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# Use of coastal economic valuation in decision making in the Caribbean: Enabling conditions and lessons learned



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## ABSTRACT

Caribbean economies depend on coastal ecosystem services, including tourism, fisheries, and shoreline protection. However, coastal ecosystems continue to degrade due to human pressures. Many pressures arise from decisions that fail to take full range of ecosystem values and benefits into account.

Economic valuation can contribute to better-informed decision making about coastal resource use and development. More than 100 studies in the Caribbean contain monetary values of coastal ecosystem goods and services. However, only a minority of these studies have had an observable influence on policy, management, or investment decisions. Through a series of interviews, we identified 17 valuation studies that have directly influenced decision making. Due to the difficulty of tracking influence, our review was not exhaustive.

These 17 “success stories” highlight the potential for economic valuation to improve decision making. Building on literature on the challenges of integrating science into policy, we used these 17 cases to identify enabling conditions for informing decision making. These conditions include a clear policy question, strategic choice of study area, strong stakeholder engagement, effective communications, access to decision makers, and transparency in reporting results.

Our findings suggest that valuation practitioners can and should do more to ensure that valuation studies inform decision making.

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## 1. Introduction

Perhaps the greatest rationale for conducting economic valuation – which puts a monetary value on ecosystems such as coral reefs or mangroves – is to encourage recognition of ecosystem services and their benefits in political and economic decision making. Valuation can be an influential tool to inform holistic decision making around development planning, conservation, and provision of public goods and services.<sup>1</sup> Because of its promise, economic valuation is increasingly emphasized in public policies, regulations, and investment decisions. The Economics of Ecosystems and Biodiversity study (TEEB), initiated by the G8+5 environment ministers; the World Business Council for Sustainable Development's guide to corporate ecosystem valuation; and the World Bank's Wealth Accounting and the Valuation of Ecosystem

Services (WAVES) partnership are but three recent global examples.<sup>2</sup>

In the Wider Caribbean Region,<sup>3</sup> there is also growing interest in economic valuation to inform smart choices about coastal conservation and management. For example, the Jamaican National Environment and Planning Agency is currently working to incorporate economic valuation into its environmental impact assessments, and the Caribbean Large Marine Ecosystem (CLME) project – which is working to promote an ecosystem-based management approach throughout the region – is gathering marine economic valuation data to support policy making.<sup>4</sup> Furthermore, over the past 30 years, valuation literature on the Caribbean's coastal and marine resources has increased substantially. There are now more than 100

<sup>2</sup> TEEB (2014), WBCSD (2011) and WAVES (2014).

<sup>3</sup> According to the United Nations Environment Programme (UNEP), the Wider Caribbean Region “comprises the insular and coastal States and Territories with coasts on the Caribbean Sea and Gulf of Mexico as well as waters of the Atlantic Ocean adjacent to these States and Territories and includes 28 island and continental countries” (UNEP 2014). In this paper, we use “Caribbean” to refer to the Wider Caribbean Region.

<sup>4</sup> CLME (2014).

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<sup>1</sup> Tisdell and Xue (2013).

studies that contain monetary values of coastal and marine ecosystem goods and services in the Caribbean.<sup>5</sup>

However, despite this growing body of literature, the Caribbean's coastal ecosystems have significantly degraded over the past several decades. Even though these ecosystems provide essential goods and services – through providing fish habitat, attracting tourists, protecting shorelines and coastal communities from storm damage, and more – their health and productivity continue to decline due to human activities. For example, more than 75 percent of the Caribbean's coral reefs are threatened by local pressures, such as coastal development, overfishing, and pollution, as well as global pressures, including ocean warming and acidification.<sup>6</sup>

While interest in ecosystem valuation continues to grow – in the Caribbean and beyond – the extent to which valuations have had a positive impact on decision making regarding the conservation and management of coastal resources remains unclear. Recent research on the use of economic valuation in decision making highlights a “science-policy gap” whereby valuation results are not used or employed appropriately by decision makers. Laurans et al. (2013), for instance, note that examples of use of economic valuation are rare in the literature. For the coastal Caribbean, they are nearly absent.

