

Is there evidence of pier fidelity in hooked Cc & Lk using acoustic & satellite telemetry?

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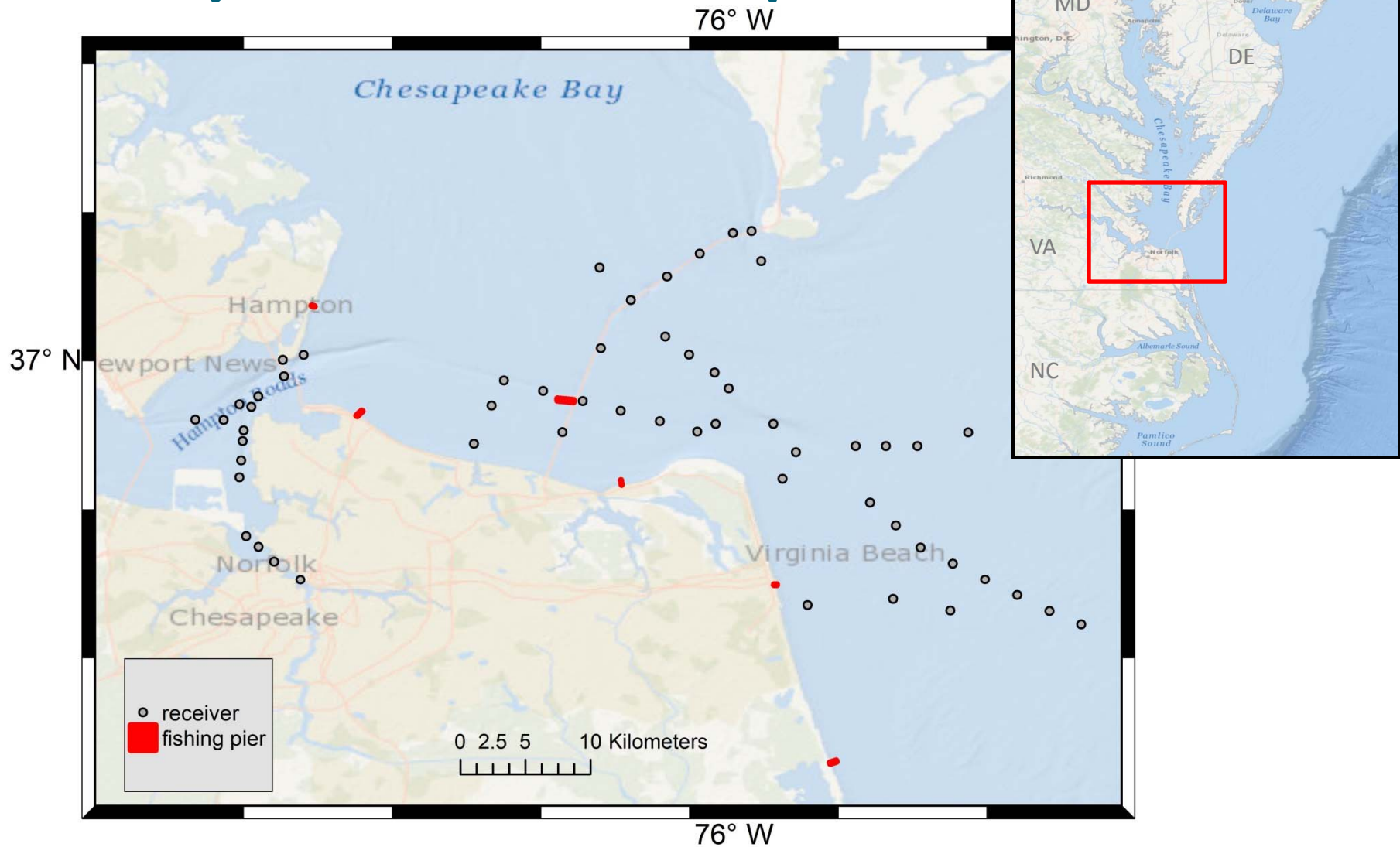
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²Naval Facilities Engineering Command, US Navy



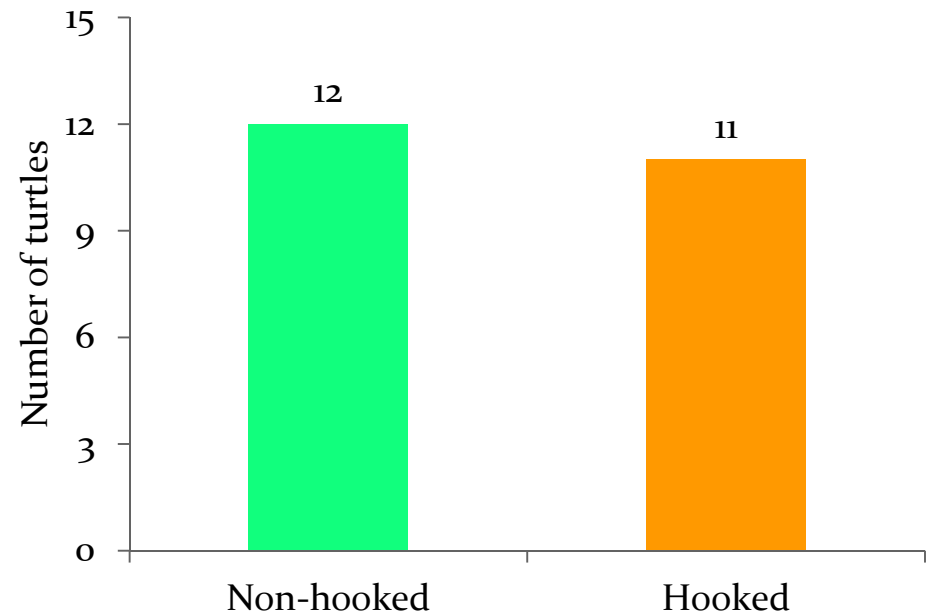
NMFS Research Permit 16134

Navy receivers & piers



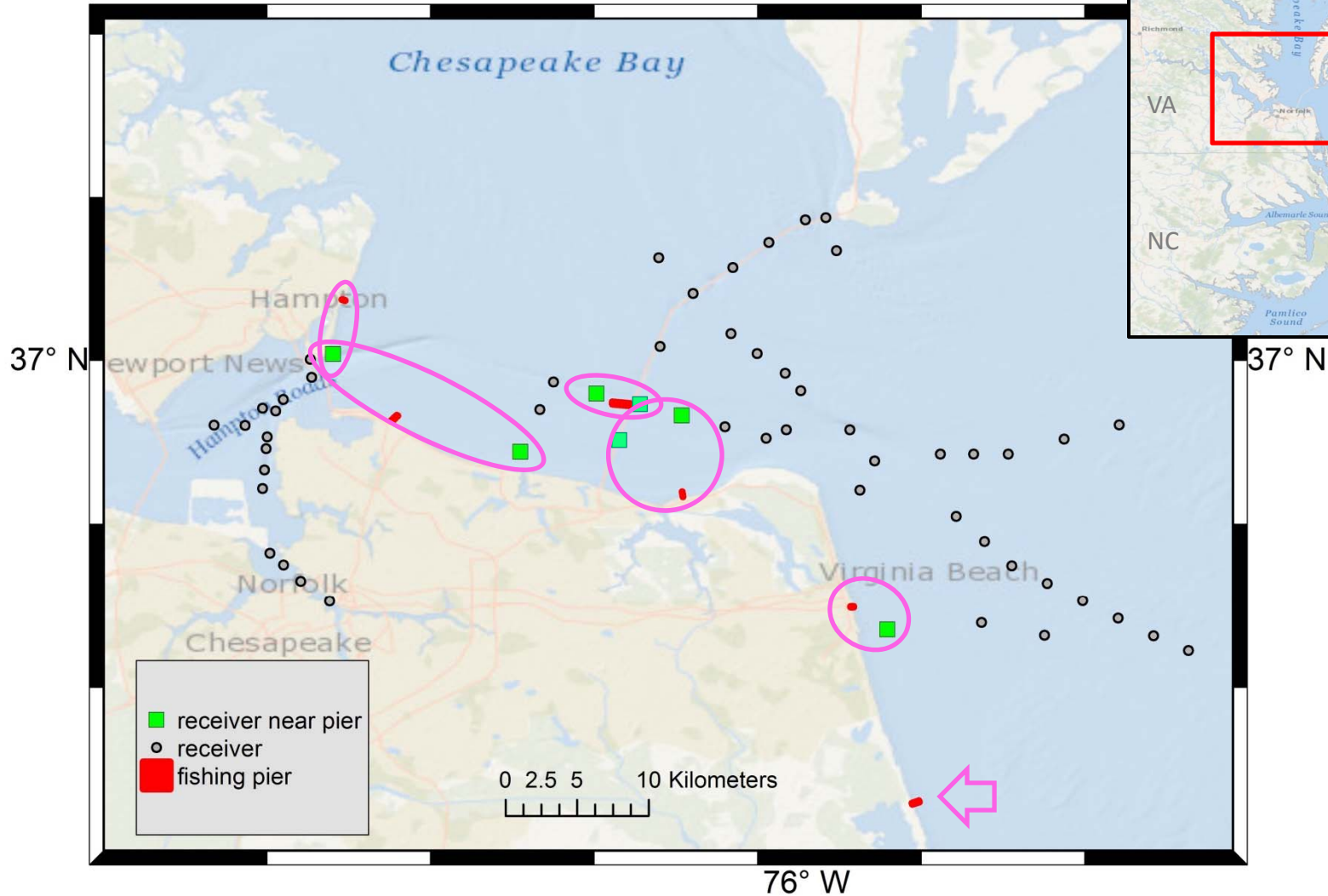
Source of turtles (2013 & 2014)

