

Circle & "J" Hooks and "Drop-Back Time": A Comparative Hook Performance Study of the South Florida Recreational Live Bait Fishery for Sailfish



E. D. Prince, D. Snodgrass, E. S. Orbesen, J. Schratwieser, & J.E. Serafy

Miami Billfish Tournament

OBJECTIVES:

•Evaluate the performance of three types of hooks (two models of circle hooks and comparable size J hook) used in the live bait fishery for sailfish off South Florida in terms of:

- (1) Proportion (successfully) caught;
- (2) Proportion hooked in undesirable location;
- (3) Proportion bleeding;
- (4) Proportion released in undesirable condition (combination of location + bleeding).

Dependent

- (1) Hook type;
- (2) Drop back time.

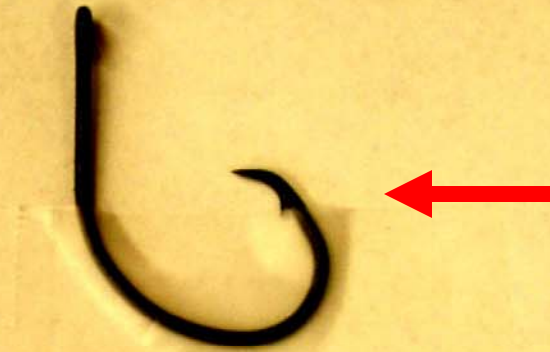
Independent

ANALYSIS:

Chi-square goodness-of-fit procedure testing the null hypothesis that the above proportions were equivalent for each hook type and drop back interval .

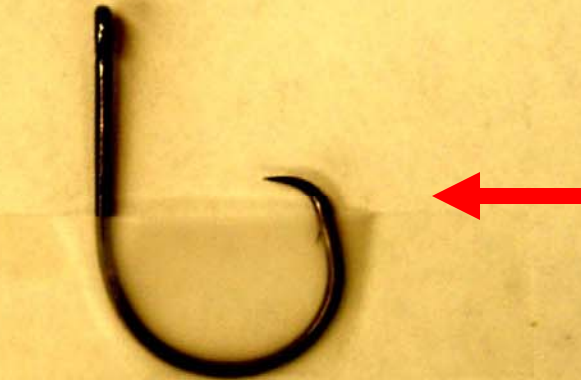
**EAGLE CLAW
L2004 8/0**

CIRCLE HOOK 1



**OWNER
5179 7/0**

CIRCLE HOOK 2



**MUSTAD
10829BLN 6/0**

"J" HOOK

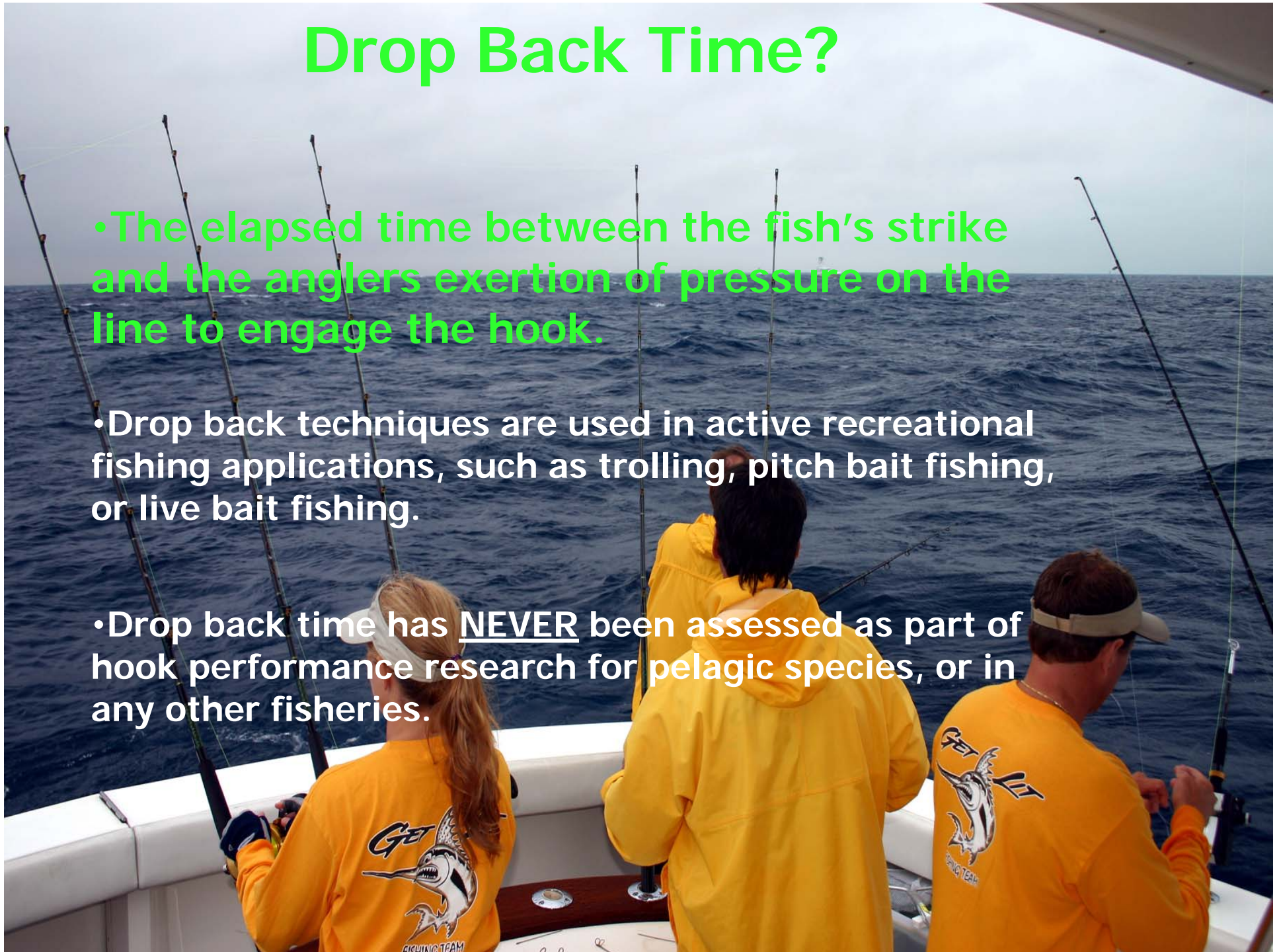


Drop Back Time?

