



Citizen Science

Citizen Science Program Update

Mackerel Cobia 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



PC: REEF & Daryl Duda

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

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

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



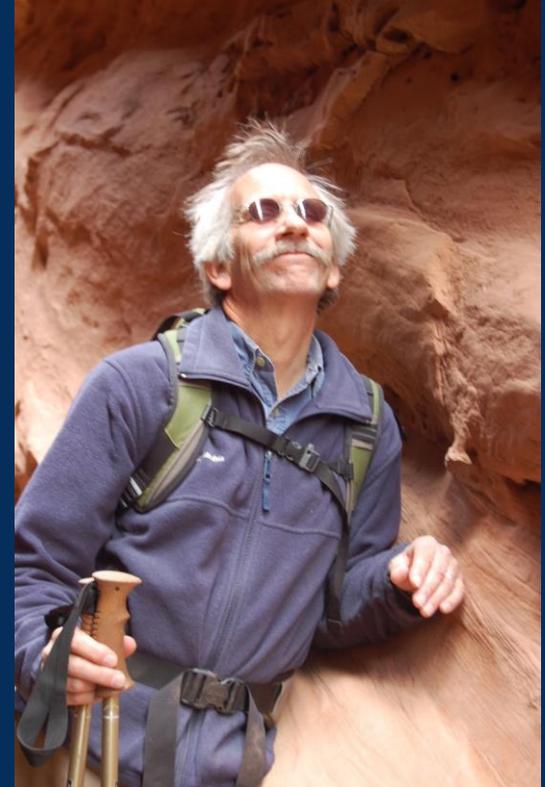
NOAA
FISHERIES





Citizen Science

Initial Program Evaluation Plan



Rick Bonney
Cornell Lab of Ornithology

Initial Program Evaluation Plan

- 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

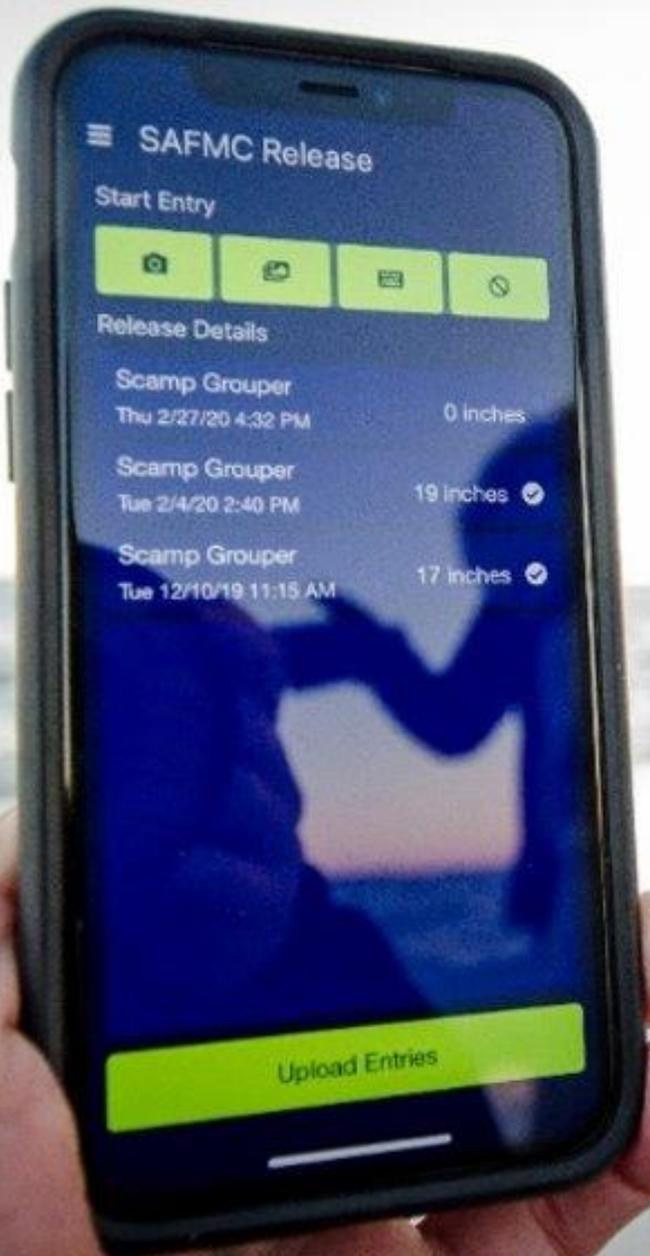


Implement & analyze survey

Interview results available