- Non-hooked - wild caught & by-caught, (N=4; all Cc)
- Non-hooked - stranded (N=8; 2 Cc, 2 Cm & 4 Lk)
- Hooked – pier, shoreline, boat (N=11; 5 Cc, 1 Cm, 5 Lk)



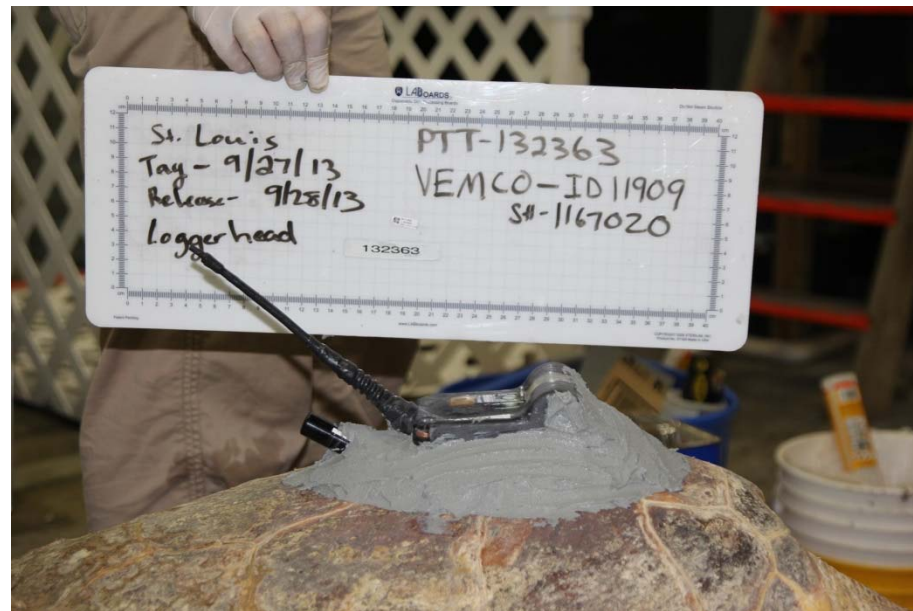
Test piers (N=5 of 6)

76° W

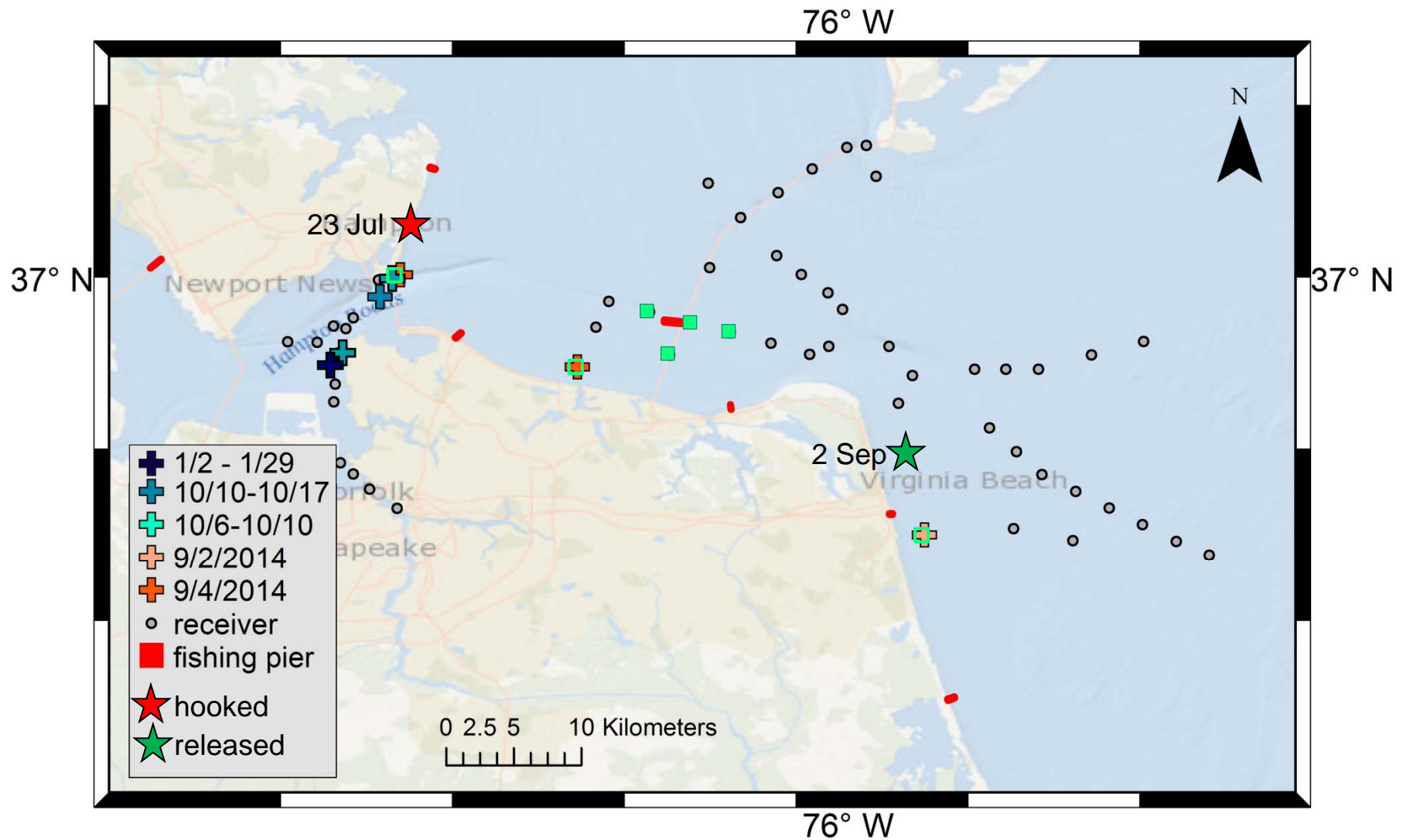


Validating acoustic detections

- 11 turtles had both acoustic & satellite tags
- Used sat tag points to verify acoustic telemetry
- Added piers in 4 cases (3 non-hooked & 1 hooked)

