
- Week of January 23<sup>rd</sup>, 2022: South Carolina, North Carolina & Virginia



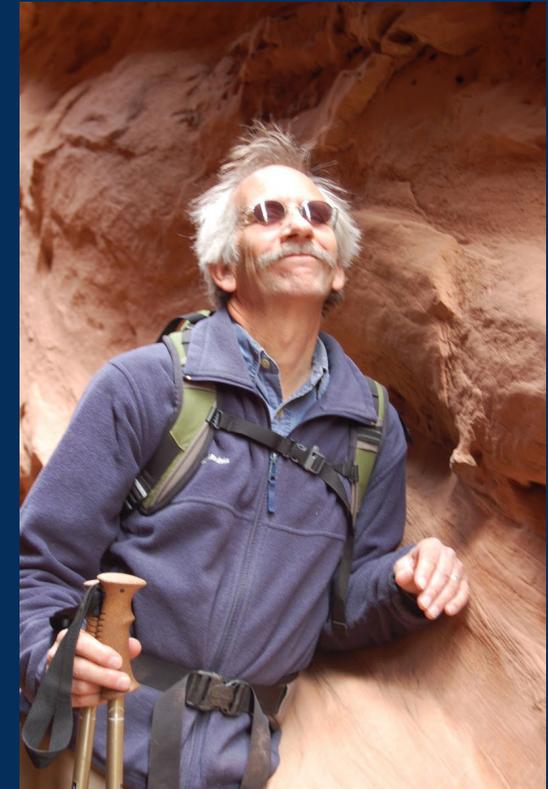
**NOAA**  
**FISHERIES**





# Citizen Science

## Initial Program Evaluation Plan



**Rick Bonney**  
Cornell Lab of Ornithology

# Initial Program Evaluation Plan

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- Gather baseline data on knowledge, attitudes, collaborations, engagement, and trust levels of various stakeholders in three stages:



Interviews



Complete: 6 fishermen, 6 scientists,  
6 managers



Develop online survey



Beginning to draft survey questions

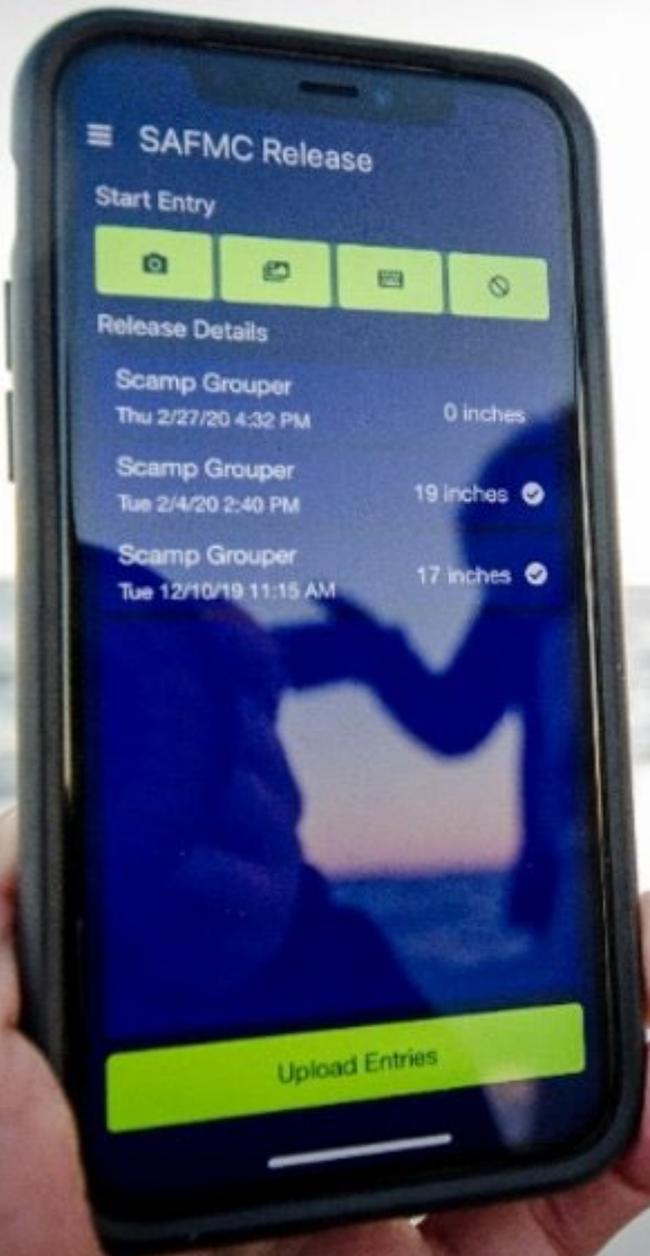


Implement & analyze survey

Interview results available

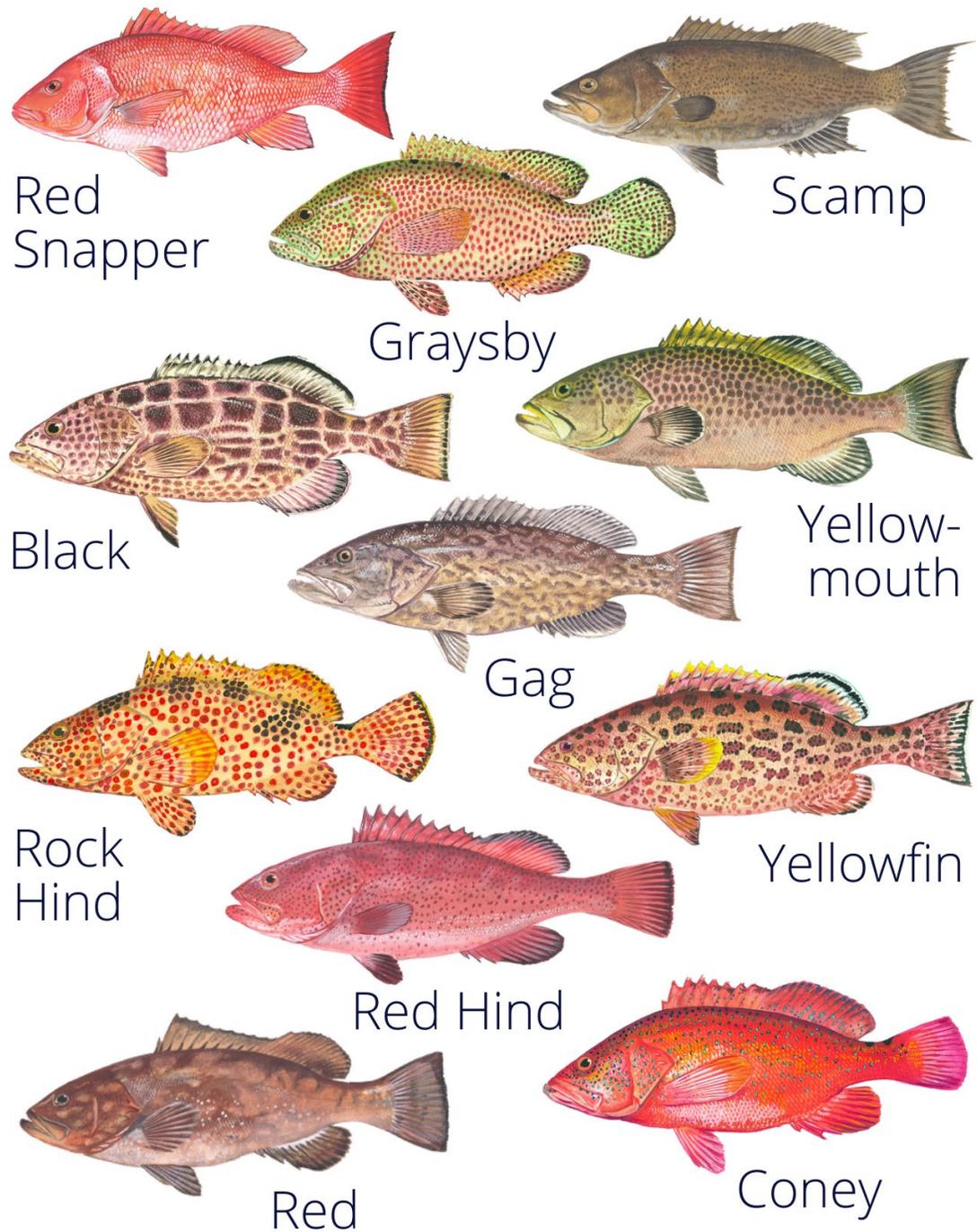


[https://safmc.net/documents/2022/05/citsci\\_a1\\_safmc\\_stakeholderassessment1.pdf/](https://safmc.net/documents/2022/05/citsci_a1_safmc_stakeholderassessment1.pdf/)



# SAFMC Release

# Updates



- Added Red Snapper in April 2022
- Volunteers are logging shallow water grouper & Red Snapper data in SciFish app
- Outreach, recruitment, and retention push

# Outreach Strategies



## Partnerships

- Best Fishing Practices
- NCDMF: mailing to licensed recreational saltwater anglers & laminated flyers at boat landings
- SCDNR: Governor's Cup & Charter Summits