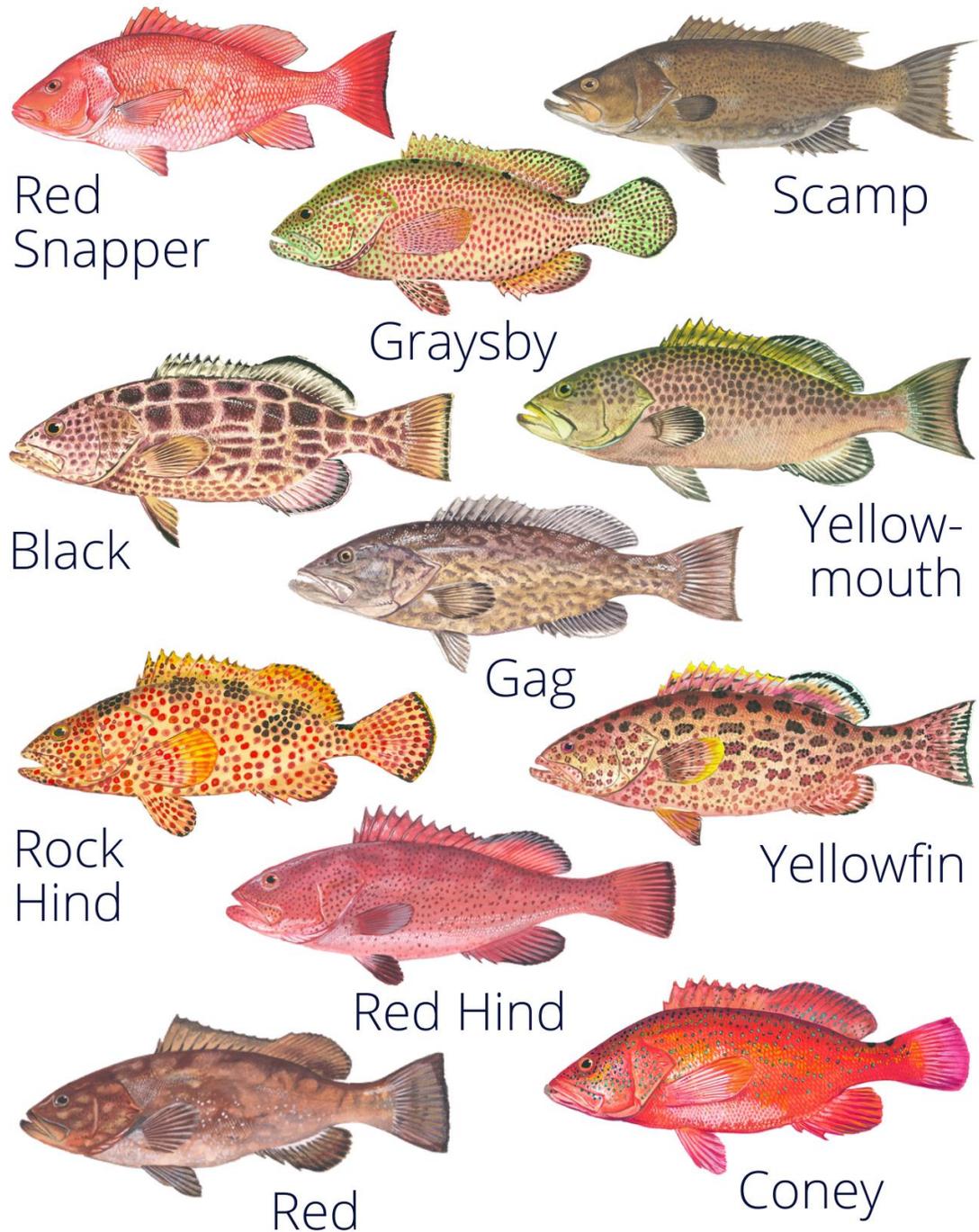


https://safmc.net/documents/2022/05/citsci_a1_safmc_stakeholderassessment1.pdf/



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



Citizen
Science

FISHstory Highlights



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



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

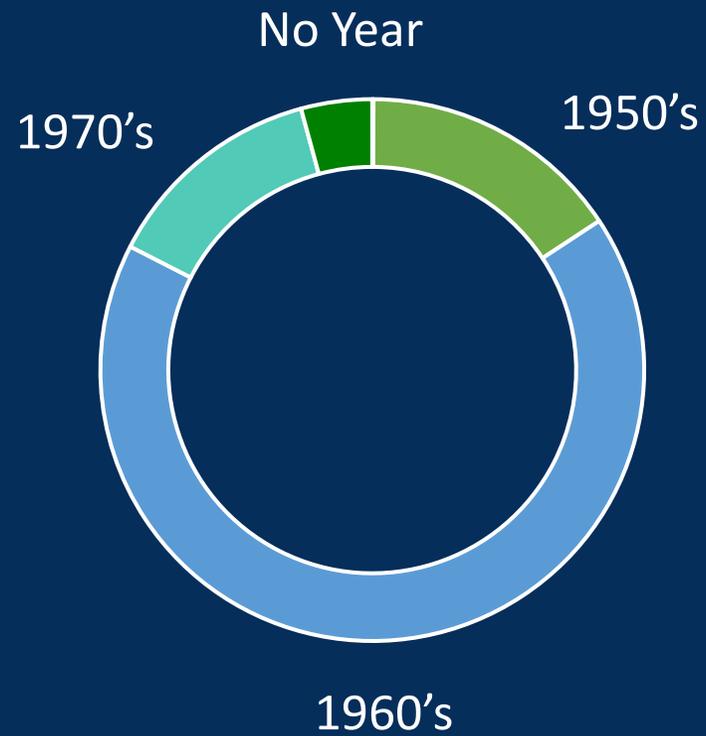


All 1,374 photos reviewed for King Mackerel

Historical Photo Overview

Percentage of photos by decade

Photo range: 1949 - 1975

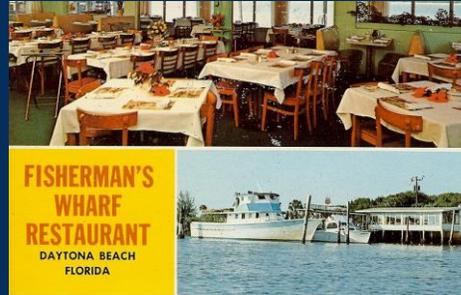


Percentage of photos by month

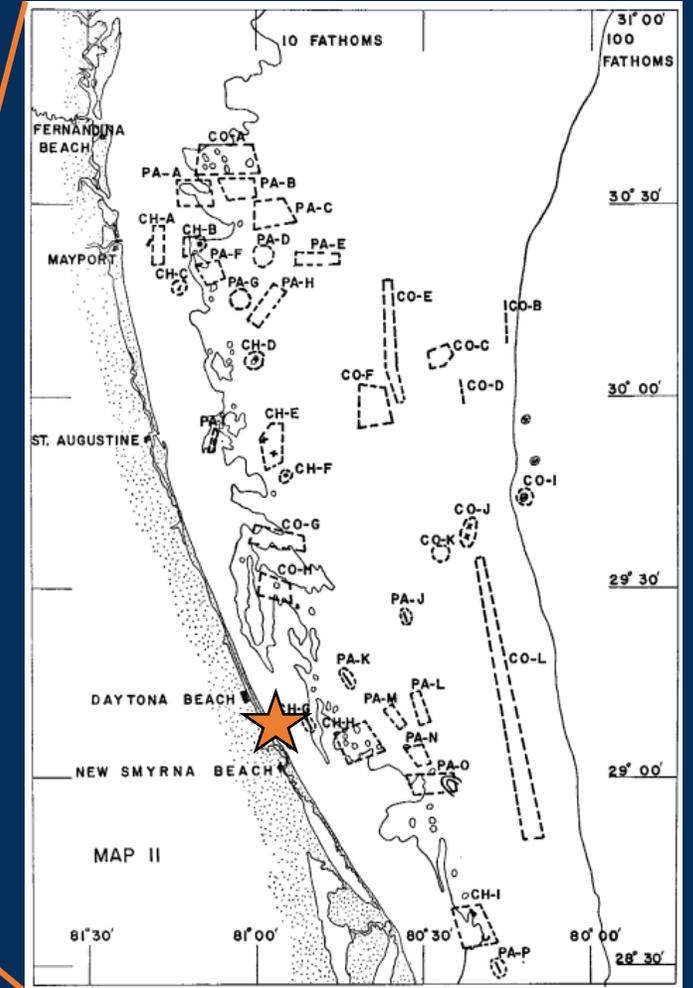
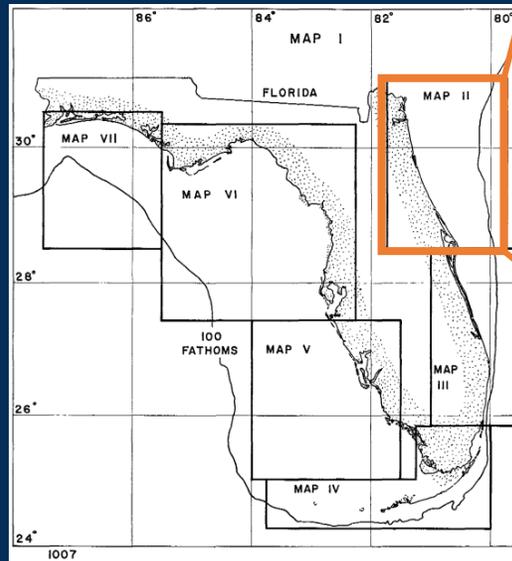


