

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

BARBADOS

**CLIMATE RESILIENT AND SUSTAINABLE INTEGRATED
COASTAL ZONE MANAGEMENT**

(BA-L1059)

PROJECT PROFILE

This document was prepared by: Tsuneki Hori (CSD/RND), Team Leader; Jennifer Doherty-Bigara (CSD/CCS), Alternate Team Leader; Marisol Inurritegui, Roberto Guerrero, Haris Sanahuja, Michael Collins, and Lisa Restrepo (CSD/RND); Carolina Verissimo (LEG/SGO); Ercio Muñoz (SCL/GDI); Janette Archer (CCB/CBA); Roberto Leal, and Heidi Fishpaw (VPS/ESG).

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PROJECT PROFILE

BARBADOS

I. BASIC DATA

Project Name:	Climate Resilient and Sustainable Integrated Coastal Zone Management		
Project Number:	BA-L1059		
Project Team:	Tsuneki Hori (CSD/RND), Team Leader; Jennifer Doherty-Bigara (CSD/CCS), Alternate Team Leader; Marisol Inurritegui, Roberto Guerrero, Haris Sanahuja, Michael Collins, and Lisa Restrepo (CSD/RND); Carolina Verissimo (LEG/SGO); Ercio Muñoz (SCL/GDI); Janette Archer (CCB/CBA); Roberto Leal, and Heidi Fishpaw (VPS/ESG)		
Borrower:	Barbados		
Loan Modality:	Investment loan for specific projects		
Executing Agency:	Coastal Zone Management Unit (CZMU)		
Financial Plan:	IDB (Ordinary Capital):	US\$	US\$50,000,000
	Local:	US\$	0
	Co-financing	US\$	0
	Total:	US\$	US\$50,000,000
Safeguards:	Risk Classification:		High
	Impact classification:		B
Processing track:	☐ Standard		☒ Special
Country Strategic Alignment:	IDB Group Country Strategy with Barbados 2019-2023		
Strategic Alignment:			
Challenges:	☒ Social Inclusion ☐ Productivity and Innovation ☐ Economic Integration		
Crosscutting:	☒ Gender Equality ☒ Diversity ☒ Environmental sustainability ☒ Climate Change ☒ Institutional Capacity and Rule of Law		

II. GENERAL JUSTIFICATION AND PROGRAM STRATEGY

- 2.1 **Background.** Barbados is the easternmost island country in the Caribbean with a land area of 430 km², an Exclusive Economic Zone (EEZ) of approximately 185,000 km², and a coastline of approximately 97 km long.¹ The natural resources contained within these vast ocean and coastal areas provide a variety of services that support human well-being and the tourism industry.² More than half of Barbados' population resides within 2 km of the coastline.³ Its coastal zone,⁴

¹ BTI, 2020; Barbados National Biodiversity Strategy and Action Plan 2020 Update.

² Richard Waite; P.J.H. Van Beukering, L. Burke, L. Brander. Coastal Capital: ecosystem valuation for decision making in the Caribbean. Pecharcil Report 2014.

³ Barbados Integrated Coastal Zone Management Plan 2020-2030. See: <https://coastal.gov.bb/iczm-policy-and-legislation/integrated-coastal-zone-management-plan/>.

⁴ The coastal zone of Barbados is defined by the Barbados CZM Act 1998 as "the entire area incidental to the shoreline, consisting of unconsolidated material, represented by sand and beach rock, extending from the high-water mark to areas of significant change in material or natural topography landward, or from the mean high water mark to a distance 500 meters landward, whichever is less".

particularly the 33 km along the western and southern coasts, serves as the location for 95% of the country's tourism activity, attracting more than 1 million tourists a year.⁵ This makes tourism one of the country's main economic activities, with direct and indirect revenues currently estimated at approximately US\$1B per year,⁶ with the sector contributing approximately 13% of GDP and 40.6% when considering indirect spillovers.⁷