## Tackle shop visits



## SAFMC Release newsletter



## Seminars & Conferences

- Haddrell's in Charleston, SC
- ICAST in Orlando, FL

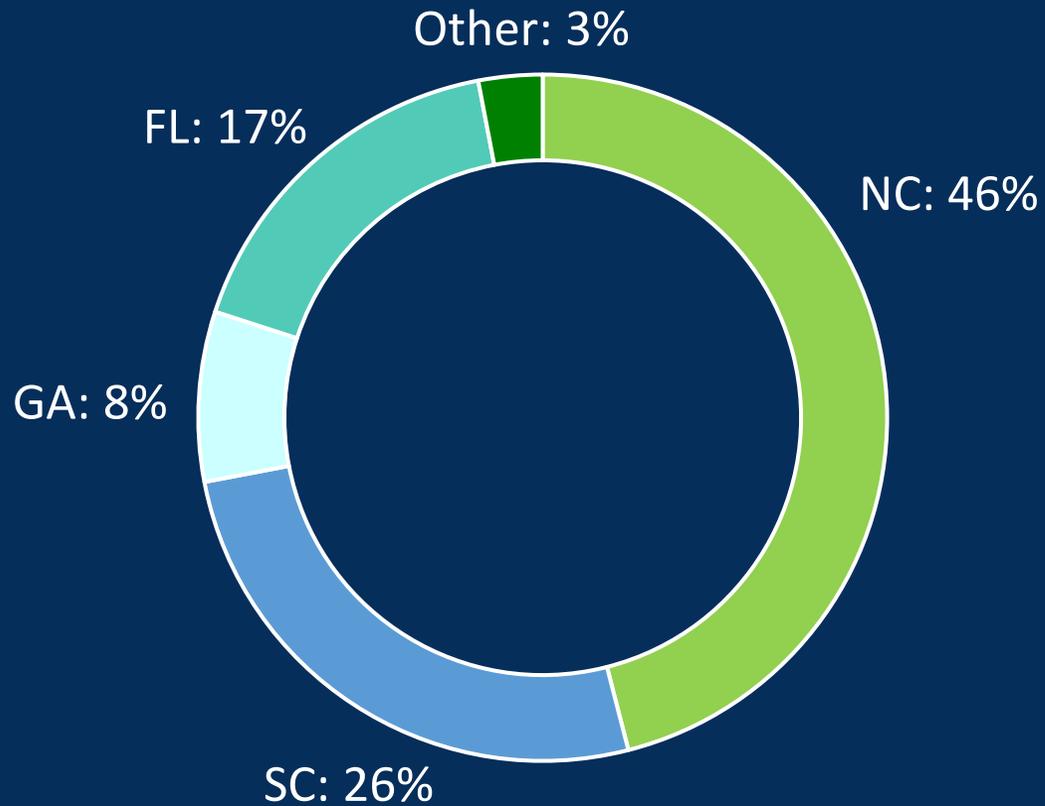


## Social media

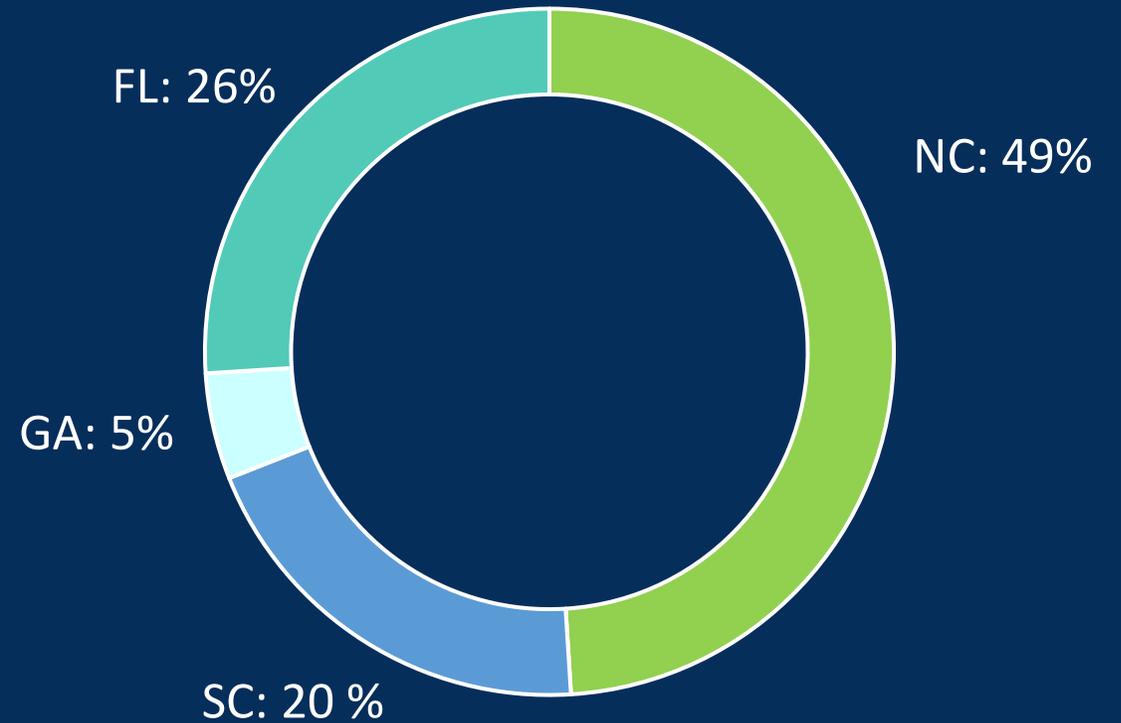


# SAFMC Release Accounts

Percentage of sign ups by state

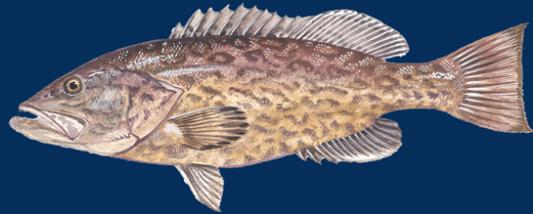


Percentage of releases logged by state





# Percent of Releases Logged by Species



**Gag 49%**



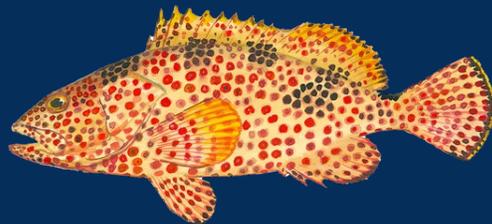
**Red Snapper 21 %**



**Scamp 14%**



**Red 9%**



**Rock Hind 3%**



**Black Grouper 2%**



**Graysby 2%**



Citizen  
Science

# FISHstory



A SAFMC CitSci Project



# FISHstory wouldn't be possible without so many amazing partners & volunteers!



- Rusty Hudson, Ken Brennan, Amber Von Harten & Allie Iberle
- FISHstory Design & Validation Teams
- FISHstory Length Analysts
- FISHstory Zooniverse Volunteers
- Outreach Partners
- Many Council Staff
- NOAA Fisheries - Fisheries Information System Program

# FISHstory Project Components

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Digitize & archive  
historic photos



Over 1,374 photos digitized & archived



For-hire catch  
composition in  
Zooniverse



Over 2,120 volunteers made 35,740  
classifications  
Validation Team reviewed 180 photos



Method to estimate  
length - test on  
King Mackerel



All 1,374 photos reviewed for King  
Mackerel

# Historical Photo Overview

Percentage of photos by decade  
Photo range: 1949 - 1975



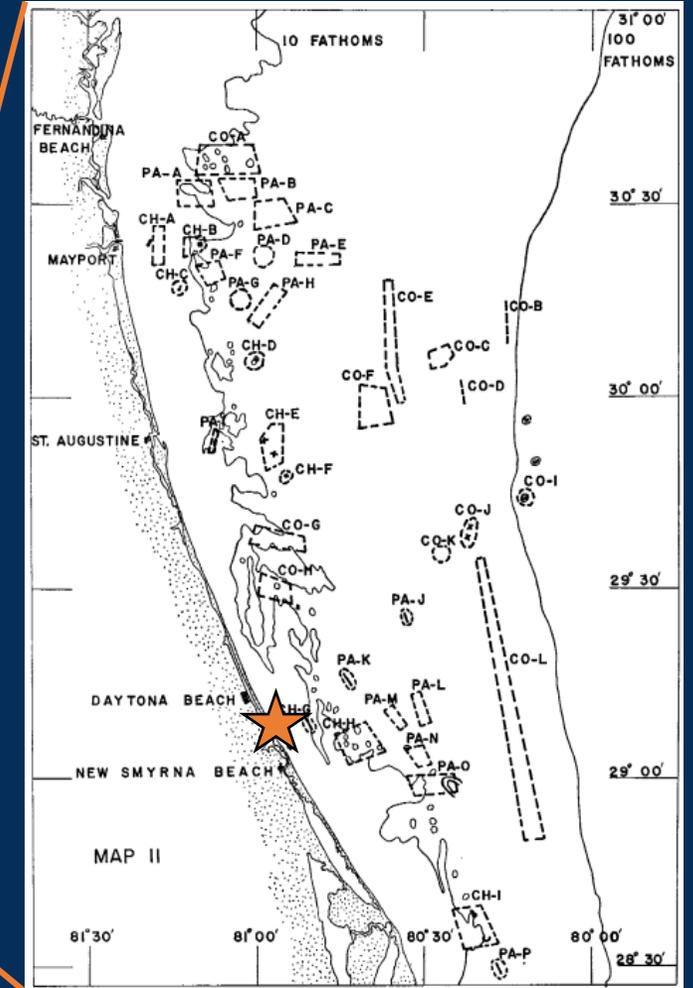
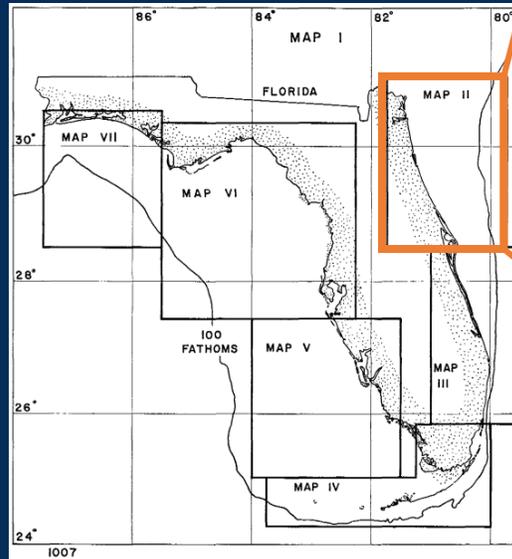
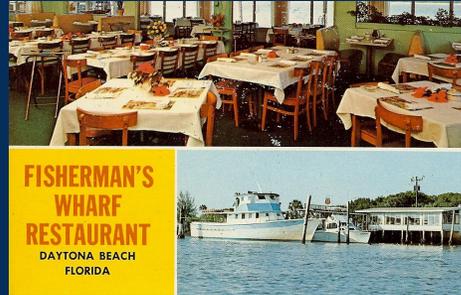
Percentage of photos by month



# Historical Photo Overview

Photo Location:  
Daytona Beach, FL

Photos from fishing trips  
departing from :  
Inlet Harbor & Timmons Fish  
Camp



Moe, M. A. (1963). A Survey of Offshore Fishing in Florida (Rep. No. Four).

