

# Finfish Movement Patterns and Habitat Use within a Marine Protected Area in the Florida Keys National Marine Sanctuary

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## Objectives

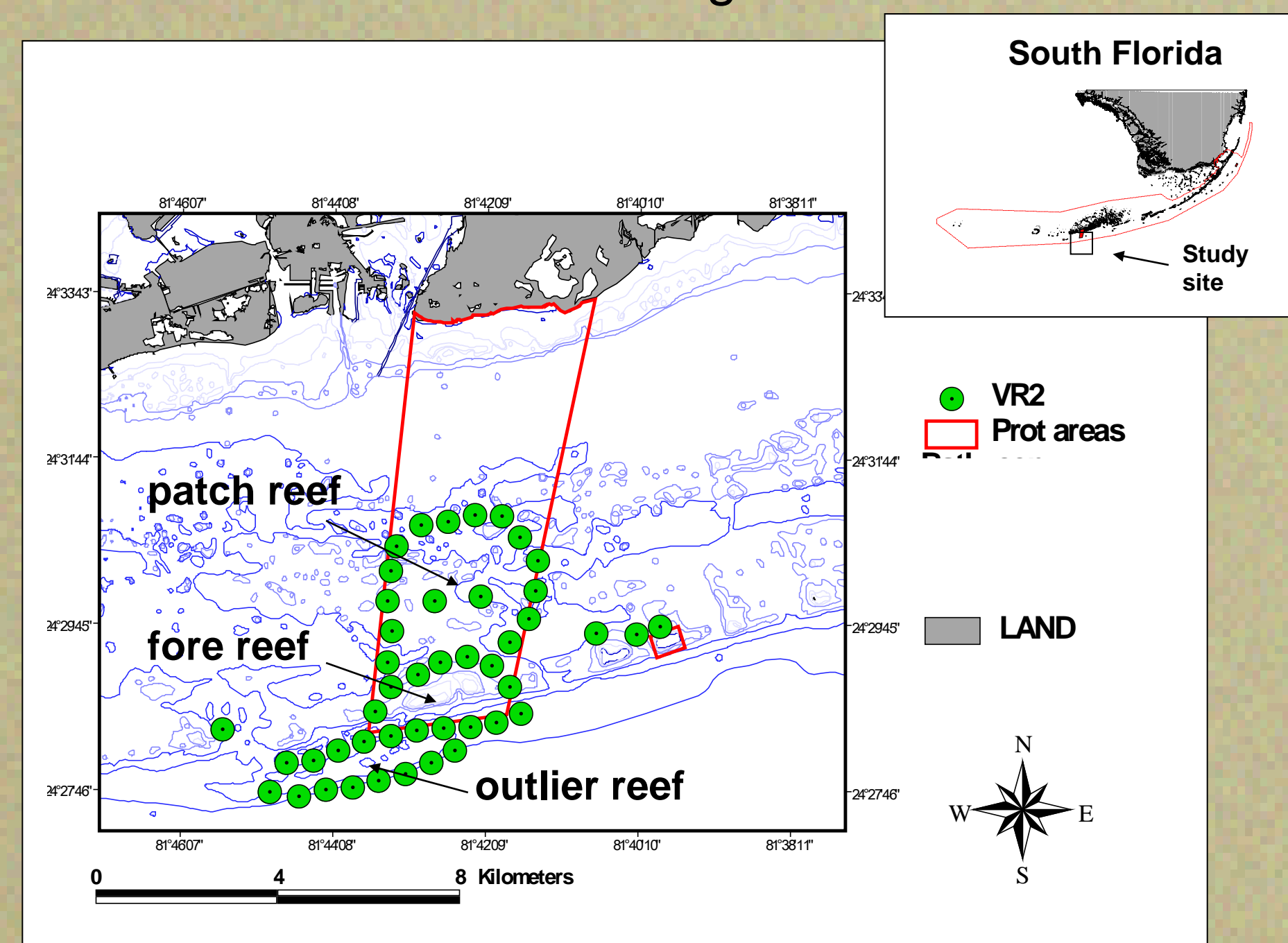
Document finfish movement patterns, habitat use, and determine spatial applicability of reserve design within and offshore of the Western Sambo Ecological Reserve (WSER).

