Tab E, No. 4(a)

Minimizing Red Snapper Discard Mortality

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TEXAS A&M UNIVERSITY CORPUS CHRISTI | HARTE RESEARCH INSTITUTE FOR GULF OF MEXICO STUDIES

Center for SPORTFISH SCIENCE & CONSERVATION

Research Objectives

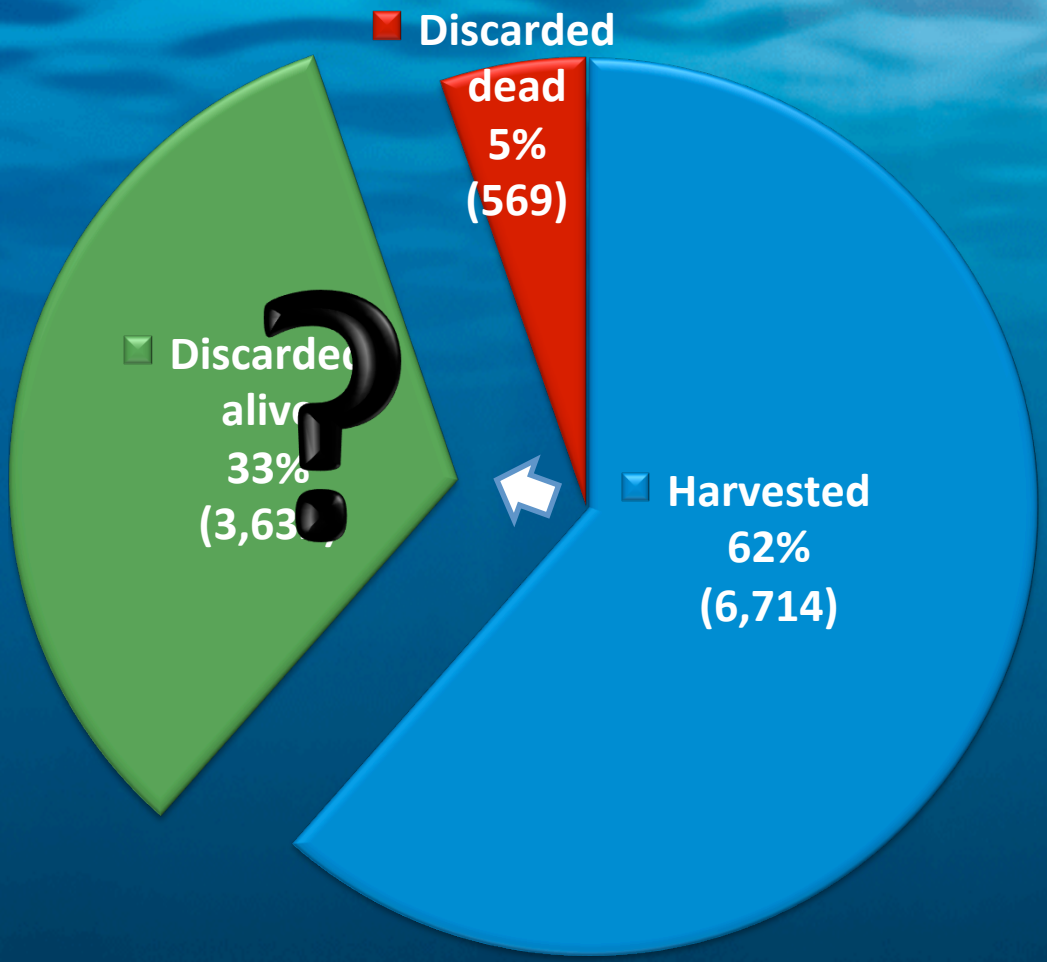
1) Estimate mortality of discarded Red Snapper using acoustic telemetry

2) Compare performance of release tools to mitigate discard mortality

3) Determine temperature (seasonal) and depth effects and interactions

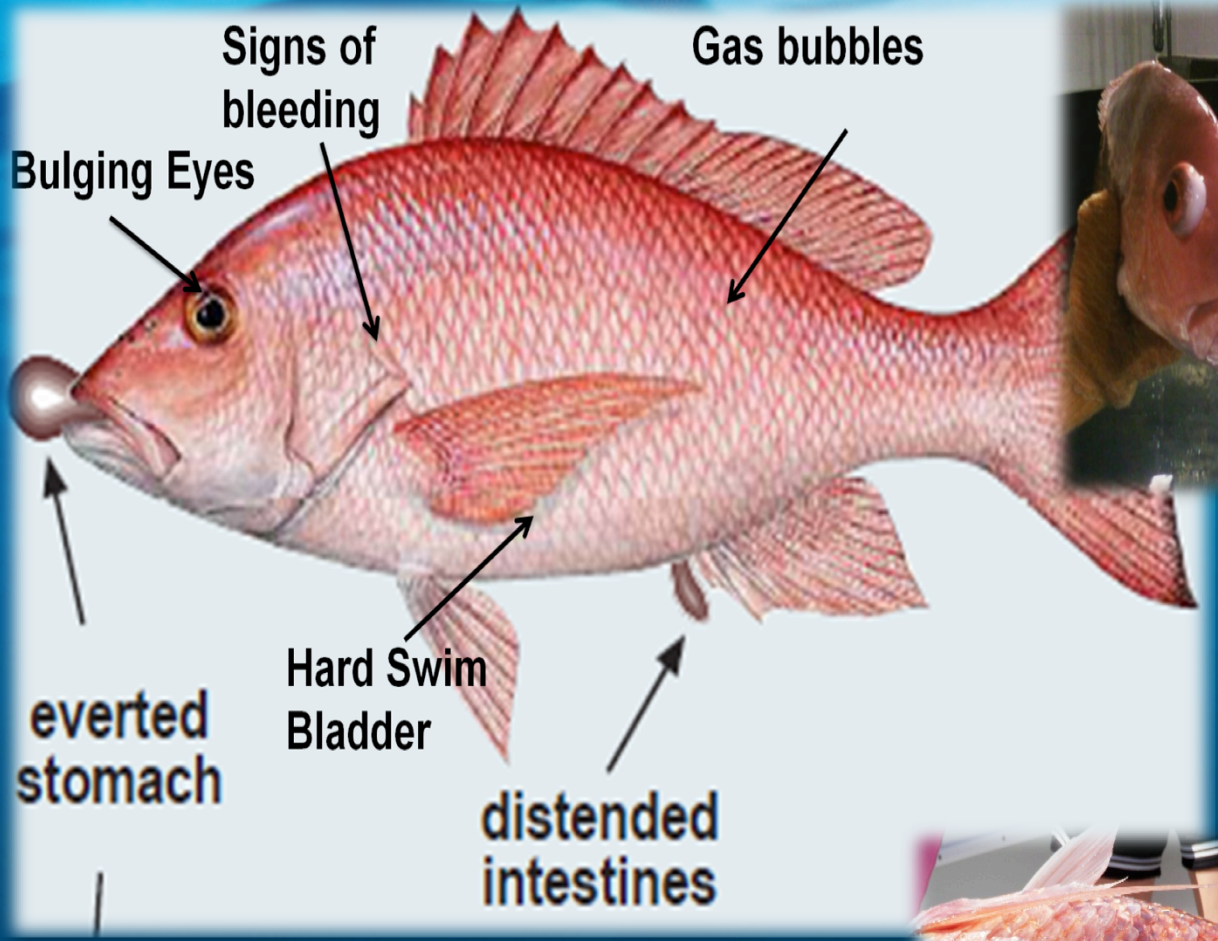
4) Assess angler “buy-in”

Discard Mortality



"iSnapper"

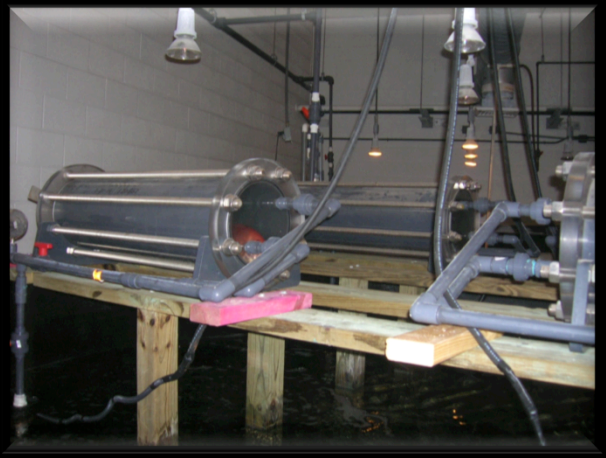
Barotrauma (Pressure-related injuries)