- 2.2 While critical to the country's economy, these natural resources have experienced degradation over time. On the country's bank reef, coral cover has decreased from 37% to 23% over the past decade.⁸ Overall declines in live coral cover and healthy barrier reef systems reduce natural wave energy absorption and dissipation capabilities, thereby increasing coastal susceptibility to hydraulic erosion. The country's coast is also susceptible to erosion due to external factors such as ocean currents, swells, and storms. In addition, coastal erosion⁹ is greatly compounded by anthropogenically induced environmental stress,¹⁰ mostly caused by inappropriate and/or under-regulated, historic, and past "built" development. Climate hazard events (hurricanes and storms) in addition to contributing to coastal erosion, also lead to environmental degradation and coastal flooding, all of which may be further exacerbated by the increase in frequency and intensity of climate hazard events due to climate change. Combined, these factors increase potentials for future damage and loss.
- 2.3 Coastal erosion has reached on average 15 meters over the past 100 years.¹¹ These degradation processes can have a negative impact on the country's economic activities (mainly tourism).¹² The west coast alone is estimated to be losing US\$3-4 million per year in economic value returns due to this phenomenon.¹³ An IDB study (2020) also indicated¹⁴ that Barbados potentially loses US\$30 million per year in economic inflows due to coastal erosion. The report further notes that this potential loss could increase by up to 6% by 2050 due to climate change.
- 2.4 Consequently, spatially reduced coastal buffer zones (e.g., natural resources such as sandy shorelines) increase exposure to climate hazards (i.e., storms and flooding) in the coastal area. This climate risk is evidenced by the fact that

⁵ Browne, Rudolph, and Winston Moore. 2014. "Predicting Tourist Arrivals During a Crisis." CBB Working Paper WP/14/7. Central Bank of Barbados.

⁶ See [Public Investment Profile for Disaster Risk Reduction: Beach Erosion and Risk Mitigation Model for Barbados](#)

⁷ See <https://www.wttc.org/-/media/files/reports/economic-impactresearch/countries-2018/barbados2018.pdf>

⁸ See reference in footnote 3.

⁹ In this project, coastal erosion refers to the gradual removal of land, sand and shoreline structure due to the effects of waves, tides, currents, and other coastal processes.

¹⁰ There are several reasons for coral decline, which include eutrophication from nutrient loading e.g. from poor waste water treatment (high nitrates and phosphates). Natural mortality and "bleaching" due to high sea surface temperatures are also contributory factors. Rising sea temperatures due to climate change are thought to be one of the causes.

¹¹ CARIBSAVE (2020).

¹² Lugay, Beverly, y Ronald James. 2014. "The Impact of Natural Disasters on Public Debt Accumulation in Selected ECCU Countries". WP/14/6. Central Bank of Barbados.

¹³ Baird (2017) Climate Hazard & Risk Study. internal CZMU document.

¹⁴ See reference in footnote 6.

121 coastal floods have been registered in Barbados in the last 20 years.¹⁵ These disasters adversely affect the socioeconomic livelihoods of coastal residents. In addition, spatially reduced coastal buffer zones adversely affect economic infrastructure because it accelerates the deterioration of roads and other important ancillary structures along the coast, primarily due to direct tidal-wave exposure. In addition, reduction in aesthetic and amenity value, as well as degradation of inclusive critical infrastructure, threatens the island's intrinsically endowed beauty and tourism attractions. This in turn further increases the risk of lower economic inflows from the tourism sector.

2.5 General engineering approach for coastal protection and management.

Traditionally, there have been several types of engineering measures that can be used to address coastal erosion. Historically, these measures have included beach nourishment (artificially replenishing eroded beaches with sand to restore their functionality) and the construction of shore-hardening defenses such as seawalls and revetments. Extensive groyne fields to catch and trap sand from alongshore sediment transport were also used, but with poor engineering design these can also add to downstream and upstream impacts. Globally, contemporary coastal engineering now also promotes the use of nature-based solutions (e.g., stabilization of nearshore seafloor slopes through coral regeneration and prevention of beach erosion), where possible and feasible, yet this expertise is not yet solidly established globally.¹⁶

2.6 Government Response. The importance of achieving a sustainable balance between the protection of the coastal zone from climate hazards and promotion of industrial/economic activities (e.g., tourism) is highly recognized by the Government of Barbados (GoBA). From a public policy standpoint, the country has adopted Integrated Coastal Zone Management (ICZM)¹⁷ as its approach to addressing the issue. The national ICZM initiative began in 1983 with the temporary establishment of the Coastal Conservation Project Unit (CCPU). The government then initiated a program to protect the natural resources and critical infrastructure of the coastal zone.¹⁸ Subsequently, institutional capacity to address ICZM was strengthened through the IDB financed program: Coastal Zone Conservation Program - Phase I (856/OC-BA, US\$3.6 million) in 1994, which included the analysis of scientific data on coastal currents and beach sand dynamics. The Program also supported the establishment of the Coastal Zone Management Unit (CZMU) in 1996, as a formal managing and implementing agency, and the enactment of CZM Act in 1998. Additionally, in 1996 - 1999, the CZMU embarked on an intensive study of the East coast of the island in the Coastal Conservation Phase 1 Study, which included institutional strengthening initiatives as well as the development of the first comprehensive Integrated Coastal Zone management (ICZM) Plan for the island.

