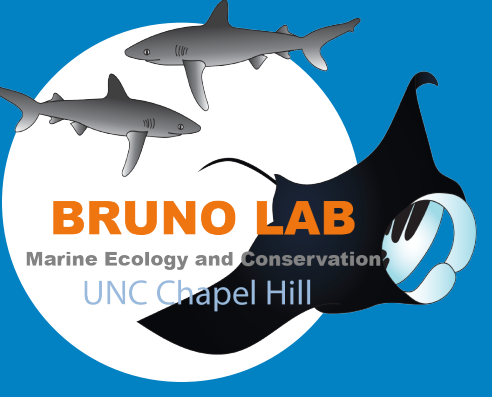


# Analyzing the efficacy of *A. cervicornis* and *A. palmata* restoration efforts in the Caribbean

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## Decline of Acropora Corals

- ▶ Since the 1980's *A. cervicornis* and *A. palmata* populations have been reduced by over 95%<sup>1</sup>
- ▶ Widespread disease and climate change are responsible for the drastic decline in Acropora coral populations<sup>1</sup>
- ▶ Acropora corals used to form dense thickets that provided critical habitat and structural complexity to Caribbean reefs<sup>2</sup>
- ▶ The loss of Acropora corals has likely contributed to the decline in coral reef health across the Caribbean

## Restoration of Acropora Corals

- ▶ The drastic loss of Acropora corals from Caribbean reefs have made these corals the focus of coral reef restoration efforts
- ▶ High growth rate and ability to reproduce asexually through fragmentation has made Acropora corals excellent candidates for coral reef restoration<sup>3</sup>
- ▶ Coral gardening and direct transplantation, the two most widespread coral restoration methods in the Caribbean, have been utilized extensively to revitalize Acropora populations

## Does Acropora Coral Restoration Work?

- ▶ While coral gardening and direct transplantation have been used extensively over the past twenty years, it is hard to determine the efficacy of these methods
- ▶ Lack of significant successful results and continued decline of Acropora corals signify that the current methods might be inefficient and unsuccessful in reestablishing Acropora corals
- ▶ In this study, a meta-analysis of the Acropora restoration literature was performed, so that the efficacy of the current methods of Acropora coral restoration can be determined
- ▶ 27 studies concerning Acropora restoration were evaluated and data regarding location, species studied, duration of study, methodology, and survivorship were extracted