## Methods

Forty two groupers were surgically implanted with sonic tags and tracked using forty eight sonic receivers (VR2s).

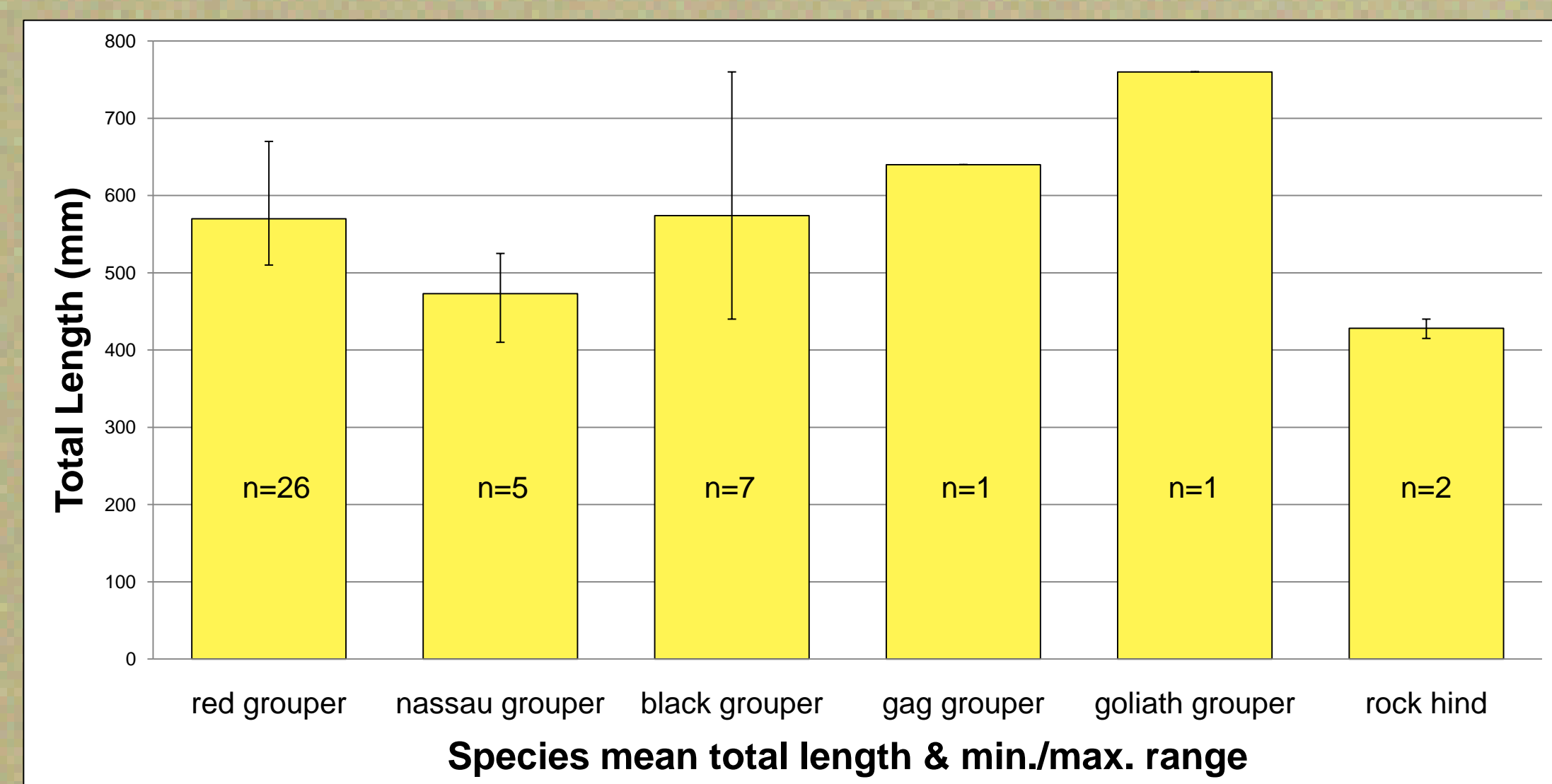


**Fig. 1)** Fish were captured by hook & line or fish