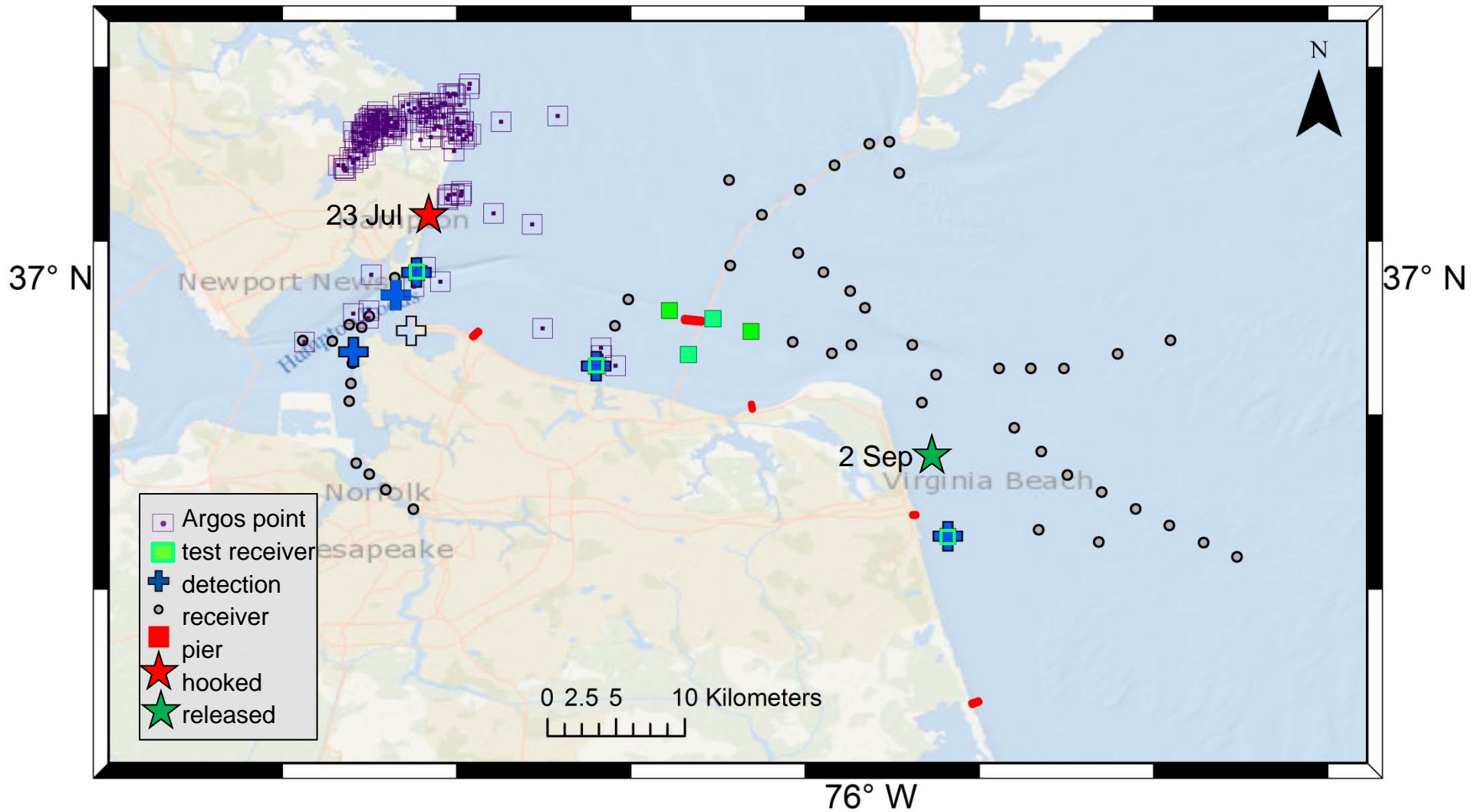


VAQS20142152 - Lk

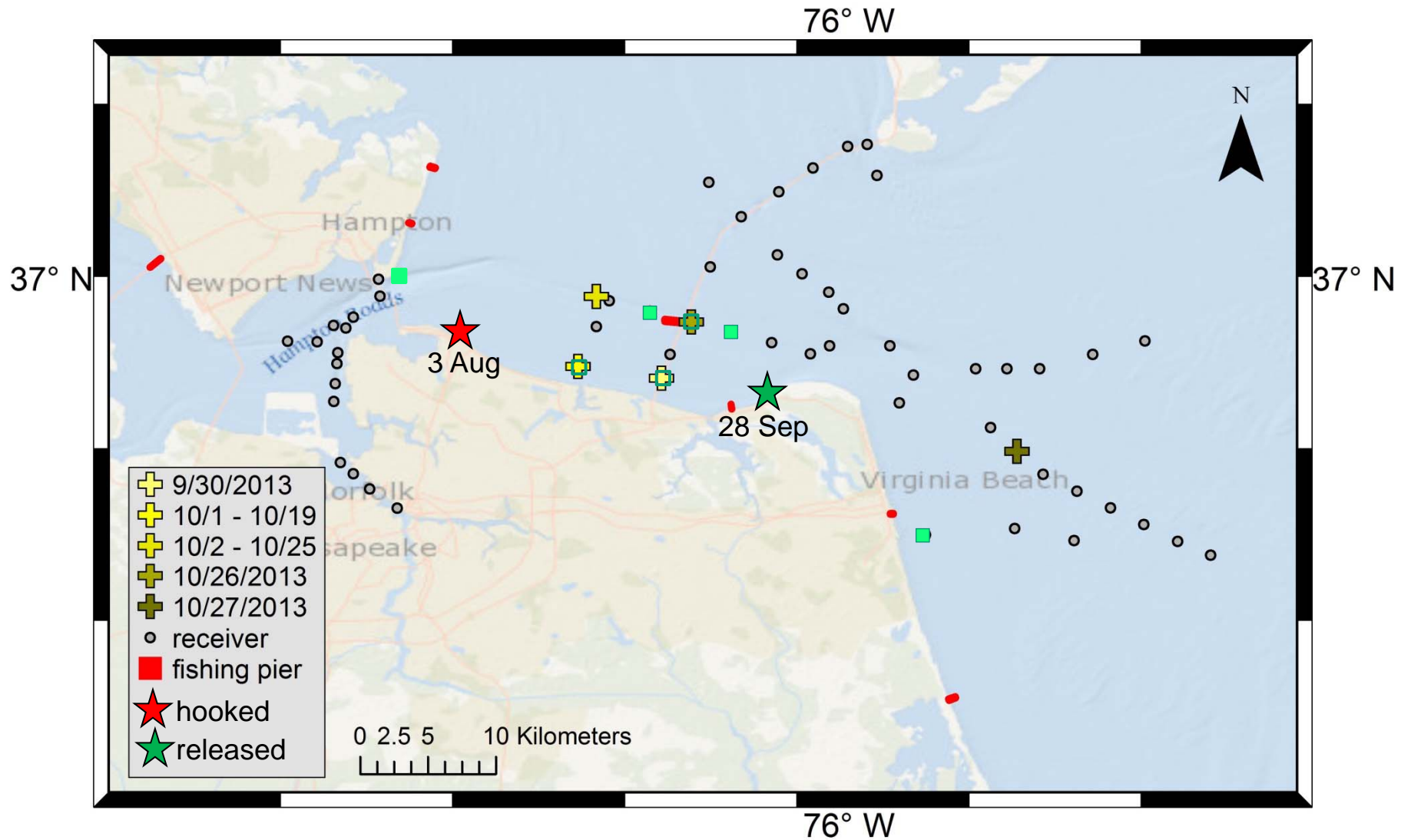


VAQS20142152 - Lk

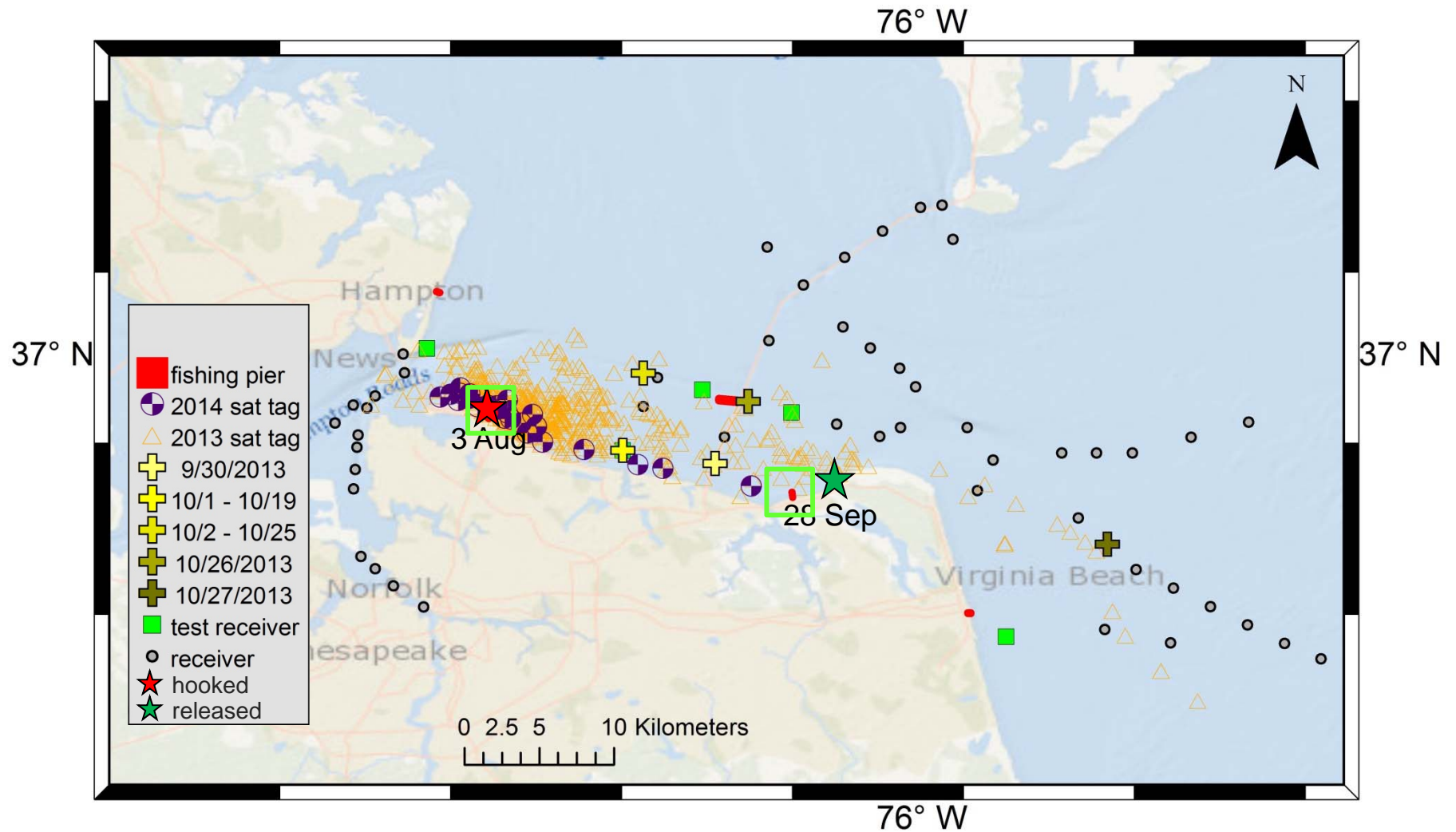
76° W



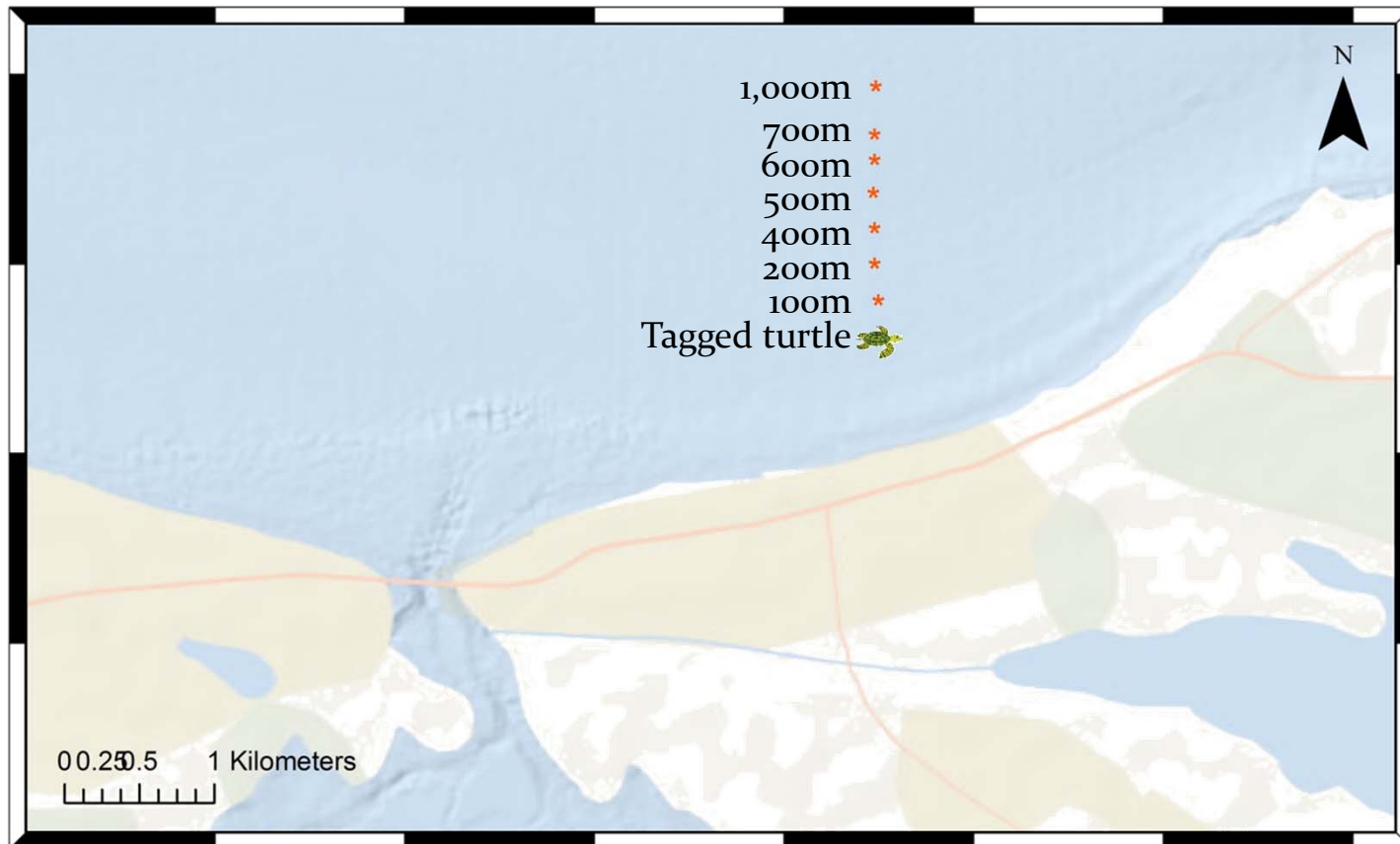