¹⁵ UN DesInventar disaster database. <https://www.desinventar.net/DesInventar/>. Barbados registered disaster history in this database up to 2017. Therefore, note that the last 20 years here are strictly data from 1997 to 2017.

¹⁶ See: [Nature-based Solutions to Enhance Coastal Resilience \(iadb.org\)](https://iadb.org/nature-based-solutions-to-enhance-coastal-resilience/)

¹⁷ The conceptual framework of ICZM for this project is defined by the Government of Barbados and international practice as "a continuous and dynamic process of decision-making for the sustainable use, development and protection of coastal and marine areas that mainstreams both natural resource and climate risk management."

¹⁸ Part of this activity was realized through the IDB project: CP-2013-BA (1982-1984).

- 2.7 With further support from the IDB, the GoBA, through the CZMU, implemented the Coastal Infrastructure Program (1386/OC-BA, US\$17 million) in 2002 which successfully developed coastal solutions combining coastal erosion control with tourist attractions, such as a wood-surfaced boardwalk along sections of the South Coast. The Coastal Risk Assessment and Management Program (2463/OC-BA, US\$35 million), implemented since 2008, has accumulated experience in effectively preventing coastal erosion in Holetown on the west coast through an approach that optimizes and combines coastal revetments, offshore breakwaters, groynes, shoreline enhancement structures (e.g., wood boardwalks) and other shoreline protection measures (for example, seawalls).
- 2.8 The 2005-2025 Barbados National Strategic Plan (BNSP) advocates for the continued implementation of ICZM and includes strategies (Strategy 1.9) which commits to effectively conserve and improve the quality of the island's coastal and marine ecosystems and biological resources in a sustainable manner. Furthermore, the national ICZM Policy¹⁹ and ICZM Plan 2020-2030 were approved by the GoBA in 2020. The Plan divides the country's coastline into eight areas and identifies priority measures aiming at appropriate coastal protection and management. Furthermore, the Updated Nationally Determined Contribution (NDC)²⁰ of Barbados underlines the importance of strategic policies in coastal zone management as the country faces increased climate-related extreme events, including frequency and intensity of hurricanes, droughts, and sargassum seaweed influxes which is aggravated by the specific location of the Barbados' beaches, coastline characteristics and social and economic factors.
- 2.9 **Overall progress of ICZM in Barbados to date.** As described above, over the course of its forty years of ICZM programming Barbados has developed a domestic coastal engineering technical knowledge, understanding and proficiency in oceanographic processes affecting the coasts, and in the custom engineering design and application of structural solutions, such as varying combinations of seawalls, revetments, groynes, submerged-crest breakwaters. These measures are complemented with selective beach nourishment and offer highly specific solutions to localized erosion problems observed along its historically densely developed southern and western shorelines. This proficiency has arisen due to successive sustained programmatic public investments in the collection and analysis of high resolution, scale-specific coastal-oceanographic scientific data, along with the application of an interdisciplinary approach to coastal planning which is participatory and significantly stakeholder informed. Hybrid solutions (including both structural engineering and beach nourishment) have therefore become mainstream for Barbados. Opportunities to apply ecosystem-based and nature-based solutions have become more relevant and are systematically considered as part of structural engineering, particularly for rural coastlines. Additionally, the CZMU has continued to explore and invest in research and knowledge building for technically feasible, economically viable and appropriate

¹⁹ The policy includes six expected priority outcomes: (1) a sustainable socioeconomic will be achieved; (2) coastal resources will be protected and effectively managed; (3) climate adaptation and disaster risk reduction will be enhanced; (4) ICZM will be implemented with a coordinated governance structure; (5) capacity for ICZM implementation will be strengthened in all relevant sectors; and (6) research, understanding, and dissemination of knowledge are expanded.

²⁰ <https://unfccc.int/sites/default/files/NDC/2022-06/2021%20Barbados%20NDC%20update%20-%202021%20July%202021.pdf>

methods for coral growth and out-planting in the context of supporting healthy reef regeneration.

