MID-ATLANTIC
FISHERY MANAGEMENT COUNCIL

Ocean City, MD Video Project

April 2023

Purposes

- Pilot
- Feasibility of using video to estimate Maryland's private boat ocean fishing effort
- Compare preliminary results with the effort estimates from the Marine Recreational Information Program (MRIP).

Conclusions

- Video approach in this location has its own uncertainties – not a simple task to get something that might pass a peer review as "better than MRIP"

- Trip estimate ranges overlapped MRIP
  - Kind of what you'd expect – MRIP at this scale is imprecise and is clear about that
    - high proportional standard errors (PSEs)

Three parts

- 1. What did we estimate?
- 2. What is MRIP estimating?
- 3. Boat counts and comparisons with MRIP

Part 1 – Video work

- Covid and equipment issues
  - Recording
  - Reviewing

- Good wave overlap:
  - 2020 Waves 4, 5, 6
  - 2021 Waves 5, 6

Part 1 – Video work

Figure 1. Project Location – OC Inlet, Google Maps

Part 1 – Video work

- Reviewing mostly at 20-40 times normal speed - Any faster overwhelming
- Trying to sift out some vessels that are not ocean fishing: commercial, parasailing, inlet fishing, turn-arounds
- AI would be challenged by jetskis, inlet fishing, turn-arounds

Part 1 – Video work

- Missed July 1-5 of 2020 – used high volume days from later that month except for one day with thunderstorms around
- Checked weather – nice mostly
- May slightly underestimate July 1-5 given intensity of that holiday for the beach…

Part 1 – Video work

- Fog
  - Limited, addressed on a case-by-case basis
- Skipped some nighttime hours – minimal skipping summer, substantial winter, day by day approach
  - skipped hours noted, first vessels noted
  - Negligible effect
- Storms – spot checked day

Part 1 – Video work

Figure 1. Project Location – OC Inlet, Google Maps

Part 1 – Video work

- (1) small/medium powerboats that turn left or proceed east;
- (2) large powerboats ("cabin cruisers" and/or "deadrises");
- (3) sailboats;
- (4) "maybes" - generally very small or very large powerboats that appear unlikely to engage in fishing; and
- (5) power boats, generally smaller, that turn south and disappear out of view.

Part 1 – Video work

- (1) small/medium
- (2) large powerboats
- (3) sailboats
- (4) maybes
- (5) power boats south

Part 1 – Video work

- Reviewer discretion

Part 1 – Video work

- Percent Primarily Ocean Fishing

Part 1 – Video work

(1) small/medium

- July-Aug: 60%-80% fishing (more cruising)
- Oct-Dec: 75%-90% fishing (more fishing in offseason)
- September: 67.5%-85% fishing (in between)

Part 1 – Video work

(2) large powerboats

- July-Aug: 90%-95% fishing (fewer migrating transients, more recreational boats relative to potential commercial mis-IDs)
- Oct-Dec: 80%-90% fishing (more migrating transients, fewer recreational boats relative to potential commercial mis-IDs)
- September: 85%-92.5% fishing (in between)

Part 1 – Video work

- (3) sailboats
- 0% - 10% fishing

Part 1 – Video work

(4) maybes

- July-Aug: 20%-30% fishing
- Oct-Dec: 10%-20% fishing (more migrating transiting)
- September: 15%-25% fishing (in between)

Part 1 – Video work

(5) power boats south

- 25%-50%

Part 1 – Video work

- Boat trips to people trips
- Based on dockside survey (APAIS) data…

1. Small Powerboats: 3-4 people
2. Large Powerboats: 5-6 people
3. Sailboat: 1-2 people
4. “Maybes”: 1-2 people
5. Small/Medium boats to the South: 3-4 people

Part 1 – Video work

- Must subtract for-hire charter
  - Mixed into counts
- Low count range minus high charter range
  - Low private trips
- High count range minus low charter range
  - High private trips

- MRIP uses VTRs as for-hire effort for those who report, for-hire telephone survey for others

Part 2 – MRIP Effort Estimates

- The Fishing Effort Survey or FES
- Mail survey, uses license data
  - Better response rate
  - More representative/less biased
  - Gets to the anglers in the house better

- Overlapped with old telephone survey to develop a way to calibrate old estimates with new estimates – 2018+ = new, not calibrated.