VAQS20132106 - Cc



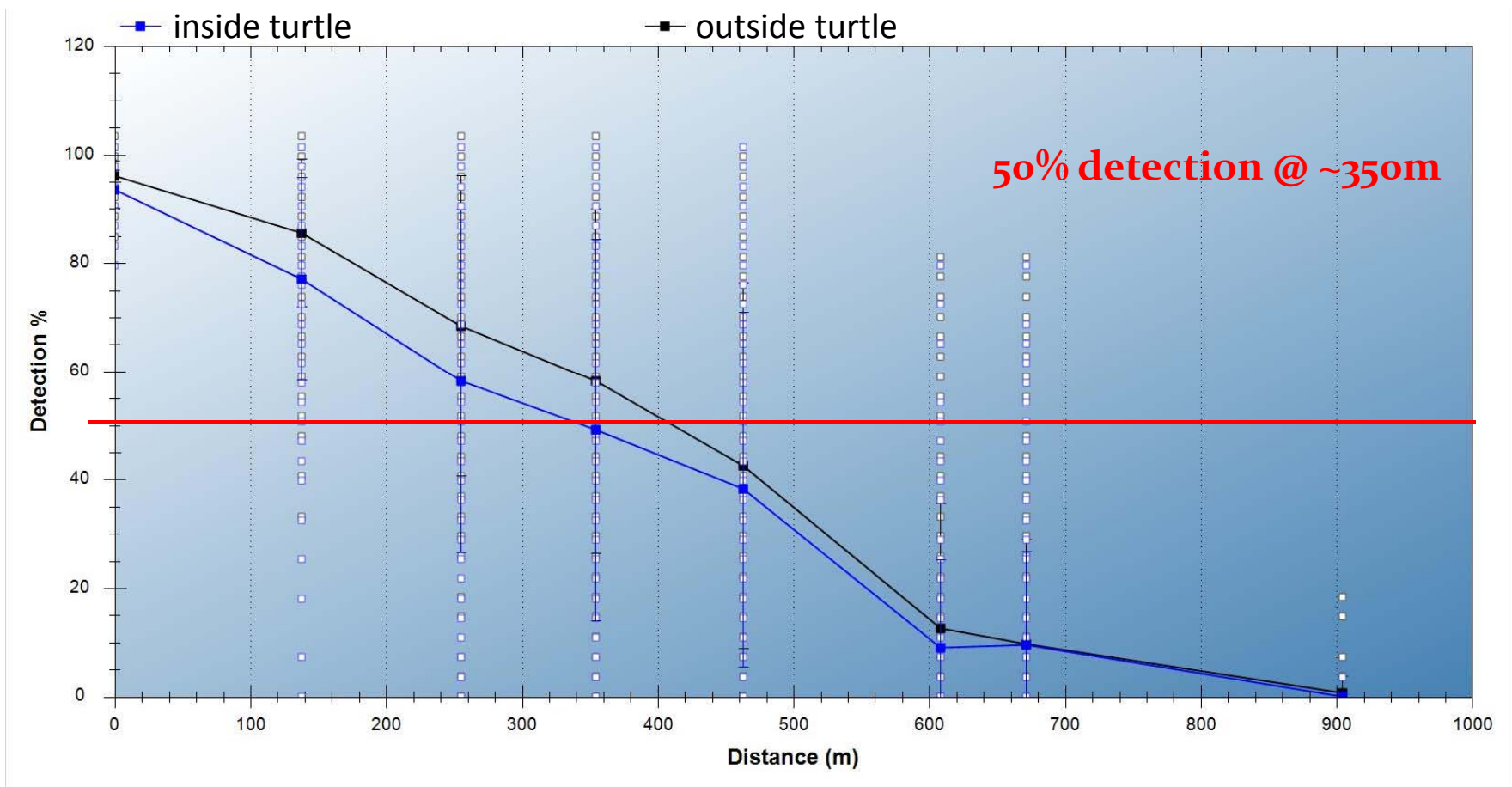
VAQS20132106 - Cc



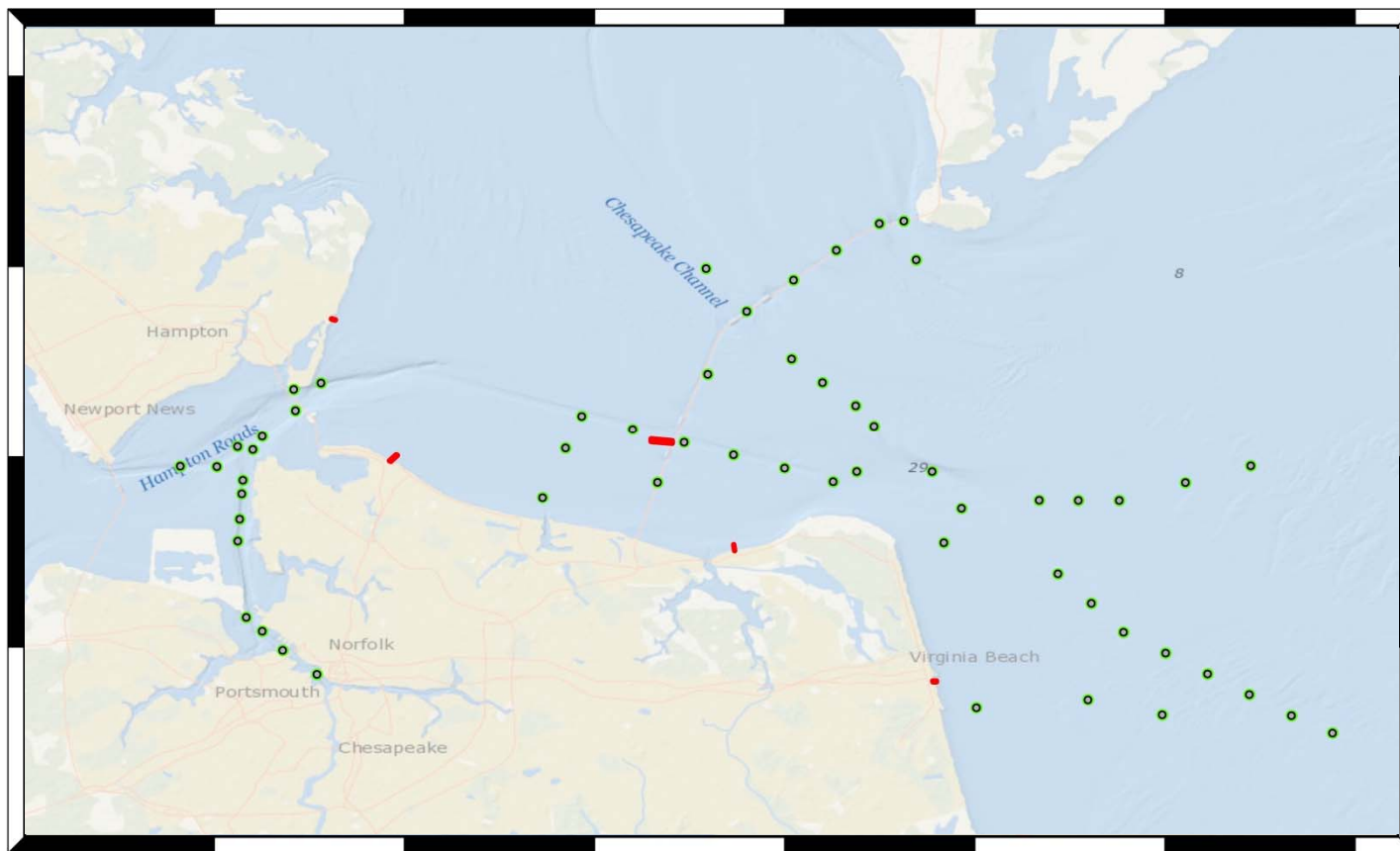
Acoustic range study



Acoustic range results