2.10 **Priority Challenges and approaches.** While historically the concern with coastal erosion has been the central driver in the country's approach to ICZM, today Barbados takes a holistic approach in addressing resilience of its coastal zone. In addition to coastal erosion, the concerns of amenity value of coastal infrastructure and the impacts of flooding are integrated into the criteria used for defining priority ICZM interventions:

- a. **Areas still experiencing coastal erosion.** Several locations on the west and south coasts experience significant beach erosion due to sub-optimal sediment-transport, available sediment-budget, as well as prevailing coastal morphology, bathymetry and hydrodynamic conditions that limit stable beach formation. This erosion challenge is particularly evident at Oistins and Rockley Beach to St. Lawrence Gap on the south coast, and at Clinketts, Sand Street and Retreat to Mullins on the northwestern coast. Previous studies have shown that sand movement along southern shorelines are generally from east to west, and from north to south on western shorelines. Existing field experience (§2.7) has confirmed that sand flow (alongshore sediment-transport) and coastal erosion are effectively managed/controlled at nearby sites where coastal revetments, groynes, offshore breakwaters, shoreline protection and shoreline enhancement structures have been purposefully and accurately designed and configured to this effect.
- b. **Need to enhance existing coastal protection infrastructure.** Shoreline walkways and small groynes have been developed together on the south coast²¹ (§2.6). These structures not only play an effective role in preventing beach erosion, protecting coastal-adjacent properties, shore-proximal and shore-located public infrastructure, but when developed with due consideration of, and incorporating design opportunities for public and recreational facility improvements, they also contribute significantly to the amenity value of the site, leading to increased tourism attraction and development of services (e.g., concentration of restaurants). Current shoreline walkways and associated shore protection/coastal stabilization infrastructure are however not optimal in terms of their total length, and their effectiveness in preventing coastal erosion is mostly limited to their spatial zones of coverage. In addition, access to the shoreline walkways is not always feasible for people with disabilities, including wheelchair users, and the elderly, as safe transit/access from the road to the boardwalk can be impacted by rough surface conditions in some areas.
- c. **Community security considerations against coastal flooding.** High risk areas which are severely impacted by storm surges and coastal flooding have been identified along communities where main roads run parallel to the coastline (e.g., at Clinketts along the northwestern shoreline)²². Some of these coastal roads are also deteriorating considerably due to tidal exposure, undercutting and saline damage. Oistins, where a relatively large number of residences and tourist attractions are concentrated, is also exposed to high

²¹ It is called The Richard Haynes Boardwalk and stretches about 2 km from the eastern end of Sugar Beach in the south to Rockly Beach.

²² See reference in footnote 13.

coastal flooding risk, both from precipitation-generated inland runoff and marine inundation induced by storm surge. Localized infrastructure failure, road erosion, flooding and storm surge in these areas would not only disrupt the lives of local communities but would also have a serious impact on transportation from/to other areas, as well as road-network-redundancy and public-emergency/disaster response-capability.

- d. **Institutional capacity and Governance for continuous ICZM public policy implementation.** To identify further longer-term future challenges for ICZM in Barbados and continue to provide sustainable solutions to issues around coastal climate risk based on a deeper analysis, several additional efforts, including strengthening the institutional capacity, would also be needed. These include systematizing, updating and formalizing institutional processes and governance for ICZM; evolving greater analytical capacity to assess climate and disaster risks; developing transparent private-public investment and partnership mechanisms; expanding research to apply Nature-Based Solutions; and accurately valuing natural resources and ecosystem services, e.g. through ecosystem accounting; and creating a Monitoring Reporting and Verification (MRV) system, among others.
- 2.11 **Empirical evidence.** There is international evidence that an Integrated Coastal Zone Management (ICZM) approach is a climate resilience effective measure in the fight against coastal erosion and associated climate risk²³. Furthermore, IDB studies point out that if investments in coastal erosion management are properly made in Barbados, up to 10% additional GDP growth can be expected after 30 years compared to the absence of such investments.²⁴
- 2.12 **Strategic Alignment.** The project is aligned with the Second Institutional Strategic Update 2020-2023 (AB-3190-2) in the following ways: (i) Contribution to "Social Inclusion" through the incorporation of community stakeholders' requirements into project design/implementation through dialogue with them and via participatory community engagement in each project area; (ii) Contribution to "Institutional capacity and rule of law" by strengthening the institutional and governance structures necessary for the effective implementation of ICZM public policies; and (iii) Contribution to "gender equality and diversity" through, for example, the introduction of an inclusive barrier-free access to the shoreline infrastructure (e.g., walkways) to be extended/implemented through the project. In addition, a gender perspective could be included in community stakeholder engagement and awareness activities. Furthermore, the project is in line with the cross-cutting theme of "climate change and environmental sustainability" by mainstreaming climate risks into sustainable coastal development and enhancing the country's resilience to climate change impacts. The project will contribute to the Corporate Results Framework (CRF) 2020-2023 (GN-2727-12), through the following Level 1 indicators: (i) Research and development expenditure as a percentage of GDP; and (ii) Annual reported economic losses from natural disasters, as well as Level 2 indicators (i) Targeted beneficiaries of public services that have been adapted for diverse groups; and (ii) Beneficiaries of enhanced disaster and climate change resilience. Additionally, the project is broadly based on the [IDB's Climate Change](#)