Part 2 – MRIP Effort Estimates

- FES tells you saltwater fishing in Maryland by Marylanders

- Dockside survey, primarily done for catch rates, is also used to adjust for non-residents and apportion by area (for example inland or ocean)

Part 2 – MRIP Effort Estimates

- Those pesky PSEs

- Proportional Standard Error
- Gives a sense of uncertainty
- Not full accounting of uncertainty – just that from sampling design and variability of responses

Part 2 – MRIP Effort Estimates

- Assuming normal distribution, multiply the PSE by 1.96 to get a 95% confidence interval (-/+) range
- PSE of 51 means your 95% confidence interval ranges from zero to double the estimate
- PSE of 25.5 means your 95% confidence interval ranges from “half of” to “one and a half times” the estimate

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Part 2 – MRIP Effort Estimates

Your Query Parameters:

Query:	MRIP EFFORT TIME SERIES
Year:	2020 - 2020
Wave:	BY WAVE
Geographic Area:	MARYLAND
Fishing Mode:	PRIVATE/RENTAL BOATS
Fishing Area:	ALL OCEAN COMBINED
Information:	ANGLER TRIPS

**Some estimates may be considered preliminary. Please rerun your query with table output to view estimate st
**NOTE: Y-axis scale may not be the same for multiple graphs.

Return to Query Page

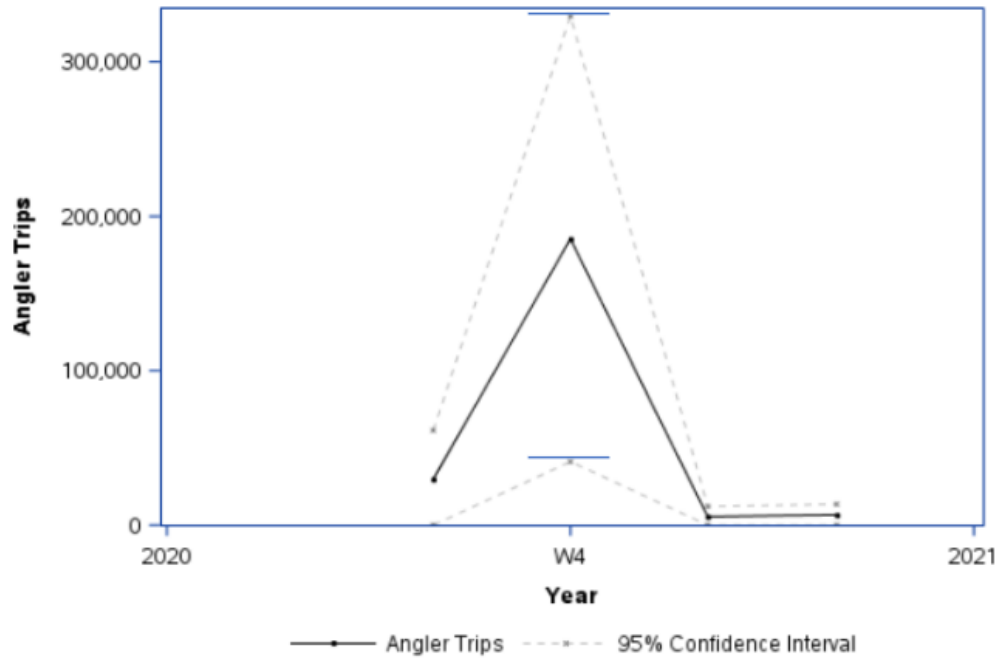

Figure 2. MRIP 2020 Maryland Private/rental ocean trips.

Estimate:
185,341
angler trips

PSE of 39.7%

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Part 2 – MRIP Effort Estimates