- The elapsed time between the fish's strike and the anglers exertion of pressure on the line to engage the hook.

- Drop back techniques are used in active recreational fishing applications, such as trolling, pitch bait fishing, or live bait fishing.

- Drop back time has NEVER been assessed as part of hook performance research for pelagic species, or in any other fisheries.





A fisherman wearing a yellow jacket and a white cap with "GETLITFISHING.COM" on it is pulling a net full of sailfish from the water. The water is blue and splashing. The fisherman is looking down at the net.

Numbers of Interactions per Hook Type off of South Florida in the 2004 & 2005 Sailfish Seasons.

• A TOTAL OF **2086** SAILFISH INTERACTED IN THE STUDY:

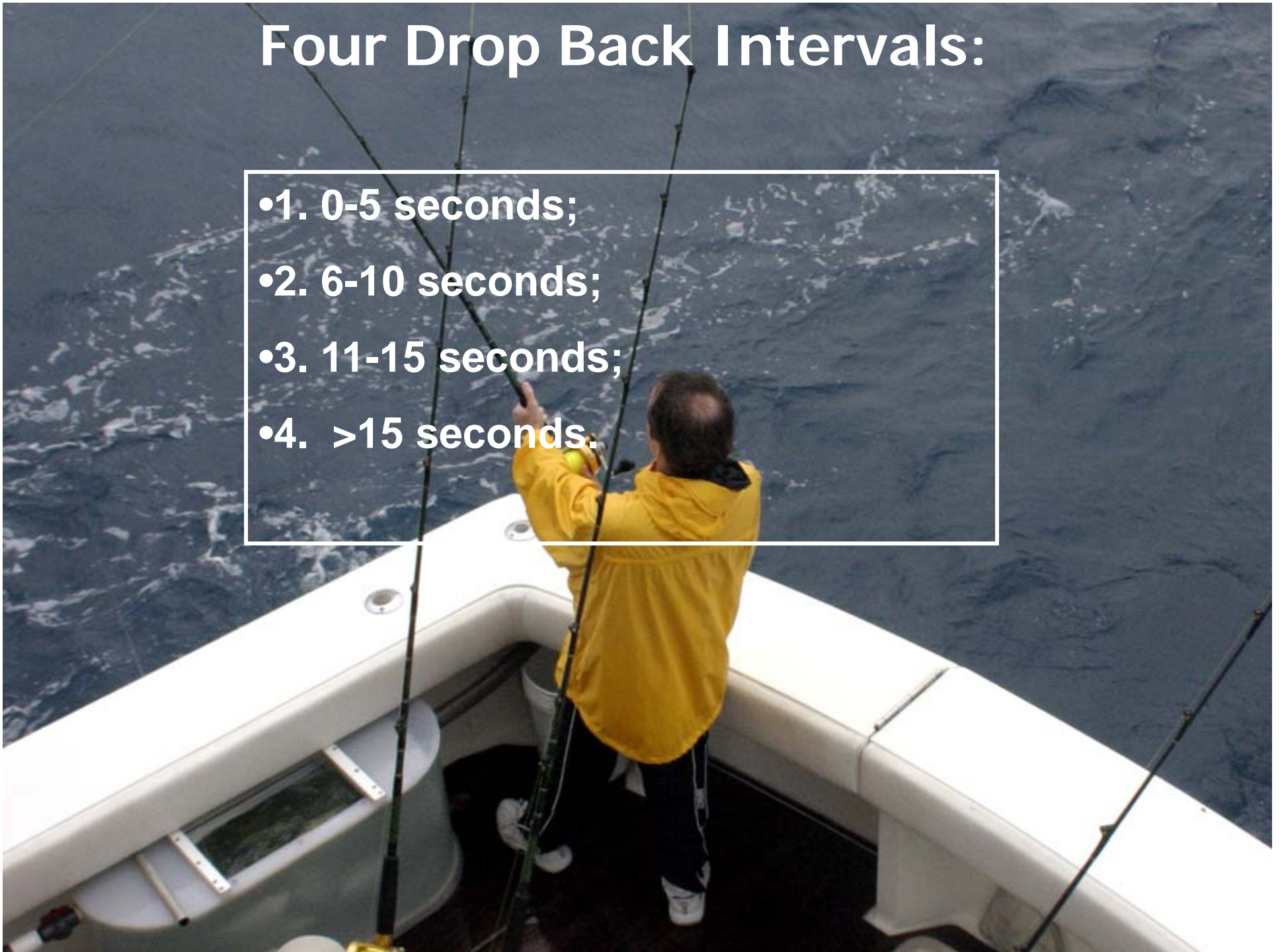
• **766** SAILFISH CAUGHT

• **392** SAILFISH ON CIRCLE HOOKS

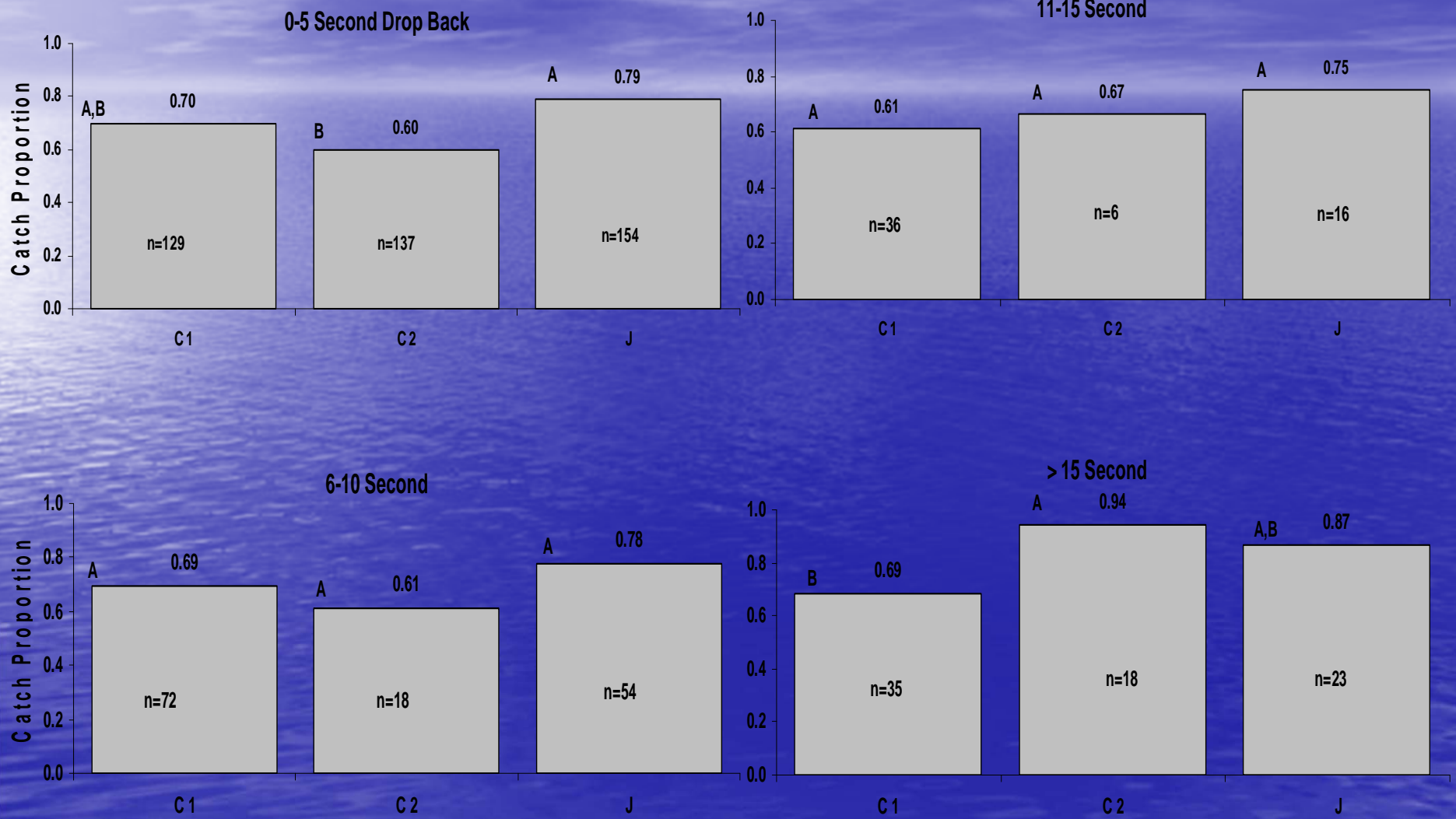
• **374** SAILFISH ON "J" HOOKS

Four Drop Back Intervals:

- 1. 0-5 seconds;
- 2. 6-10 seconds;
- 3. 11-15 seconds;
- 4. >15 seconds.



Catch Success Proportions



Hook Location Categories:

1. Hinge

2. Jaw

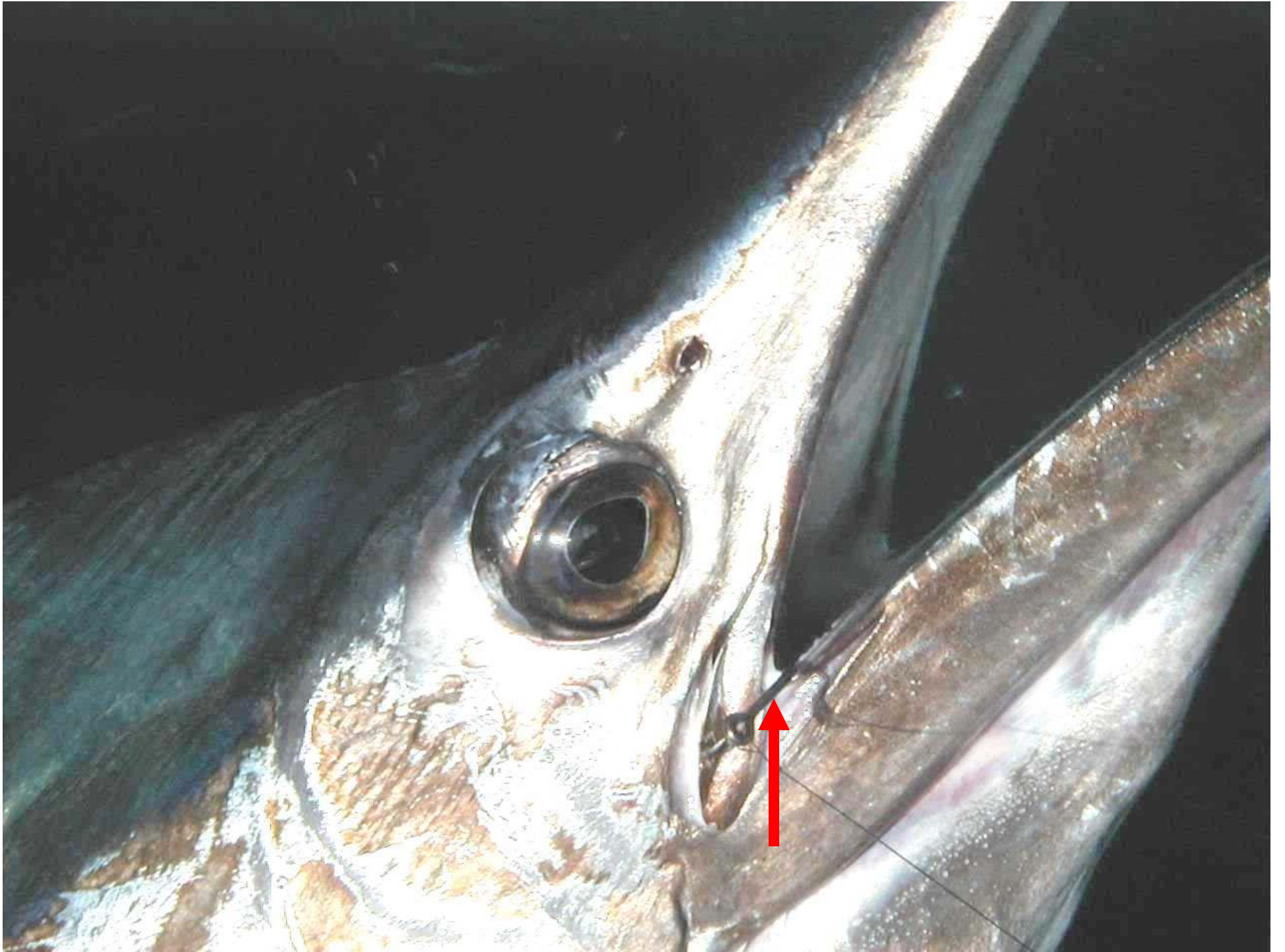
3. Gill

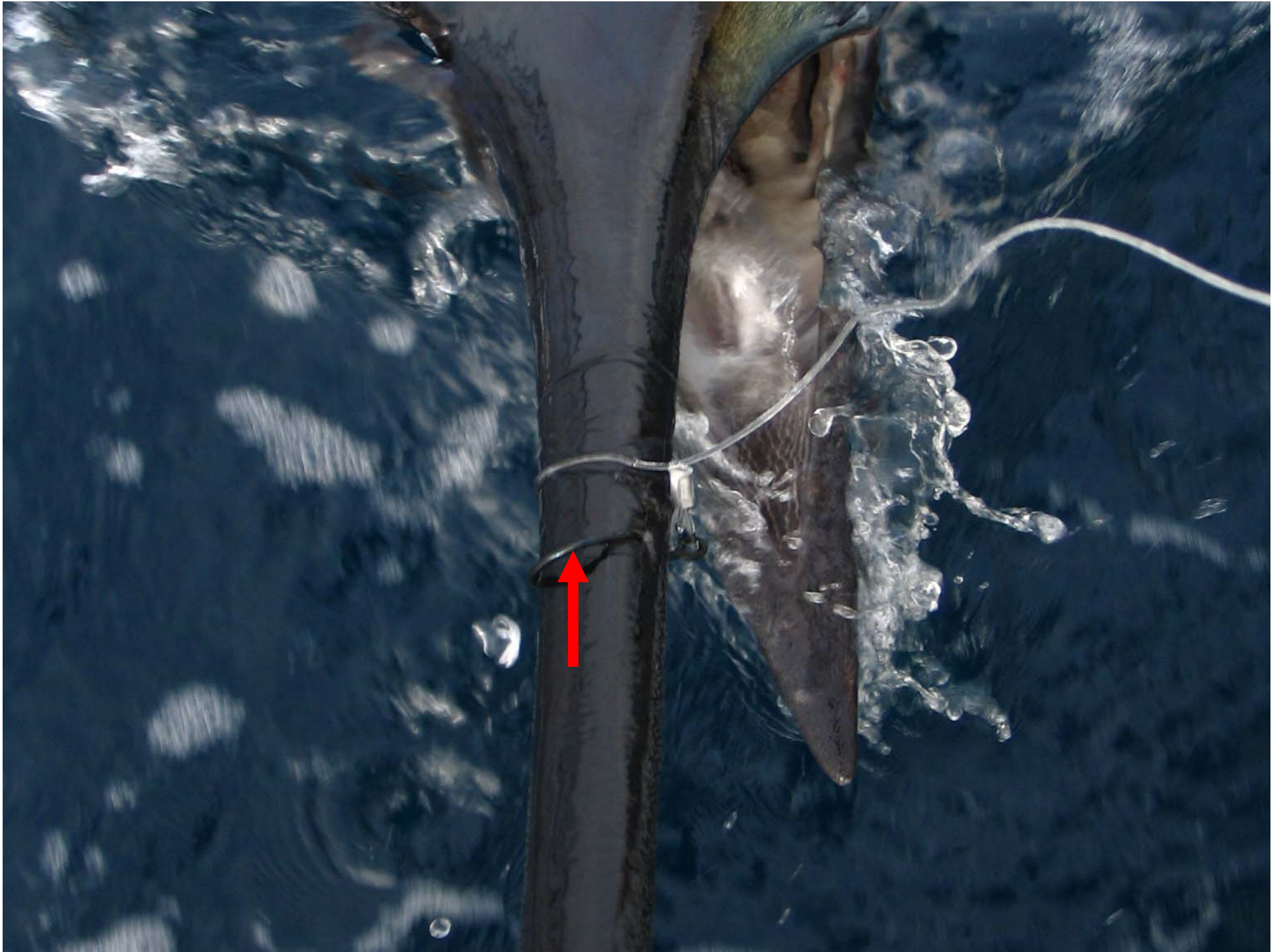
4. Mouth Cavity

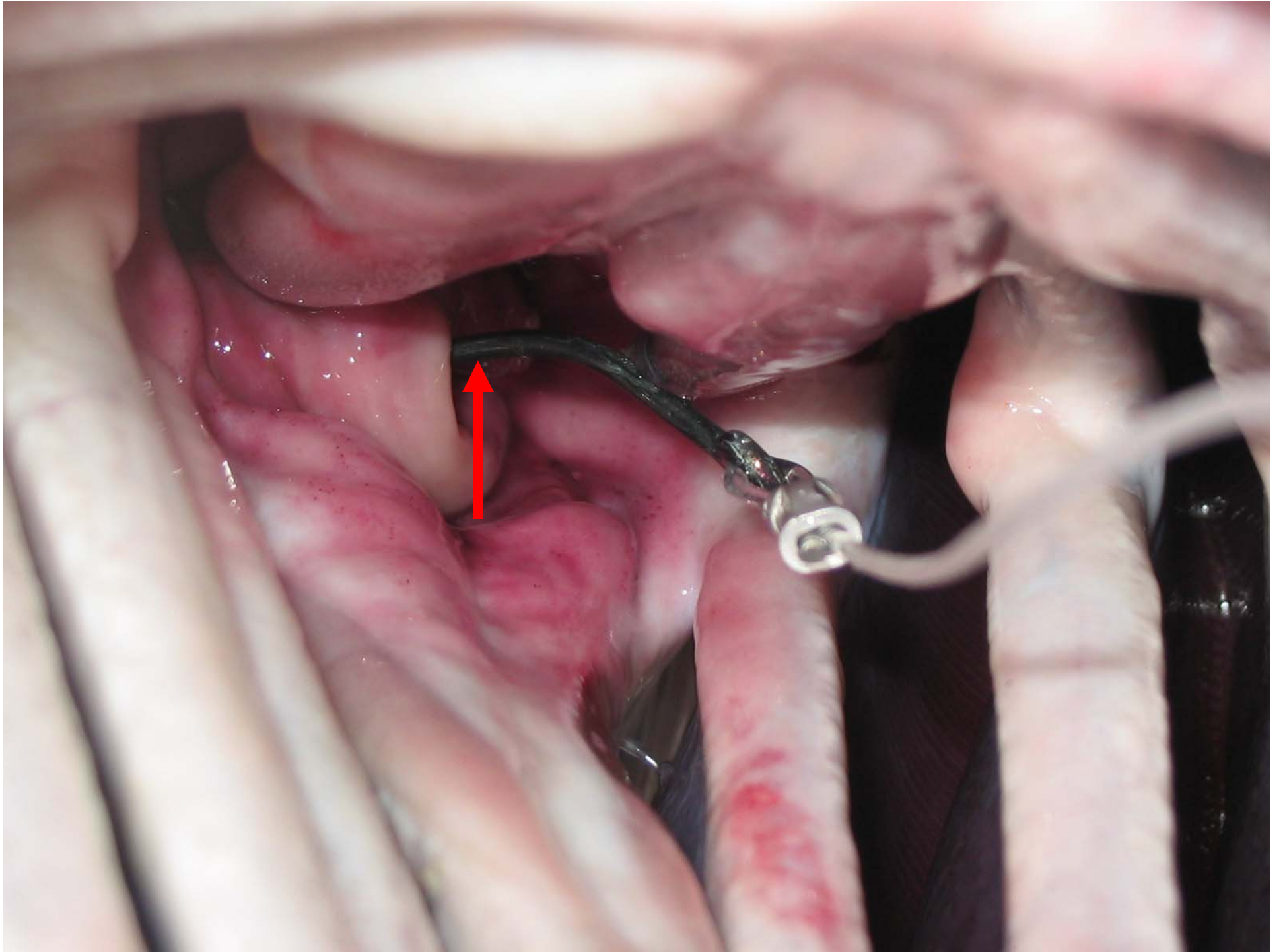
5. Deep

Desirable Hook Locations

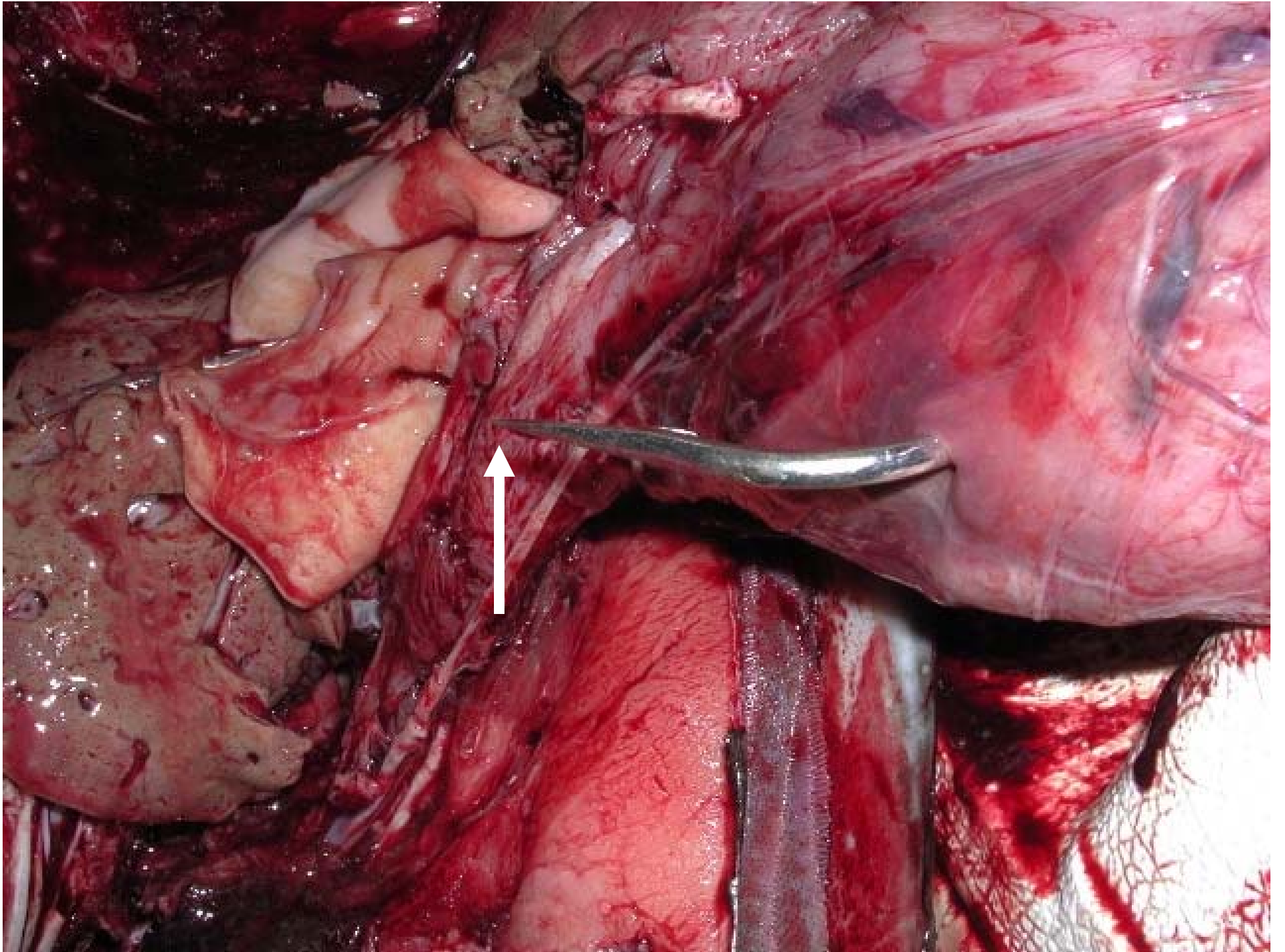
Undesirable Hook Locations



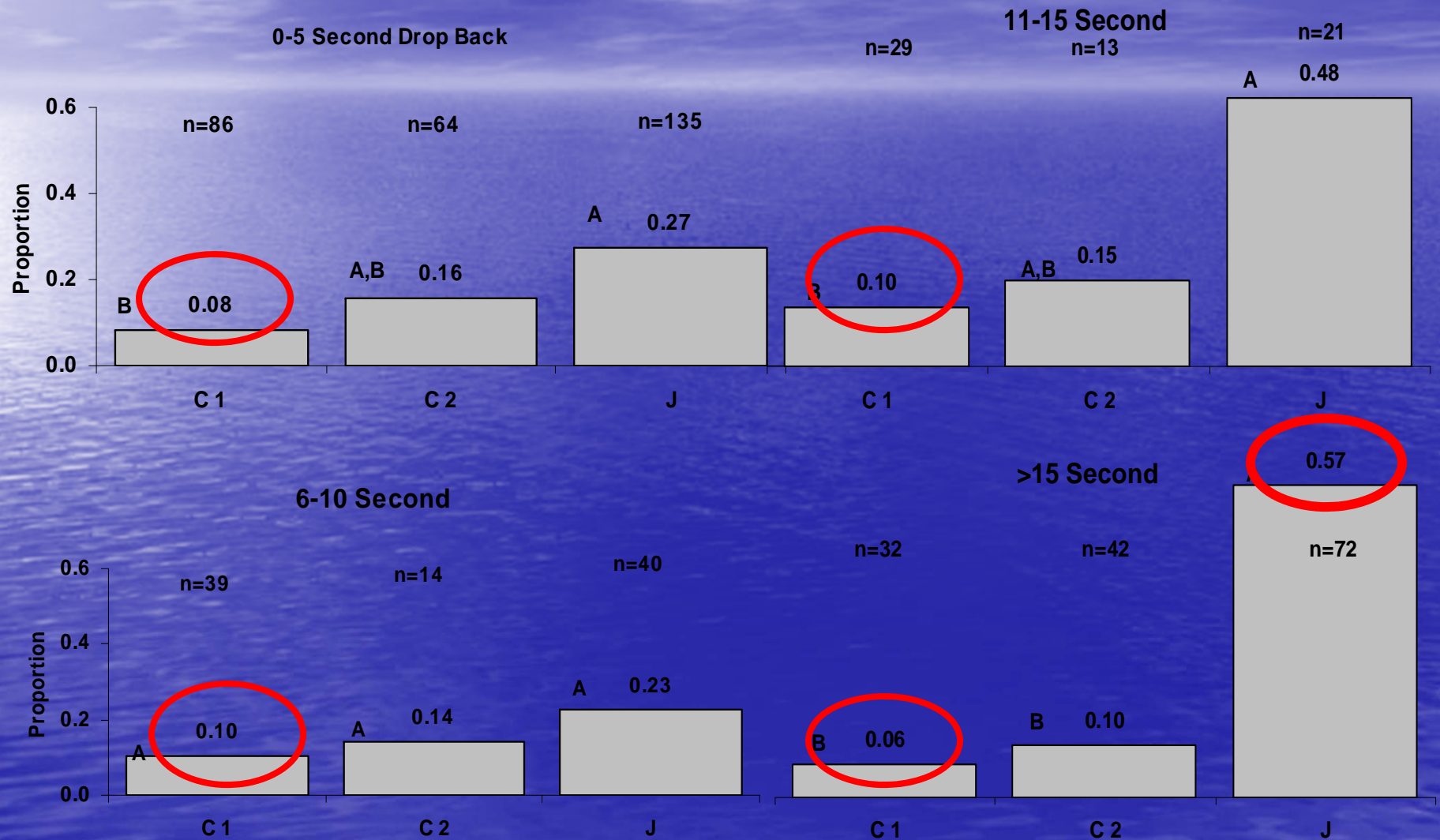








Undesirable Hook Location



Bleeding

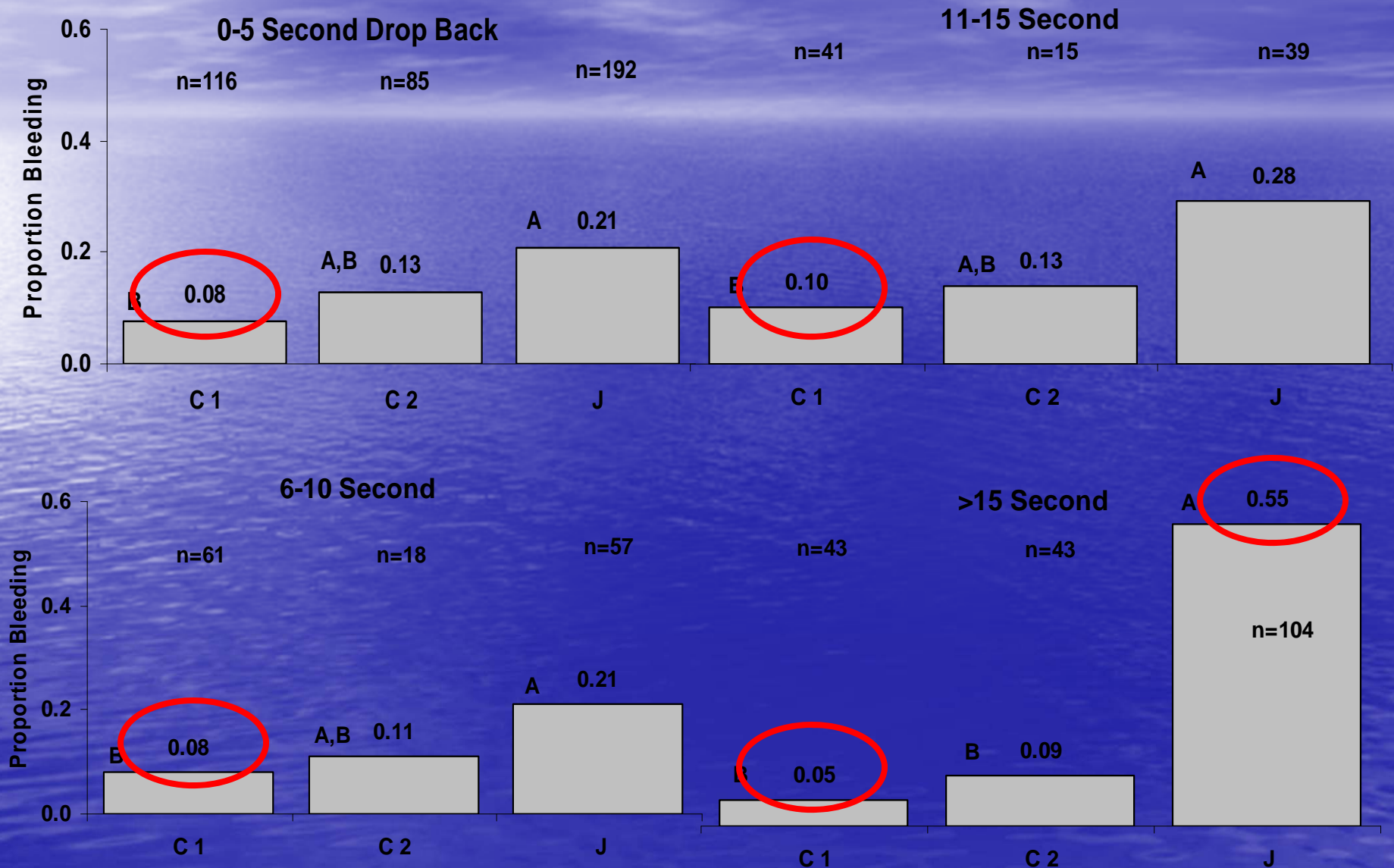
Yes



