

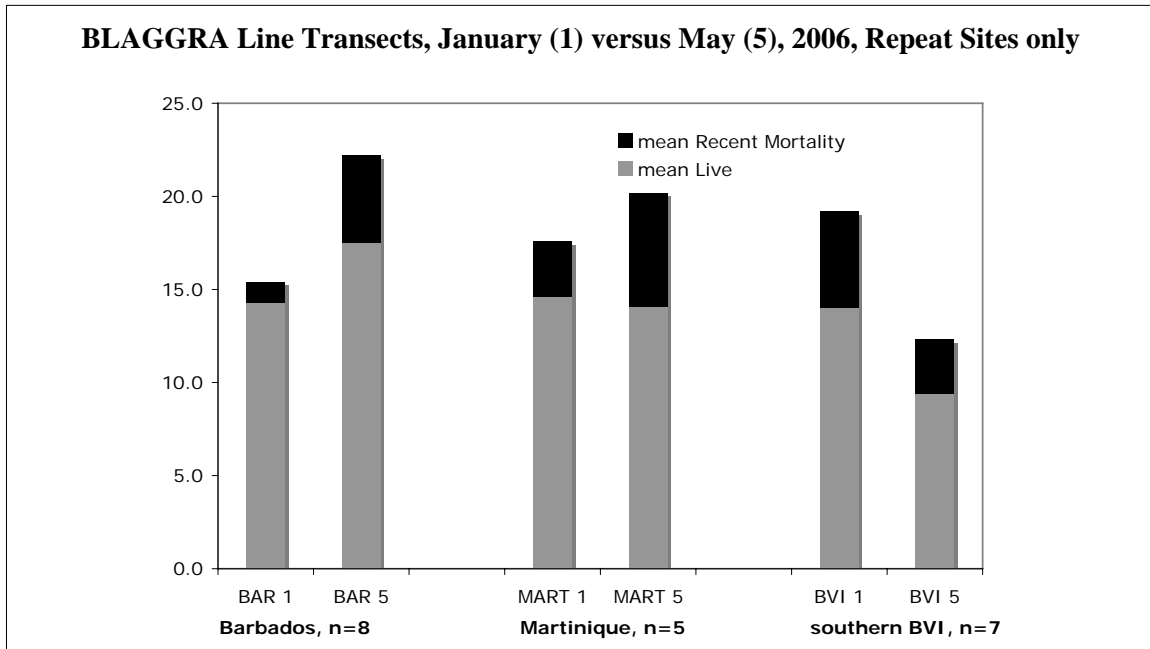
Assessing Bleaching and other Perturbations in Stony Corals of the Tropical Western Atlantic

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The vital signs of reef corals traumatized by bleaching must be followed like those of victims of heart attacks. Certainly we need to know the extent and severity of bleaching—but as with heart attacks, the long-term, life or death impacts of bleaching are of greater significance than the initial trauma.

I. The BLAGGRA Line-intercept protocol is a simple, rapid method for measuring the direct effects of ecological catastrophes on the cover of live stony corals. It is easily mastered by almost anyone who can scuba and learn to distinguish between living and dead coral tissues. *Relevance to managers:* many sites can be surveyed repeatedly by volunteers, to ensure site-level delayed effects are adequately assessed.

Post-2005 mass-bleaching surveys conducted at mean depths of 9-12m in three, Eastern Caribbean nations revealed highest initial mortality in the southern British Virgin Islands (BVI) in January 2006, where $\sim 25 \pm 12\%$ of the live coral cover was lost, in part from white plague disease. By May 2006, delayed mortality had increased by one third (to $24 \pm 12\%$ loss) in Martinique (MAR), where outbreaks of disease had occurred in April, and doubled (to $18 \pm 9\%$ loss) in Barbados (BAR), where no signs of disease were seen.



II. The BLAGGRA Full protocol, designed for technical divers who can identify stony corals, provides species-specific and size-specific data about coral health. *Relevance to managers:* direct comparisons with “chronic condition baselines” derived from >133,000 corals in the AGRRA Database allow the relative severity of impacts to be assessed at the level of coral populations or species.

In January 2006, overall recent partial-colony mortality (RM) estimates in the BVI ($10 \pm 8\%$) and MAR ($10 \pm 7\%$ ¹), but not in BAR ($5 \pm 3\%$ ¹) were much larger than the AGRRA overall “chronic” norm of $2 \pm 1\%$. Among common corals, percent losses were greatest in *Agaricia agaricites* (BAR < MAR \approx BVI), and least in *Siderastrea siderea* (all areas). By May, delayed mortality, primarily affecting *Montastraea* spp., had increased overall RM in MAR to $18 \pm 6\%$ ¹ and in BAR to $15 \pm 5\%$ ¹ (colony-level surveys were not repeated in the BVI).

Details of both methods are posted at www.agrra.org.

¹ repeat sites only