Rapid Recompression Devices

- Coupled with heavy weight, descends discarded fish back to depth
- Various manufacturers and types
  - SeaQualizer
  - Blacktip
  - Shelton hook
  - Milk crates
- Successfully reduce discard mortality

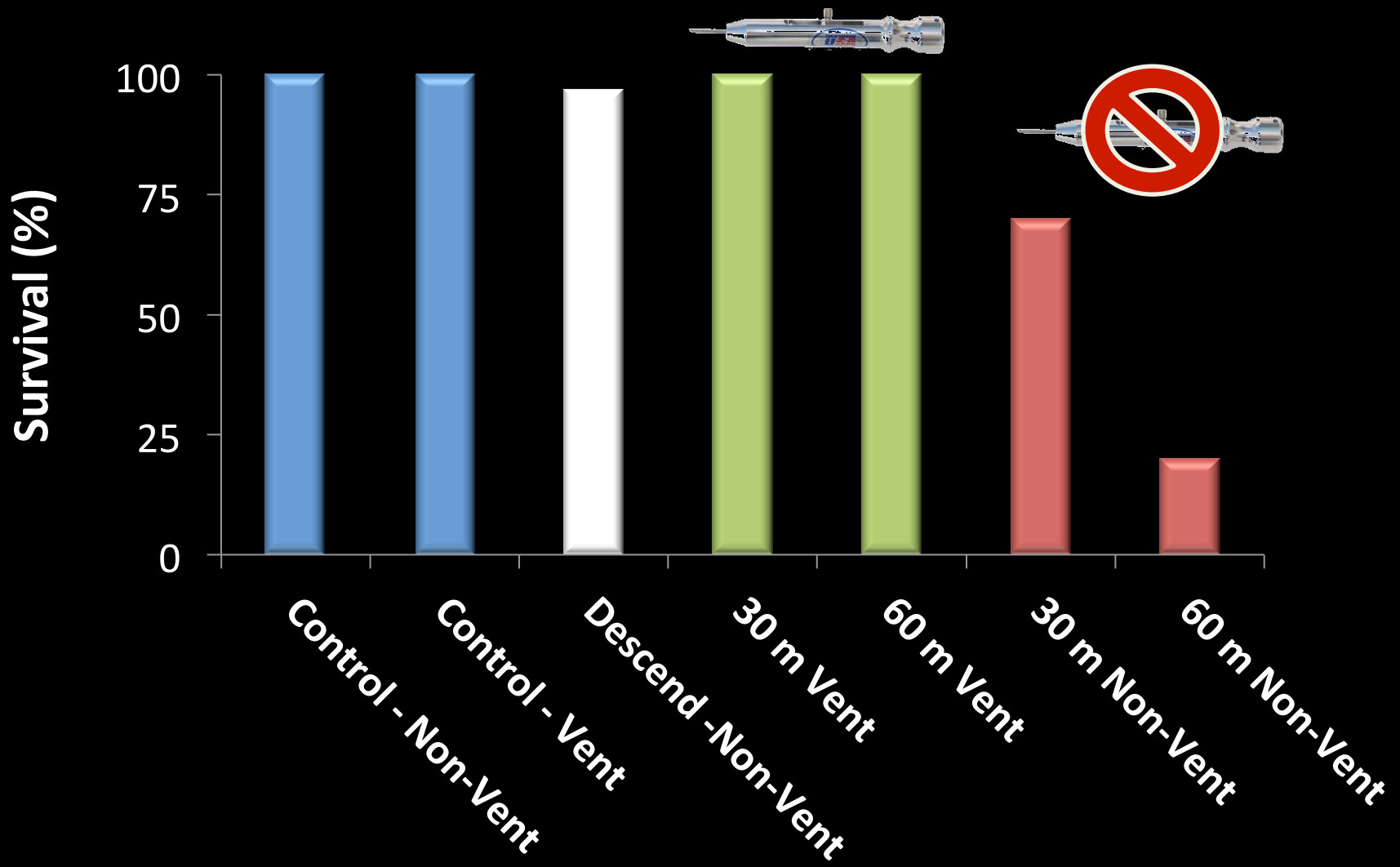
“In the Lab…”



Vent/Recompress

Non-Vented

Mortality: *Laboratory Results*



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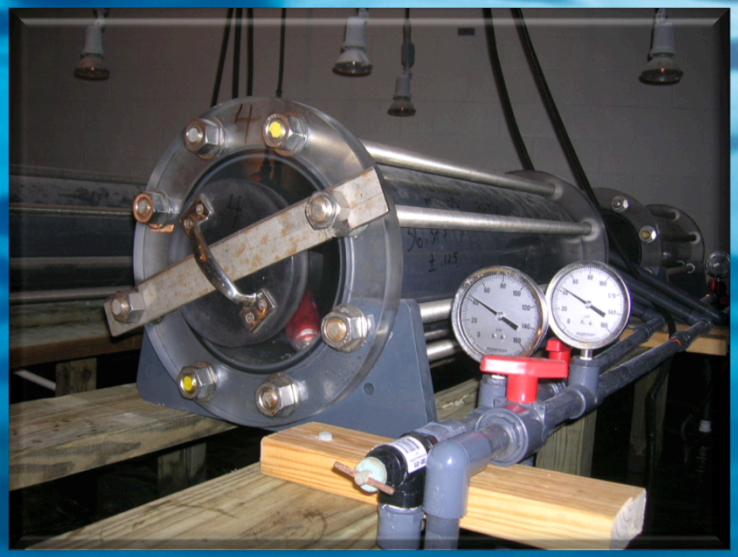
Drumhiller et al. 2014: *Mar Coast Fish*