Translating science into policy can be difficult for a number of reasons, as scientists and decision makers often work within different time frames, in different areas of expertise, and with differing objectives and incentives.<sup>7</sup> An oft-cited solution to the science-policy gap is to improve communication among scientists, decision makers, and other stakeholders through increased capacity building, outreach, and engagement.<sup>8</sup> It is also possible for scientists to develop research that explicitly considers the needs of decision makers, and collect valuation data targeted at specific policy questions – possibly increasing the likelihood that findings will be used.<sup>9</sup> Researchers also note that good governance can also facilitate the use of scientific information in decision making.<sup>10</sup>

But do these “enabling conditions” related to valuation study design, stakeholder engagement, communications, and governance increase the likelihood that coastal ecosystem valuation data are used in decision making in the Caribbean? And are there other reasons why some valuations are more influential than others? For this paper, the World Resources Institute (WRI) and the Marine Ecosystem Services Partnership (MESP) conducted a series of interviews with end users of valuation results in order to examine these questions more deeply. Building on literature on the science-policy gap, our study identified the key enabling conditions that improve the uptake of ecosystem valuation data, using examples from coastal ecosystem valuations in the Caribbean.

In this paper, we define “influence” or “use” of a valuation study as an observed positive change in policy, management, or investment (e.g., increased marine area under “no take” designation, increased treatment of sewage, increased financial support of marine protected areas, better enforcement of fishing regulations) that can be attributed to the study. These types of changes support generally recognized conservation strategies to reduce threats to – and promote the long-term ecological health of – the coastal and marine environment.

This paper does not provide a comprehensive evaluation of every coastal ecosystem valuation study conducted in the

Caribbean to date, but rather is intended to start the conversation of how to improve the usefulness of valuation efforts in the Caribbean to encourage better decision making around coastal resource use.

## 2. Material and methods

In early 2012, WRI conducted a literature review to search for cases of use of coastal ecosystem valuation in decision making in the Caribbean. However, we came to a similar finding as Laurans et al. (2013) that few documented examples of use of valuation in decision making were available. For coastal ecosystems in the Caribbean, we found only four documented cases where valuation:

- Justified the establishment, and later increase, of user fees for tourists in Bonaire National Marine Park.<sup>11</sup>
- Justified the establishment of fines for injury to living coral based on the area of coral reef damaged in the United States' Florida Keys.<sup>12</sup>
- Supported the development of Belize's national Integrated Coastal Zone Management Plan (currently in draft form).<sup>13</sup>
- Helped secure a US\$10 million government investment for nature conservation on Bonaire, Saba, and St. Eustatius, and supported other conservation initiatives on the three islands.<sup>14</sup>

We therefore decided to deepen our search through expert interviews. From January 2012 to August 2014, WRI and MESP conducted semi-structured interviews with 37 marine conservation and valuation experts, including resource managers, ecologists, environmental and ecological economists, tourism operators, government officials, and conservation professionals. We used these interviews to identify additional coastal valuations in the Caribbean that had been used in decision making, and to help understand why these studies had been influential.

MESP (see Appendix A for the MESP survey questions) interviewed 14 stakeholders involved with WRI's *Coastal Capital* series of economic valuation studies,<sup>15</sup> conducted between 2005 and 2011 in Trinidad and Tobago, St. Lucia, Belize, the Dominican Republic, and Jamaica.<sup>16</sup> WRI (see Appendix B for the WRI survey questions and key informants) interviewed stakeholders who had been involved with the Caribbean Netherlands, United States, and Belize cases listed above. During the course of the interviews, we used snowball sampling to identify additional cases of use of coastal ecosystem valuation for decision making in the Caribbean, as well as additional informants to interview. We stopped the series of interviews when it became difficult to identify additional cases of valuation influence.

Based on our literature review and interviews, we identified the key enabling conditions that seem to affect whether or not coastal ecosystem valuations successfully informed policy, legislation, or investment decisions in the Caribbean. We split these enabling conditions into three categories:<sup>17</sup>

<sup>11</sup> Slootweg and van Beukering (2008), Uyarra et al. (2010) and Thur (2010).

<sup>12</sup> Van Beukering et al. (2007).

<sup>13</sup> Ruckelshaus et al. (2014).

<sup>14</sup> TEEB Caribbean Netherlands (2014).

<sup>15</sup> Burke et al. (2008), Cooper et al. (2009), Wielgus et al. (2010) and Burke et al. (2011b).

<sup>16</sup> See Jungwiwattanaporn (2012) for additional detail from the MESP interviews.

<sup>17</sup> McKenzie et al. (in press) concur that “product, process, and general conditions all matter” in determining whether ecosystem service knowledge and valuation results are used in decision making.

<sup>5</sup> Schuhmann (2012).

<sup>6</sup> Burke et al. (2011a).

<sup>7</sup> Karrer et al. (2011) and Nursey-Bray et al. (2014).

<sup>8</sup> Avishek et al. (2012), Börger et al. (2014), Broggiato et al. (in press), Nursey-Bray et al. (2014) and Karrer et al. (2011).

<sup>9</sup> McVittie and Moran (2010) and Östberg et al. (2012).

<sup>10</sup> Nursey-Bray et al. (2014).

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