²³ See, as an example, Füssel H-M (2007) Vulnerability: a generally applicable conceptual framework for climate change research. *Global Environ Change* 17:155–167

²⁴ See: [Public Investment Profile for Climate Risk Reduction in Barbados: A Macroeconomic Cost-Benefit Analysis for Reducing the Socio-Economic Risk of Coastal Erosion](#)

[Sector Framework](#). The project aims to support the balancing of coastal economic activities and natural resource management on coastal stabilization in Barbados through science-based engineering design that mainstreams climate risks, and thus contribute to the IDB Group Country Strategy with Barbados (2019-2023):²⁵ strengthening the regulatory environment for a more open and better business climate, promoting innovation and a greater use of technologies. Finally, the project is in line with the Paris Agreement as it is considered an investment that is universally consistent with adaptation and mitigation targets in the categories of "flood management and protection, coastal protection and urban drainage".

- 2.13 **Objective.** The objective of this project is to improve the resilience of the country's coastal zone from degradation and climate risk, which likely increase with climate change. The specific objectives are to (i) reduce coastal erosion and flooding in coastal areas; (ii) improve the value of coastal areas to tourists and local communities, including the provision of lateral access along the shoreline, especially for persons with disabilities; and (iii) improve the institutional capacity to implement the country's ICZM public policy to address mainstreaming of climate change adaptation.
- 2.14 The expected results of the project are that: (i) stable coasts are regenerated/created against climate risks; (ii) improved aesthetic attractiveness, human well-being and tourism activities in coastal areas through the revitalization/improvement of coastal facilities/infrastructure; and (iii) institutional capacity and ICZM public policy governance is enhanced to incorporate new tools, skills and competencies and to identify priority coastal zone investments in a sustainable manner. The project's expected impacts are the creation of a resilient, safer, and enhanced socio-economic environment for citizens, communities and tourists in the coastal zone, through two components.
- 2.15 **Component I. Integrated Coastal Infrastructure Development (US\$47.75M).** This component seeks to reduce coastal climate risk in selected coastal sites and provide for increased community and tourism value by financing integrated coastal works. Interventions under this component will include stabilization of shoreline erosion, development and enhancement of climate-risk informed coastal protection infrastructure, and the improvement of beach amenity/attractions. This component will target five sites considering the priorities and challenges identified (in ¶2.11) – for Oistins²⁶ and Rockley Beach to St. Lawrence Gap on the south coast, Clinketts, Sand Street and Retreat to Mullins on the west coast.²⁷ The engineering solution pursues a hybrid approach by combining beach nourishment with coastal structures, such as breakwaters and groynes, utilizing natural materials. Where necessary, coastal drainage works will be enhanced to reduce flood risk. Access to coastal areas will also be improved, including appropriate access facilities for persons with disabilities. These works will be accompanied by community and stakeholder engagement and awareness activities. The main

²⁵ [IDB Group Country Strategy with Barbados 2019-2023.pdf](#)

²⁶ This site is geographically next to the site of the loan projects currently being implemented (BA-L1033). Therefore, the Executing Agency (EA: CZMU) continues to coordinate with the EA of BA-L1033 to ensure consistency in development details.