Historical Photo Overview

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

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

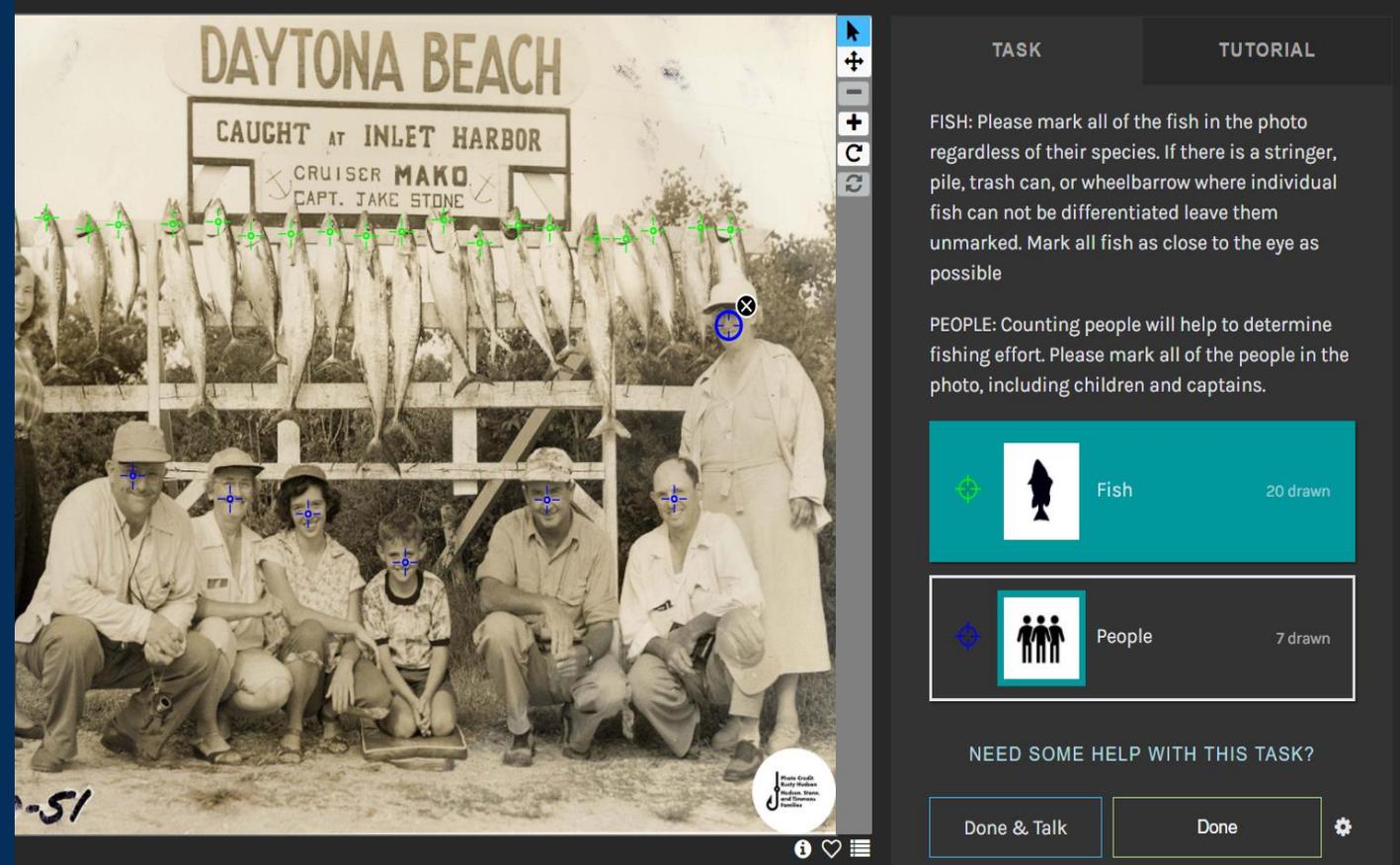


SHARE RESULTS

Zooniverse Workflows

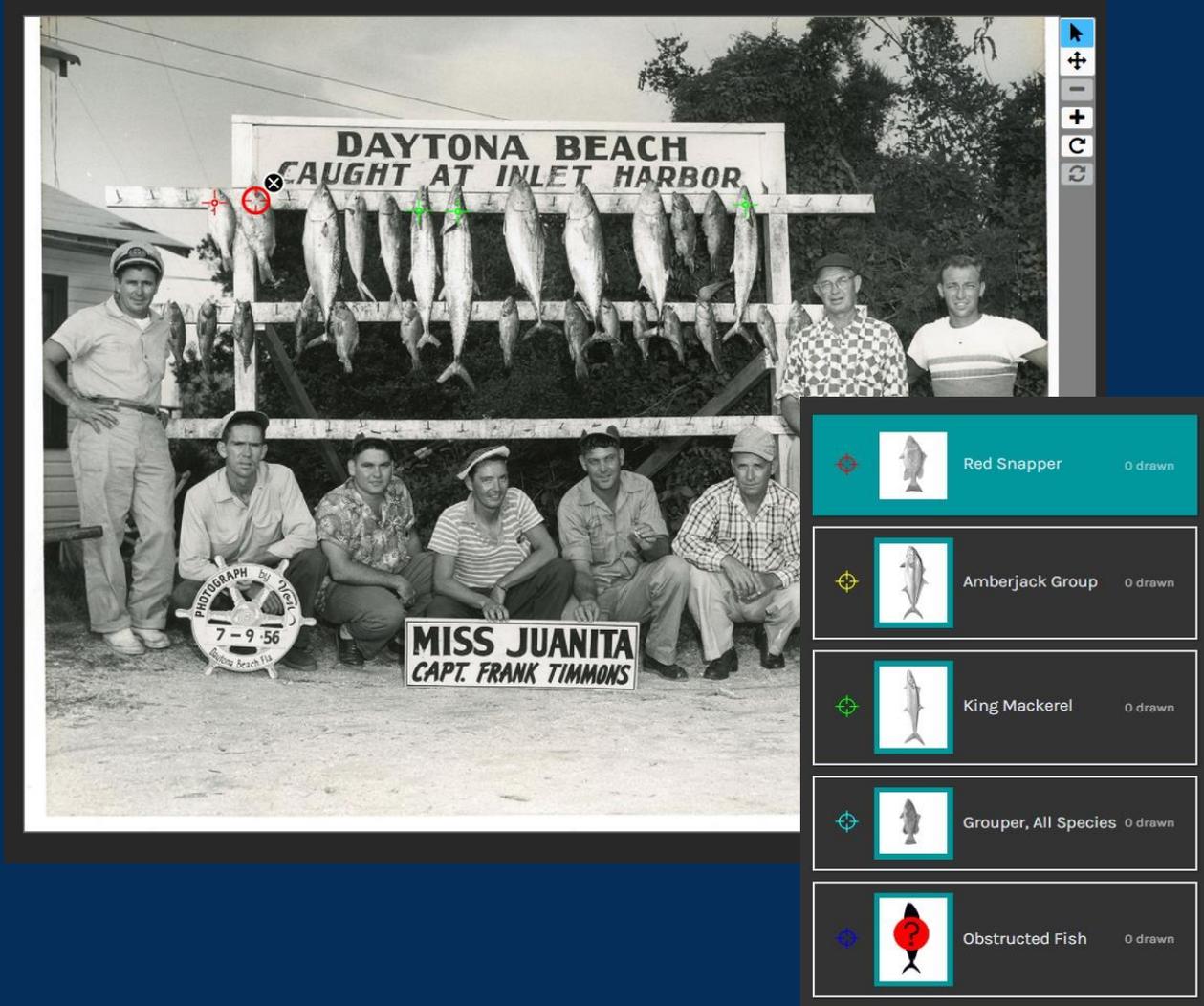
FISH & PEOPLE: Count

- 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 fishing crew. A wooden rack in the background is filled with fish. A sign above the rack reads "DAYTONA BEACH CAUGHT AT INLET HARBOR CRUISER MAKO CAPT. JAKE STONE". Several people are posing in front of the rack. Green and blue markers are overlaid on the image, indicating where users have marked fish and people. On the right, the interface shows a "TASK" tab with a list of tasks: "Fish" (20 drawn) and "People" (7 drawn). Below the task list, there is a question "NEED SOME HELP WITH THIS TASK?" and two buttons: "Done & Talk" and "Done".