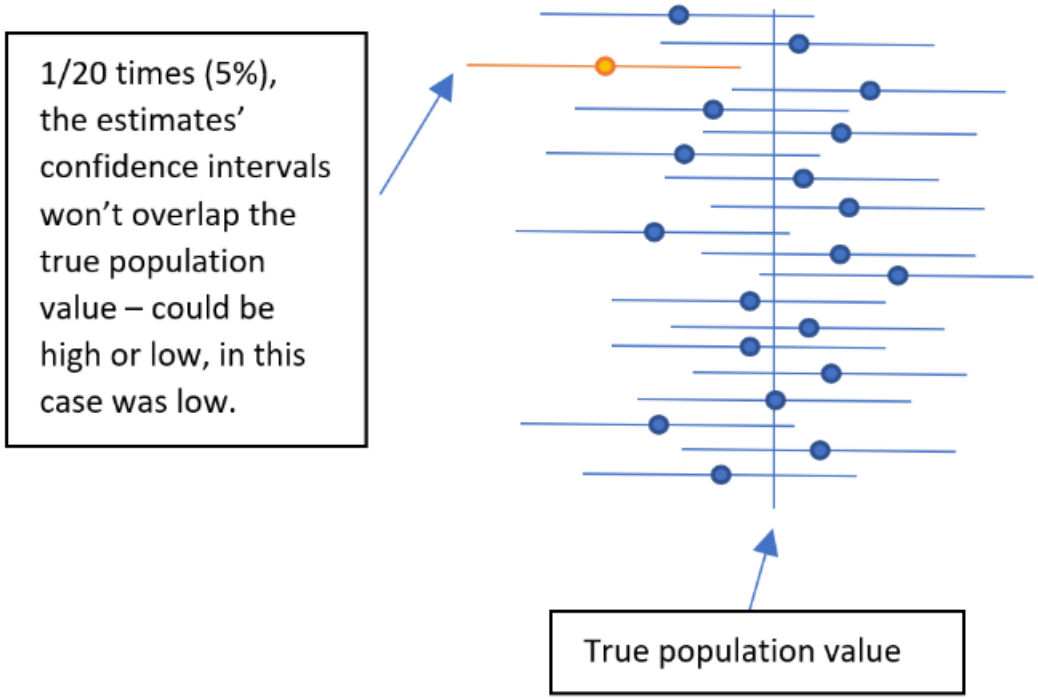

Figure 3. 95% Confidence Interval Illustration

Part 2 – MRIP Effort Estimates

- A variety of uncertainties (sources of error) not included in PSEs
  - MRIP describes these on their website

Part 2 – MRIP Effort Estimates

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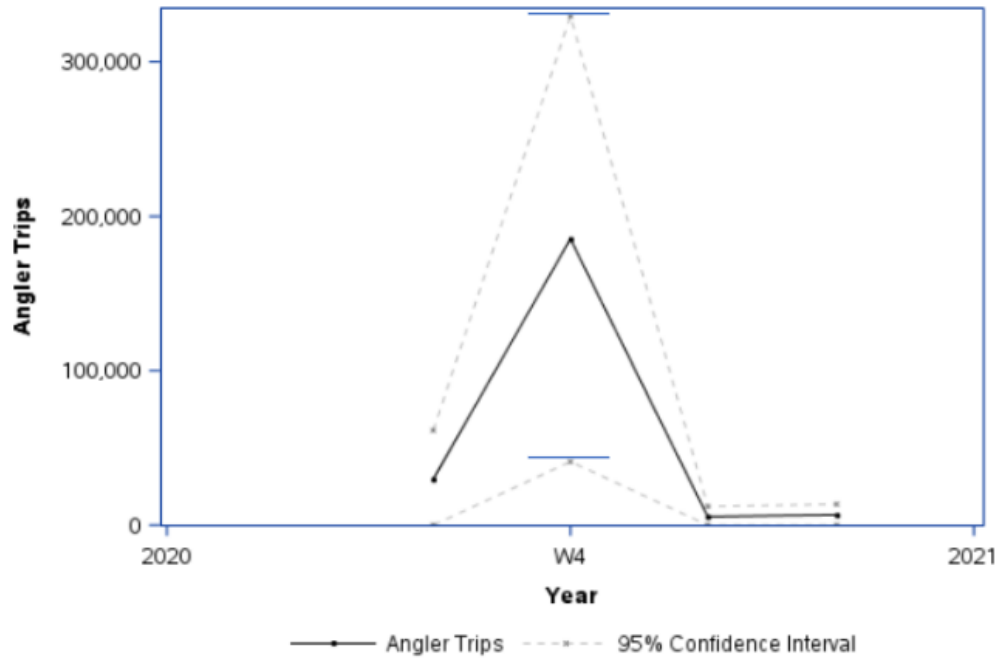

Figure 2. MRIP 2020 Maryland Private/rental ocean trips.