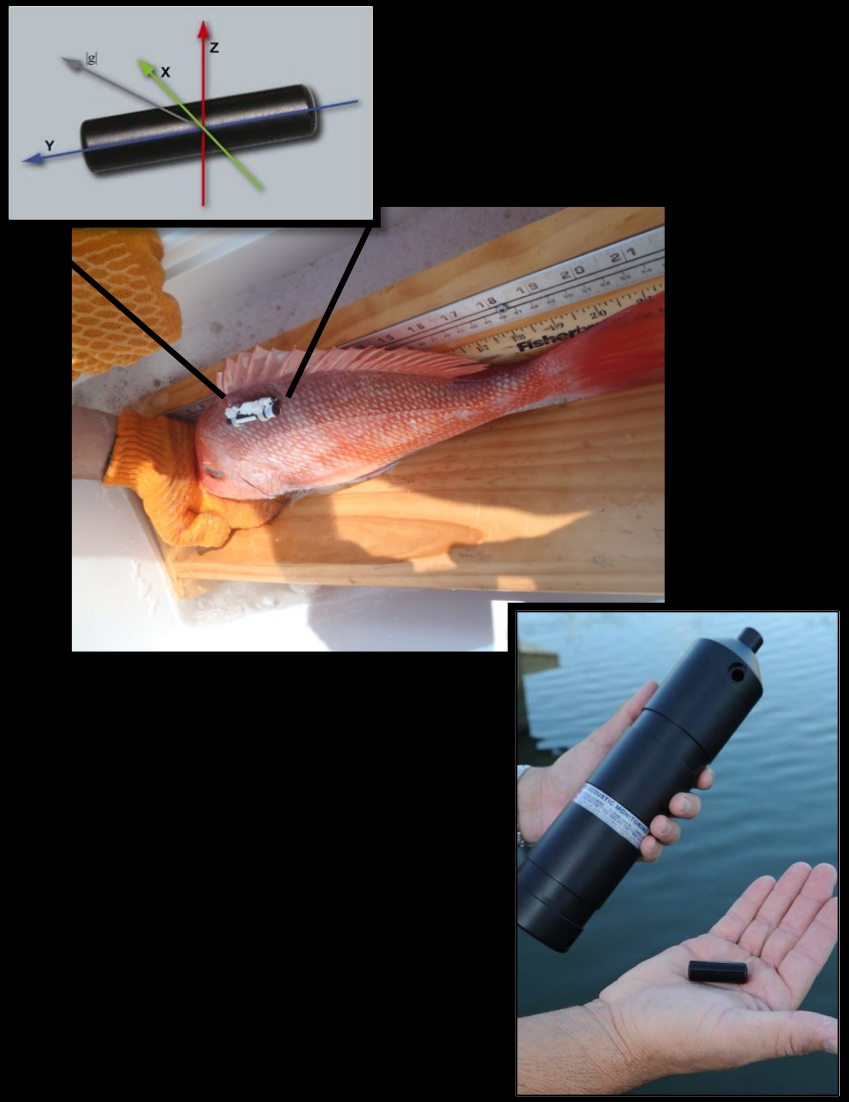
Controlled Laboratory Conditions

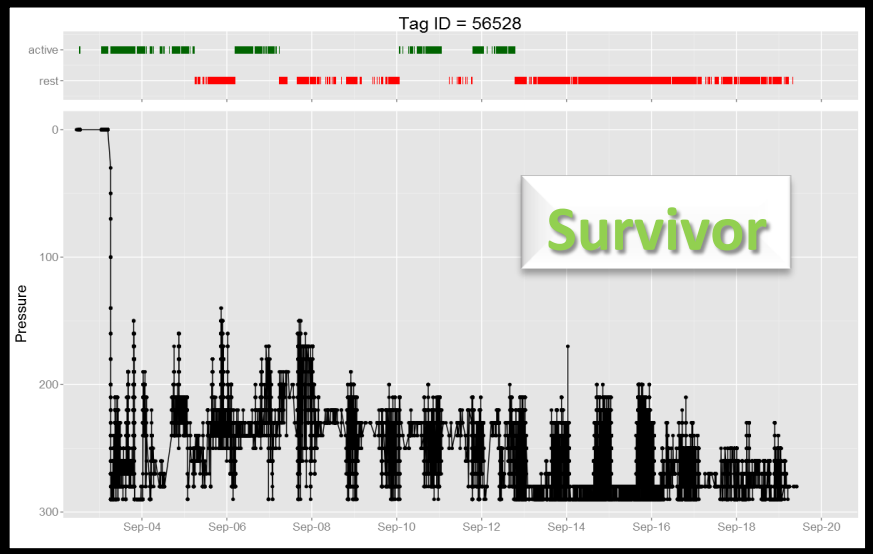
vs

Field Conditions

1) Field conditions inherently more variable
2) Widely variable depth/seasonal effects in field?
3) Stress associated with capture
4) Predators

