Staying in the Forefront of Coral Reef Conservation Amidst Growing and Changing Tourism

Permanencer en la Vanguardia de Conservación de Arrecife de Coral Dentro de Crecimiento y Cambio de Turismo

Rester dans L'avantgarde de Conservation de Récif de Corail Parmi la Croissance et le Changement du Tourisme

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EXTENDED ABSTRACT

The island of Bonaire, Dutch Caribbean, is a small island in the Leeward Caribbean, just off the coast of Venezuela; the island is 38 km long by 11 km wide and is home to about 20,000 people (Smith et al. 2012). The Bonaire National Marine Park (BNMP) was established in 1979 and is managed by STINAPA Bonaire (Stichting Nationale Parken), a foundation tasked by the island government with protecting and conserving nature through research and monitoring, nature education, and enforcement. The BNMP extends from the high-tide mark to 60m deep and encompasses 2,700 acres of beaches, mangroves and seagreass, and fringing coral reefs. The park, which surrounds the entire island and includes the islet of Klein Bonaire, is home to one of the coral reefs with the highest coral cover in the Caribbean and Western Atlantic (Jackson et al. 2014, Mücher et al. 2017). The ecosystem values of the island, both terrestrial and marine, have been well studied and documented (Smith et al. 212, Van der Velde et al. 1992, Bakker et al. 2017, Nugraha et al. 2017). For years tourism has been recognized as the main driver of Bonaire's economy, partly due to a lack of economically viable alternative resources, with coral reefs as the main attraction (Uyara et al. 2005, Uyara et al. 2009). As a result, there has been a long standing understanding between key stakeholders on the importance of integrating both commercial and economic sustainability with conservation management when developing policy for tourism on Bonaire (Parker 1999).

Partly owing to the above mentioned considerations, Bonaire boasts an impressive conservation timeline, including many of the region's firsts in regards to managing tourism in protected areas; the BNMP, as an International Coral Reef Action Network (ICRAN) demonstration site, is a model for the integration of sustainable recreation and commercial use while also protecting and conserving the marine environment. One of the first actions undertaken was the legal protection of sea turtle hatchlings in 1961, followed 20 years later by the protection of all sea turtles from egg though adulthood. Additional actions aimed specifically at protecting the marine environment include the banning of spearfishing in 1971; the protection of all corals, both dead and alive, in 1975; and the complete ban on anchoring in the marine park, mediated by the construction and maintenance of mooring buoys, in 1978 (Cooper 2011). To help finance nature protection, the nature fee was introduced in 1991 in the form of dive tags that, combined with mandatory diver orientations, granted access to the parks on Bonaire (Thur 2010). In addition to regulation of fishing and recreational activities in the BNMP, in 2008 two fish protected areas were established; protection, in the form of a fishing ban, was extended to parrotfish, sharks, and other designated species in 2010; a sewage treatment system to safeguard water quality was installed in 2015; and, also in 2015, Bonaire established the Yarari marine mammal and shark sanctuary network in conjunction with sister island Saba (Cooper 2011, Debrot et al. 2011, Debrot et al. 2017). Bonaire's extensive history of nature legislation, regulations and stakeholder support have contributed to some of our observed successes: while reefs around Bonaire have also been degraded, this decline is markedly less drastic than it has been in other parts of the Caribbean (Relles et al. 2018). In one of our marine reserves, as well as elsewhere on the island, there are significant trends of increasing coral cover and decreasing patchiness, potentially a result of parrotfish protection (Robert Steneck, The University of Main School for Marine Sciences, personal communication, Steneck et al. 2017, Relles et al. 2018).

While STINAPA together with Bonaire's local government has had a solid track record anticipating future needs as well as reacting to observed threats, as resource managers, we are currently facing new challenges. Predominant among these are the potential ramifications of global climate change as well as the increasing demands being placed on our natural resources. Increases in tourism, both stay-over as well as cruise ship tourists, require the development of new management plans, novel strategies, and better facilities that enable sustainable use of our parks. Some of the actions we are currently undertaking to achieve this goal include the use of the Open Standards for Conservation, along with input from key partners and stakeholders, to update STINAPA's management plan; increasing our involvement with the local government's nature policy plan; lobbying for increasing the nature user fees and cruise tourist tax; and meeting with stakeholders to address their concerns and identify new opportunities. Recently the local government accepted a motion to ban oxybenzone (and octinoxate) after elevated concentrations were found in Lac Bay, an area popular with locals and tourists for aquatic activities (Schaap and Slijkerman 2018). Certain chemicals, used as UV-filters and found in many sunscreen lotions, have been shown to be harmful to corals (Danovaro et al. 2008, Downs et al. 2014, Downs et al. 2016). We are also working on revising current guidelines and regulations for sustainable use and recreation in the parks to address and accommodate the

growing number and type of users we are encountering. These actions enable STINAPA to improve management of the marine park as use pressure increases allowing the use of the park for recreation without sacrificing nature protection and conservation.

KEYWORDS: Tourism, Bonaire, Bonaire National Marine Park

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