traps and implanted with V13 & V16 Vemco coded sonic tags.

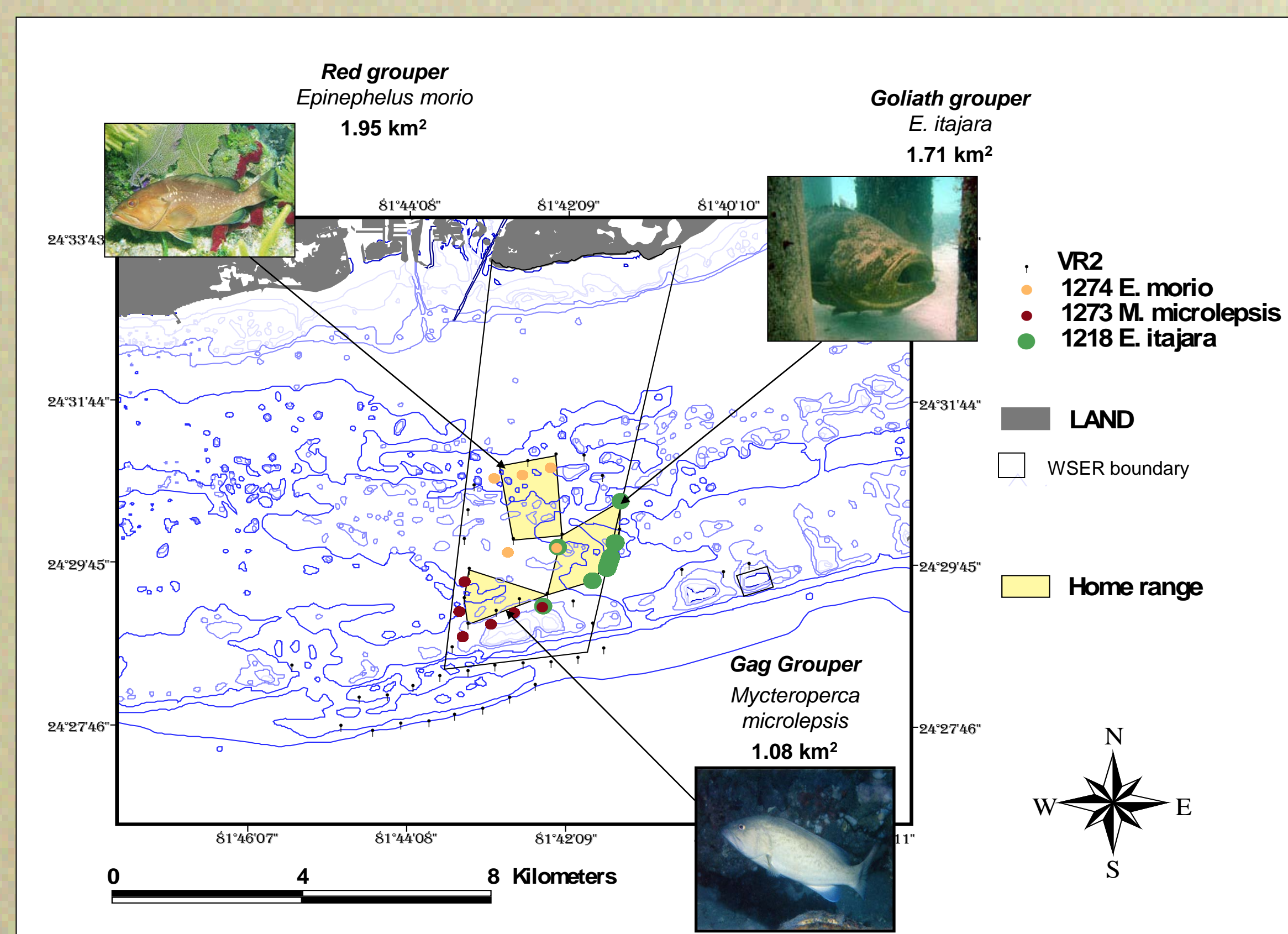


**Fig. 2)** Sonic receivers (VR2s) were arranged in three interlocking rings around patch reefs, fore reef, and outlier reef.