Estimate:
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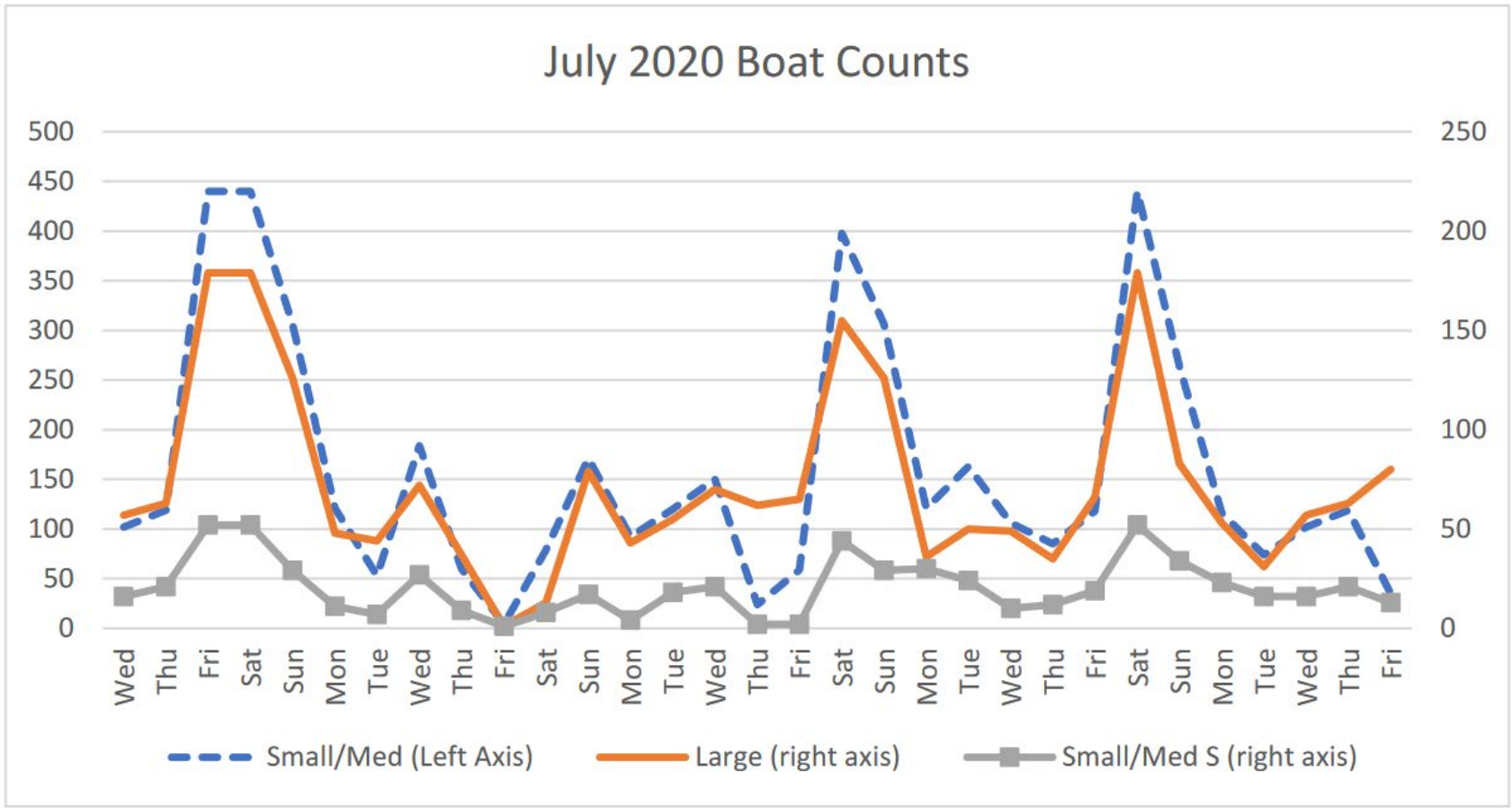
Part 3 – Counts and Comparisons