Zooniverse Workflows



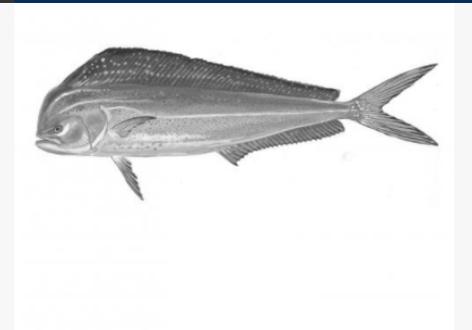
FISH: Classify

- 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+

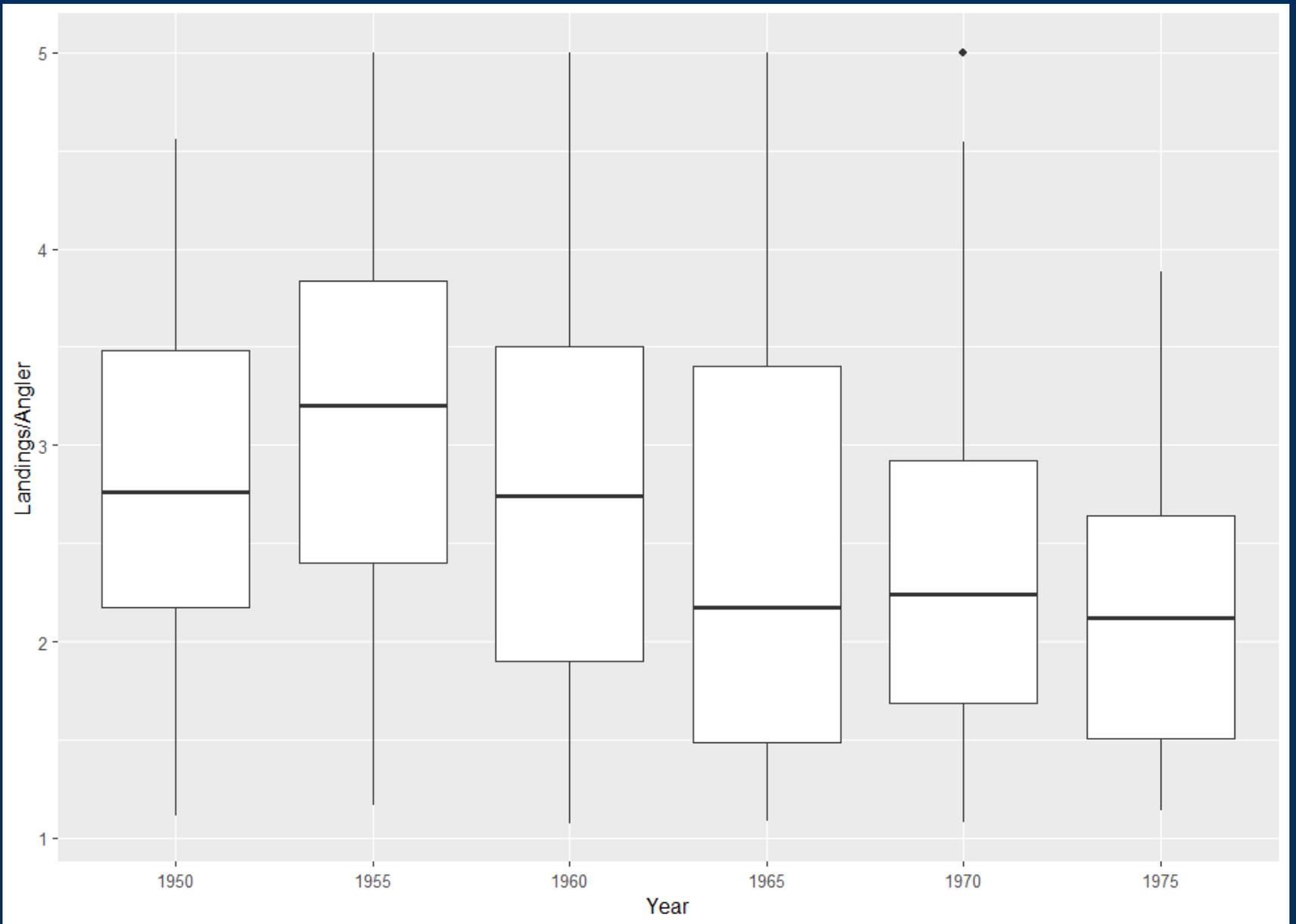
Cancel

Identify

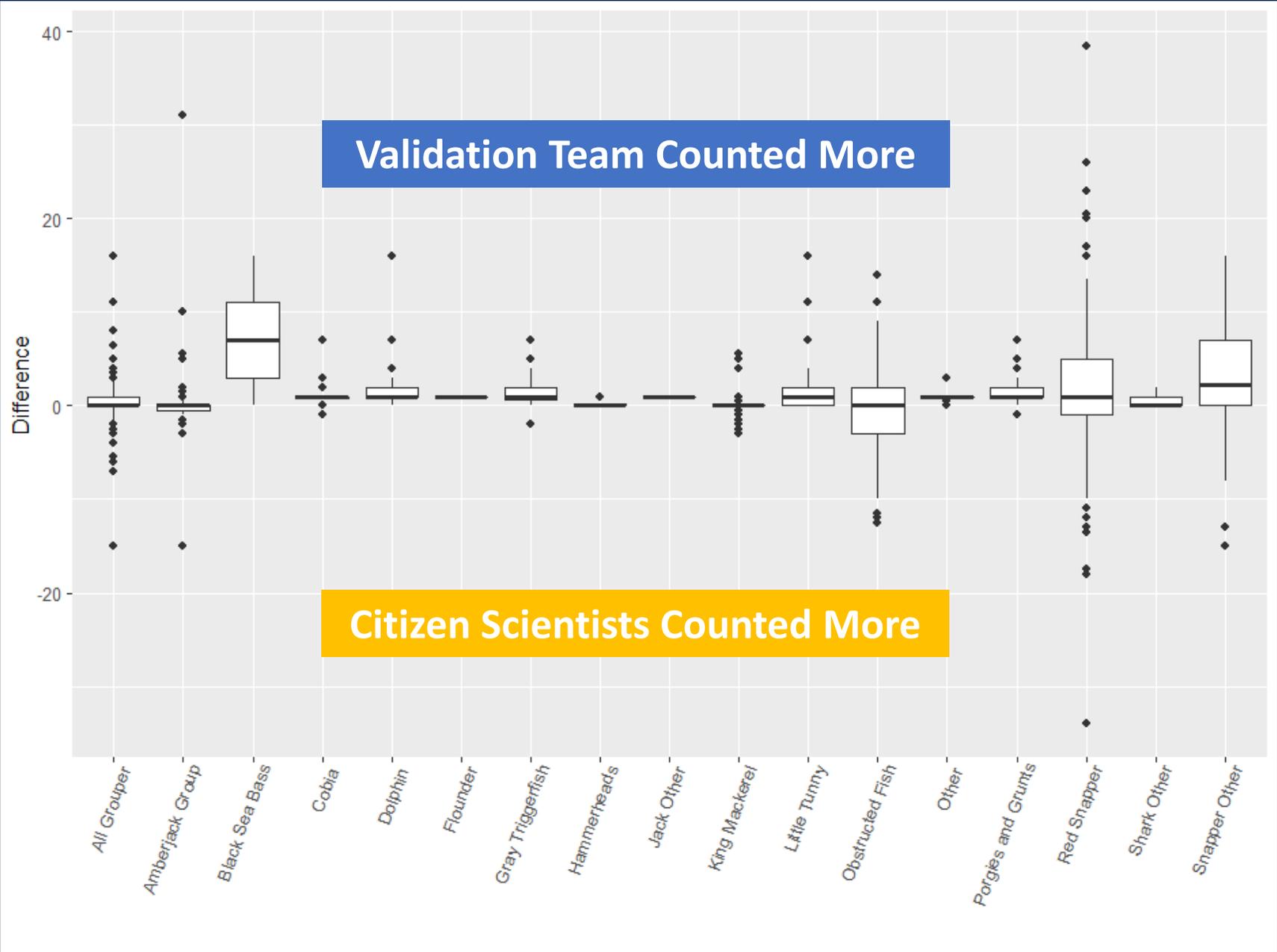
FISH: Classify

- 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
- 1000 photos complete

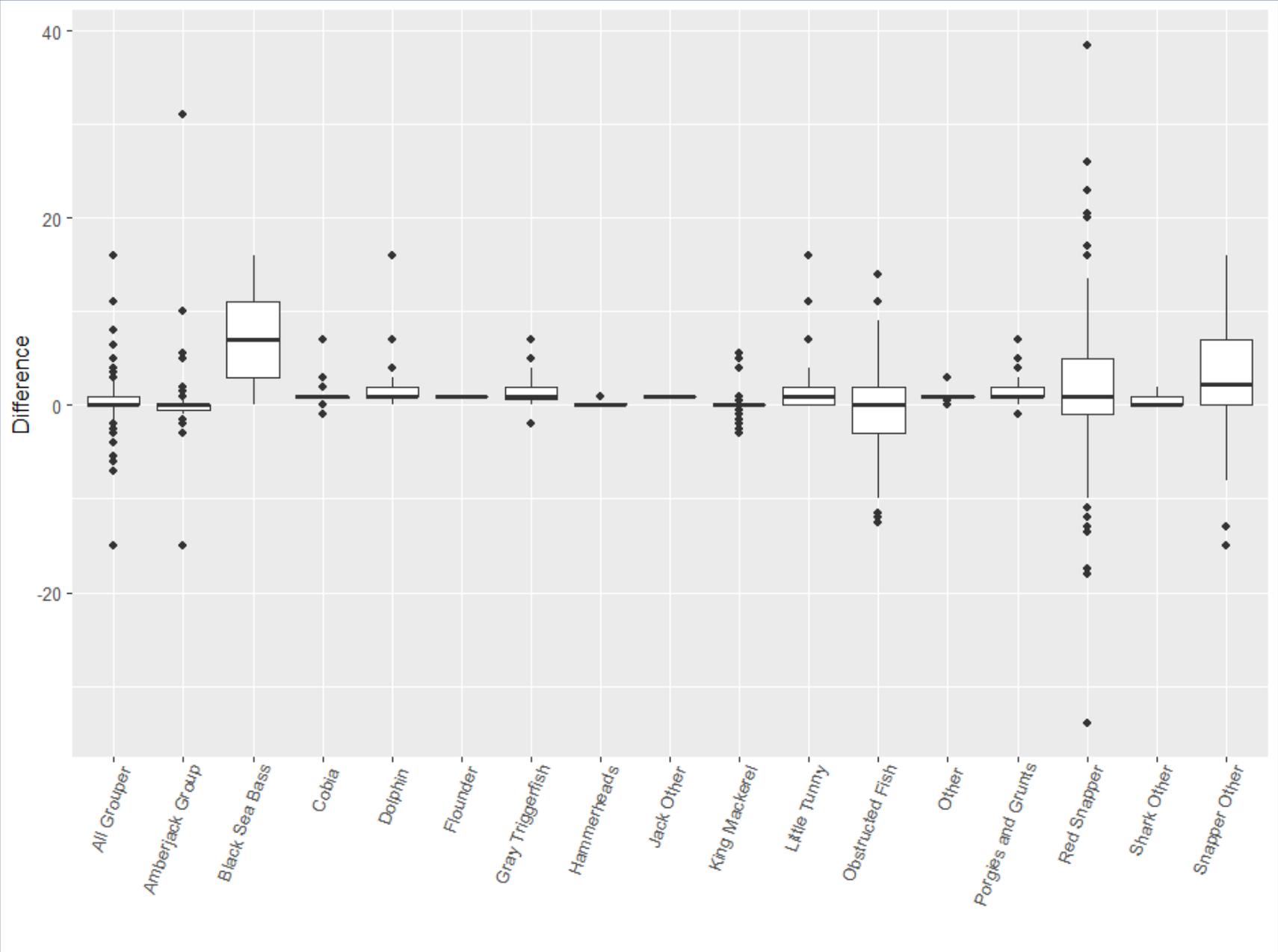
Total landings per angler in 5-year time blocks