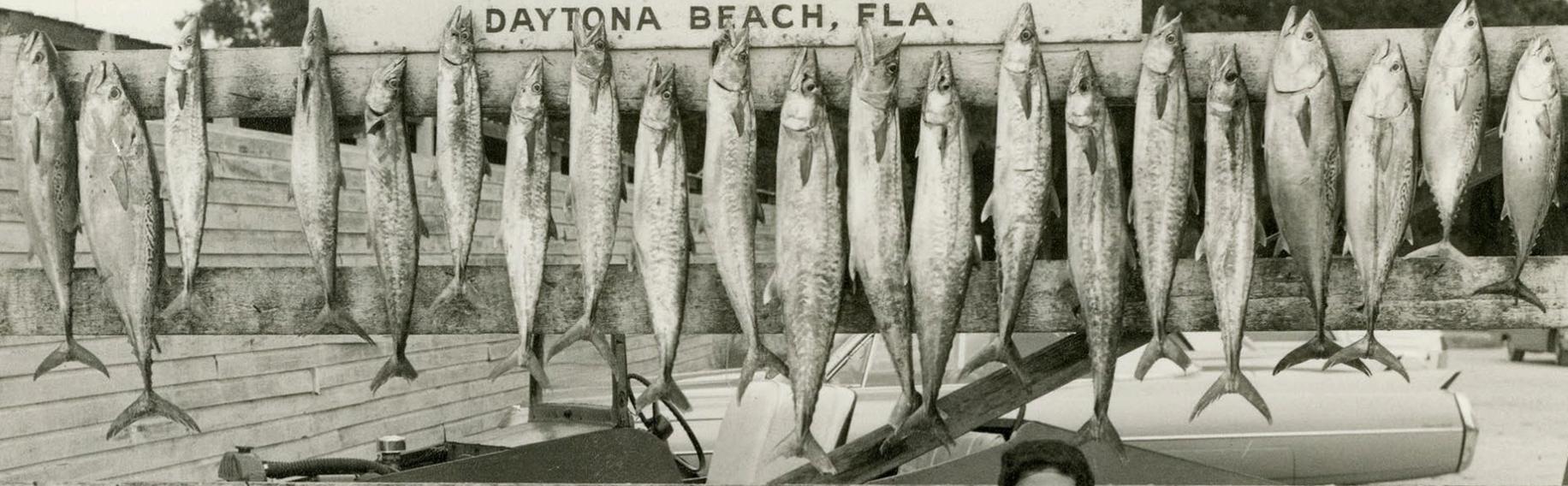
# Historical Photo Overview

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88% of photos from 5 vessels



CAUGHT AT **TIMMONS** CL 3-5825  
**FISHING CAMP**  
DAYTONA BEACH, FLA.



CAUGHT AT  
**FISHERMAN'S PARADISE**  
DAYTONA BEACH, FLA. CALL 767-7676



# For-Hire Catch: Process

## Pre-launch



BUILD PROJECT IN  
ZONIVERSE



DEVELOP  
TRAINING  
MATERIALS



RECRUIT & TRAIN  
VALIDATION TEAM  
MEMBERS



BETA TEST IN  
ZONIVERSE &  
ADJUST

## Post-launch



BATCH & ADD  
PHOTOS



IDENTIFY PHOTOS  
FOR &  
COORDINATE  
VALIDATION TEAM  
REVIEW



VOLUNTEER  
OUTREACH &  
ENGAGEMENT



DATA ANALYSIS

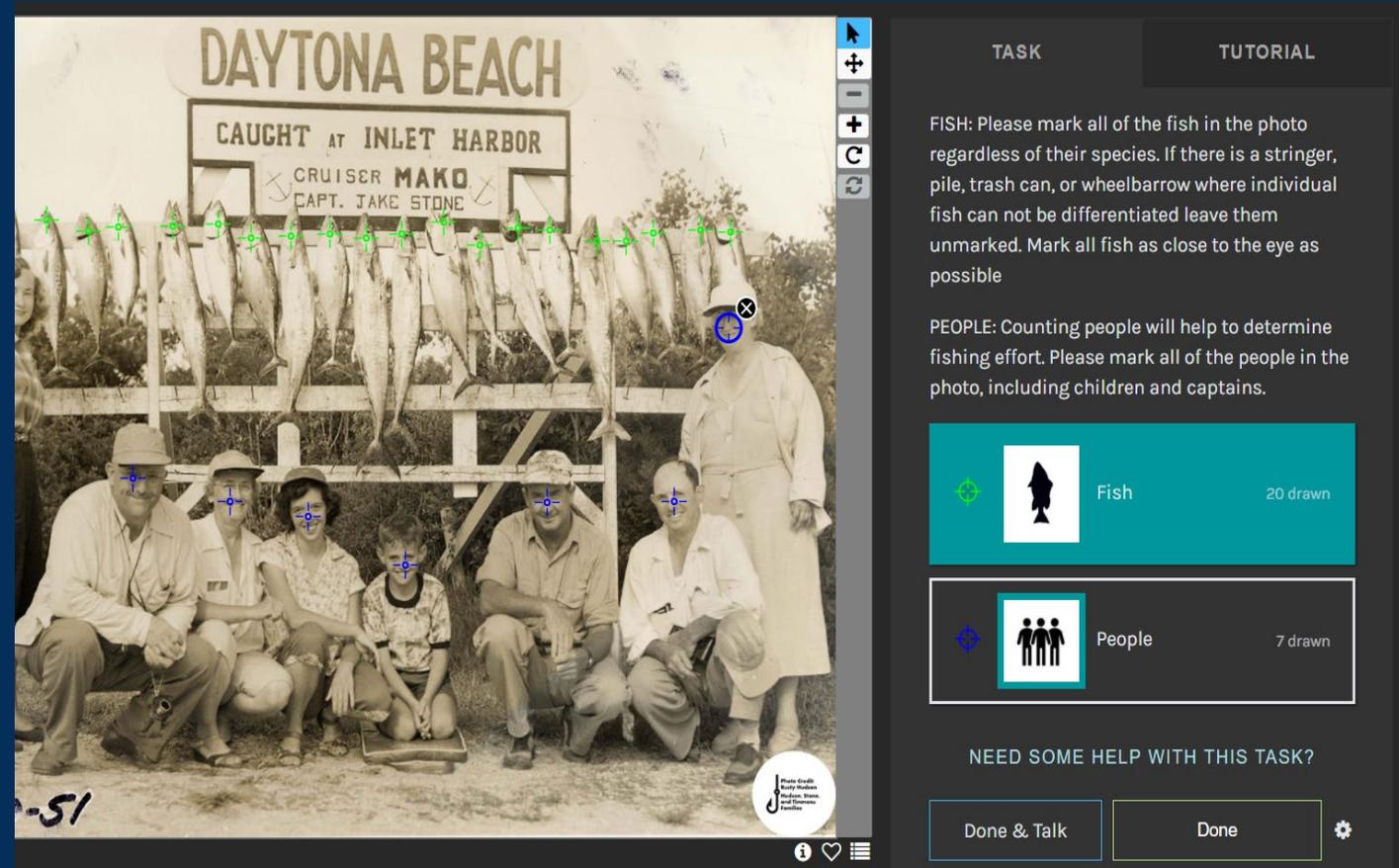


**SHARE RESULTS**

# Zooniverse Workflows

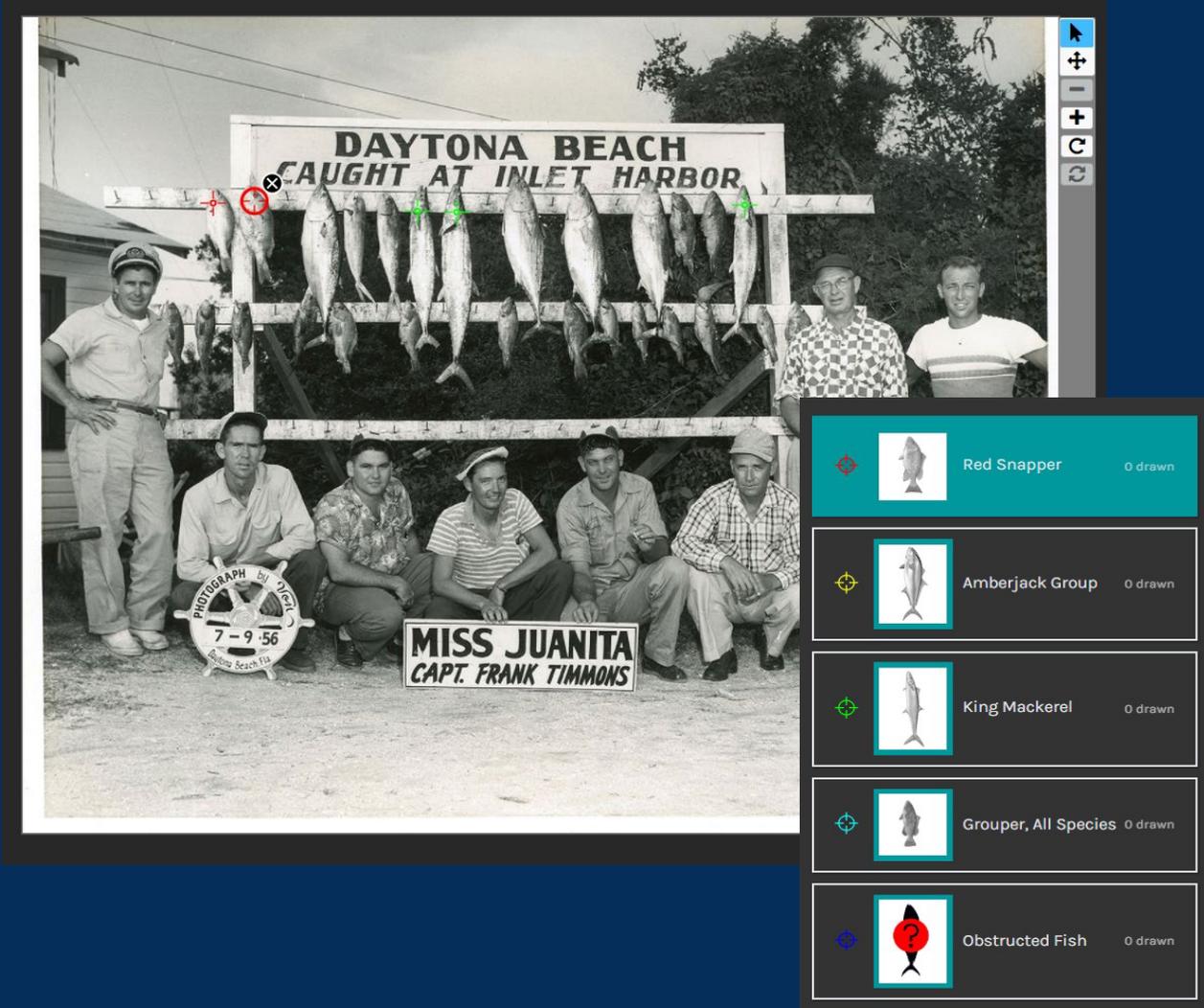
## FISH & PEOPLE: Count

- Count the total number of fish and people in the photos
- 10 volunteers per photo
- No Validation Team Review
- 1,374 photos complete