²⁷ These priority areas fall within the West Coast (Area 6) and South Coast (Area 8) of the National ICZM Plan 2020-2030 (¶2.5), where coastal erosion and climate change risks are identified as particularly significant in the Plan.

issues, key engineering solutions, anticipated construction duration and tentative budget for each target area are as follows:

Table 1. Overview of challenges and solutions at each project site

Target area	Main issue	Key engineering Solutions	Construction duration	Tentative Budget
Clinketts	- Beach erosion - Shoreline (road) erosion - Drainage - Community Safety	- Offshore-breakwaters - Beach nourishment - Sea Protection wall - Boulder revetments - Groynes - Sidewalks	5 to 10 months	US\$5M
Mullins	- Coastal erosion - Difficult for general tourists to access the beach due to lack of access roads	- Beach fill - Offshore-breakwaters - Beach nourishment - Groynes - Sea protection wall - Walkway	5 to 10 months	US\$5M
Sand Street	- Steep beach slope - Beach erosion - Shoreline (road) erosion	- Beach nourishment - Boulder revetments - Offshore breakwaters - Sidewalks	4 to 6 months	US\$5M
Oistins	- Beach erosion - Coastal Floods in urban area/storm surge flooding - Need to improve recreational space. - cliff erosion	- Drainage - Walkways - Boulder revetments - Offshore breakwaters - Groynes - Beach nourishment	8 to 12 months	US\$14M
St. Lawrence Gap to Rockley Beach	- Beach erosion - Impeded lateral access as the beaches are fragmented by several rocky areas. - Limited pedestrian access to St. Lawrence Gap from surrounding beaches - Cliff erosion	- Boardwalk - Groynes - Beach nourishment	20-24 months	US\$19M

2.16 **Component II. Strengthening institutional capacity and ICZM public policy governance (US\$1.5M).** The objective of this component is to enhance the governance and institutional capacity of the country's ICZM public policy to mainstreaming climate change adaptation by strengthening evidence-based public-policy-instrument-development, decision-making and technical capacity of the ICZM and enable sustainable use, development, and protection of coastal areas. In this regard, activities financed by this component include the following items related to addressing the challenges identified previously (§2.11): (i) enhancing climate and disaster risk information analytics by upgrading the National Coastal Risk Information and Planning Platform (NCRIPP); (ii) developing transparent private-public investment and partnership models; (iii) incentivizing the establishment of a national coral reef restoration program; (iv) piloting of ecosystem accounting; (v) creating a Monitoring Reporting and Verification (MRV) system; (vi) development of a CZMU operations manual; and (vii) training in coastal engineering, numerical modelling, and other priority technical subjects.

2.17 In addition, the project will incur administrative costs (US\$0.75M) for project management, monitoring, evaluation, and auditing.

- 2.18 The number of direct beneficiaries of the project is estimated to be approximately 670,000 persons/year, including tourists who are expected to visit the five sites where coastal infrastructure will be developed (Component I) and residents of adjacent communities.
- 2.19 **Amount.** The total project cost is estimated at US\$50 million and will be fully funded by IDB ordinary capital under the modality of an investment loan for specific projects, given that project cost estimates, draft intervention plans, and engineering designs are already in place, and there is technical, financial, and economic feasibilities. No retroactive financing and/or recognition of ex-ante expenditures is expected for this project.

III. SECTOR KNOWLEDGE AND PREPARATION PLAN

- 3.1 As noted above (see ¶2.6, ¶2.7 and ¶2.8), the IDB has continuously supported sustainable integrated coastal development initiatives in Barbados from the 1980s to the present. These include three loans and four Technical Cooperations (TC) projects. The following table shows these loans and TCs over time.

Table 2. Evolution of ICZM in Barbados and support from the IDB

Period	Subject	Support from IDB
1982-84	Diagnostic and Preliminary Study on Coastal Conservation	CP-2013-BA
1991-1995	Coastal Conservation Feasibility and Pre-Investment Study	571/OC-BA
1996-99	Barbados Coastal Conservation Program Phase 1 - North, East and Southeast Coast Survey	856/OC -BA
2002-2009	Coastal Infrastructure Program	1386/OC-BA
2010-2020	Climate Resilient Coastal Risk Management Program	BA-L1014; BA-T1014; BA-T1025