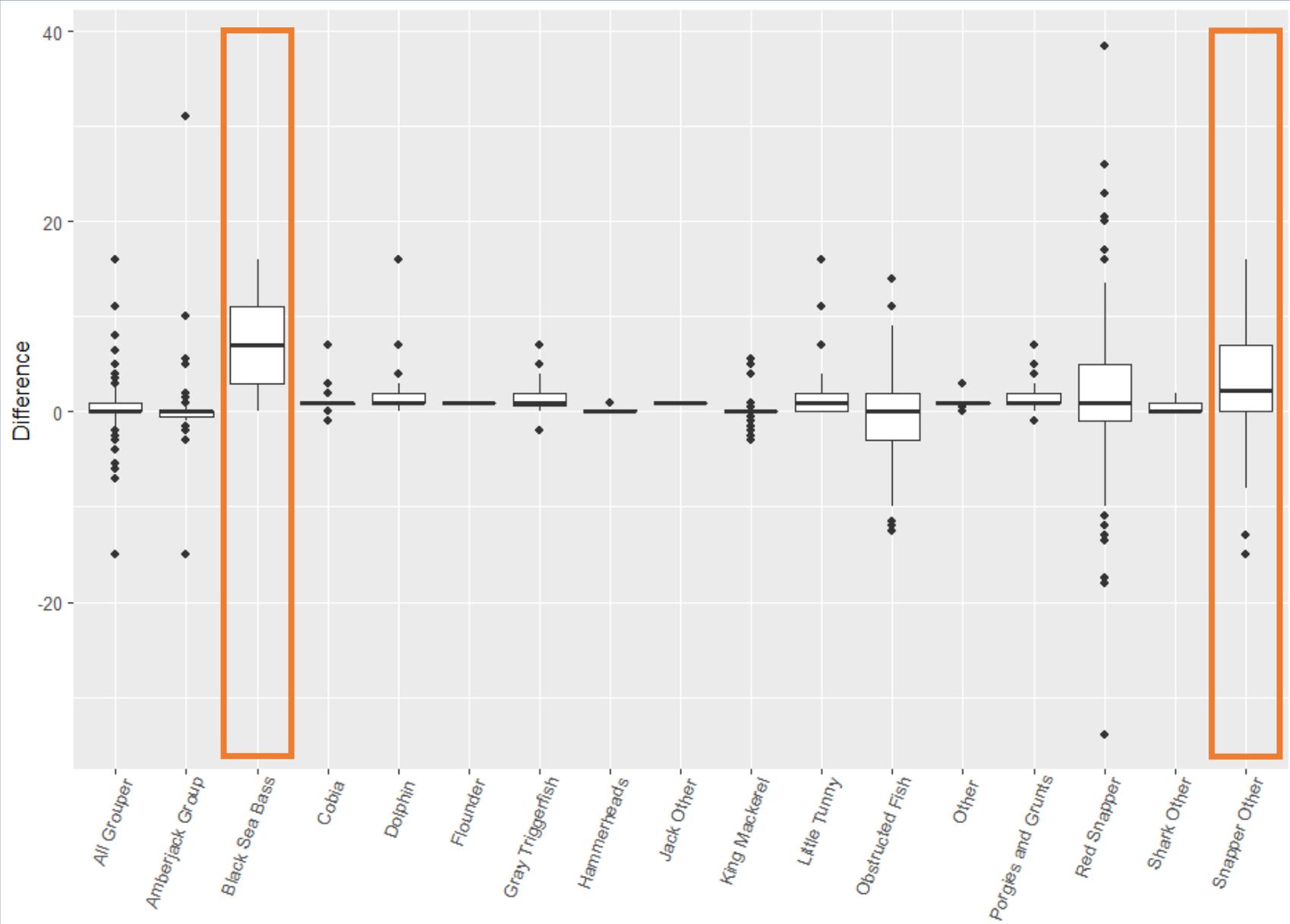
Comparison of Validation Team & Citizen Scientists