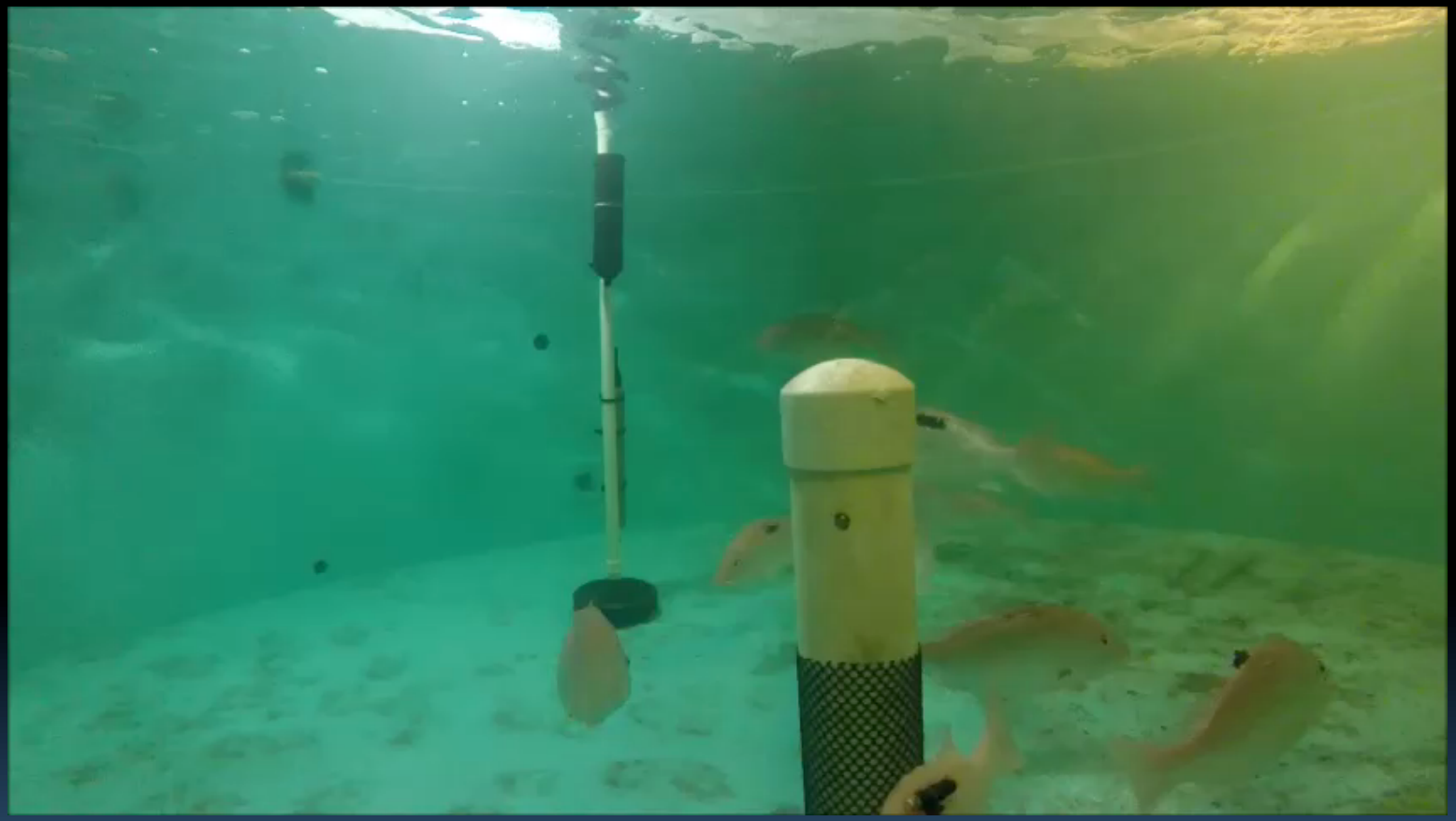
Solution: *Acoustic Telemetry*



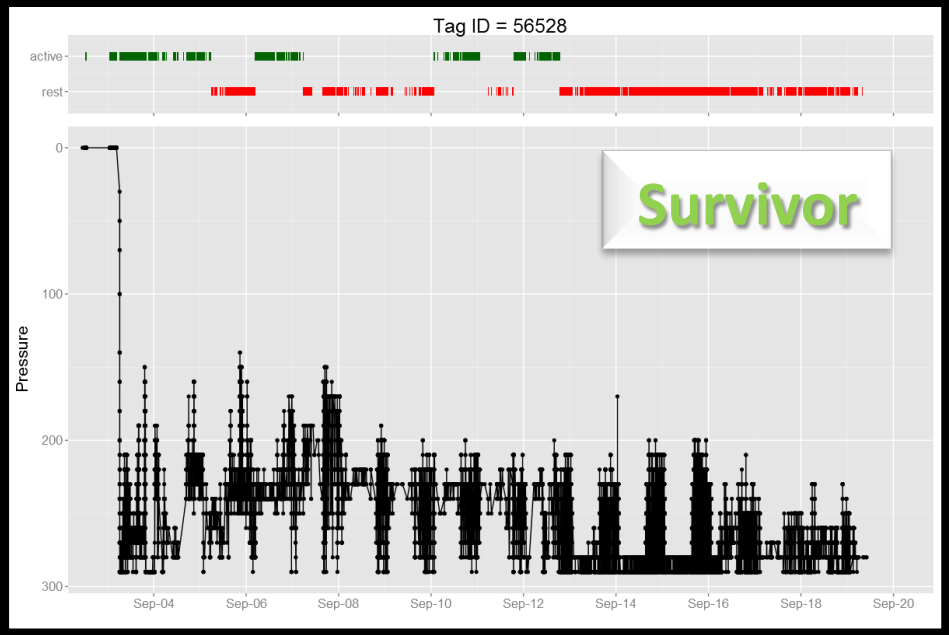


Lab Tagging Trials

14 days after tagging



Fate?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rest
Pressure
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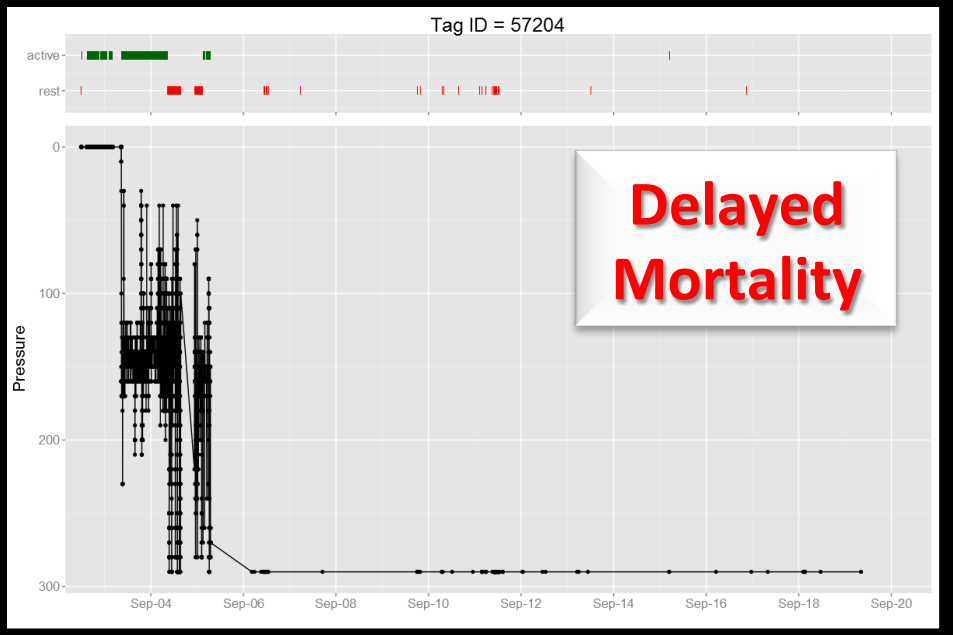
100
200
300
Sep-04
Sep-06
Sep-08