Figure 4. July 2020 Boat Counts



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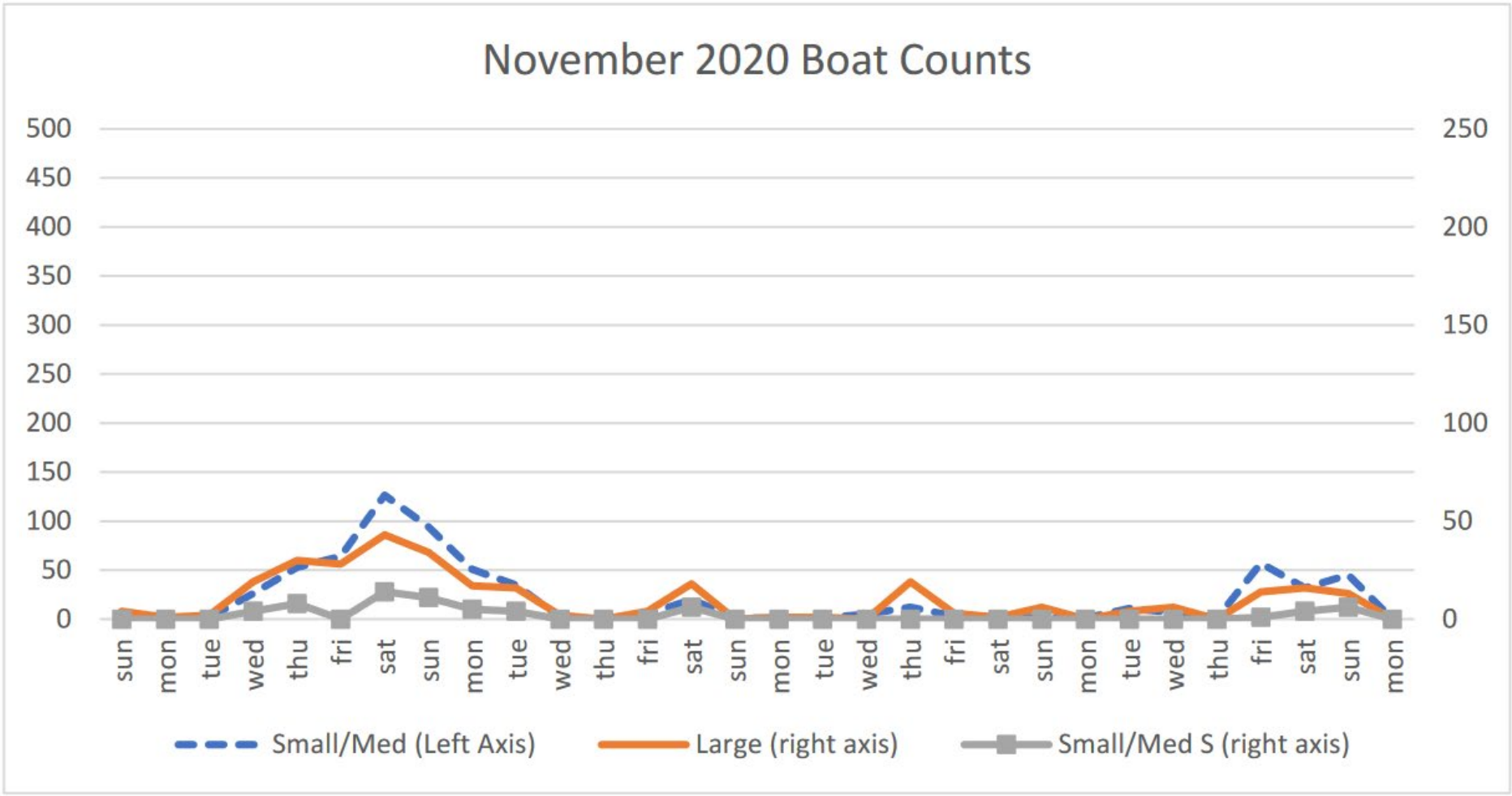
Part 3 – Counts and Comparisons

- Recall previous ranges, e.g. private July:
  - 60% ocean fishing, 3 people/boat
  - 80% ocean fishing, 4 people/boat