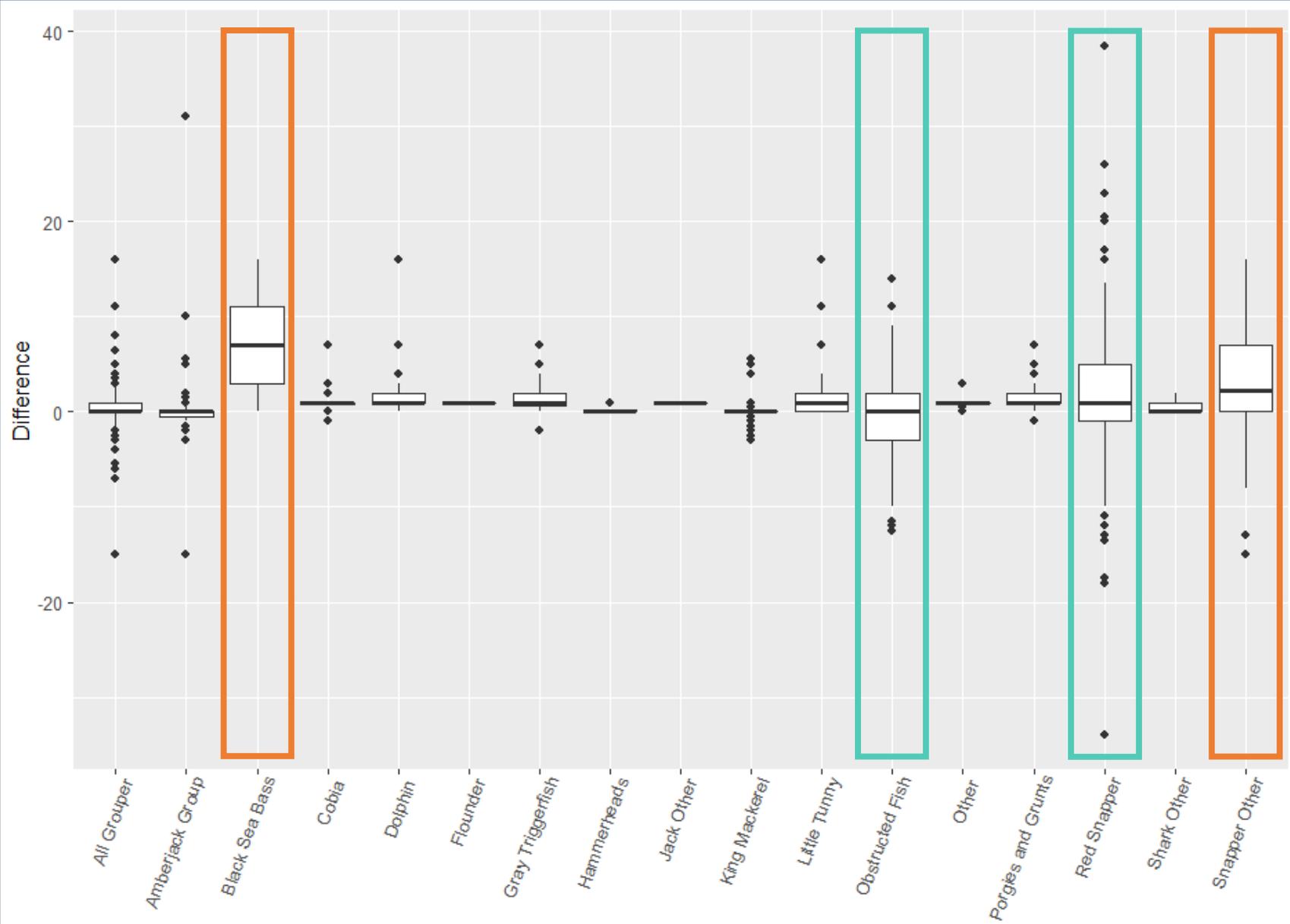
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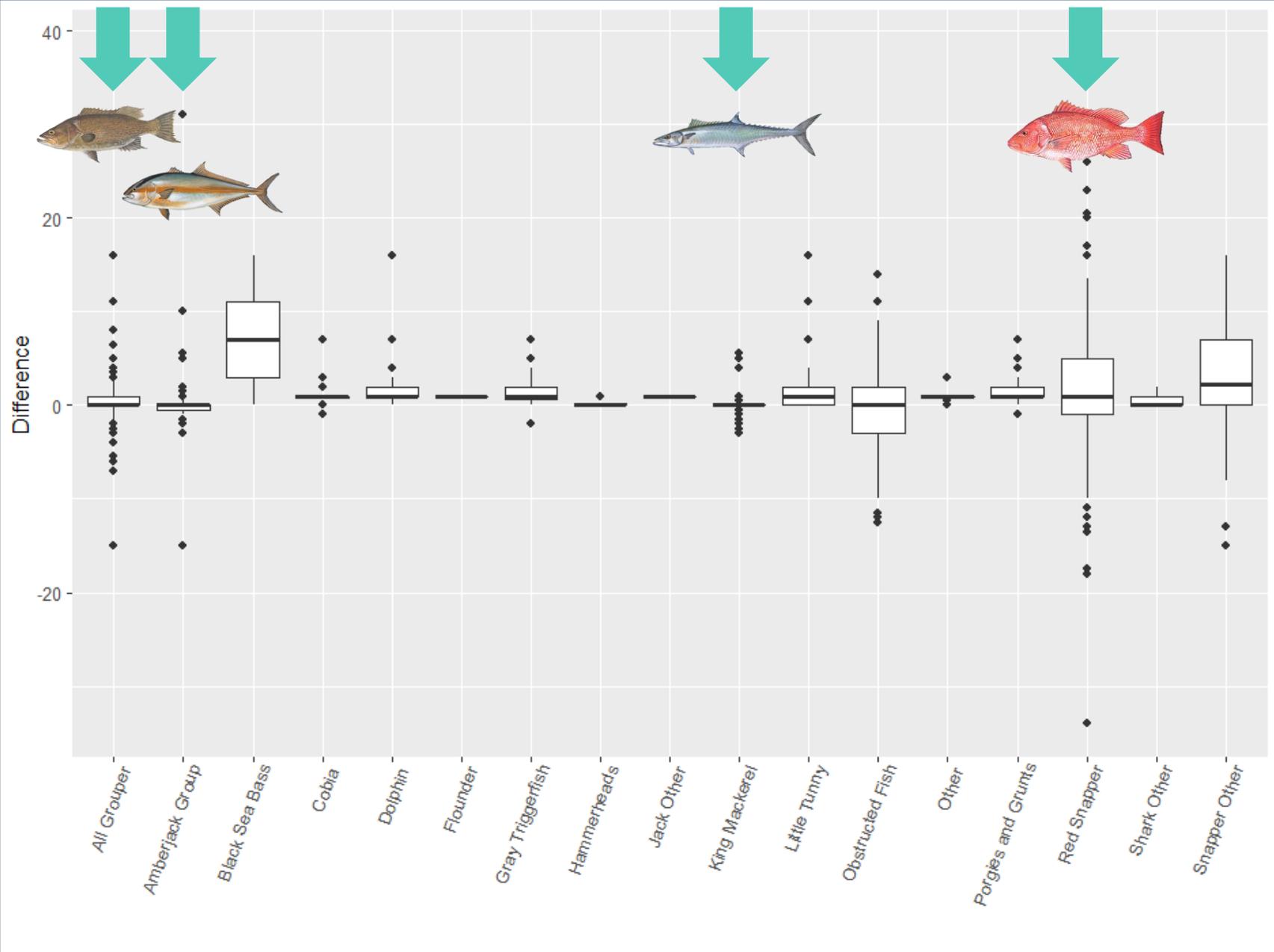
Comparison
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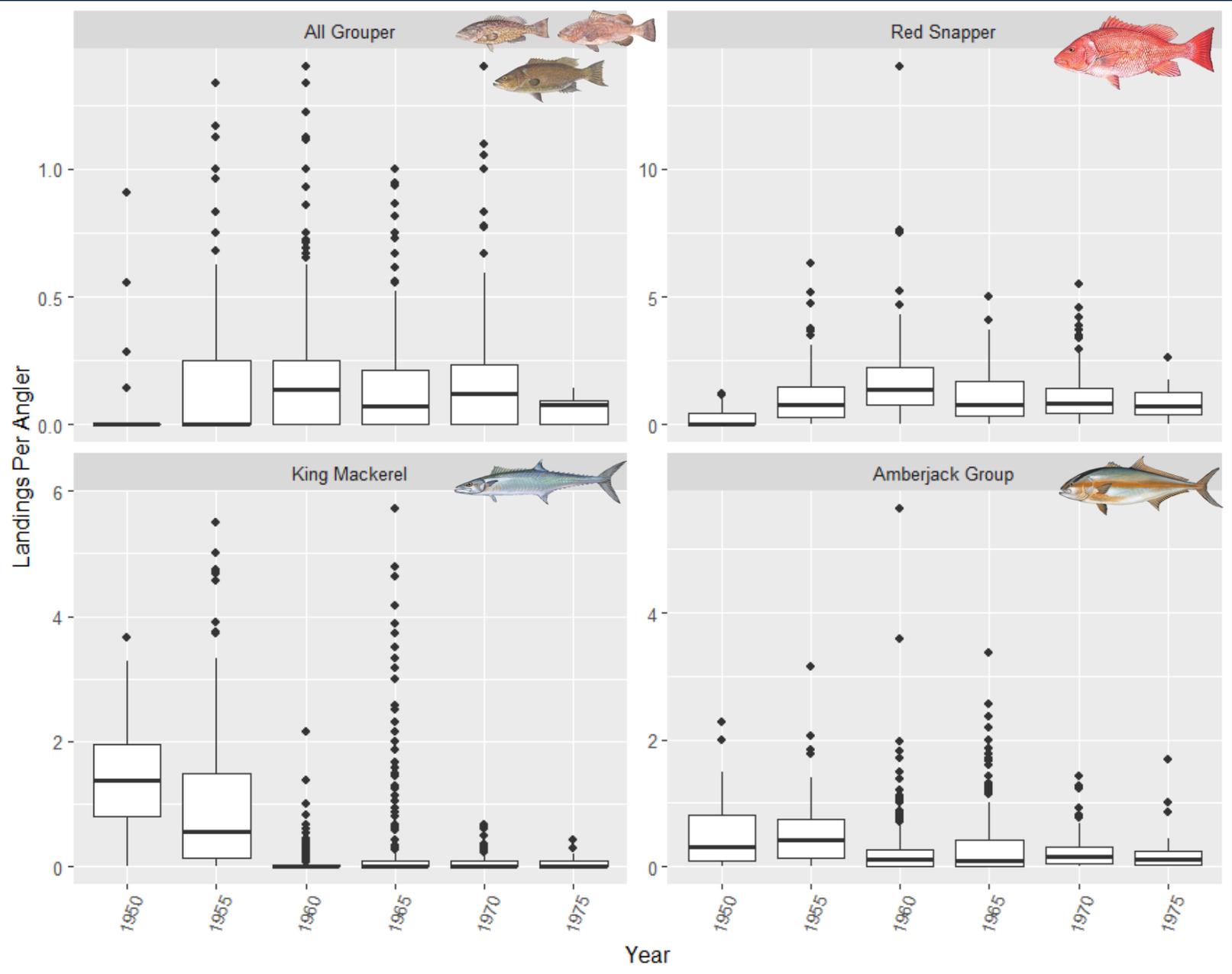