Sep-10
Sep-12
Sep-14
Sep-16
Sep-18
Sep-20
Survivor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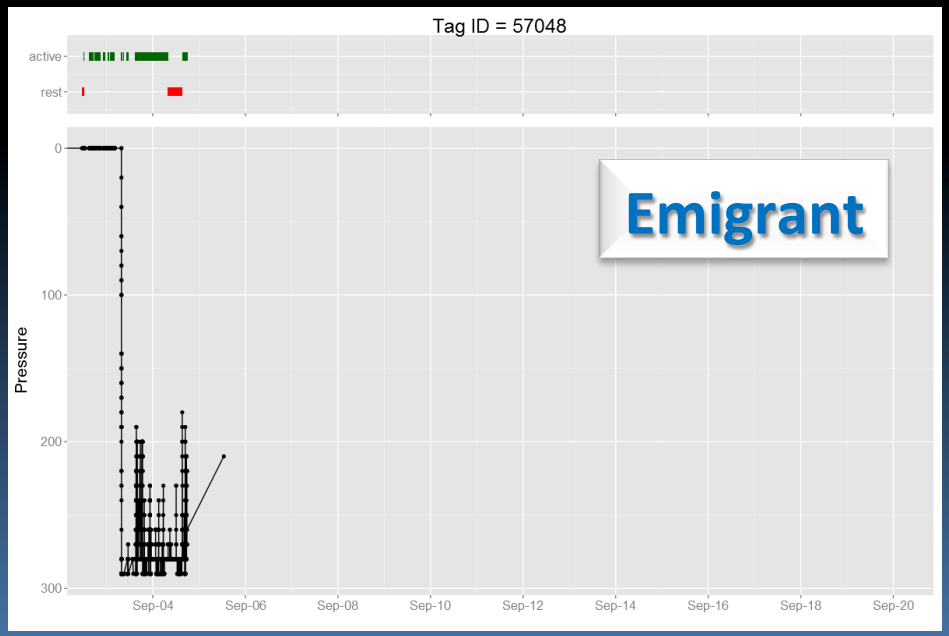
Sep-20
Delayed Mortality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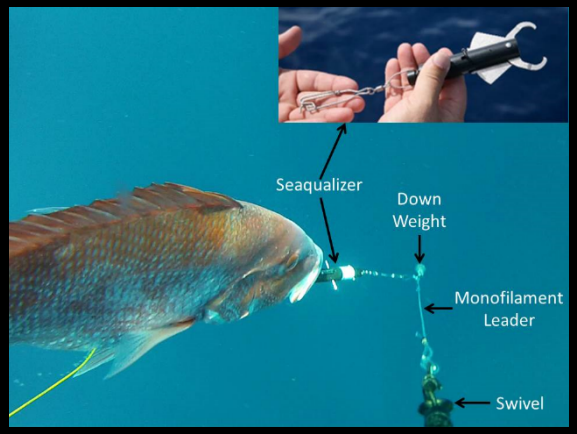
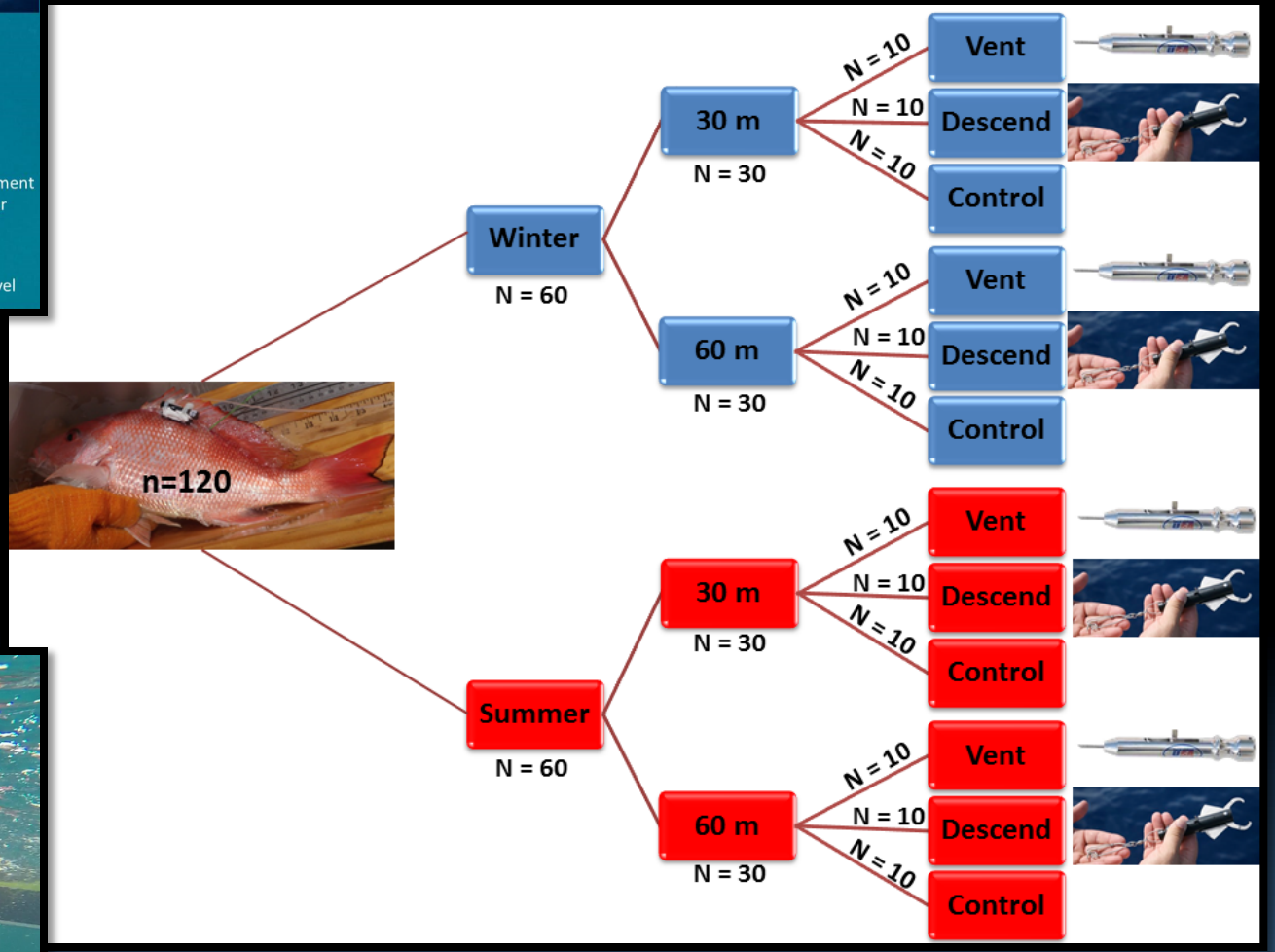
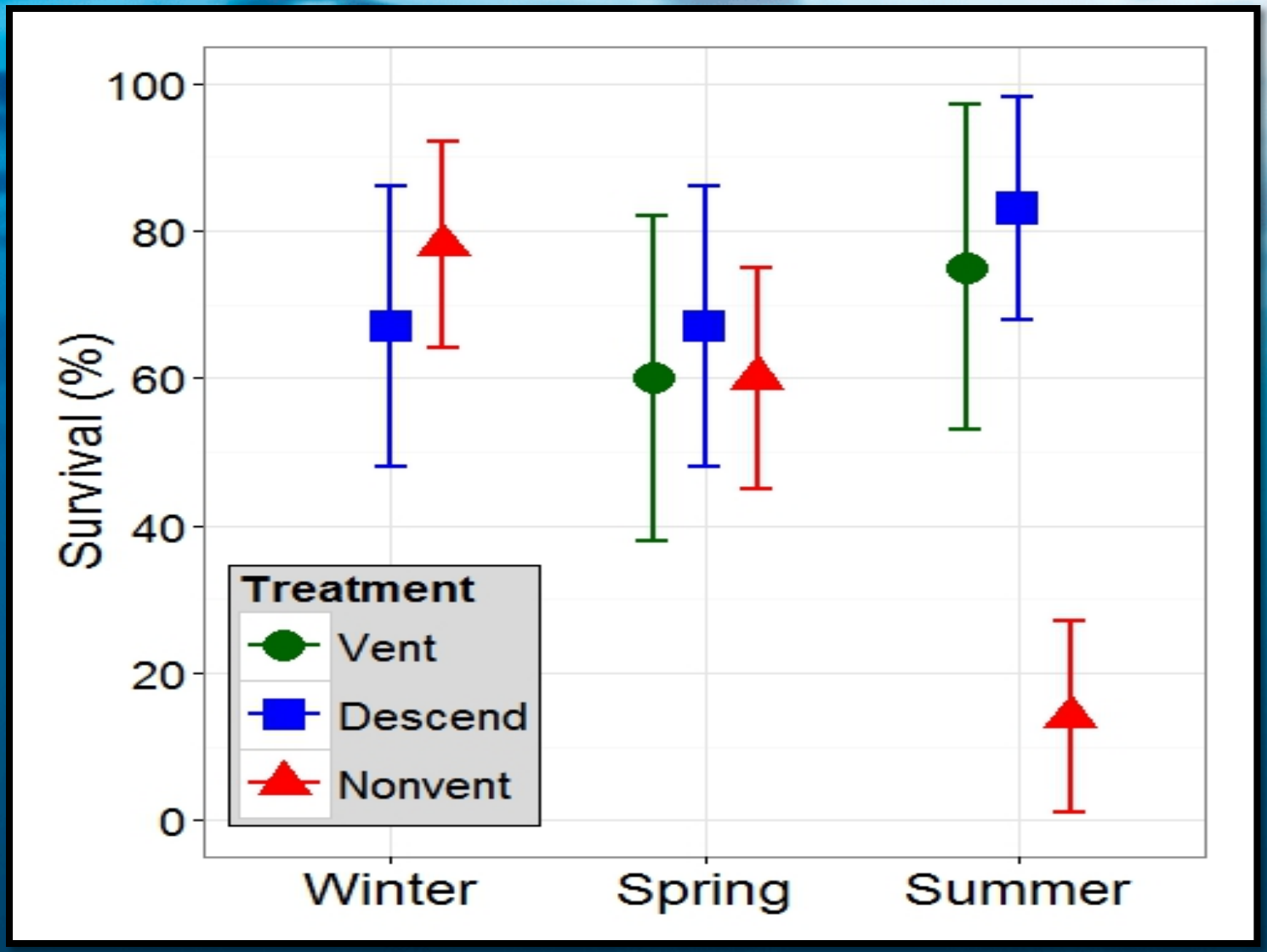
Sep-20
Emigrant