- 3.2 Furthermore, at the request of the Government of Barbados (GoBA), a TC project, "Improving the Institutional Framework for ICZM, National Risk Information Systems, and Sustainable Climate Resilient Coastal Infrastructure (BA-T1068)" is being implemented by the CZMU and supervised by the IDB since 2020. The objective of this TC is to provide support to the GoBA to develop an advanced climate resilient ICZM institutional capacity development pathway to meet emergent and anticipated future sector challenges, improved quantity estimation of engineering design for public investments, and coastal risk assessment. The design of this loan project is primarily based on the technical results from this TC BA-T1068 and other design outputs generated under BA-L1014.
- 3.3 Beyond these ICZM-related initiatives in Barbados, the IDB has accumulated considerable sector knowledge over several decades, including recent loan projects and TCs focused on risk and climate resilience (e.g., BH-L1043, BL-L1020 and DR-L1154, ATN/OC-13961-TT, ATN/ OC 13321-TT, ATN/OC-13324-TT, ATN/OC 12349-TT). Of these, DR-L1154 in particular focuses on climate risk, which is the issue of this project, and the general approach adopted in the DR-L1154 is likely to be of reference to this project.
- 3.4 **Lessons learned and technical aspects to be considered during project preparation.** The effectiveness of ICZM related public investment has been recognized by the IDB through the implementation of past projects shown above. These region-specific lessons indicate that for ICZM public policies implementation to be more effective, it is essential to ensure (i) reliable quantitative information on coastal risks; (ii) innovative and science-based engineering design of erosion and

flood control that incorporates nature-based approaches; (iii) involvement of local communities in the selection and implementation of coastal solutions; and (iv) strengthening of institutional coordination mechanisms, along with planning, implementing and management capacity.²⁸

- 3.5 **Execution mechanism.** The Coastal Zone Management Unit (CZMU) will be the executing agency for the implementation of the project. This institution has implemented all the loan projects listed in ¶3.1 and has accumulated experience in IDB project implementation. A dedicated Project Execution Unit (PEU) will be established in the CZMU to manage the project, which will include specialized procurement and financial management staff. Core members of the PEU are expected to be CZMU staff with experience in implementing previous IDB loan projects. A Project Capacity Assessment (PACI) will be conducted for the CZMU during the project preparation period to objectively assess its capacity to implement the project. In addition, project management, fiduciary, and accountability arrangements will be defined in the future as part of the Operational Regulations. Appropriate mechanisms for the involvement of local government and community stakeholders in the implementation of the Project will also be defined in that context. The project execution period proposed for this project is seven years.

IV. TECHNICAL ASPECTS, ENVIRONMENTAL RISKS AND EXECUTION AND FIDUCIARY ASPECTS

- 4.1 **Environmental and social aspects and Environmental Classification.** In accordance with the Bank's Environmental and Social Safeguards Response Policy (OP-703), this program was classified as Category "B". Therefore, an environmental and social analysis will be completed.
- 4.2 **Fiduciary Aspects.** Procurement financed through the project will be carried out in accordance with the IDB Procurement Policies GN-2349-15 and GN-2350-15. The financial management of the program will follow the provisions of Guide OP-273-12. The loan proposal annex (fiduciary arrangements and requirements for the operation) will be prepared, taking into account the institutional analysis and the risk matrix.
- 4.3 **Other risks.** Preliminarily, some possible medium level risks have been identified that could affect the development of the project during its implementation. Among these are: the limited capacity of the executing agency (CZMU) that would delay implementing project activities; the disruption of project implementation from natural hazards; service procurement process; potential lack of access to appropriate supplies and services; and the potential conflict between local stakeholders and the works. Each of these risks can be appropriately mitigated by: (i) appropriately staffing the Project Executing Unit (PEU) in a timely manner; (ii) taking necessary measures to manage the work plan during the hurricane and tourist season; (iii) ensuring that measures are in place to secure the sand and

²⁸ Regarding (i) and (ii) CZMU already has coastal engineering design documents based on studies which rely on objective quantitative scientific data. Therefore, this project will make effective use of these studies. (iii) will be addressed as an activity under Component I, and (iv) will be the subject of Component II.

stone needed to implement the work; and (iv) holding adequate local stakeholder engagement meetings.

V. RESOURCES AND TIMETABLE

- 5.1 The Quality and Risk Review Committee (QRR) for this project is scheduled to begin on September 21, 2023 and is expected to be discussed for approval by the Executive Board on November 29, 2023. In addition, an estimated US\$86,000 from the Bank's administrative budget will be required for project preparation (consulting services and missions).
- 5.2 The engineering design work for Component I of the project was developed under BA-L1014 and further enhanced with funding from BA-T1068. In addition, a preliminary procurement package for the selection of construction contractors has already been prepared. Therefore, the CZMU can finalize the procurement packages for this project in a relatively short period of time.