## Findings

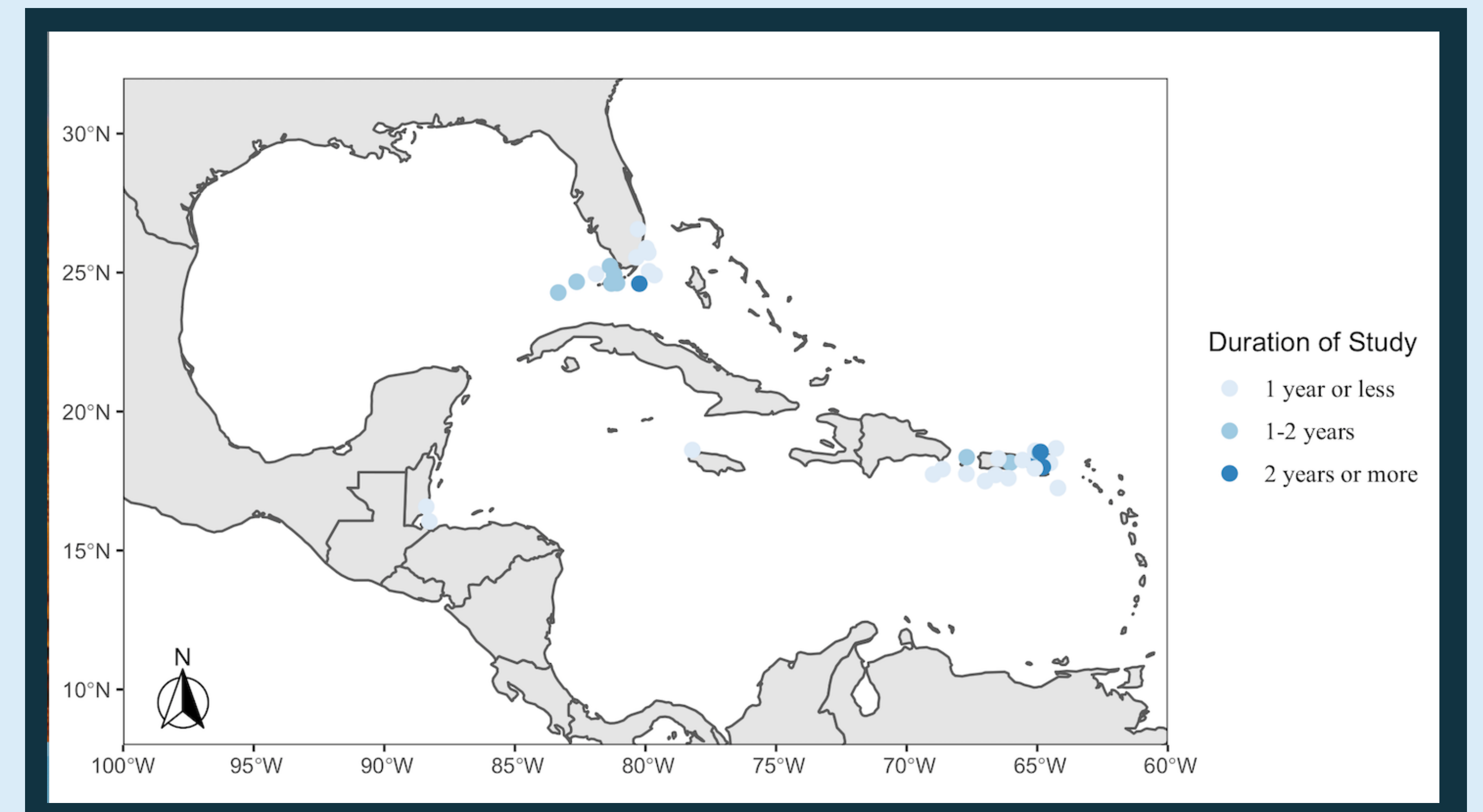


FIG. 1. Geographic distribution of Acropora restoration studies depicting differences in study duration

FIG.1. shows that the majority of the Acropora restoration studies were concentrated in just two specific regions and were not evenly dispersed throughout the Caribbean.

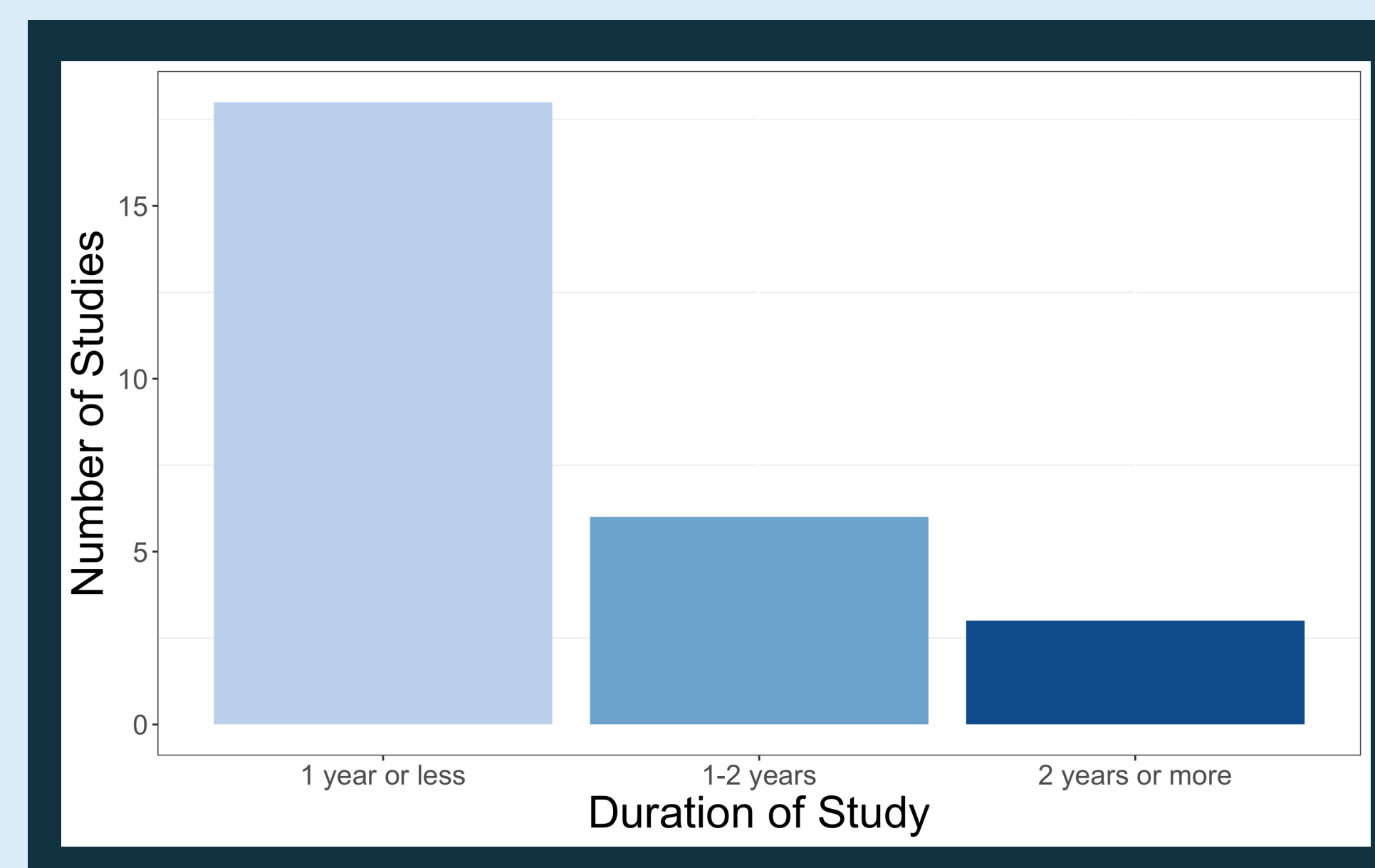


FIG. 2. Acropora restoration categorizing studies into three categories; 1 year or less, 1-2 years, and 2 years or more

FIG. 2 shows that the most of the studies analyzed in this meta-analysis were conducted over a very short timeframe.