BREP: *Design* - Ongoing Field Studies



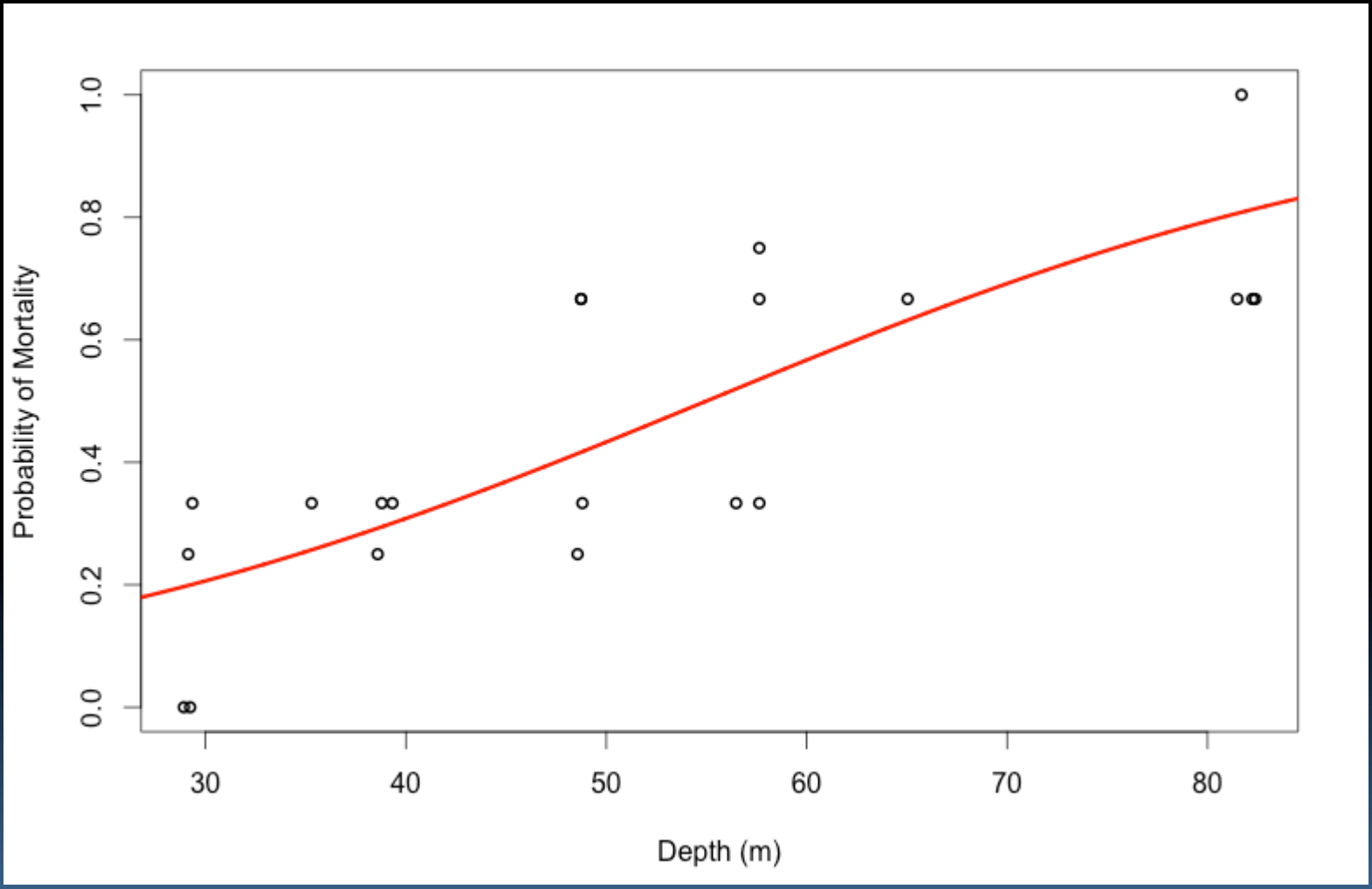


Field Survival (50m)