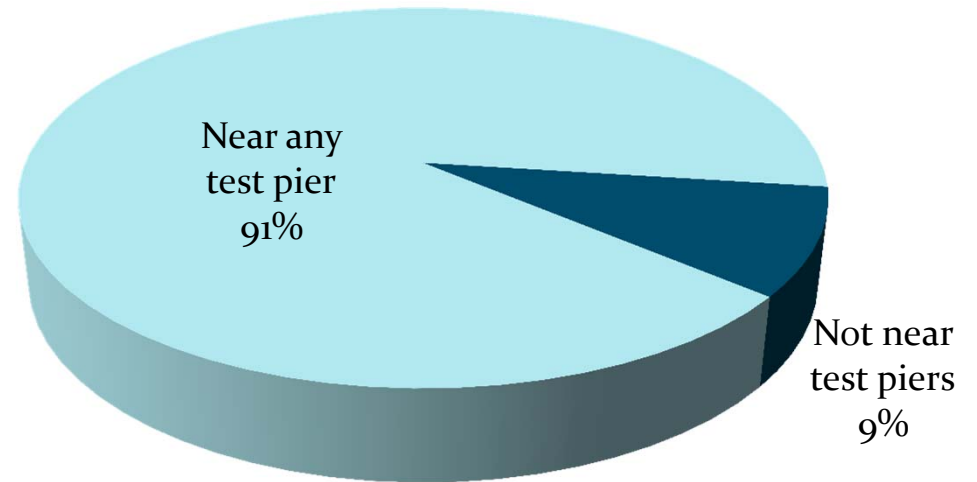


50% detection range - disappointed

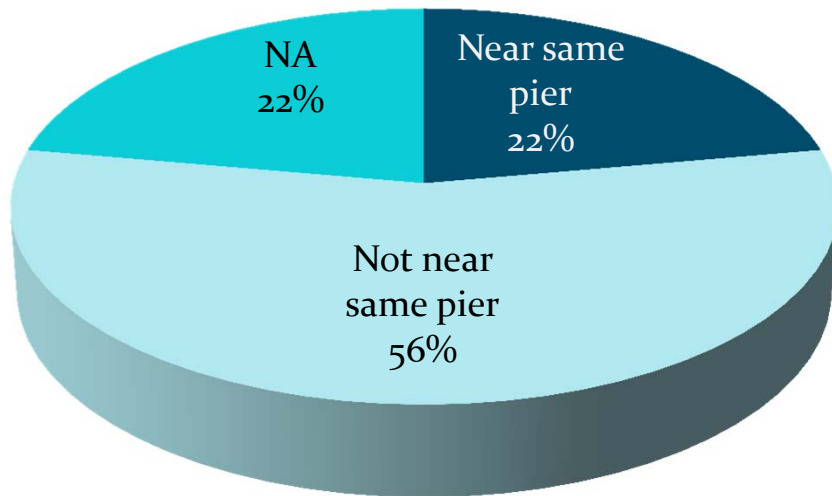


Hooked turtles detected near piers

Hooked anywhere
(N=11; 5Cc, 5 Lk & 1 Cm)