Part 3 – Counts and Comparisons

Figure 8. November 2020 Boat Counts

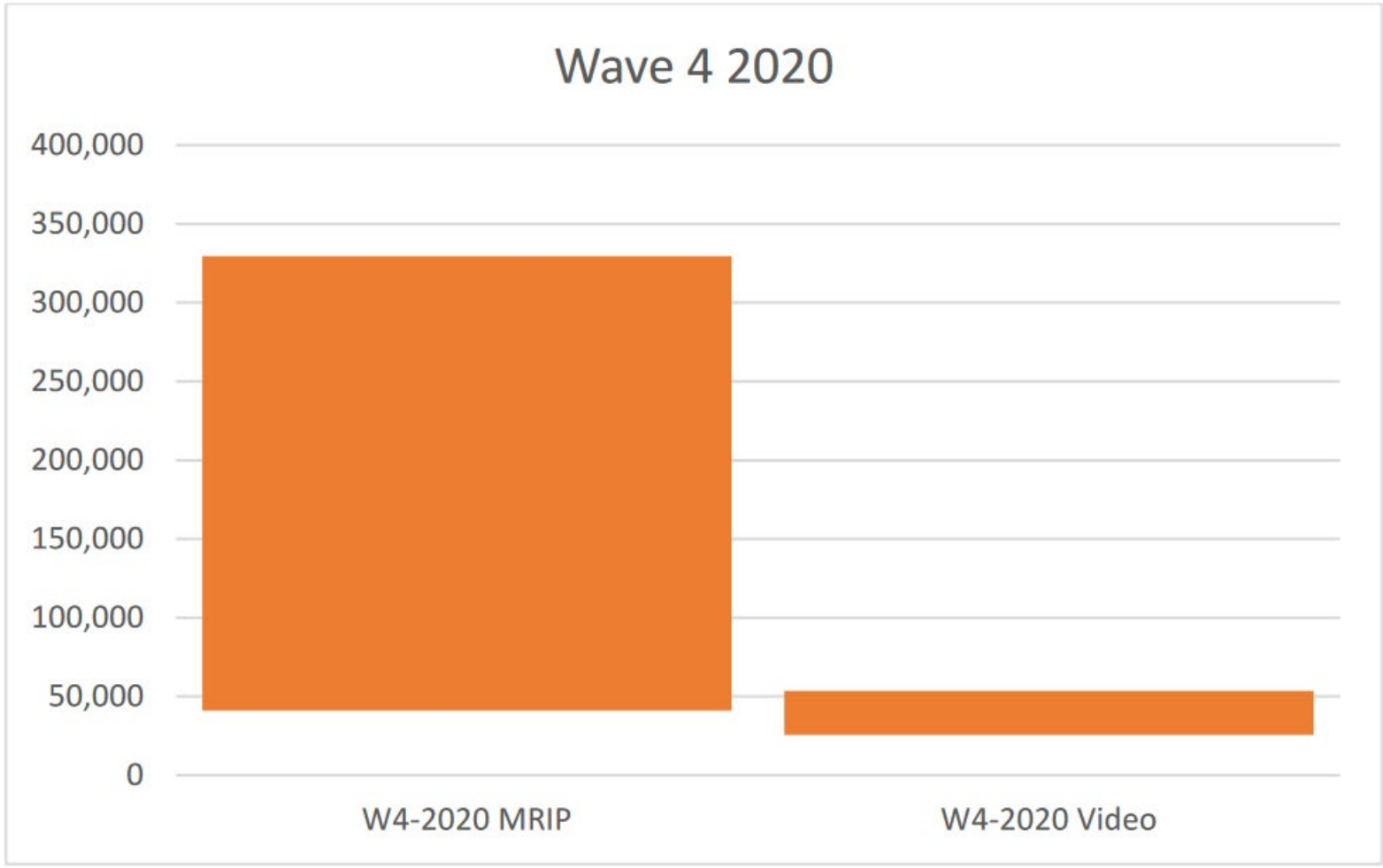


Part 3 – Counts and Comparisons

- Recall previous ranges, e.g. private Nov:
  - 75% ocean fishing, 3 people per boat
  - 90% ocean fishing, 4 people per boat