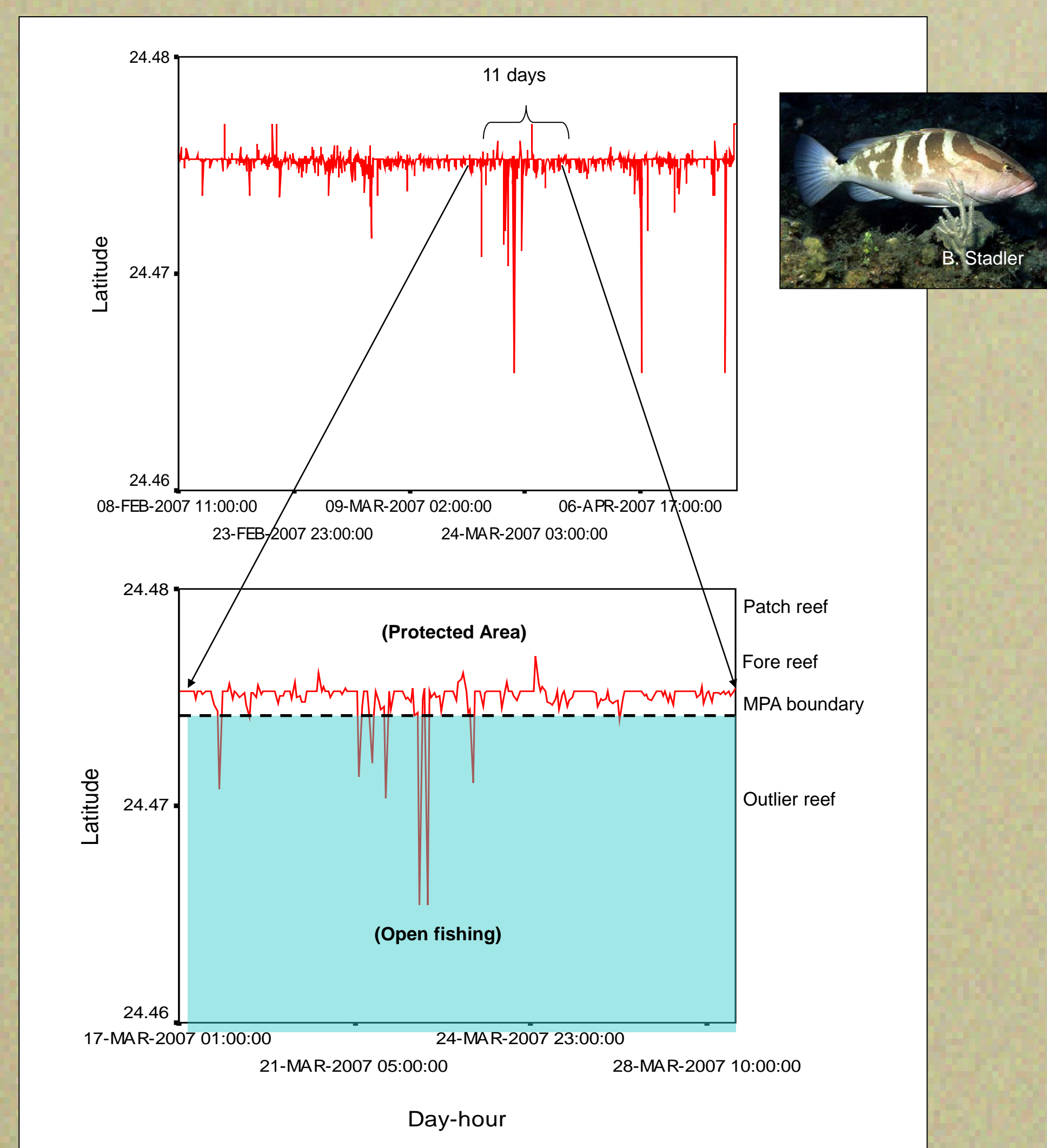
## Results



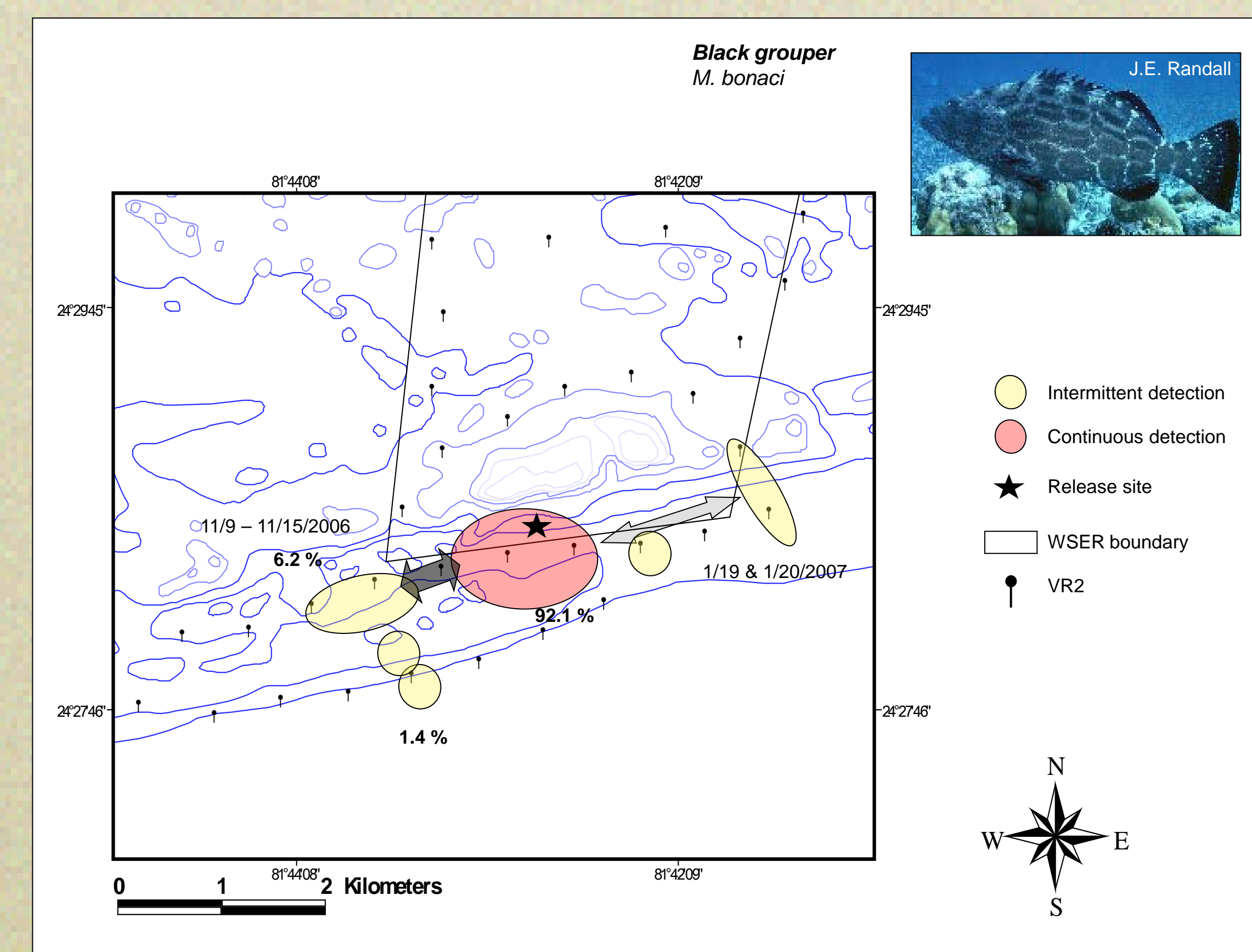
**Fig. 3)** Mean total length of tagged groupers.



**Fig. 4)** Apparent home ranges (km<sup>2</sup>) estimated by minimum convex polygon (MCP) method for selected groupers between June – September 2006 indicating strong site fidelity to patch reefs within the WSER.



**Fig. 5)** Mean latitude position per hour for a nassau grouper (480mm), tagged in the fore reef zone indicating movement between the WSER and open fishing zone.



**Fig. 6)** Estimated location of tag 1319 black grouper (760 mm TL) between October 2006 – February 2008 with frequency of detection by VR2 receivers in fore reef and outlier reef areas.

## Conclusions

- Groupers captured on patch reefs appeared to remain on patch reefs; however, fish captured in the fore reef zone and from a deeper outlier reef exhibited significant movement between these habitats.
- Fore reef fish habitat utilization included both protected (i.e. no-take marine reserve) and open fishing zones.
- Our results indicate that the Western Sambo Ecological Reserve, (30 km<sup>2</sup>), is effective in providing adequate protection for patch reef habitat groupers.

## Acknowledgements

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