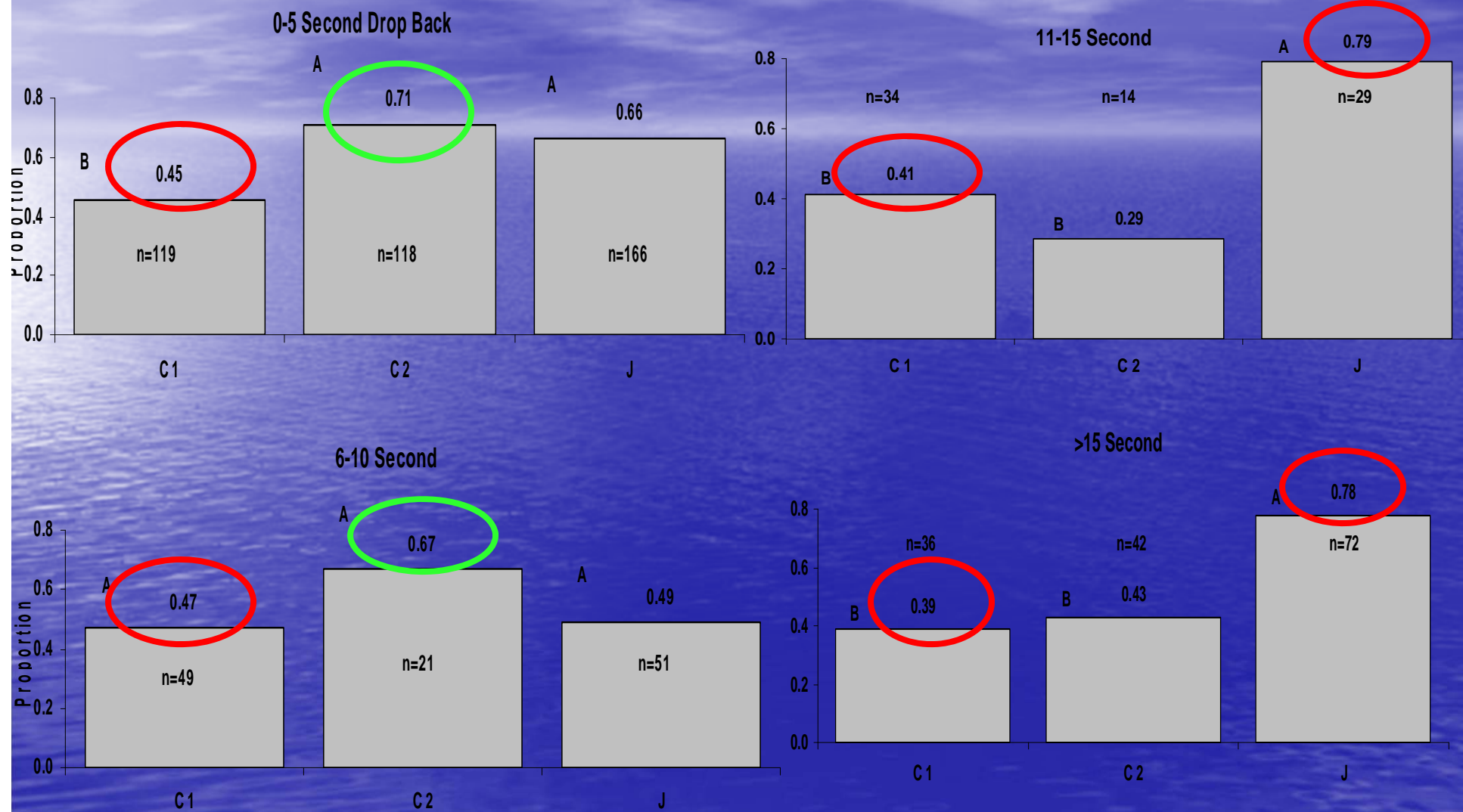
NO



Occurrence of **Bleeding** Observations



Undesirable Release Condition (Hook location and Bleeding)



Conclusions

• IN TERMS OF HOOK LOCATION, BLEEDING, and OVERALL CONDITION: Circle Hook # 1 had the most conservation benefit;

• "J" Hooks had the least conservation benefit; and

• Circle Hook #2 generally had intermediate conservation benefit relative to the other