FIG. 3. reveals that short-term studies have a very high survivorship of the Acropora corals, but that there is a dramatic drop in survivorship in the longer studies

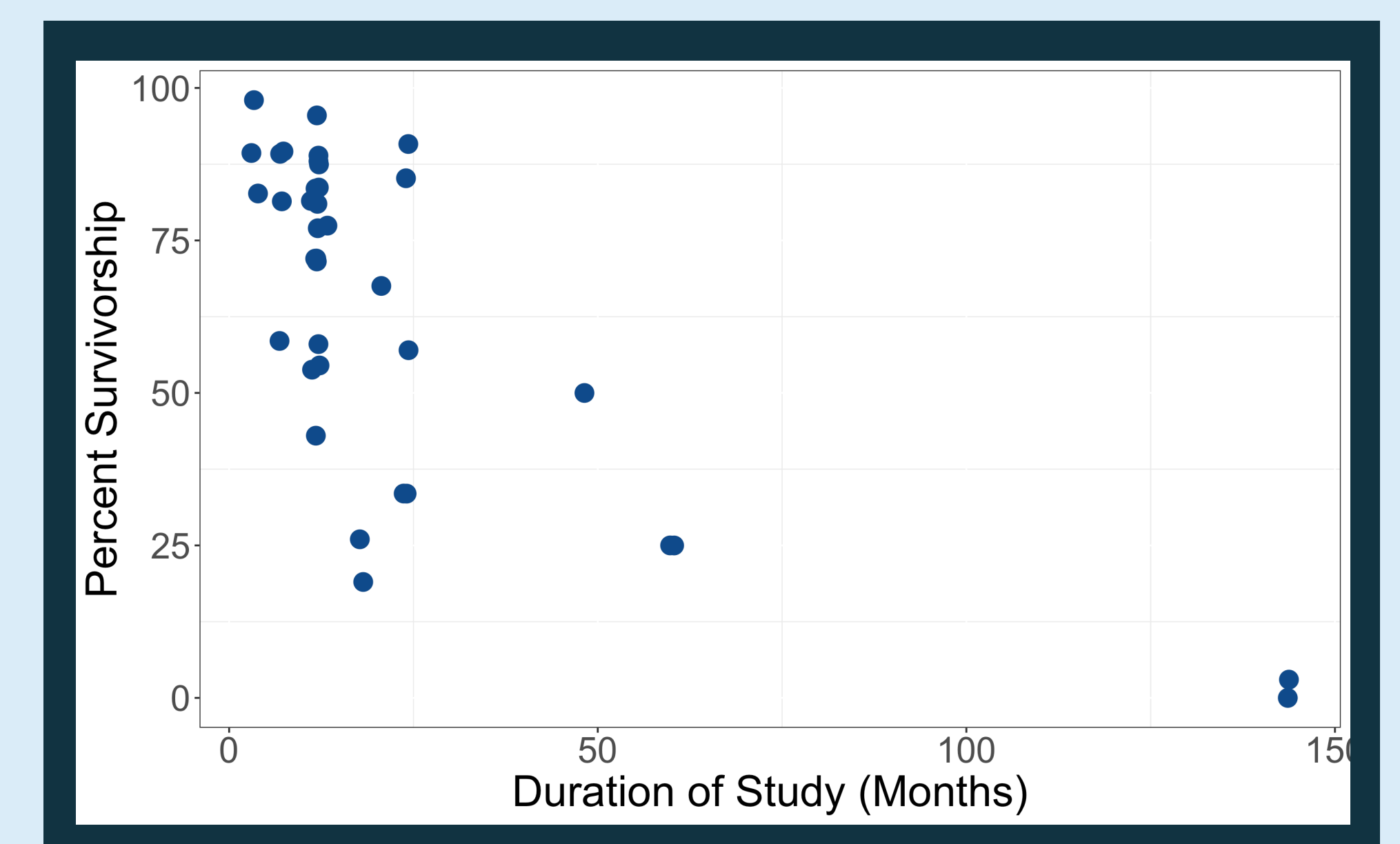


FIG. 3. Percent Survivorship of Acropora corals vs. the Duration of the Study

## Implications and Future Steps for Restoration

- ▶ Current Acropora restoration studies are too localized to specific regions. We suggest that future restoration studies look to other areas of the Caribbean to evaluate if the current methods are successful across the entire region.
- ▶ Acropora restoration studies have been too focused on conducting short-term research. To determine whether Acropora restoration is able to lead to real recovery of coral reefs, more long-term studies of Acropora survivorship rates are needed