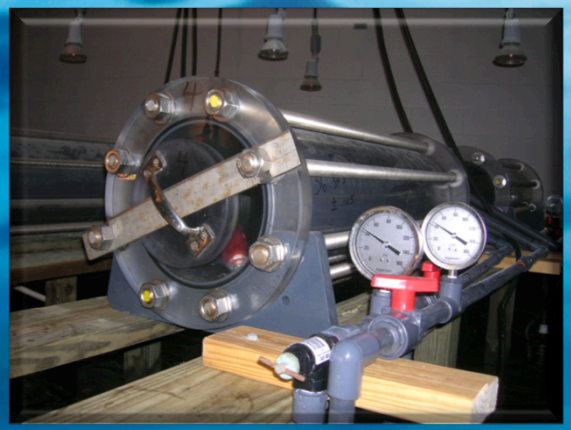


Curtis et al. 2015: *Mar Coast Fish*

Capture Depth *vs* Mortality



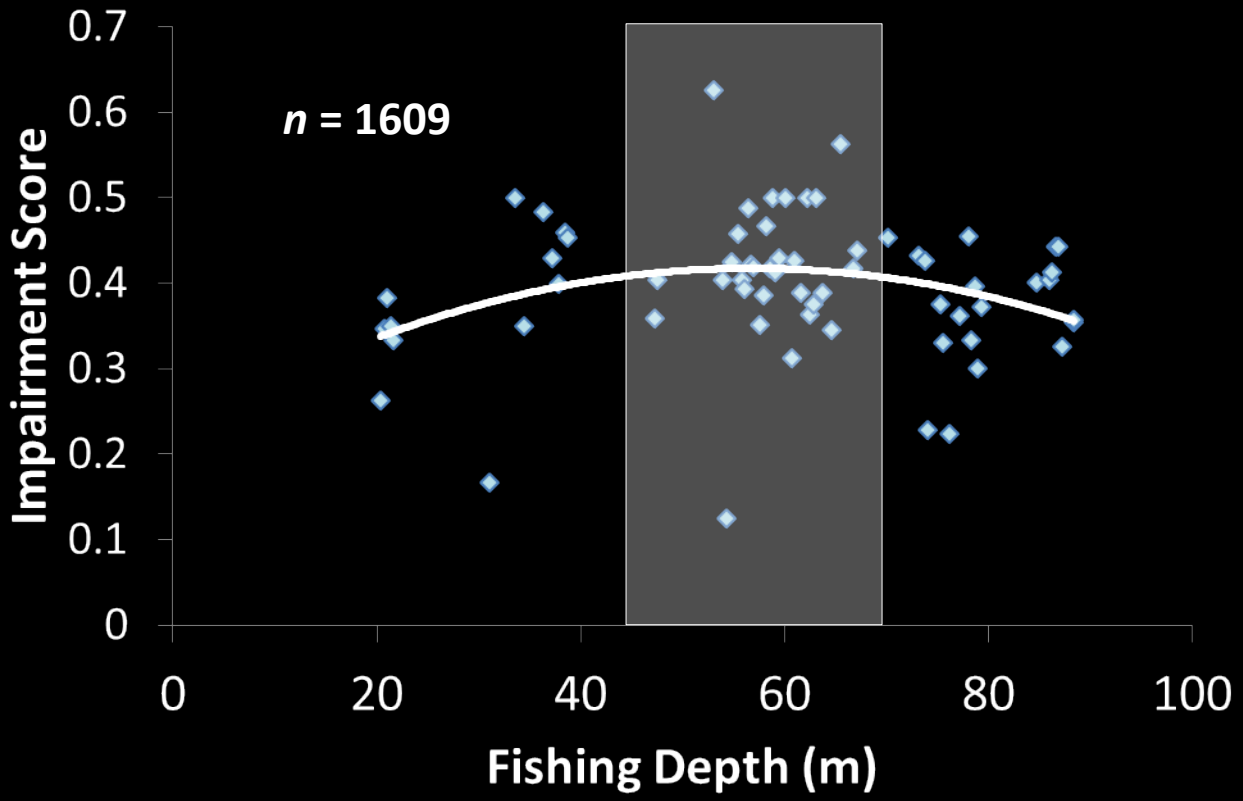
Barotrauma Impairment Scoring



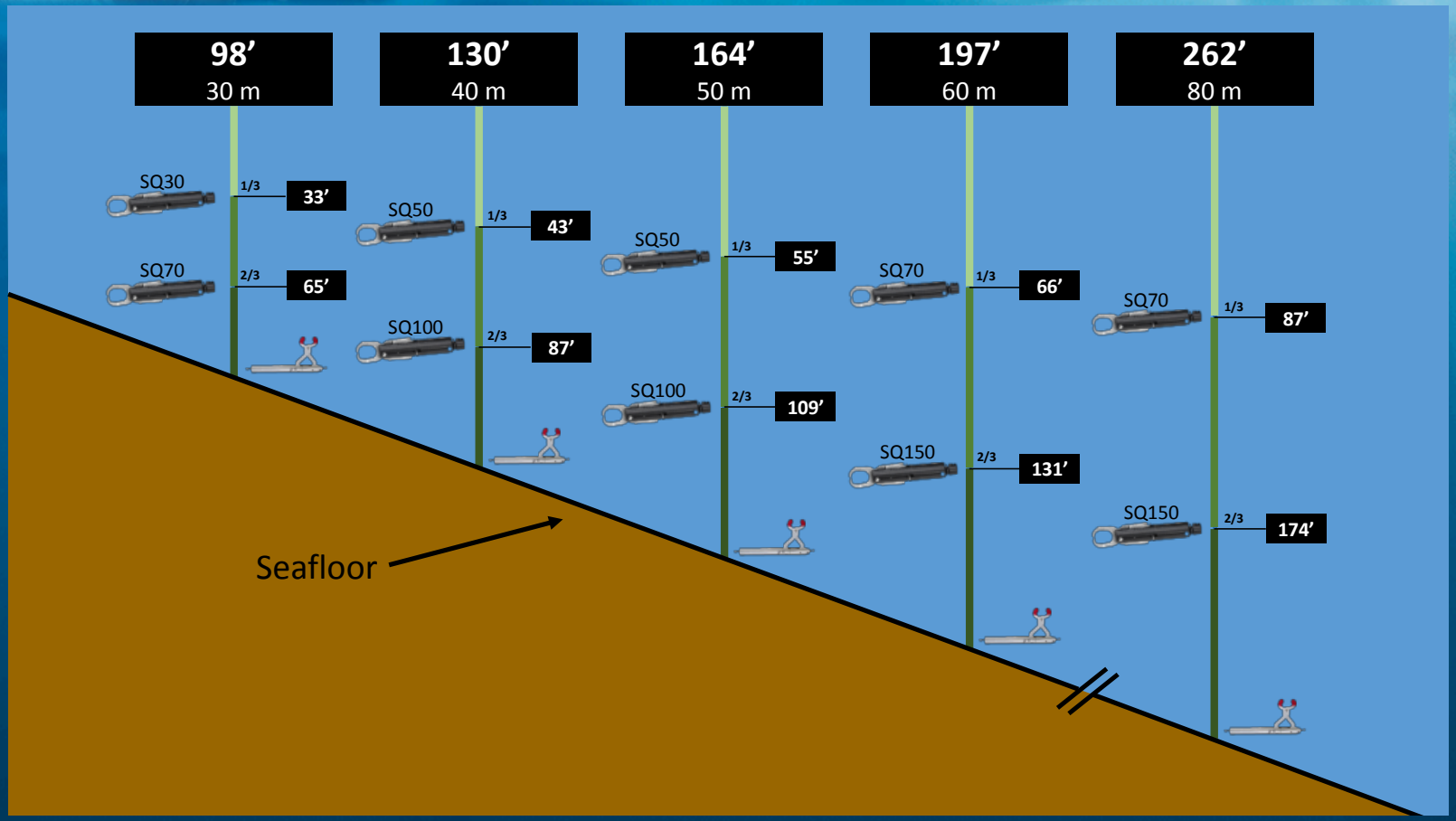
Drumhiller et al. 2014: *Mar Coast Fish*