The screenshot displays a Zooniverse workflow interface. On the left, a vintage black and white photograph shows a group of seven people (six men and one child) posing in front of a wooden sign. The sign reads "DAYTONA BEACH" at the top, "CAUGHT AT INLET HARBOR" below it, and "CRUISER MAKO" and "CAPT. JAKE STONE" at the bottom. A large catch of fish is hanging from a rack behind the group. Several blue crosshair markers are overlaid on the image, identifying individual fish and people. On the right, a dark grey task panel is visible. It has two tabs: "TASK" and "TUTORIAL". The "TASK" tab is active. Below the tabs, there are two instructions: "FISH: Please mark all of the fish in the photo regardless of their species. If there is a stringer, pile, trash can, or wheelbarrow where individual fish can not be differentiated leave them unmarked. Mark all fish as close to the eye as possible" and "PEOPLE: Counting people will help to determine fishing effort. Please mark all of the people in the photo, including children and captains." Below the instructions, there are two task cards. The first card is teal and shows a fish icon, the label "Fish", and "20 drawn". The second card is dark grey and shows a group of people icon, the label "People", and "7 drawn". At the bottom of the task panel, there is a question "NEED SOME HELP WITH THIS TASK?" and two buttons: "Done & Talk" and "Done". A gear icon is also present.

# Zooniverse Workflows



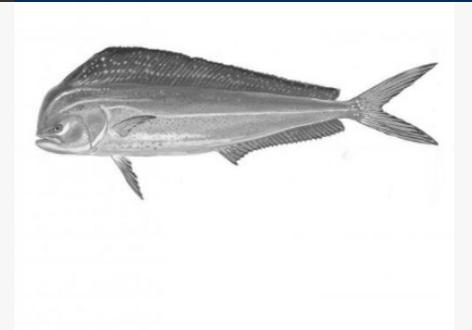
## FISH: Classify

- Identify fish into 16 species or species groups
- Document obstructed fish
- Tiered data collection via two tasks
- 20 volunteers per photo
- Validation Team review when substantial disagreement
- 1,000 photos complete

# Zooniverse Workflows

Shape	Tail
 Snapper, Other	 Dolphin Fish/Mahi
 Jack, Other	 Flounder
 Hammerhead Shark	 Gray Triggerfish
 Shark, Other	 Little Tunny
 Black Sea Bass	 Porgy/Grunt
 Cobia	 Other

Showing 12 of 12 [Clear filters](#)



## Dolphin Fish/Mahi

Dolphin Fish are brilliantly colored with blue, green, and yellow however this coloring fades once the fish dies. Male Dolphin Fish have a vertical, wide forehead with a body that tapers to the tail. Females have a softer sloping forehead (see last image). These fish have a single dark dorsal fin that runs from behind the head to the tail. The tail of this fish is long and narrowly forked.

How many of this species or species group are present in the photo?

1 2 3 4 5 6-10 11-15 16+

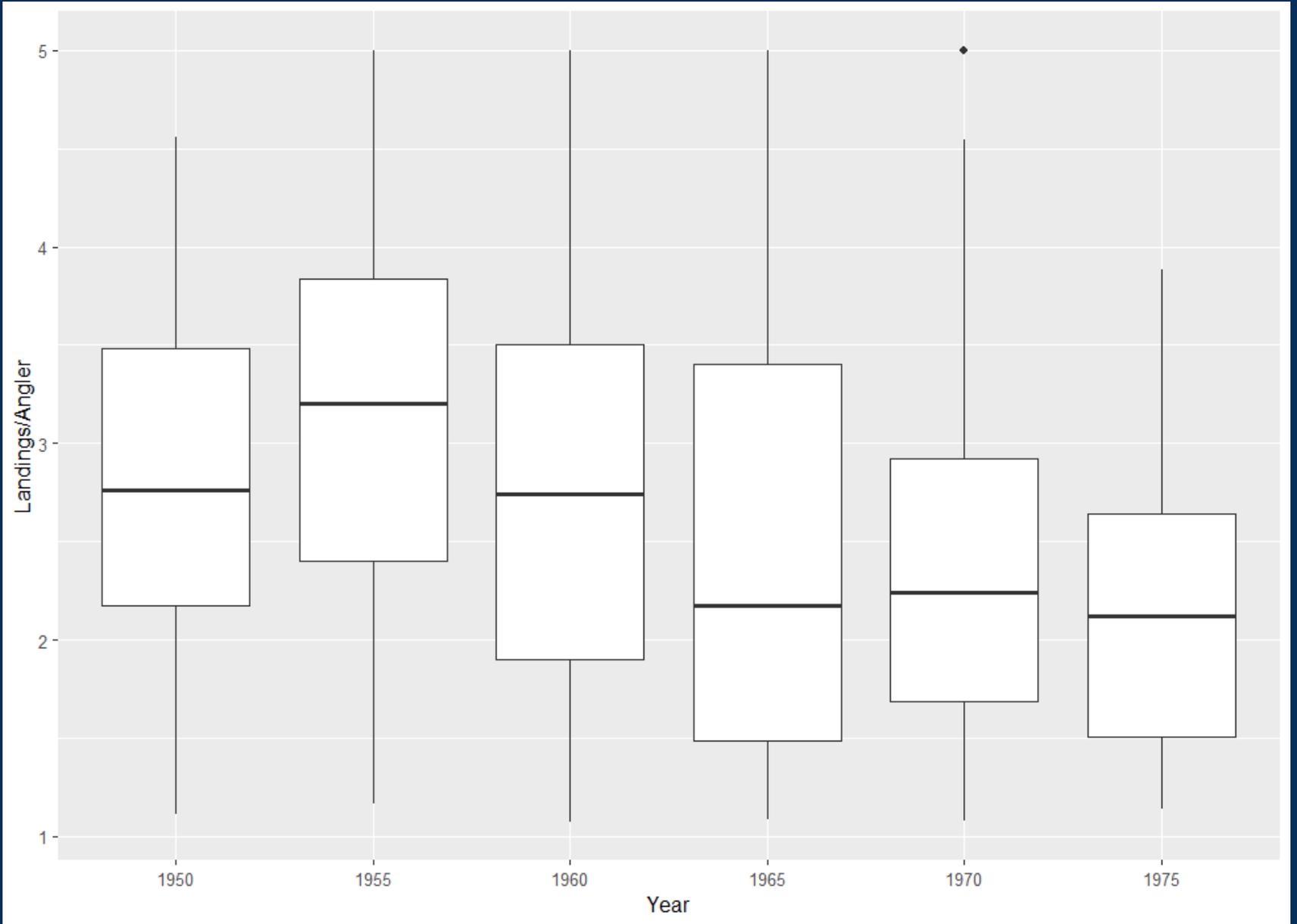
Cancel

Identify

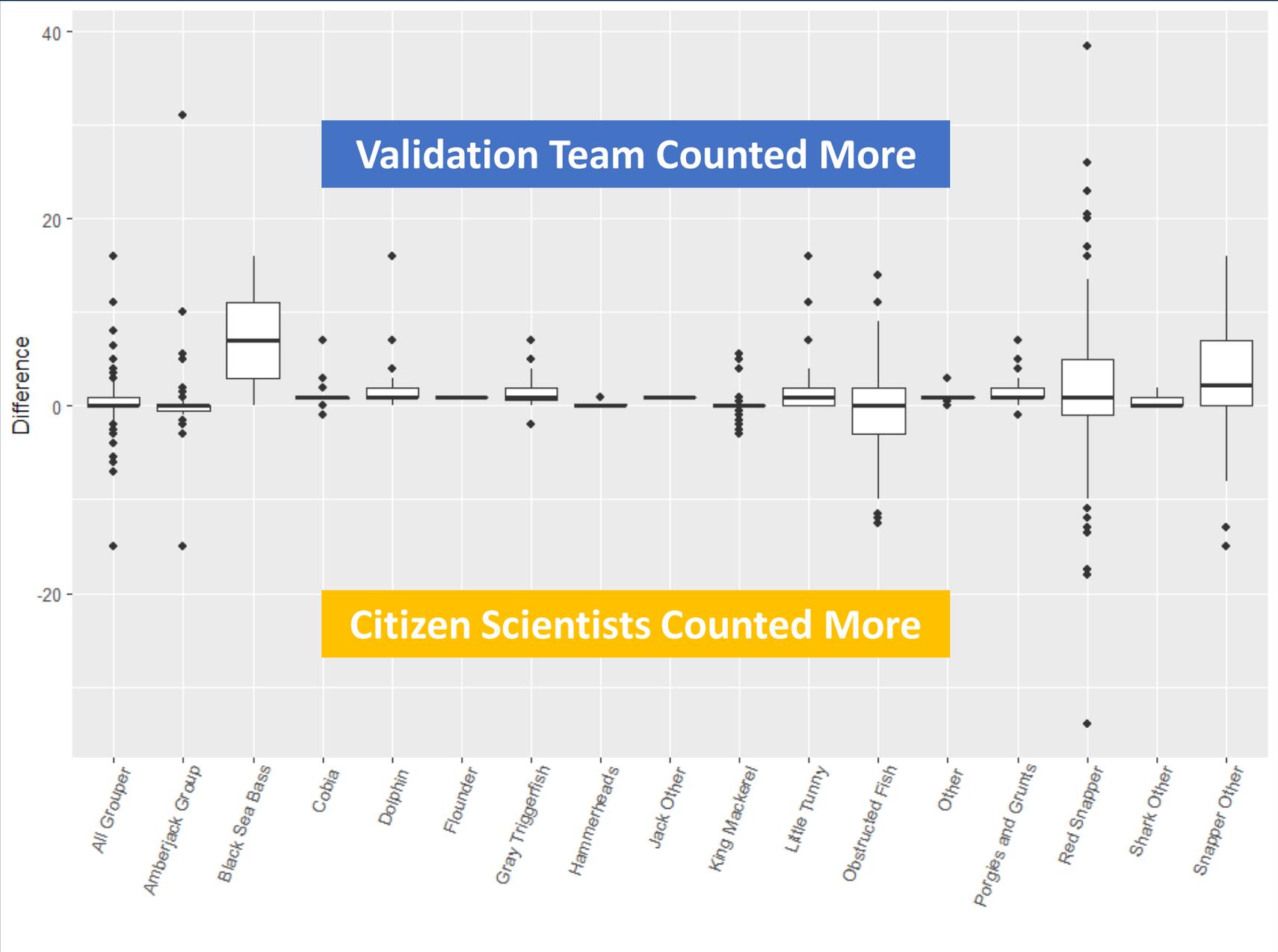
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- Identify fish into 16 species or species groups
- Document obstructed fish
- Tiered data collection via two tasks
- 20 volunteers per photo
- Validation Team review when substantial disagreement
- 1000 photos complete

