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THE TROUBLE WITH TRANSPLANTATION

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Coral transplantation should be considered a last resort, not a primary conservation tool.

INTRODUCTION

Across the globe, coral reefs are in decline due to anthropogenic threats. Already, 20% of all reefs have reached a state of severe degradation. One practice introduced in the late 1970's to restore these reefs, transplantation, involves the transfer of broken coral fragments to a threatened reef to generate new coral growth. While this technology has been celebrated as the savior of reefs, it is your job as policymakers and global conservation leaders to consider the costs and deficiencies involved in coral transplantation before advocating for its implementation.



LIMITATIONS

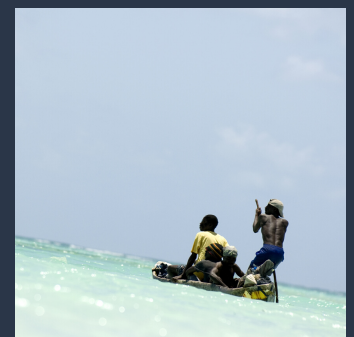
- Corals are subject to transport stress and must be moved in small numbers with ideal conditions.
- Select few coral species are able to survive transplant resulting in low diversity.
- Transplanted corals are subject to the same preexisting threats which caused initial reef decline.

COSTS

- Harvesting fragments may damage healthy reefs.
- Labour intensive process requiring experienced divers.
- Most reefs located in developing countries with limited access to funding.
- High investment cost with few immediate returns.

OUR VITAL REEFS

Coral reefs are the single greatest reservoir of biodiversity in the ocean, home to 35% of all known marine species. There are over half a billion people across the globe who directly rely on reefs for food and income, much of which is tied to the lucrative tourist industry. Reefs also protect vulnerable coastal communities and ecosystems from violent oceanic storms. In total, reefs are estimated to provide USD 29 billion annually in ecosystem services. Proper protection of reefs is not just a matter of preserving beauty; it's a matter of saving money and saving lives.



3000

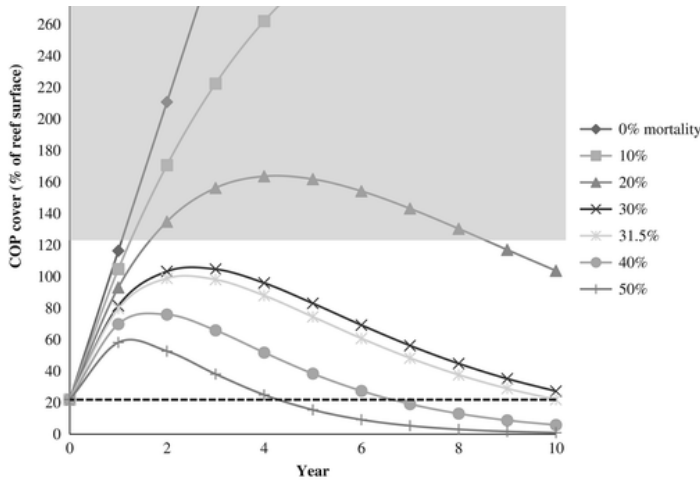
The number of man hours needed to build and maintain an in-situ nursery.

USD 162,455

The cost to restore one hectare of reef in a developing country.

3%

The survival rate of transplanted coral after 12 years.



SHORT-LIVED SUCCESS, HIGH MORTALITY

This graph is from a study by Feliciano et al. completed in the Philippines (2018). Their goal was to discover what percentage of the reef would have to be covered in transplanted coral in order for there to be 22% coral coverage (the average coverage for local reefs represented by the dotted line) a decade later. By modeling coral growth rates at different mortalities, they discovered that 22% coverage could only be achieved if coral mortality was under 31.5% per year. Given that many self-purported "successful" transplant projects report mortalities well over 40%, one has to question the enduring nature of their conservation impact. The truth is, the median length of transplantation projects is one year, far too short a time period to properly determine if the transplanted corals cause lasting change.

SOLUTION: FOCUS ON THE THREATS

- Restrict destructive trawling, beach seine nets, and targeted coral collection.
- Regulate industrial and agricultural waste disposal into waterways.
- Limit CO2 emissions to slow down the process of ocean acidification and warming.



CONCLUSION



Before the discussion on funding a transplantation project even begins, there should first be a conscious effort made to reduce activity threatening reefs. Transplanting coral to revitalize a dead reef may generate exciting media coverage, but in the long run you can get far more bang for your conservation buck by preserving healthy reefs through the support of legislation which fights destructive fishing methods, the disposal of harmful wastes into watersheds, and climate change.

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