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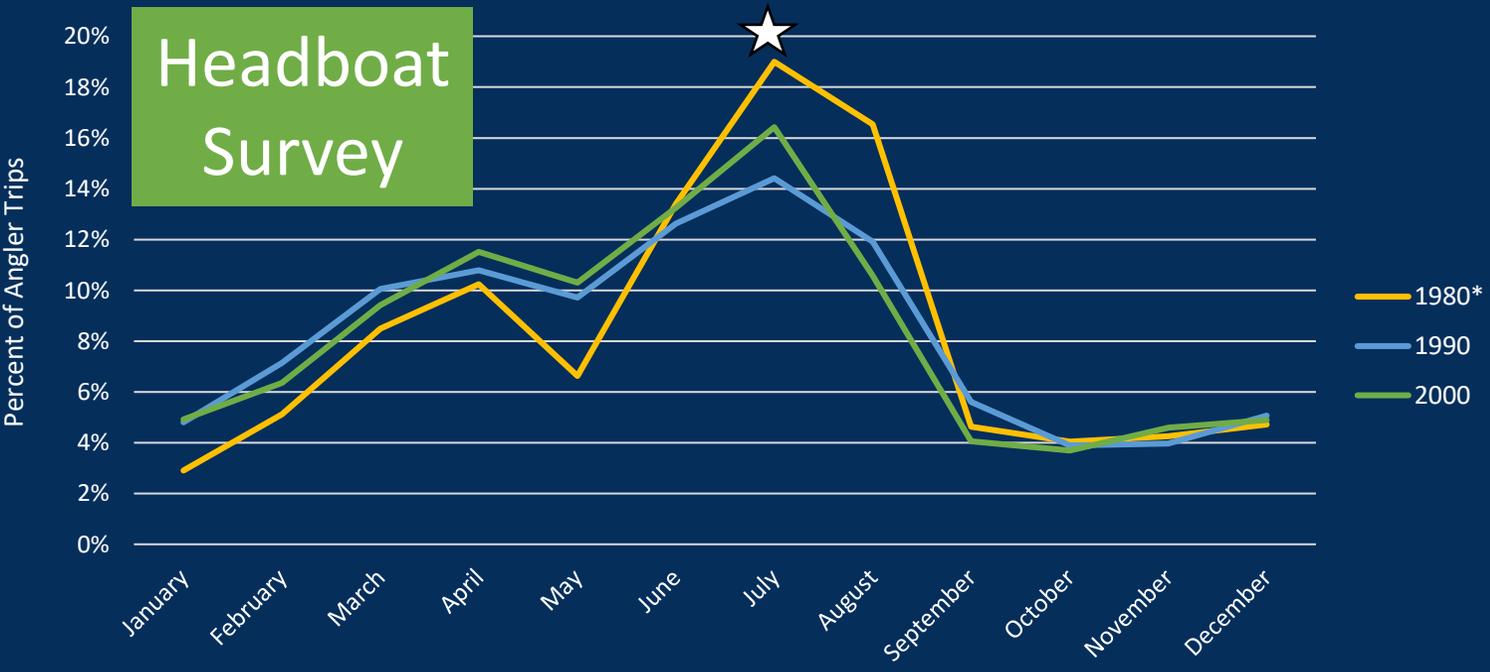
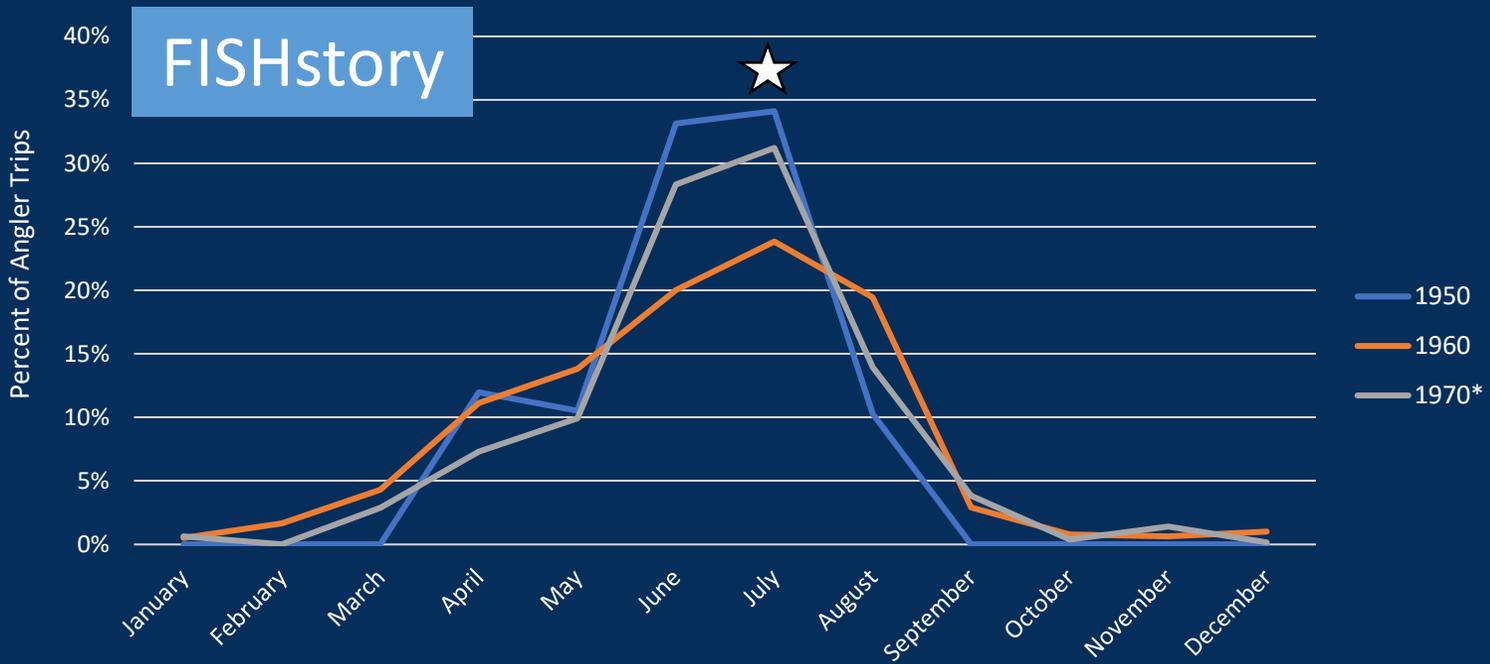
Comparison of Validation Team & Citizen Scientists