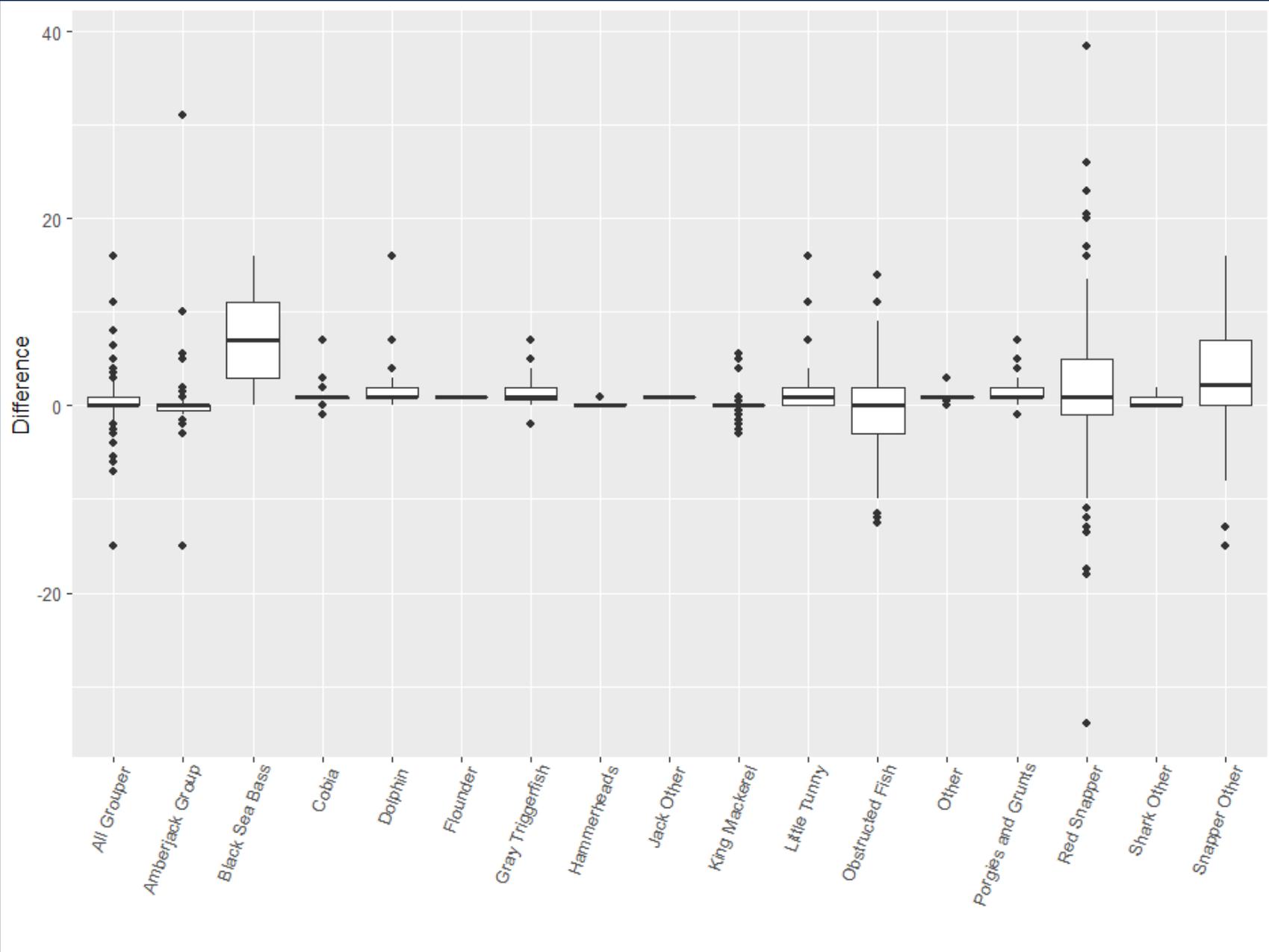
Total landings per angler in 5-year time blocks



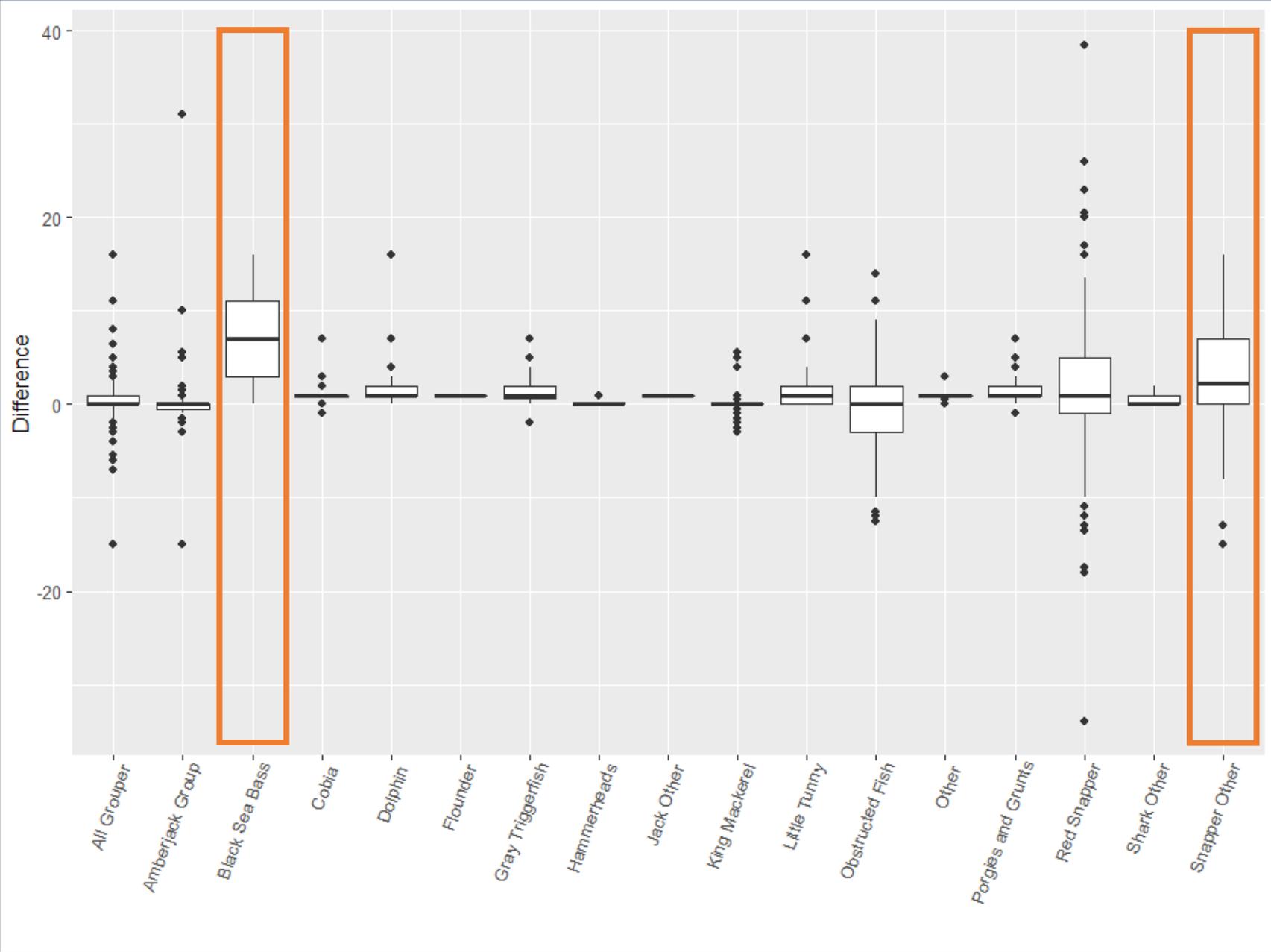
Comparison  
of Validation  
Team &  
Citizen  
Scientists



