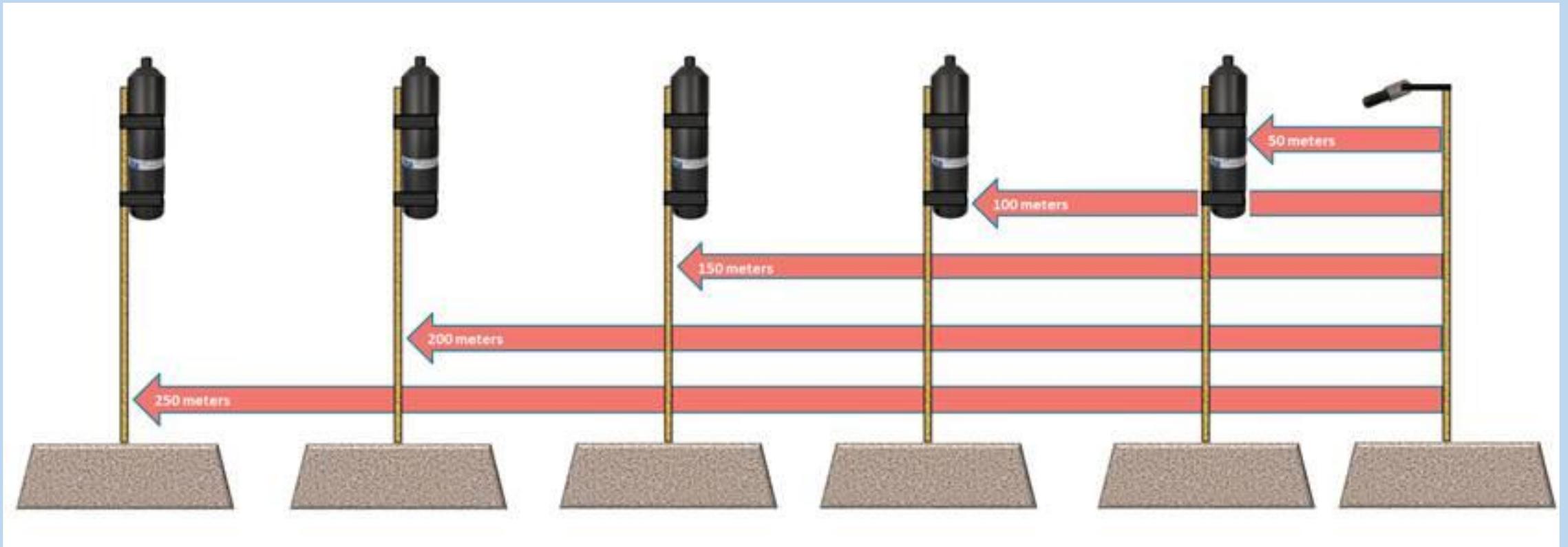


Range Testing Workshop



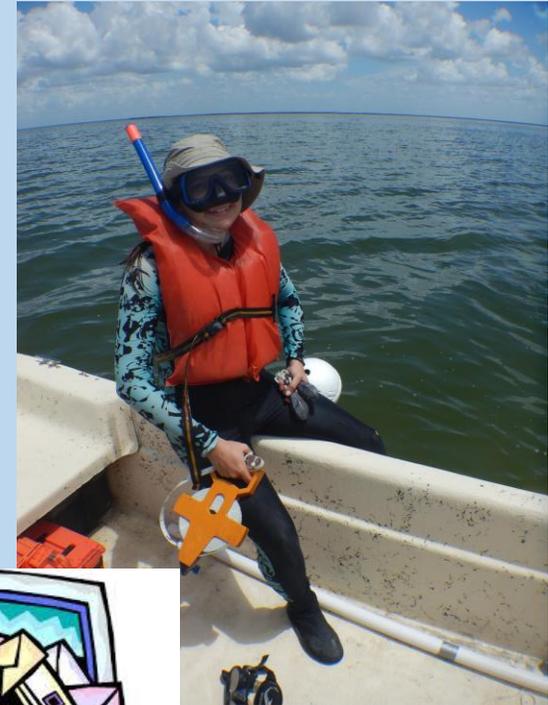
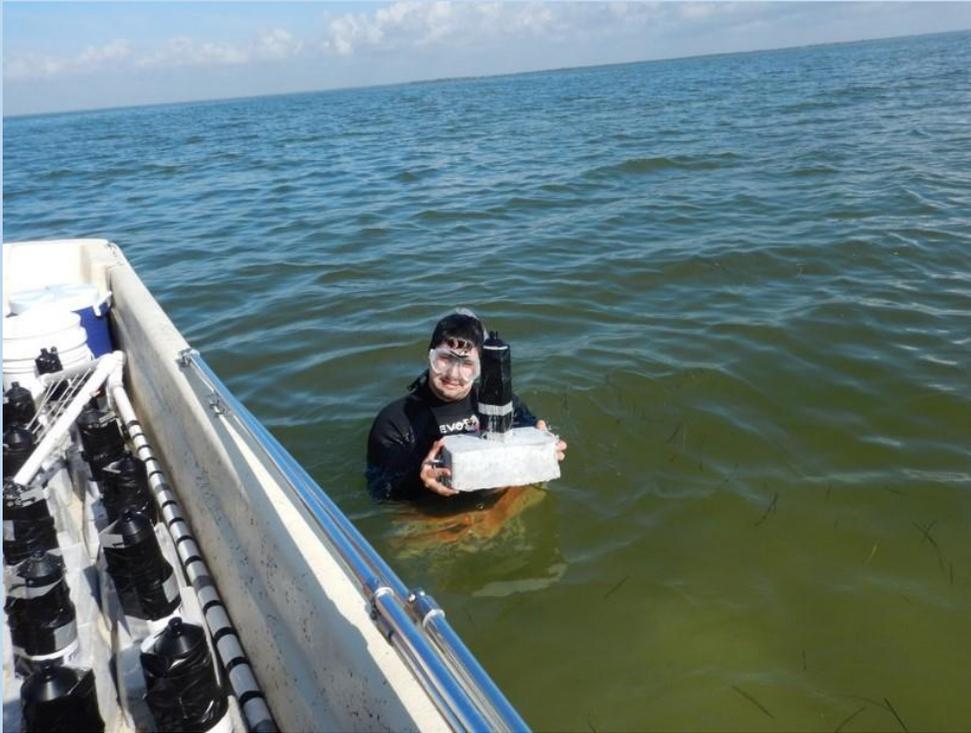
Jon Rodemann
Mitch Rider

FACT Meeting
December 2022

Introduction: Why range testing?

You need all of this:

Before this:



Introduction: Why here, why now?

Not a new problem

Environmental interference factors affecting detection range in acoustic telemetry studies using fixed receiver arrays

Noelle H. Mathies^{1,*}, Matthew B. Ogburn², Greg McFall³, Sarah Fangman³

¹Savannah State University Marine Sciences Program, 3219 College Street, Savannah, Georgia 31404, USA

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³Gray's Reef National Marine Sanctuary, 10 Ocean Science Circle, Savannah, Georgia 31411, USA

A review of detection range testing in aquatic passive acoustic telemetry studies

S. T. Kessel · S. J. Cooke · M. R. Heupel ·
N. E. Hussey · C. A. Simpfendorfer · S. Vagle ·
A. T. Fisk

Both papers from 2014!

But new
emphasis on it!