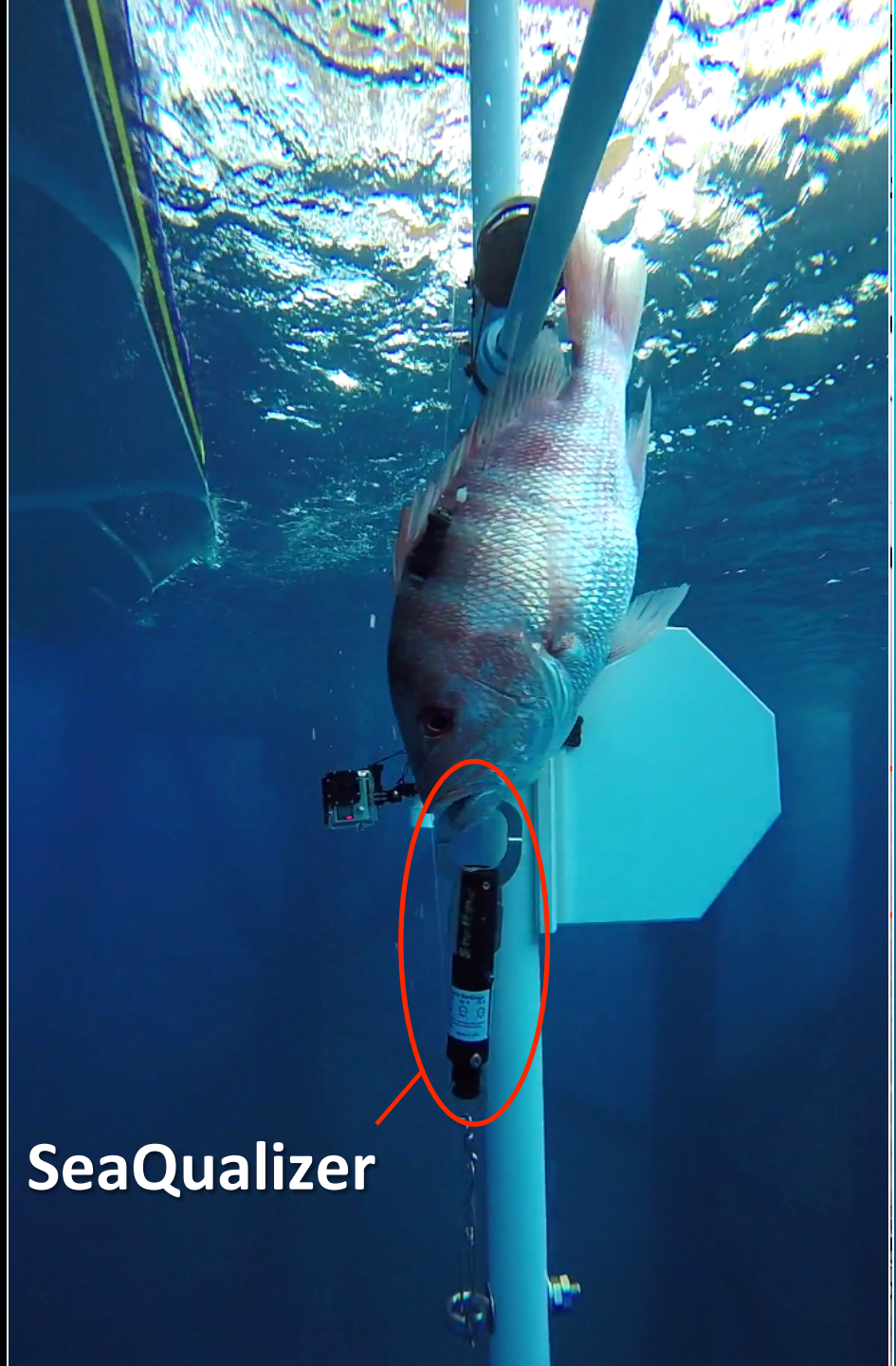
Barotrauma Impairment Scoring

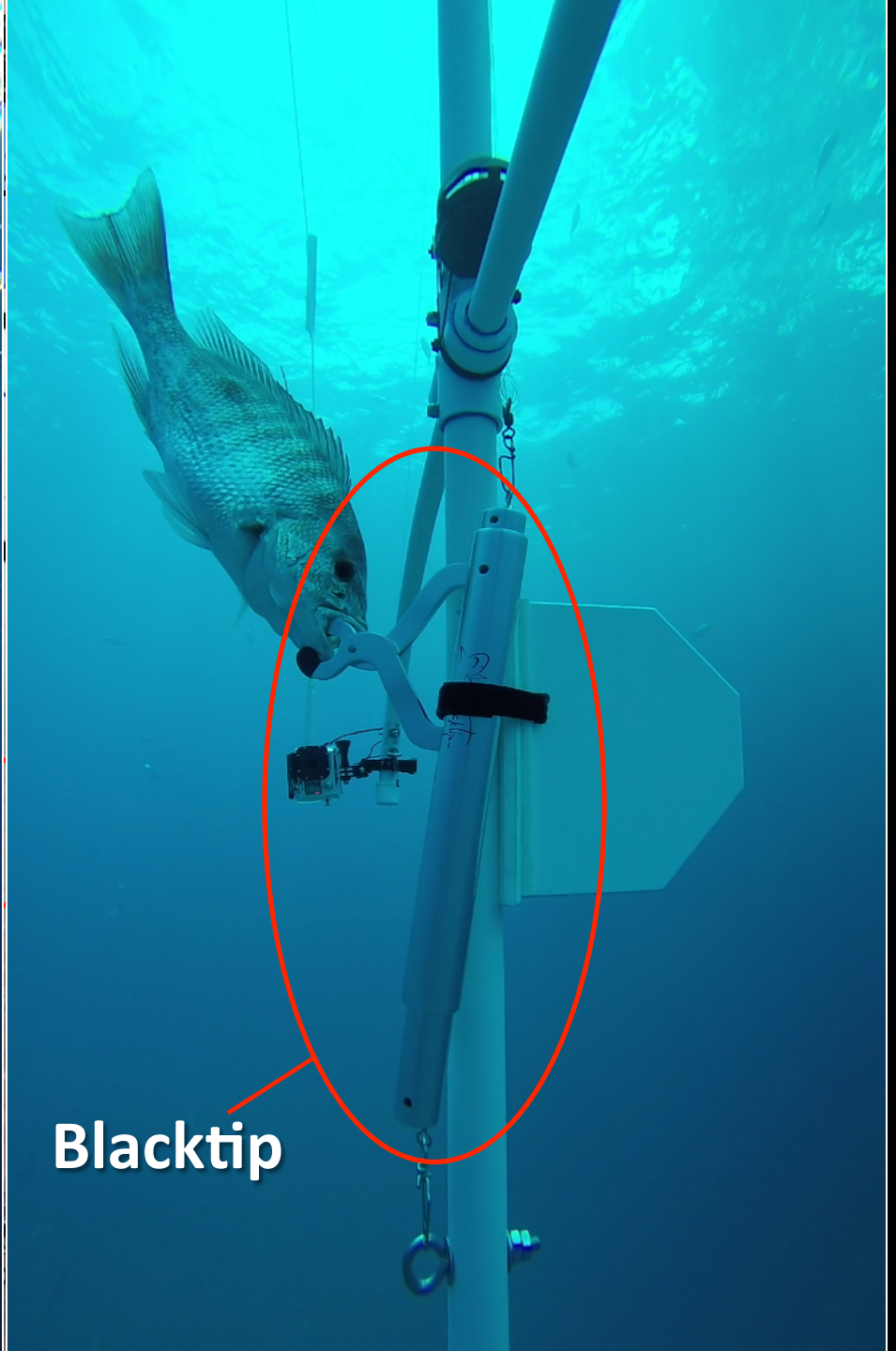


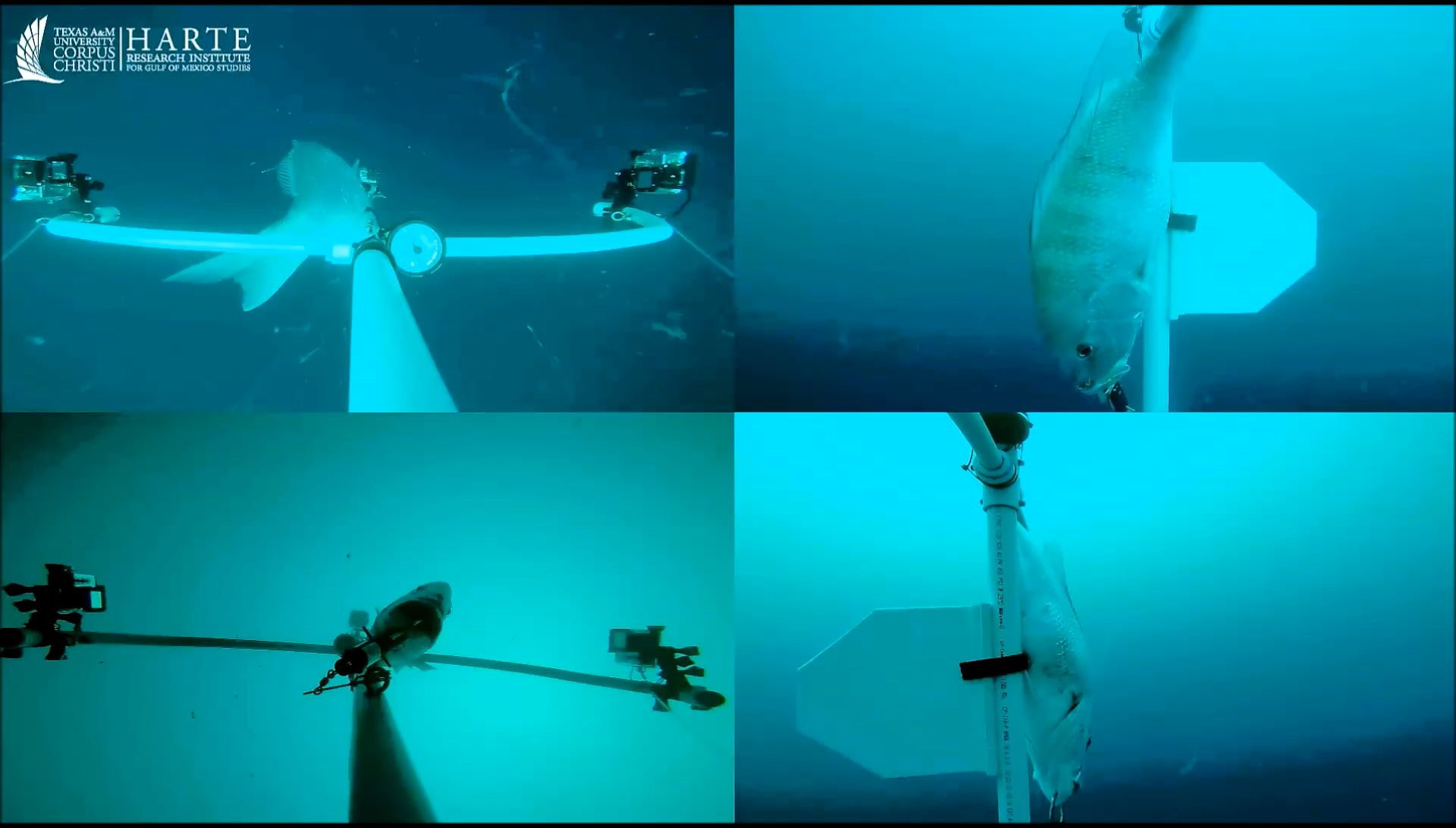
NFWF -Approach and Design:
Sweet spots, Release Depth, Tools




SeaQualizer


Blacktip

HARTE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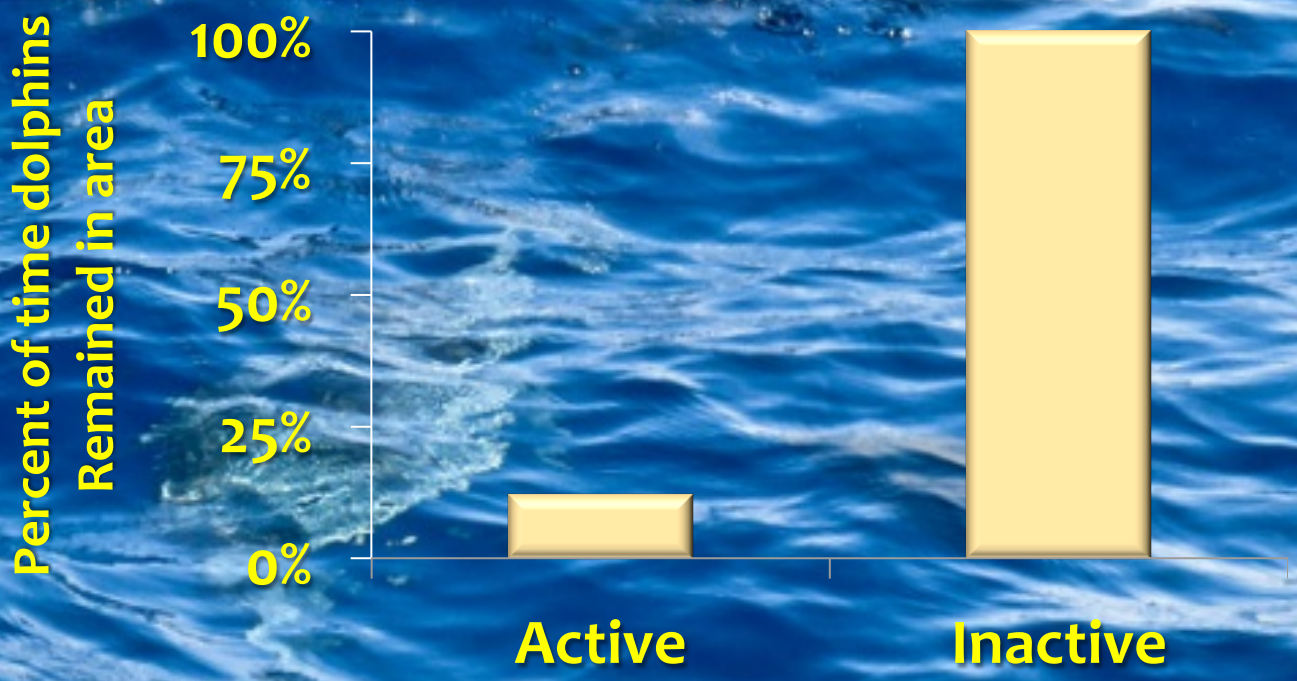
Dolphin
Released snapper

Acoustic Deterrent Device



Preliminary Results (NFWF Study)

	30 m	40 m	50 m	60 m	80 m
Observations	62	56	52	53	57
Acoustic tagged	14	12	14	14	15
Fight time (s)	53	76	91	97	104
Deck time (s)	114	110	145	161	98
Mean TL (mm)	457	517	535	526	473
1/3 survival	95%	79%	93%	71%	32%
2/3 survival	100%	84%	64%	75%	56%
Bottom survival	95%	76%	63%	64%	11%
Overall Survival	**96%**	**80%**	**73%**	**70%**	**37%**

It works, but… will anglers use them?

- Distribute SeaQualizers to recreational anglers

  → Partnership with FishSmart

- Survey for feedback on descender device use

- Ride-along trips with charters and recreational anglers

AMERICAN SPORTFISHING ASSOCIATION

TAKE ME FISHING™
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Distribution of Participants in the FishSmart Descender Distribution and Education Project

	AL	FL	GA	LA	MS	NC	SC	TX	Total
Total	252	380	81	69	25	31	69	242	1,149

Preliminary Survey Results*

* **Exposure:** On average: 8 months usage, on 15 fishing trips, *releasing ~ 75 fish ea. total.*

* ***Increased Awareness:*** 72% had little or no knowledge of descender devices prior to participating

* **Effective Education:** 67% found *Best Practices* materials helpful to improving the way that they release fish

* **Changed Behavior:** 76% are now likely to use a descender device

* Survey conducted jointly with Texas A&M University-Corpus Christi , Harte Research Institute for Gulf of Mexico Studies

Preliminary Survey Results
(continued)

* ***Changed Preferences:*** 70% prefer to descender devices over venting tools

* ***Improved Perceptions;*** 78% believe descender devices would be helpful or very helpful to reducing discard mortality.

* ***Extended Communication:*** 95% talked with, or involved other anglers in, the use of descending devices.

* **Additional results to follow**

Take Home Messages:

1) Descender Devices work

2) Strong seasonal effects on mortality

3) Depth (*of course*) an important factor in survival

4) High benefits of descending devices up to a depth *"Tipping point" - ~ 180'*

5) Angler acceptance

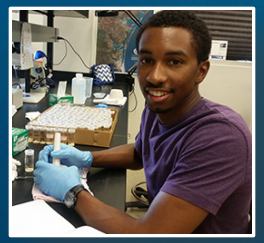
6) Showing promise not just in Gulf by many other areas

Acknowledgments

NFWF
NOAA FISHERIES
NOAA-ECSC
AgriLIFE RESEARCH
Texas A&M System


Judd Curtis, Ph.D.


Jason Williams


David Norris


Karen Drumhiller


Alex Tompkins


Matt Streich