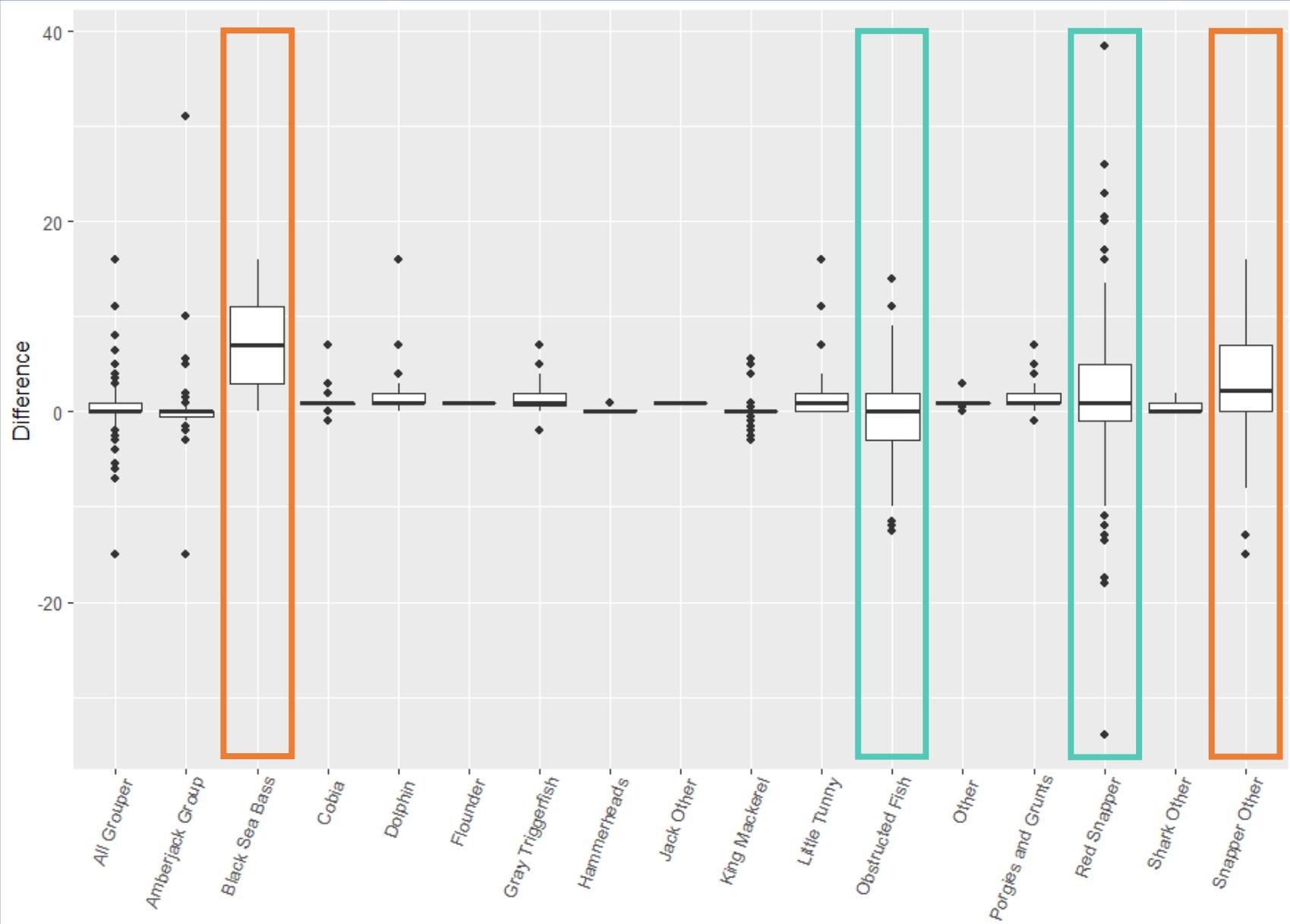
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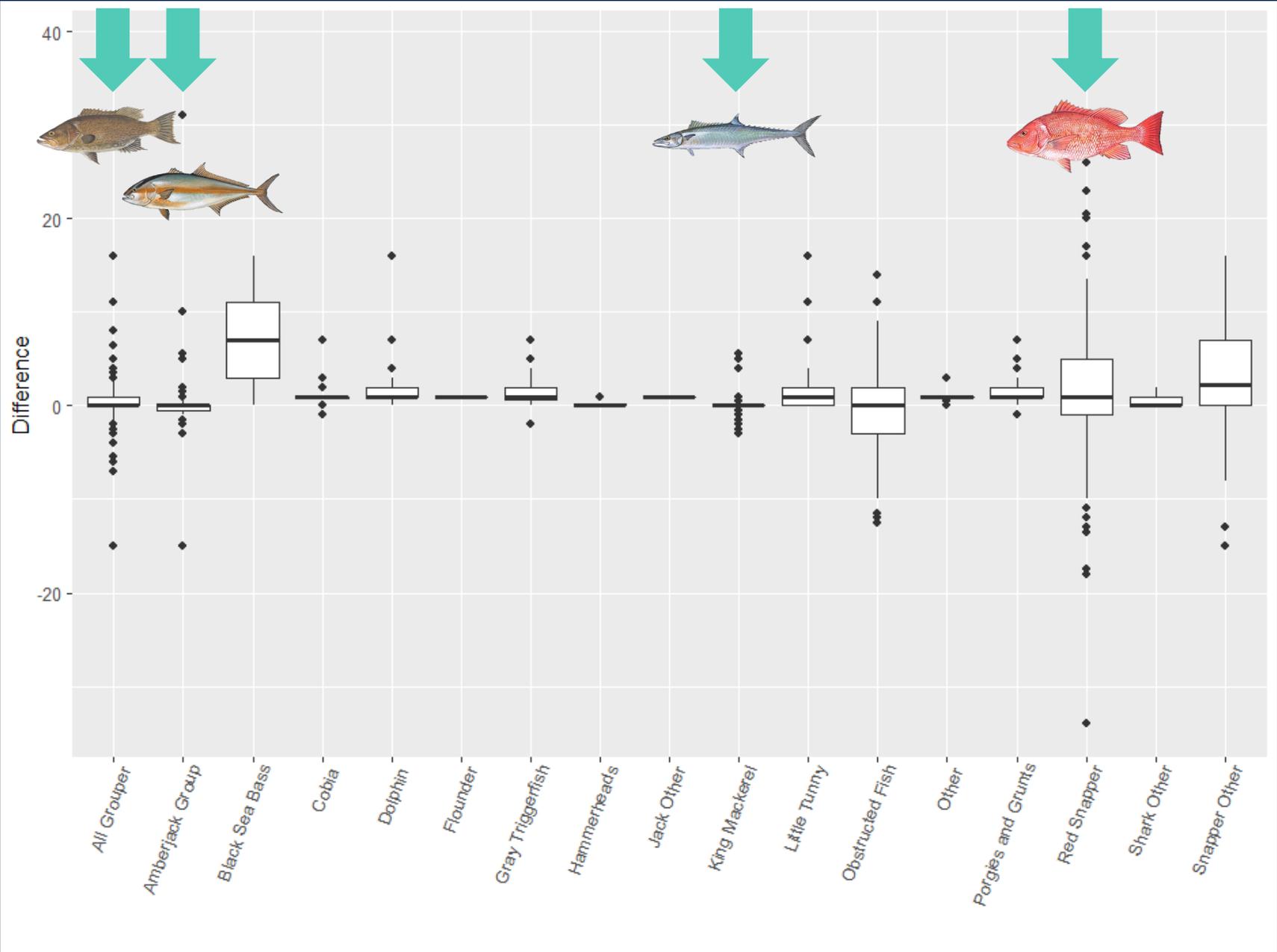
# Comparison of Validation Team & Citizen Scientists