Goals

1) Aggregate
range test data
into a data
product



Range testing metadata on
OTN/network nodes

2) Best practices
of range testing
document across
networks



Paper on range testing best
practices

Schedule

Short range testing presentations – 20 minutes

Questions on range test presentations – 15 minutes

Summary of online surveys – 10 minutes

Range testing discussion with audience – 45 minutes

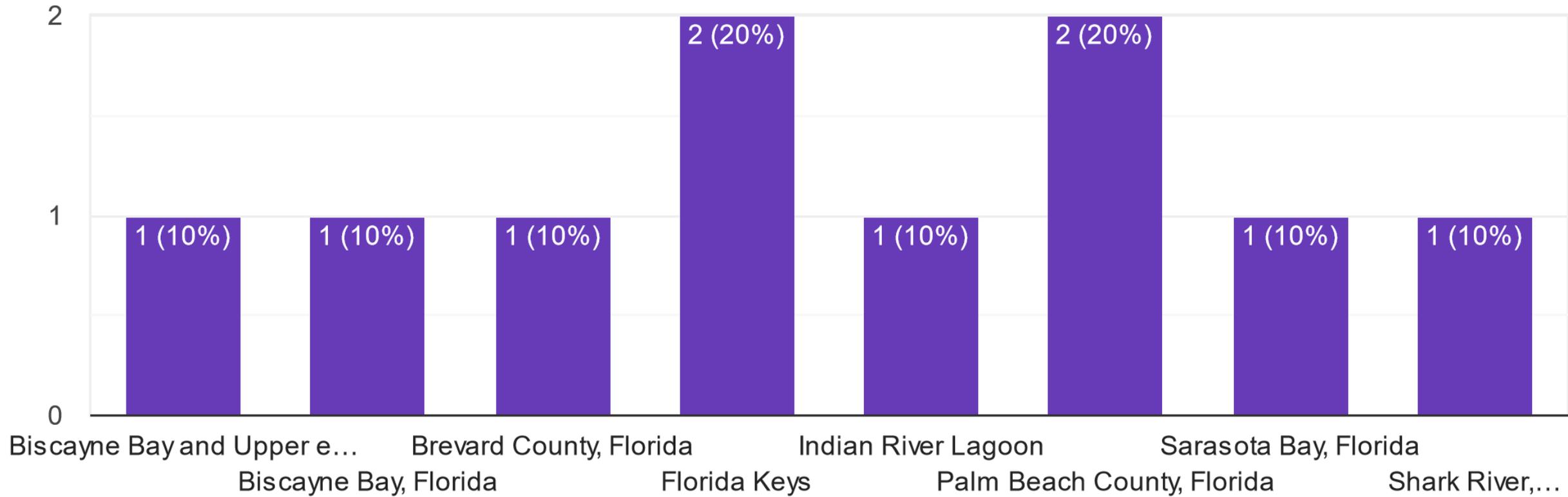
Break – 20 minutes

Range testing discussion (both best practices and metadata design) – 45 minutes

Survey summaries

General Region of Array (e.g., Biscayne Bay, Florida)

10 responses



Summary stats

- Percentage of receivers tested: 7.5 – 80%
- Depth of receivers: 1 – 18 meters with one deeper, most common response 3 meters
- Height of receiver off bottom: 0.3 – 4 meters, most at 0.5 – 1 meter
- Sand (n = 8) and seagrass (n = 5) most common substrate
 - Every substrate selected except for concrete
- Flats, inner reef, and channel most common habitats (n = 3)
 - Every habitat selected except for urban

Inspiration for range test

- 7/9 researchers used previous range tests as a guide

Some sources

- Keller et al. 2020
- Feeley et al. 2018
- McCallister et al. 2018
- Previous researchers
- Innovasea

Length of deployment

- 3/9 throughout deployment
- 3/9 less than 1 hour
- 3/9 between 1 hour and over a day

50% detection ranges

- 200 meters very common across habitats!
- Sand greater, reef less

Overall impressions:

- Very different areas, habitats, and depths across Florida!
- Seems to be different methodology as well
 - Different timing of deployment
- But... Similar ranges!
- What's the best way of getting at this range? And how do we share it? Let's discuss!

Guided discussion

Goal: Start thinking about addressing 2 goals

Guided discussion

Node range testing data

What do you want to know before a range test if you are starting from scratch?

Just a place to start? More detailed description?

What do you want me to tell you about another user's range tests when I am giving you detections from their array?

How extensive does the range test have to be to use the data?

What data is needed for large-scale telemetry papers?
What about individual species?

Are these the same? Same metadata or contact array?

What do you feel comfortable contributing to
FACT/OTN node?

More broad and ask owner?
Specifics right from node?
Required?

Guided discussion

Range testing best practices

What has worked for you? Any tips from the field, things you ran into that you didn't anticipate?

Is short term range testing enough?

If not, what categorizes long term? Entire study? A year?

Best practices for long term from people who have performed them

Does environment impact the best practices for range test or can it be a ubiquitous method?

If it needs to be by environment, examples?

Call for collaborators – Who would like to be involved?

FACT Range testing paper

Best Practices paper