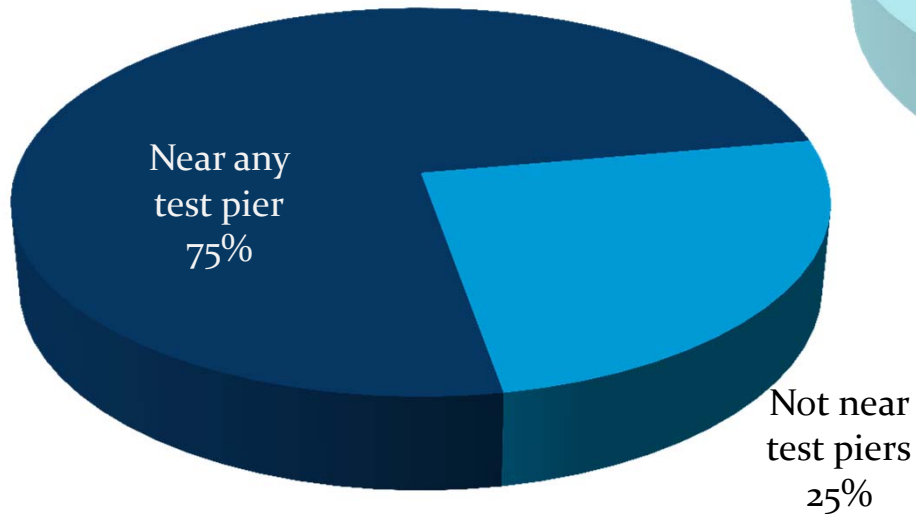


Hooked at a pier
(N=9; 4Cc & 5 Lk)

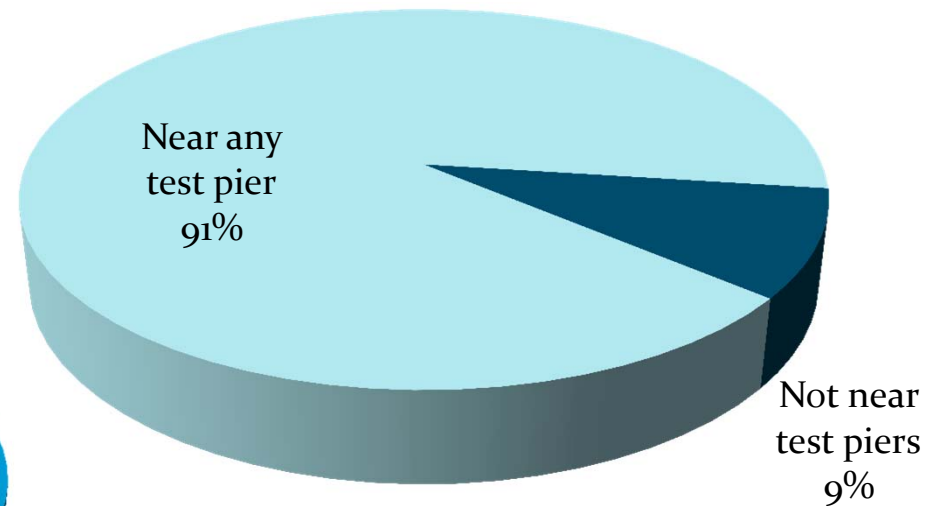


All turtles detected near piers

Non-hooked
(N=12; 6 Cc, 4 Lk & 2 Cm)

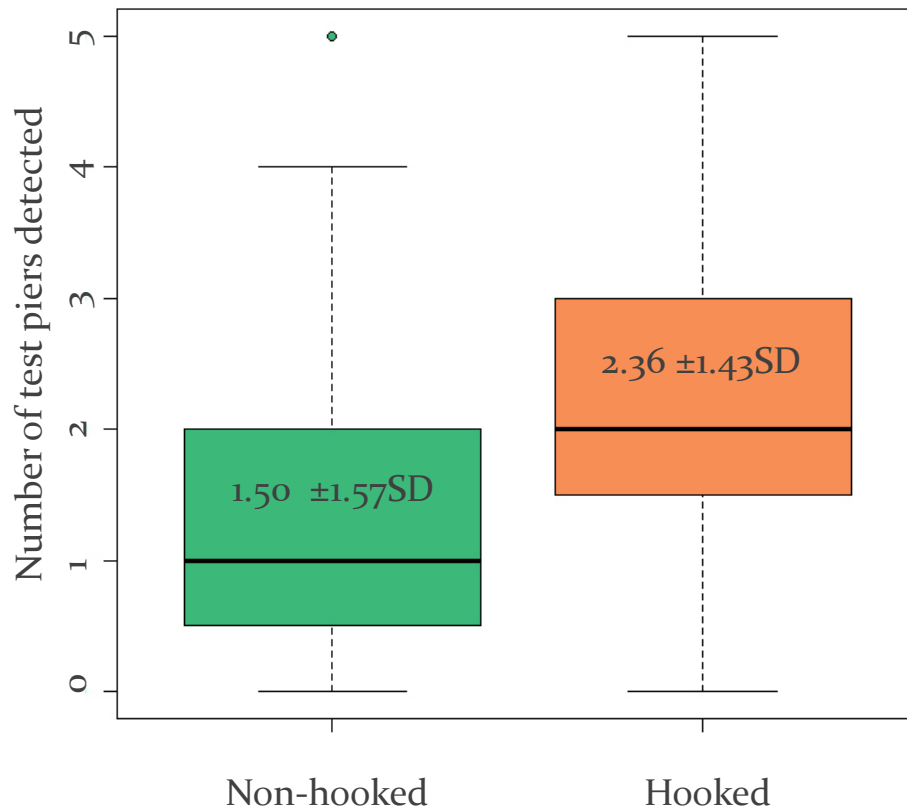


Hooked anywhere
(N=11; 5 Cc, 5 Lk & 1 Cm)