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
All Grouper 	4	3	3	3	2	1
Amberjack Group 	3	2	2	2	3	3
King Mackerel 	1	4	4	4	4	4
Red Snapper 	2	1	1	1	1	2

FISHstory: Length Component

- Method developed to measure fish length



Identify scalar &
develop protocol



Test protocol



Train length analysts

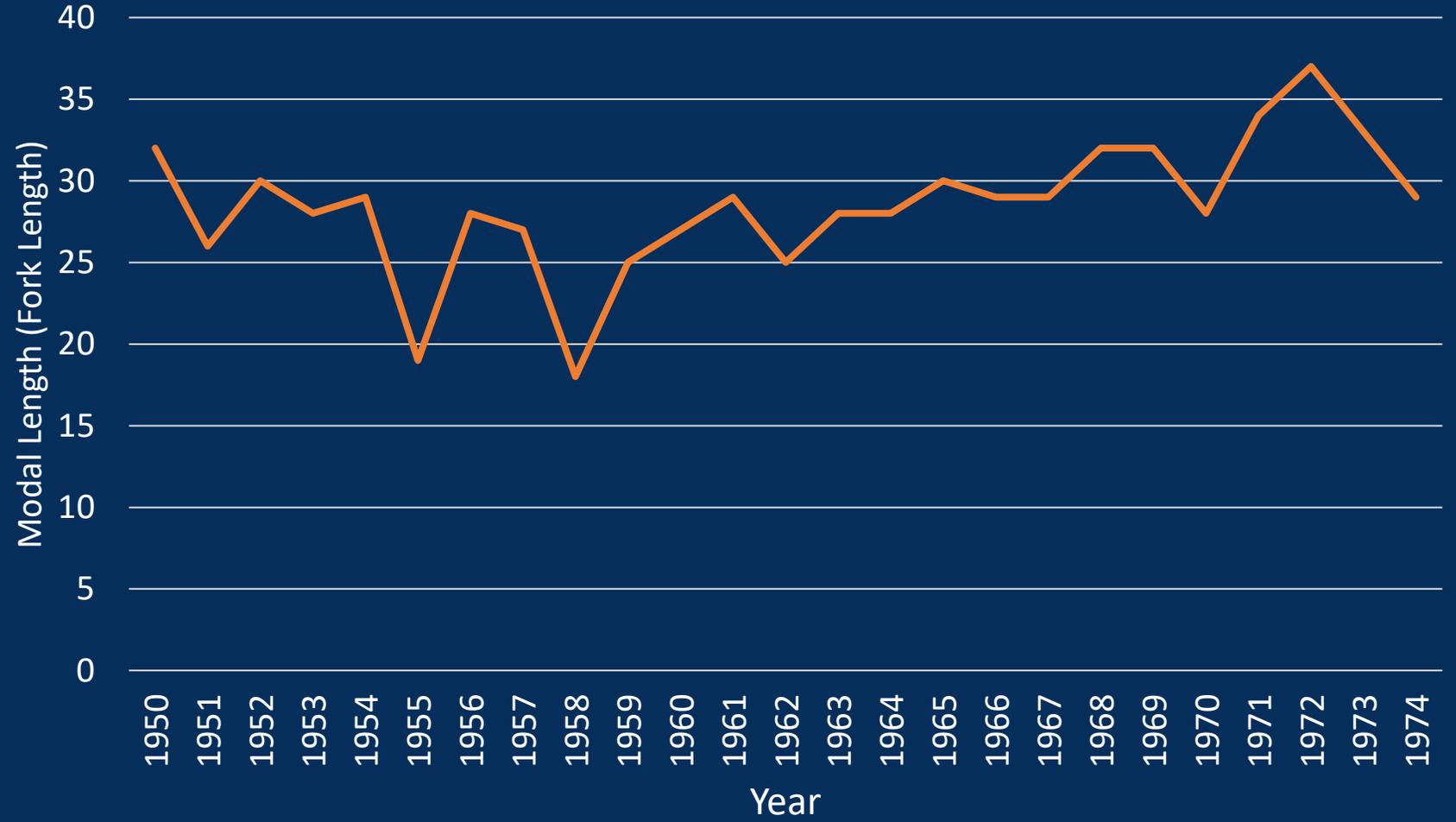


Coordinate & measure
King Mackerel

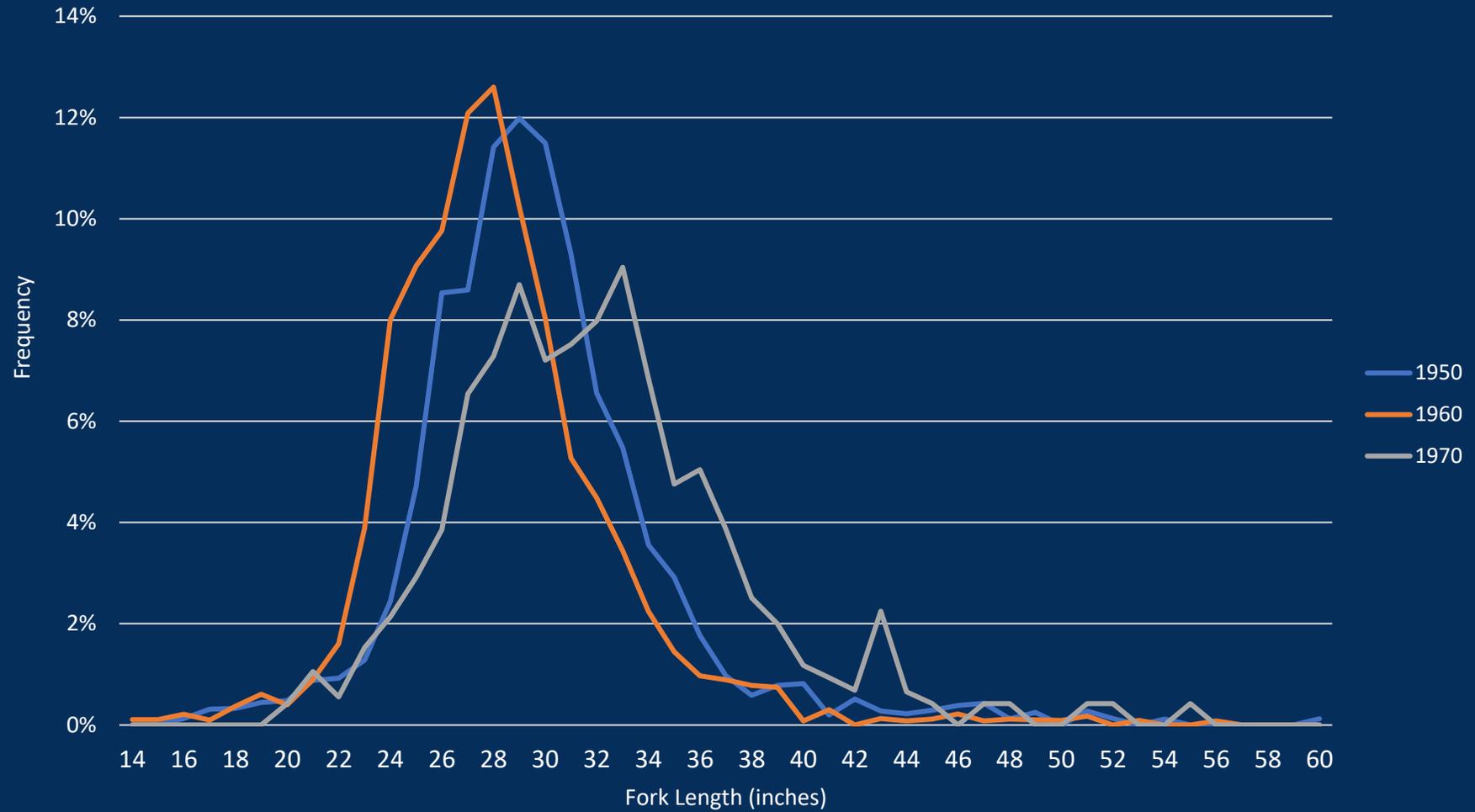


Share Results

King Mackerel
modal length
by year

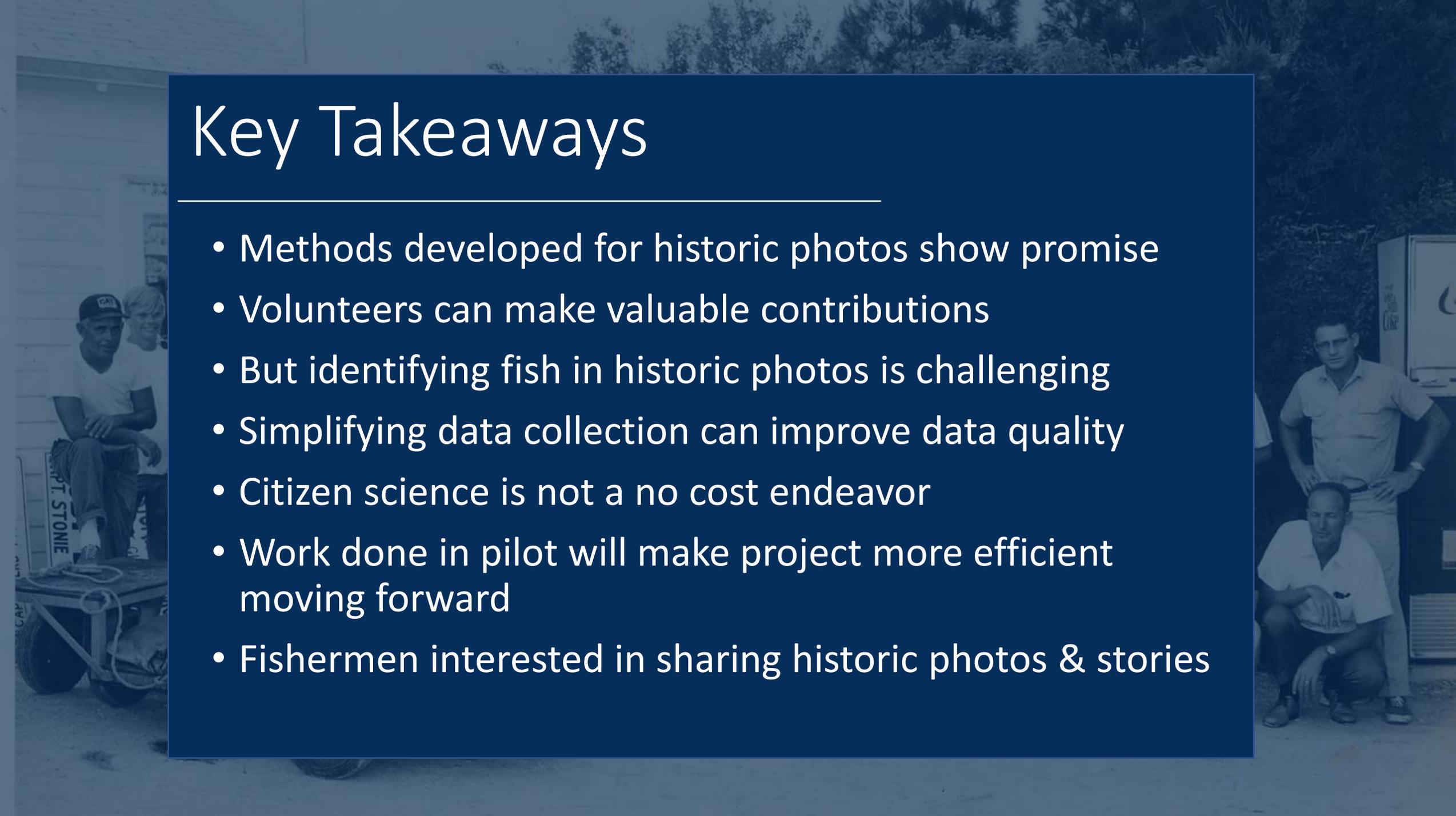


FISHstory
length
compositions
by decade



Key Takeaways

- 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

- 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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