hook types. **However**, C2 hooks were the **worst** performing hook type for undesirable release condition in the first two drop back intervals.

• EXCESSIVELY LONG DROP BACK TIMES NEGATIVELY IMPACTED DESIRABLE HOOK PERFORMANCE FOR C 2 AND J HOOK TYPES, IN TERMS OF LOCATION, BLEEDING, AND CONDITION;; HOOK PERFORMANCE FOR C 1 HOOKS WAS **RELATIVELY CONSISTENT FOR ALL METRICS** DURING ALL DROP BACK INTERVALS.

• CATCH PROPORTIONS FOR all hook types were comparable.

BOTTOM LINE

• DROP BACK TIME IS AN IMPORTANT CONSIDERATION WHEN ASSESSING HOOK PERFORMANCE IN RECREATIONAL FISHERIES APPLICATIONS USING LIVE BAIT, DEAD BAIT TROLLING, OR PITCH BAITING TECHNIQUES TARGETING PELAGIC FISHES.

IN ADDITION

GIVEN THE RESULTS PRESENTED HERE, DROP BACK TIME WOULD APPEAR TO BE A RELEVANT CONSERVATION ISSUE FOR **ALL** CATCH AND RELEASE APPLICATIONS INVOLVING DEAD OR LIVE BAIT.

SPECIAL THANKS TO OUR CAPTAINS AND THEIR CREWS

•CAPTAINS:
Bouncer Smith, Ray Rosher, Jimbo Thomas, Tore Turney, Mark Houghtaling, and others;

•JOAN VERNON AND THE BOARD OF DIRECTORS OF THE MIAMI BILLFISH TOURNAMENT

•THE BILLFISH FOUNDATION AND INTERNATIONAL GAME FISH ASSOCIATION

•WE THANK BILL COMBS FOR PROVIDING ON WATER IMAGES USED IN THIS PRESENTATION