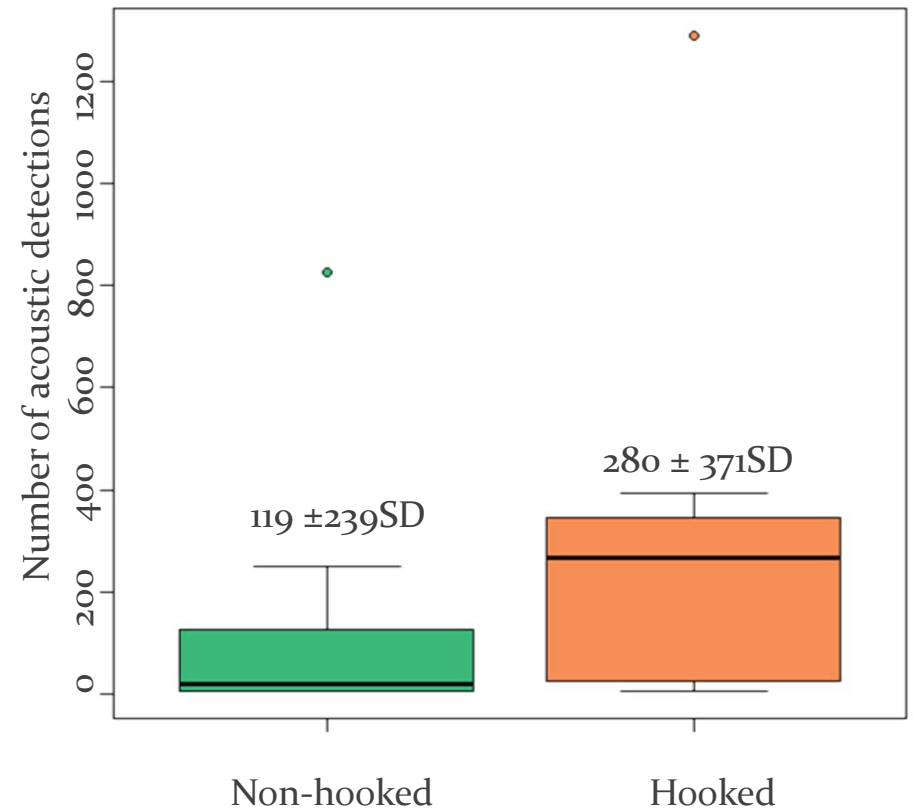


**No significant difference
between hooked & non-hooked**
 $\chi^2=1.22, p=0.27$

Number of test piers



Wilcoxon rank sum test with continuity correction
 $W = 40.5, p = 0.12$

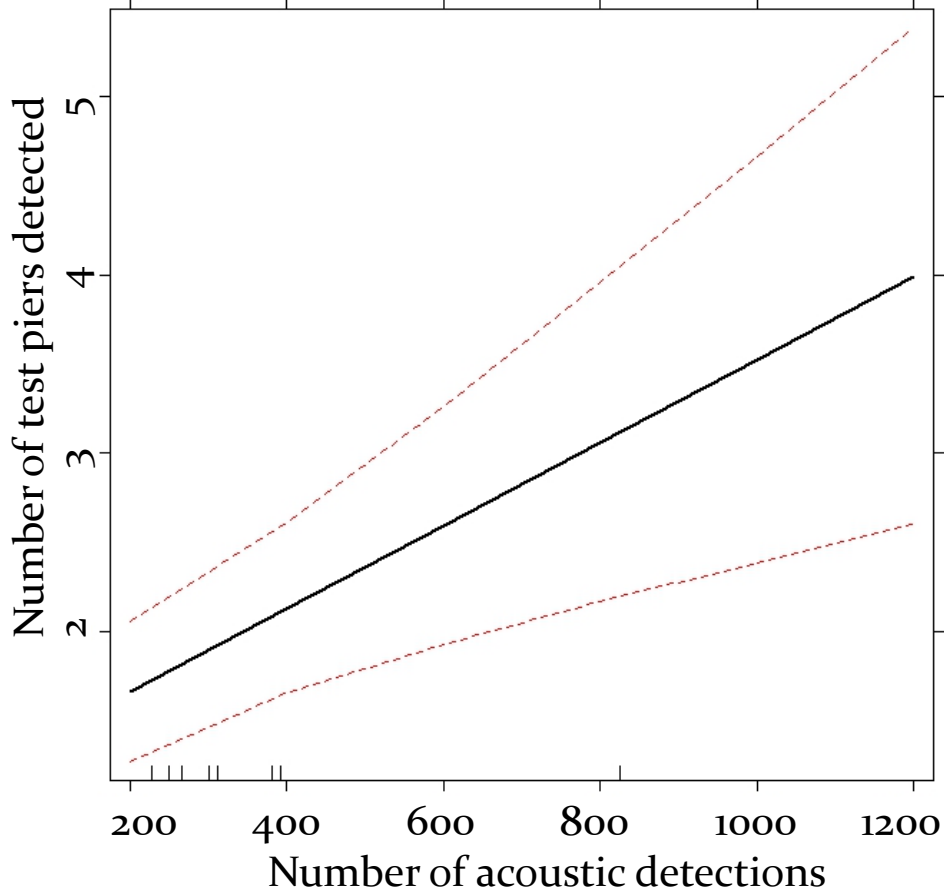


Wilcoxon rank sum test with continuity correction
 $W = 33, p = 0.045$

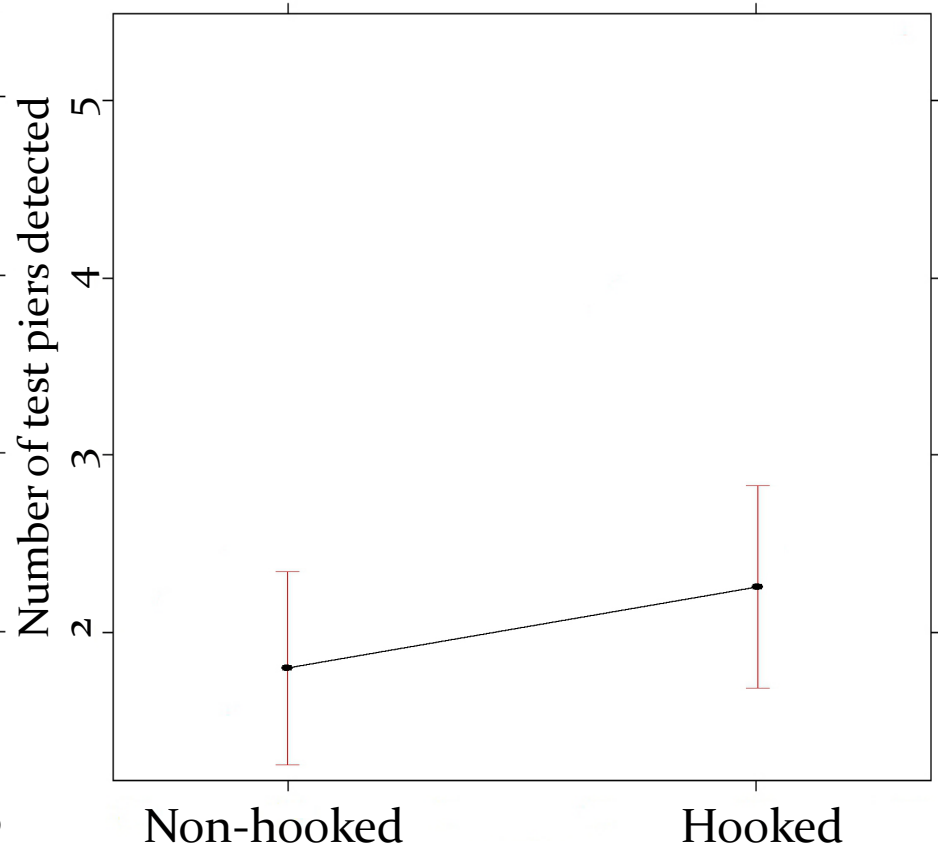
GLM -> test piers ~ hooked + detections

(model did not support including: species, season, year, or pier)

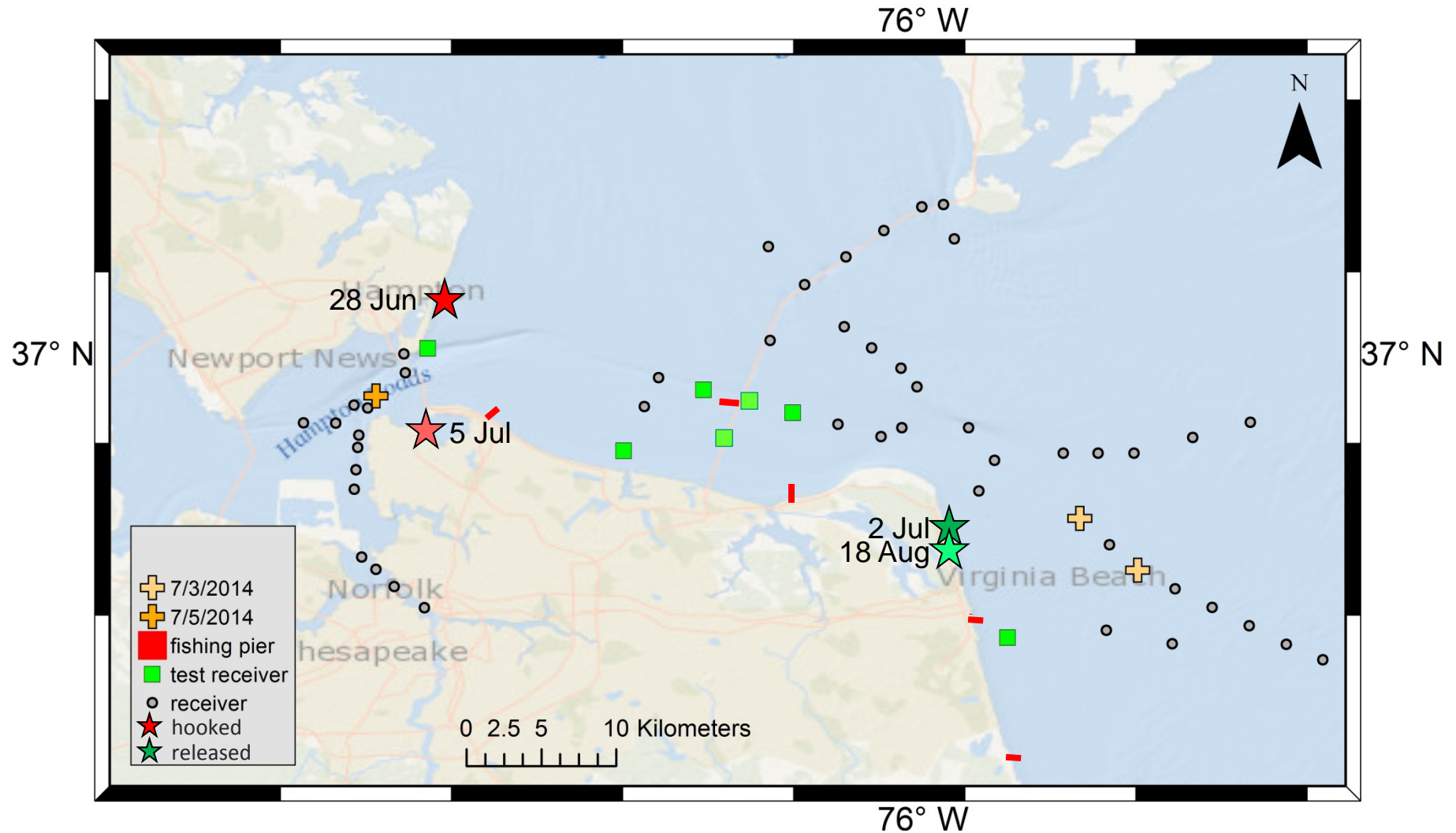
Effect of # of detections ($z=2.72$, $p=0.007$)