Part 3 – Counts and Comparisons

Figure 14. Wave 4 2020 Trips

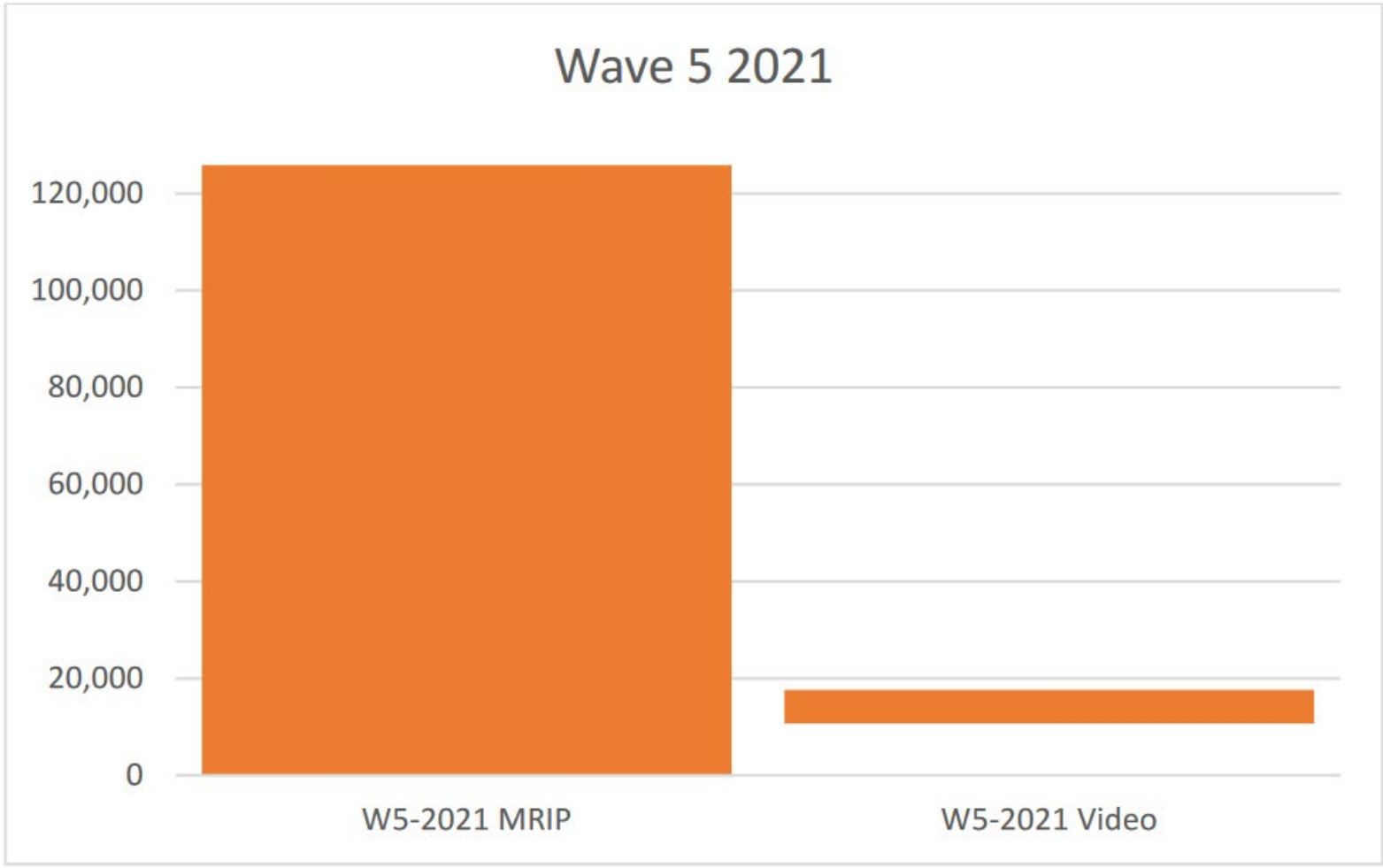


Part 3 – Counts and Comparisons

Figure 15. Wave 5 2020 Trips

Part 3 – Counts and Comparisons

Figure 17. Wave 5 2021 Trips

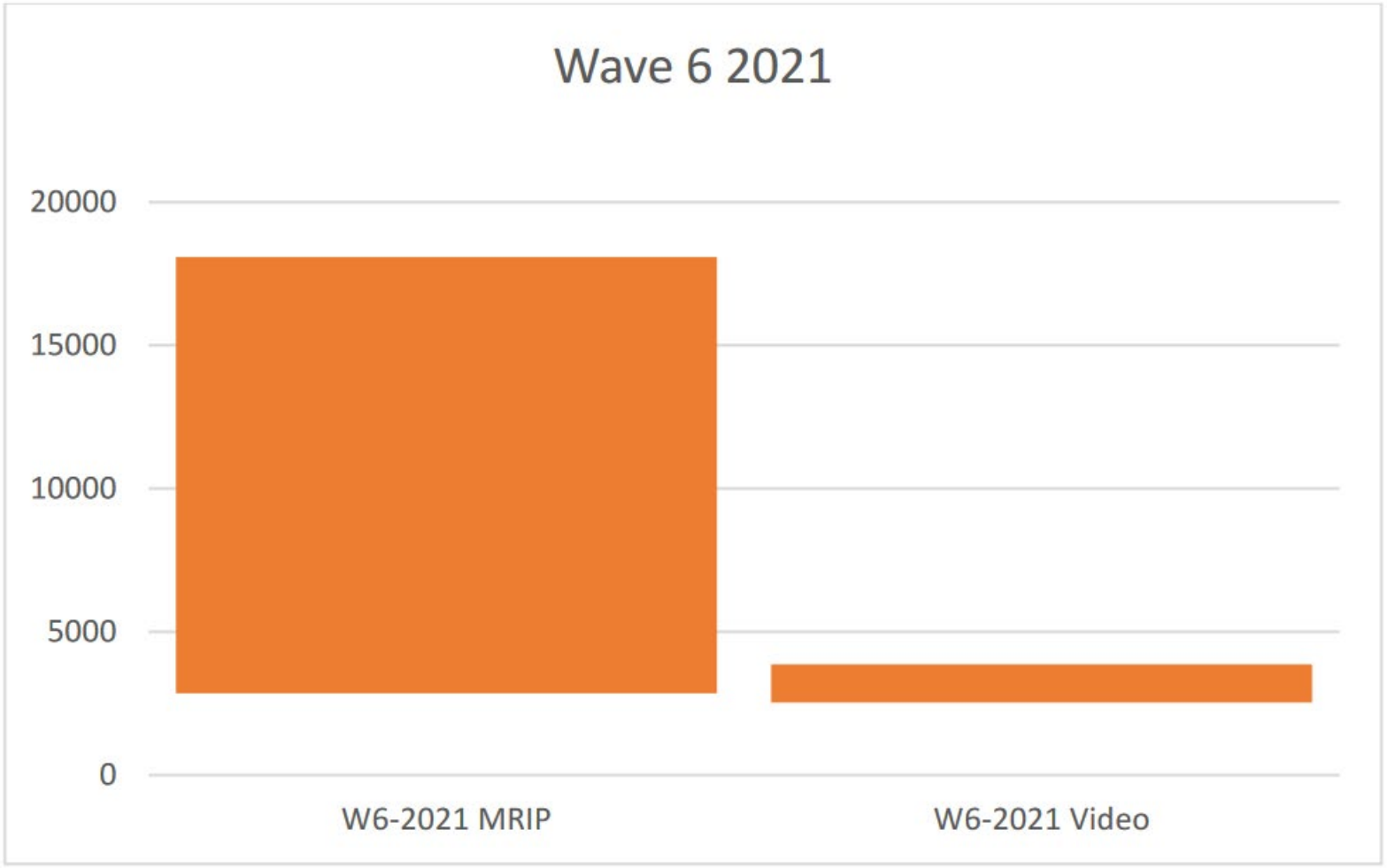


Part 3 – Counts and Comparisons

Figure 16. Wave 6 2020 Trips

Part 3 – Counts and Comparisons

Figure 18. Wave 6 2021 Trips



Conclusions

- No easy answers
- Video will have its own uncertainties, this work especially so
- Management has been changing to account for lower precision of recreational data
- Does management need high precision at a fine scale – at broader scale the "overs" and "unders" will cancel out…

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Recent follow-up ideas

- Simulation work to determine how much sampling to lower PSEs (Florida)?
- Simulation to show that the sampling approach is unbiased – simulate a state's total fishing, then run the MRIP method against it – run 100 times, estimates should be centered on the actual catch with some outliers. Good outreach tool?
- Separate survey for Maryland private ocean effort?