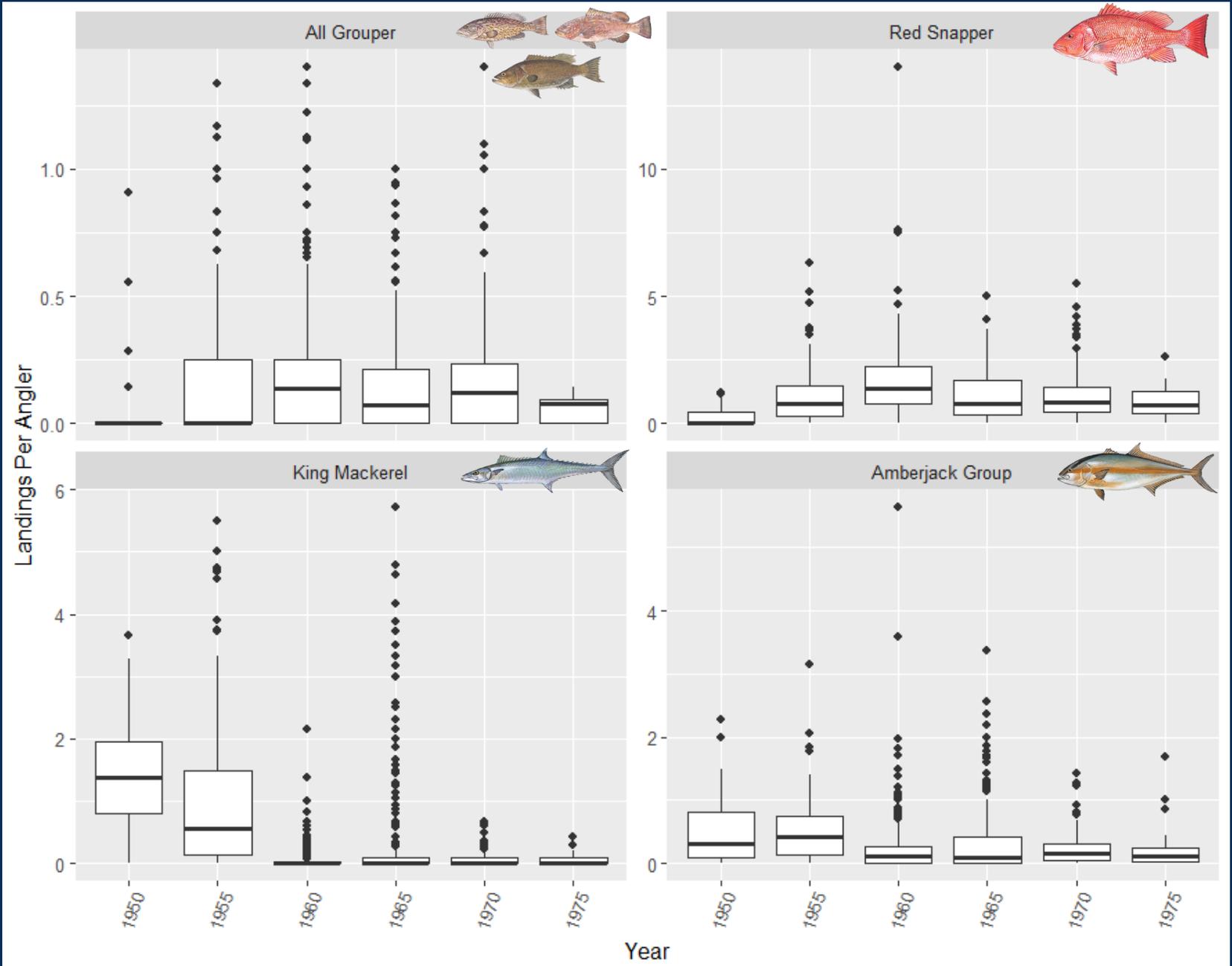
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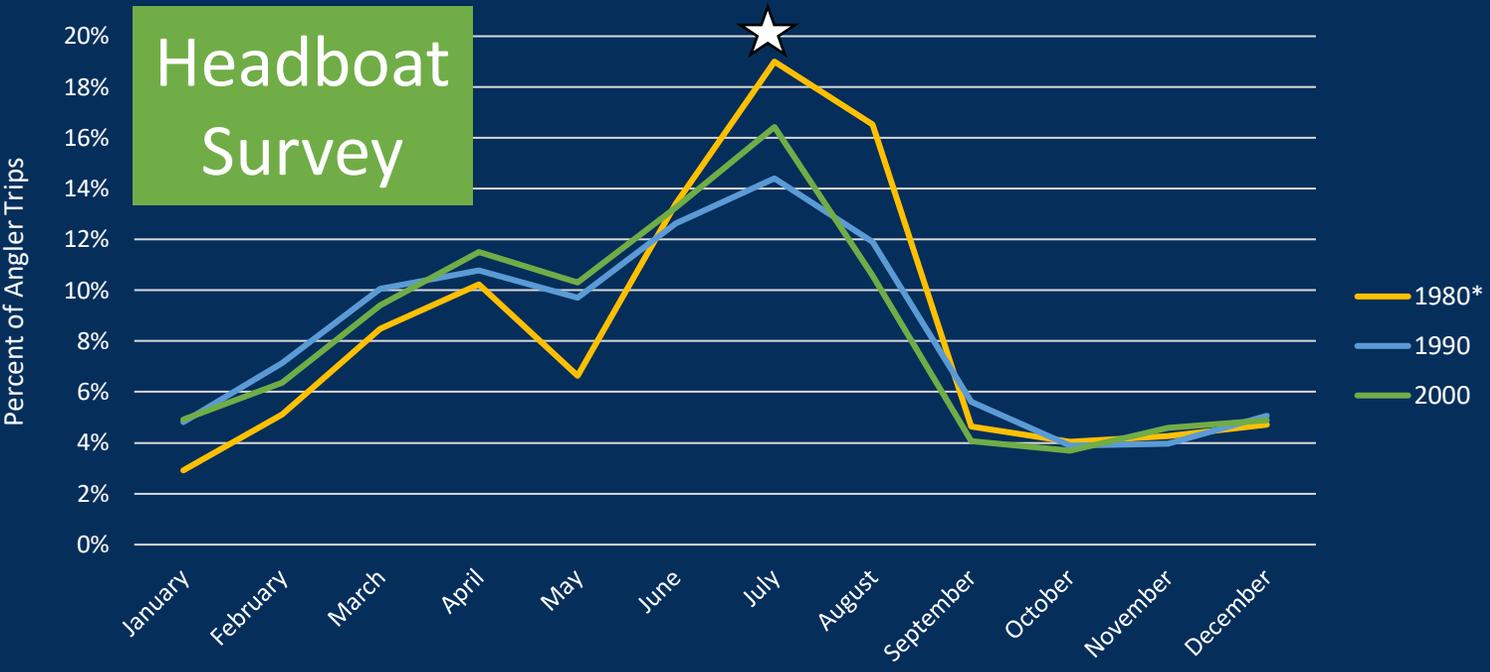
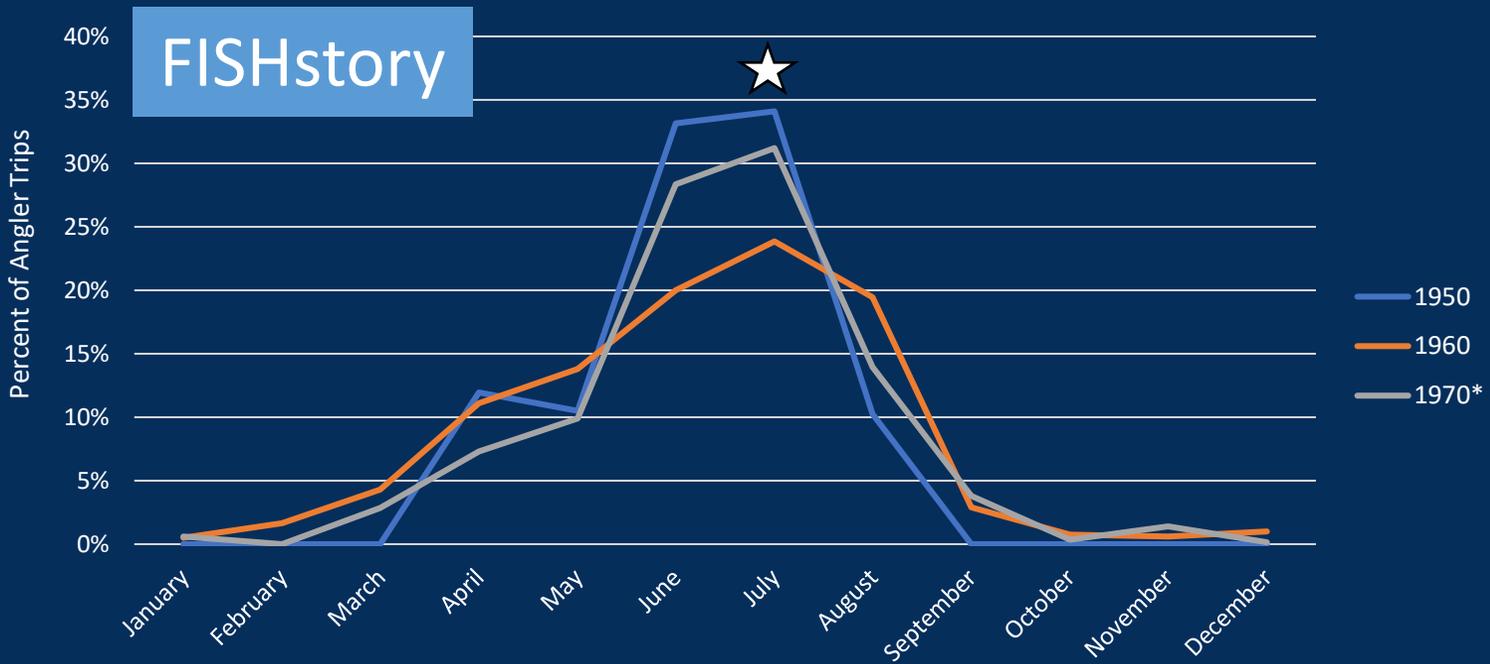
# Comparison of Validation Team & Citizen Scientists



Landings per angler for mark species in 5-year time blocks



Comparison of angler trips between FISHstory & Headboat Survey by decade



Comparison of  
mark species  
between  
FISHstory &  
Headboat  
Survey

Species Groups	FISHstory			Headboat Survey		
	1950	1960	1970	1980	1990	2000
<b>All Grouper</b> 	4	3	3	3	2	1
<b>Amberjack Group</b> 	3	2	2	2	3	3
<b>King Mackerel</b> 	1	4	4	4	4	4
<b>Red Snapper</b> 	2	1	1	1	1	2

# FISHstory: Length Component

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- Method developed to measure fish length