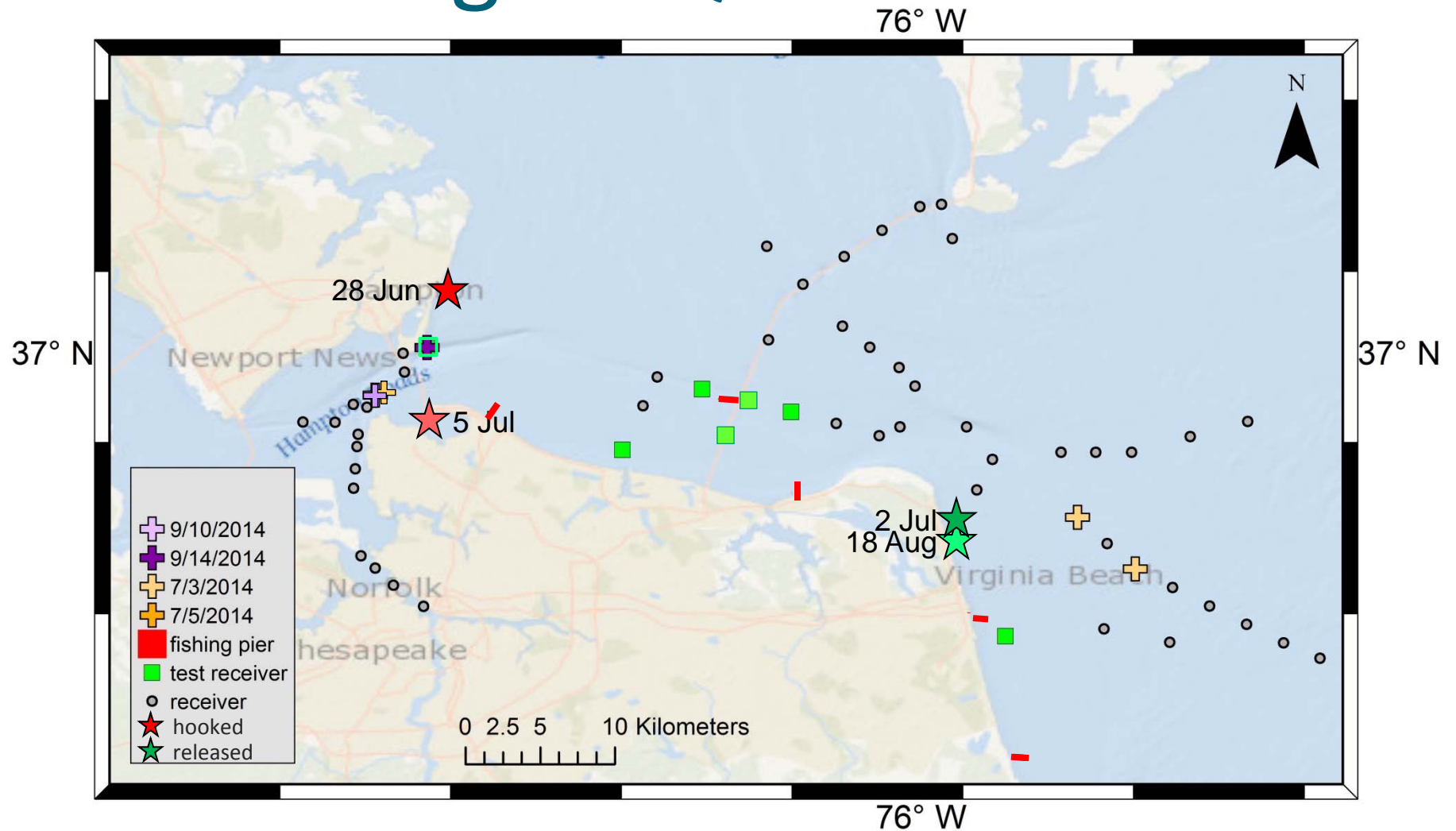
Effect of being hooked ($z=0.996$, $p=0.32$)



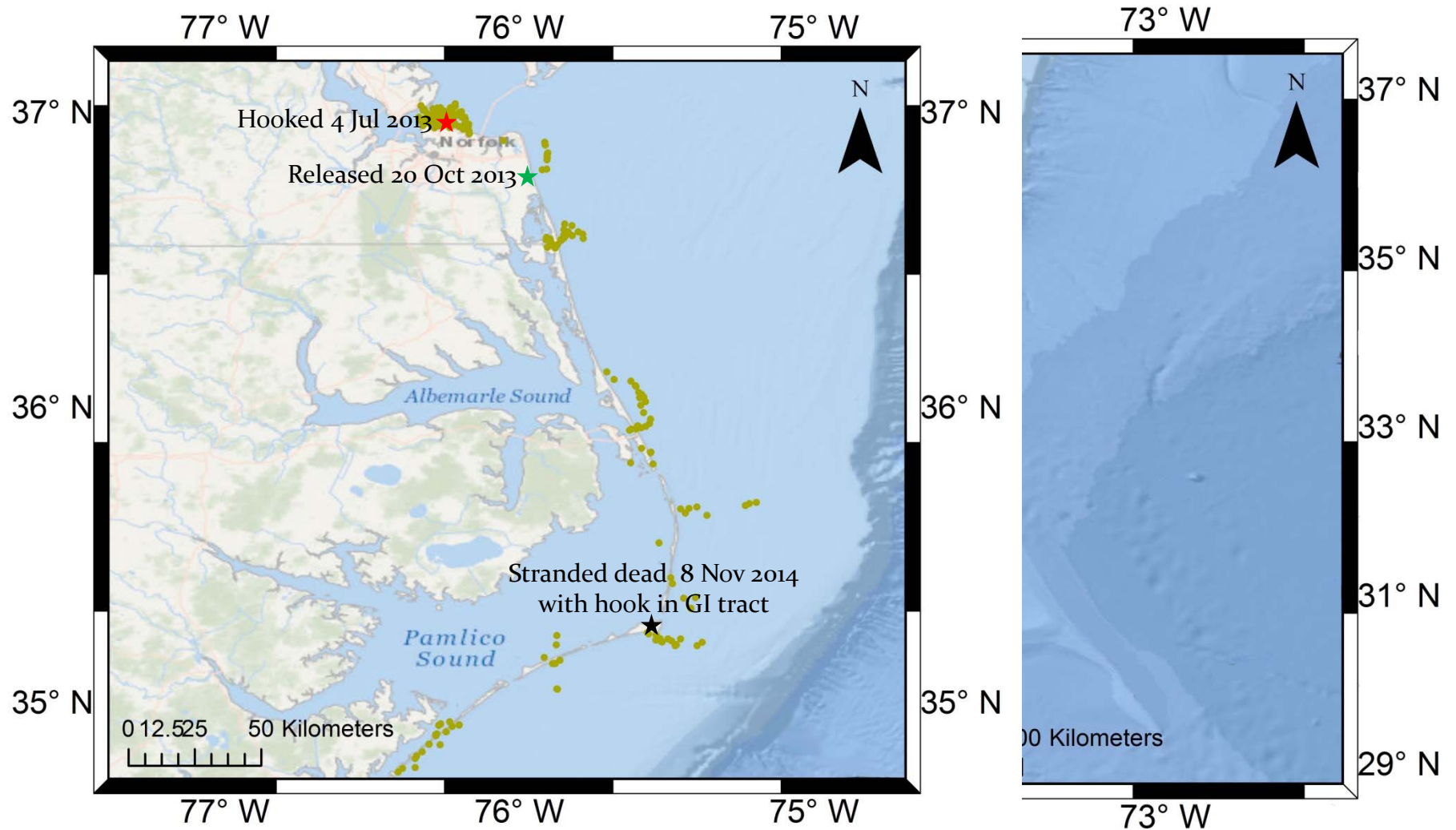
Other evidence for habituation



Rehooking-VAQS20142128 Lk



VAQS20132086 Cc



Summary

- Telemetry indicates that sea turtles in Virginia spend time near piers regardless of known previous hooking
- Range study supports placing receivers at piers for better resolution
- Repeat offenders (N=2) support habituation to feeding on bait
- Effect of piers = bait density
- Is bait just an opportunistic meal or is it an important resource?



Questions?

