Study Highlights Importance of Restoring Simpson Bay Lagoon, St Maarten

In 2019 a collaborative study of the Simpson Bay Lagoon on St. Maarten introduced the "Triple Bottom Line" management strategy, which emphasized the planet, people and profit. This study found the current environmental conditions to be unacceptable, and through public polling, found strong public sentiment for a management strategy to return St. Maarten's largest wetland to its former glory.

Compounding environmental issues such as overdevelopment, degraded natural resources and untreated wastewater are difficult issues for any nation to handle. This is especially true for small islands with limited resources such as St Maarten. Three different studies were carried out between March and June of 2019 to better understand the environmental state of the Simpson Bay Lagoon, an important area both environmentally and economically for the island of St Maarten. Conducted by the Institute for Environmental Studies at Vrije University in Amsterdam and sponsored by the Towle Fund of the Community Foundation of the Virgin Islands and Environmental Protection in the Caribbean (EPIC) Foundation, these studies focused on the "Triple Bottom Line" a management strategy which emphasized three areas: planet, people and profit. In addition to these studies, a survey of 219 households was conducted to better understand the public's perception of the environmental state and overall value of the Simpson Bay Lagoon. Researcher Sem Duijndam was recognized during Vrije University's New Year's Gala by receiving "Best Thesis" for his Masters' thesis on this work (Kolkman, 2020).

Planet

This portion of the study focused on the environmental state of the lagoon, namely overall water quality. Simpson Bay Lagoon, the largest wetland on the island, faces a number of pressures such as untreated sewage water, over development, boat and marine activities, illegal dumping of toxic waste and additional land-based pollution which have led to an unacceptable water quality that is further degrading with time (Lips & Slooten, 2009). A previous study found bacterial contamination originating from untreated sewage in nearly all of the sampled sites (Borch, 2002). Nature Foundation St. Maarten has estimated that these high levels of pollution have already resulted in the loss of nearly 80% of seagrass within the bay, and coupled with overdevelopment, has led to an overall decrease in biodiversity and mangrove forest health (Nature Foundation St. Maarten, 2013). The destruction of mangroves is especially detrimental as they serve as a natural water filter and provide protection during storm surges, a critical feature for an island which often faces destructive storms

People

This area focused on the societal value placed on the Simpson Bay Lagoon. Interestingly, the household survey found that most of the island's residents were aware of the degrading quality of the lagoon and expressed an interest in reversing these trends (Duijndam et al., 2019). Large infrastructural changes such as building a water treatment plant or restoring the mangrove forests could help to improve overall quality of the lagoon. In addition, educational outreach to connect the island's residents to the lagoon can help individuals become personally invested in protecting this wetland. Overall, residents were strongly in favor of most solutions for improving water quality, such as increasing environmental awareness or enforcing environmental regulations but were less supportive of solutions such as restricting new development around the bay (Molenaar, 2019).