Identify scalar &  
develop protocol



Test protocol



Train length analysts

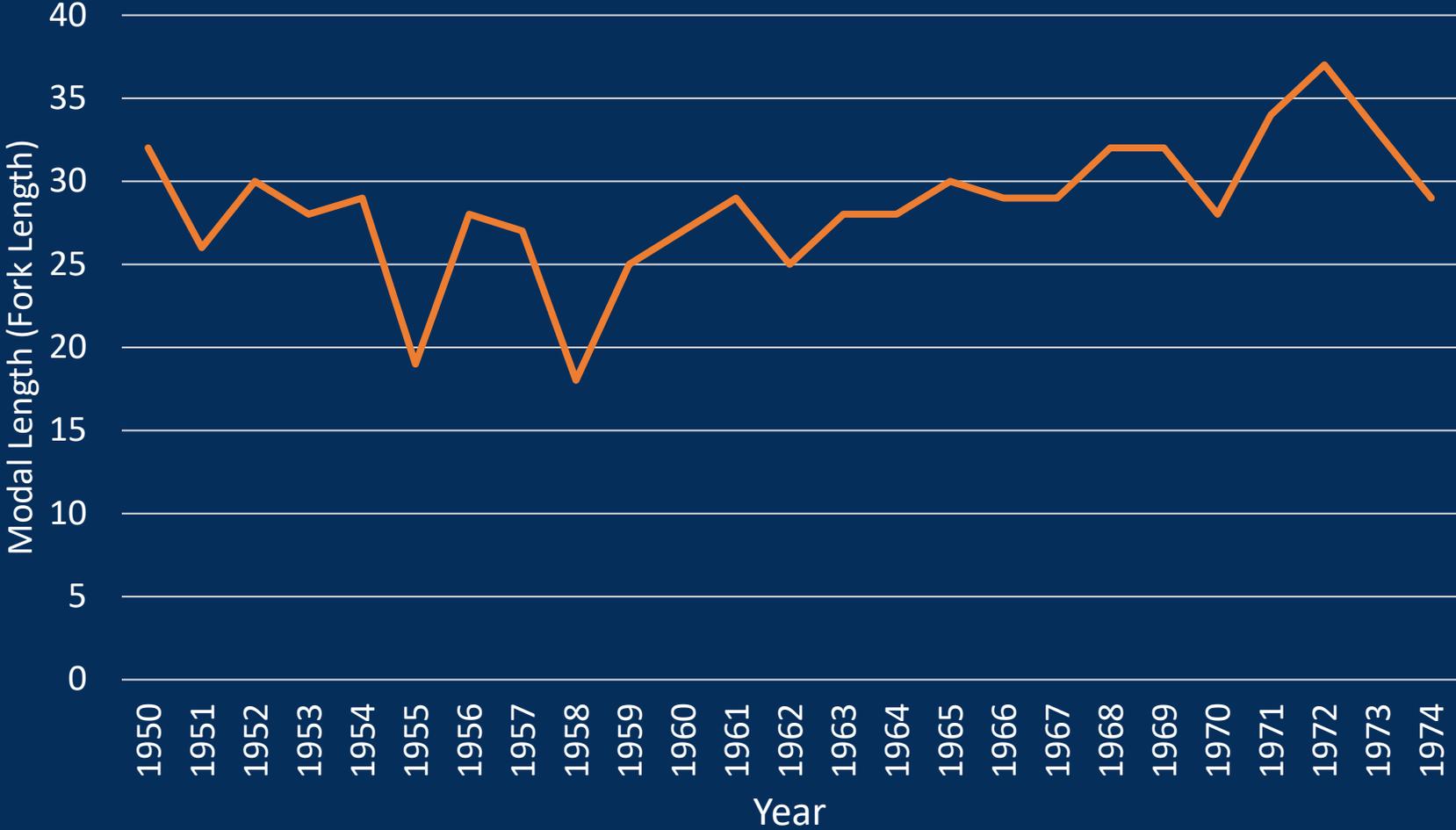


Coordinate & measure  
King Mackerel

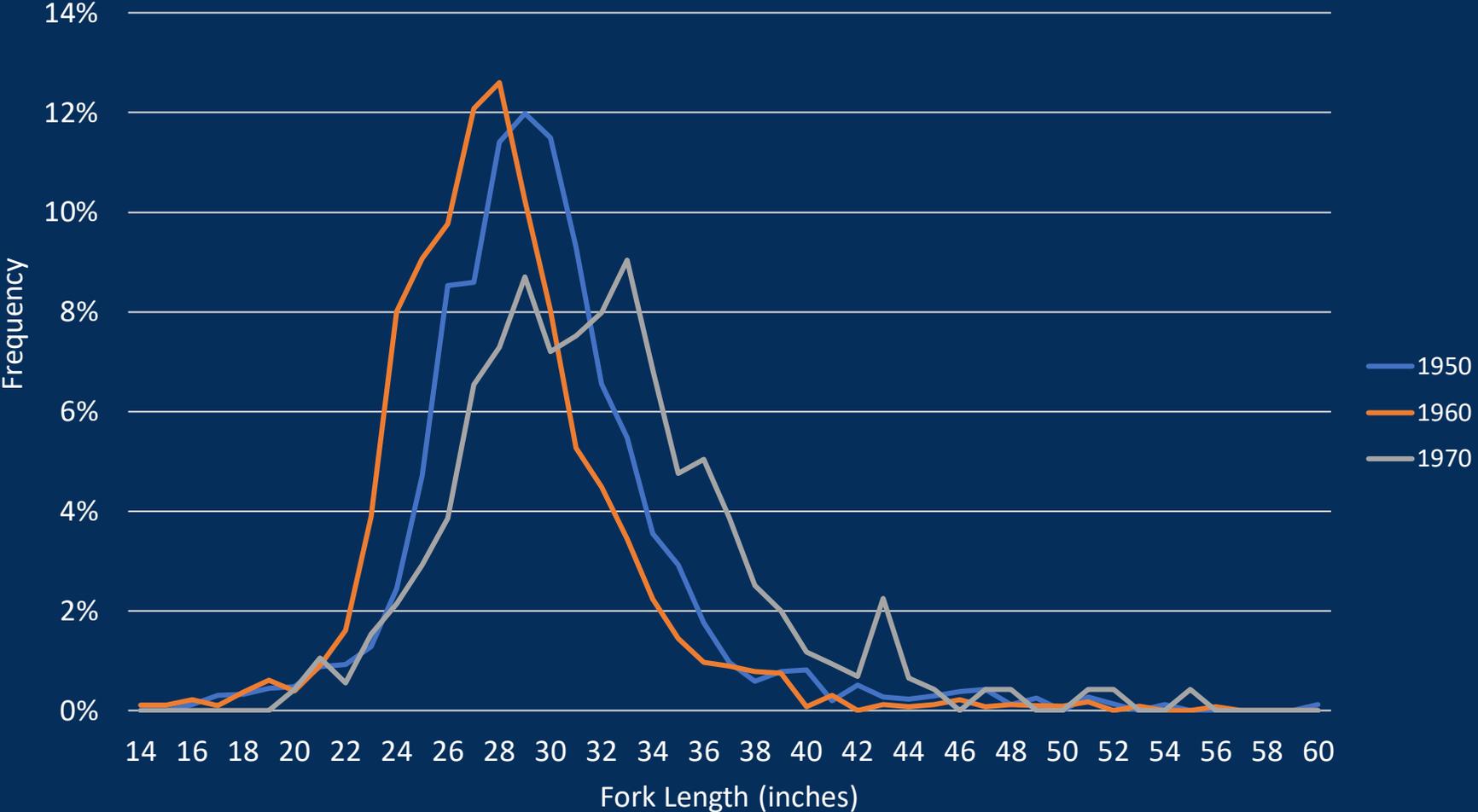


Share Results

King Mackerel  
modal length  
by year



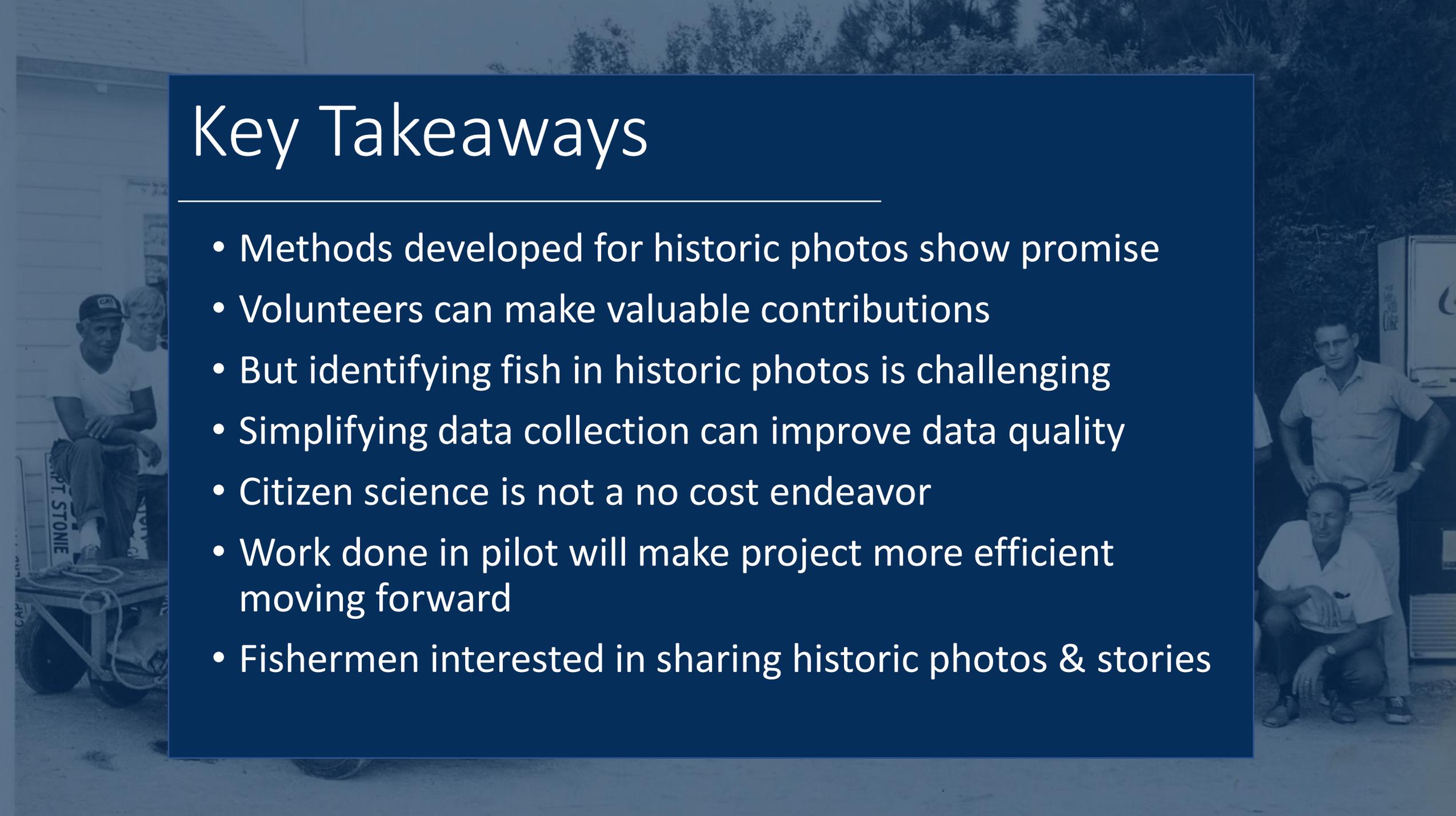
FISHstory  
length  
compositions  
by decade



# Key Takeaways

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- Methods developed for historic photos show promise
- Volunteers can make valuable contributions
- But identifying fish in historic photos is challenging
- Simplifying data collection can improve data quality
- Citizen science is not a no cost endeavor
- Work done in pilot will make project more efficient moving forward
- Fishermen interested in sharing historic photos & stories



# Next Steps

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- Move from pilot to full scale project



Pursue  
funding to  
grow project



Expand  
geographic &  
temporal range  
of photos



Improve  
efficiency of  
processes



Estimate length  
compositions  
for more  
species



Explore oral  
history  
component

**Keep Up with Projects & the Program!**  
<http://safmc.net/citizen-science-program/>



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