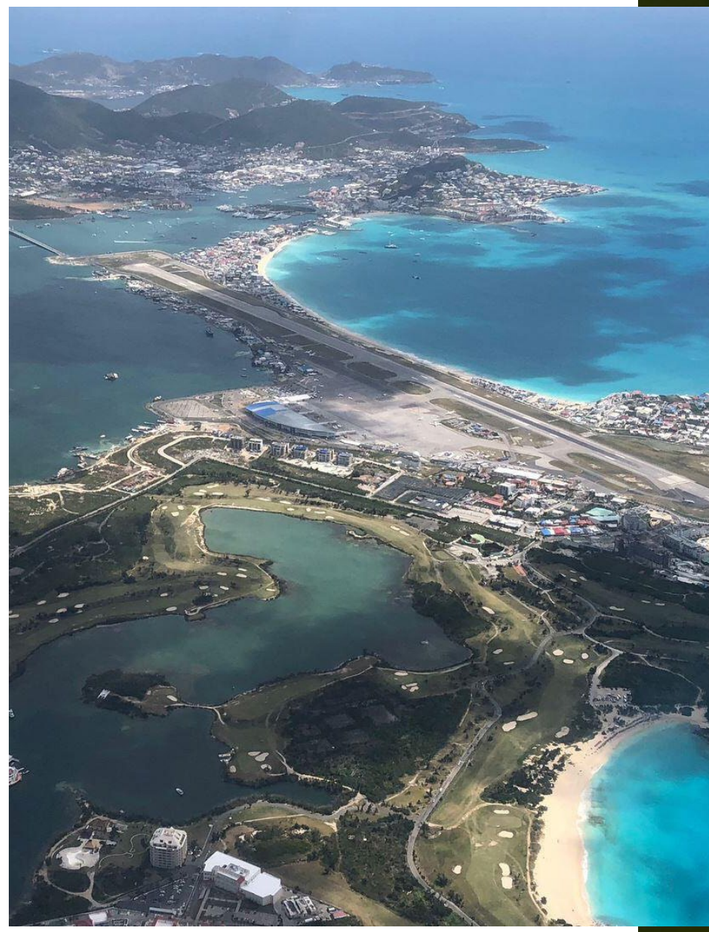

Photo by: © Tadzio Bervoets

Profit

The third and final area of these studies focused on the economic value of the Simpson Bay Lagoon and provides financial rationale for properly managing the environmental state of this site. It was determined that the total economic value of the lagoon is approximately US$20 million per year (Duijndam et al., 2019). This includes both the environmental value such as CO_2 sequestration, reef biodiversity and natural water purification along with the economic value from recreational and tourism uses. Furthermore, the study stated that the annual economic value could be increased through restoration of the mangrove forests or by building a water sewage treatment plant to US$28 or US$31 million respectively (Duijndam et al., 2019).

Moving Forward

Studies such as these are instrumental in highlighting not only the current environmental state of important natural areas, but also the social perception of these areas. Elderly people surveyed during this study reminisced about going to Simpson Bay Lagoon when they were younger to swim and fish in the beautiful, clean waters of the lagoon. Returning the lagoon to this state cannot be done by the residents alone; large infrastructural modernizations need to be made such as implementing sewage treatment and managing sustainable development. This will require a collaborative effort between the residents and government, however, with everyone doing their part, this critical wetland can be restored to its prior state and can provide a pristine area for both wildlife, residents and tourists to enjoy into the future.

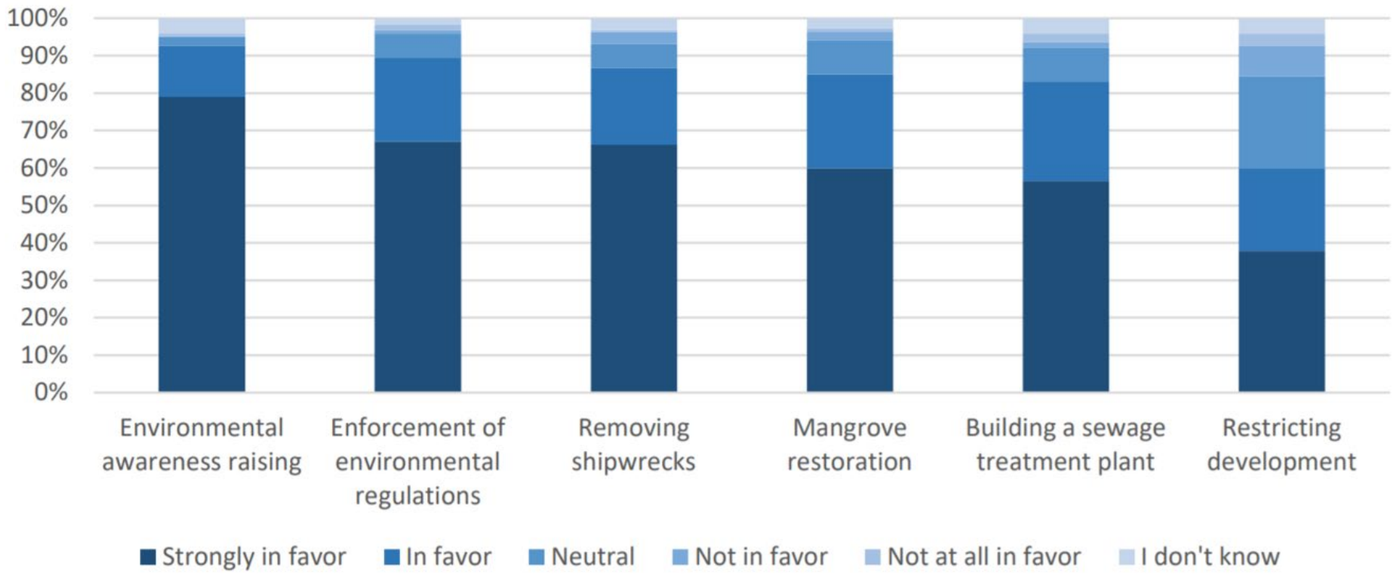

Figure 1: Survey results concerning public opinion on solutions for improving the environmental state (Molenaar, 2019)