Annexes

- I. Summary of the Environmental and Social Review
- II. Timetable and Preparation Resources
- III. Filters for determining the processing track

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK



BARBADOS

CLIMATE RESILIENT INFRASTRUCTURE AND INTEGRATED COASTAL ZONE MANAGEMENT PROGRAM

BA-L1059

INITIAL ENVIRONMENTAL AND SOCIAL REVIEW SUMMARY (ESRS)

July 2023

This document was prepared by:
Roberto Leal Rosillo and Heidi Fishpaw (VPS/ESG)
With the support of the Project team:
Hori Tsuneki (CSD/RND)

Initial Environmental and Social Review Summary	
Operation Data	
Operation Number	BA-L1059
IDB Sector/Subsector	Environment And Natural Disasters / Coastal Zone Management (CSD/RND)
Type of Operation & Modality	Specific Loan Operation (LON/ESP)
Initial E&S Impact Classification (ESIC)	B
Initial E&S Risk Rating (ESRR)	Substantial
Initial Disaster and Climate Change Risk Classification (DCCRC)	High
Borrower	Barbados
Executing Agency	Coastal Zone Management Unit (CZMU)
IDB Loan Amount (and total project cost)	\$50,000,000.00 (\$50,000,000.00)
Applicable ESPS's with requirements	ESPS 1; ESPS 2; ESPS 3; ESPS 4; ESPS 5; ESPS 6; ESPS8, ESPS 9; ESPS 10
Executive Summary	
According to the Bank's Environmental and Social Policy Framework (ESPF) and based on the existing information this operation (composed of 5 sub-projects) has been classified as Category B for the moderate magnitude of the environmental and social impacts related to the works. These impacts are expected to be localized, temporary and for which there are effective mitigation measures. During construction the main potential impacts are those typical of small construction works, such as disruption to traffic, presence of workers and machinery from outside the community, creation of solid waste and risks related to storage of gasoline and oil, etc. An Environmental and Social Management System (ESMS) will be prepared for the operation that includes an Environmental and Social Analysis (ESA) and an Environmental and Social Management Plan (ESMP) for the five sites. The construction will include some submerged breakwater structures, as well as works on and around beaches some of which are modified turtle habitat; the works will not be in proximity to critical habitat or protected areas, however this will be verified by the ESA, as well as the exact species of turtle and status as endangered or not per International Union for Conservation of Nature (IUCN) classification. The ESA will assess impacts of beach fill to habitat of fish, turtle, and coral reef, or other species and propose options for avoiding impacts, and secondarily propose mitigation measures if necessary in the ESMP, as well as robust monitoring in order to have no net loss. There may be economic displacement to small vendors and/or businesses working on the beaches that will be intervened in. These impacts will be confirmed during due diligence and a Resettlement or Livelihood Restoration Plan will be prepared, as needed. The Environmental and Social Risk Rating is Substantial due to cause, contribution and context factors. There may be some economic displacement to vendors and/or small businesses during construction activities, and direct and indirect impacts to modified and natural habitat, and vegetation or trees during construction. The sub-projects take place within a high vulnerability and exposure to natural disasters.	

The Disaster and Climate Change Risk Classification is high, since the country and the projects themselves are highly exposed to natural disasters, including hurricanes, storm surge, intense waves, flooding, and sea level rise as well the criticality of the projects is high. The works themselves aim to increase resiliency to disasters, but the ESA will include an analysis of disaster and climate change risk following the disaster risk and climate change risk (DRCC) methodology of the IDB¹.

A Stakeholder Engagement Plan (SEP) will be prepared as part of the ESA to carry out a meaningful consultation with affected and interested parties during the preparation and design phase of the Operation, as well as ongoing stakeholder engagement during the implementation. Consultations will be carried out on the ESA/ESMP of the Operation, as well as the specific consultation with the potential affected by resettlement (if any).

Operation Description

The objective of this project is to improve the resilience of the country's coastal zone from degradation and climate risk, which likely increase with climate change. The specific objectives are to (i) reduce coastal erosion and flooding in coastal areas; (ii) improve the community and tourist value of coastal areas, including providing access to persons with disabilities; and (iii) improve the institutional capacity and governance of the country's ICZM public policy to address mainstreaming of climate change adaptation.

The expected results of the project are that: (i) stable coasts are regenerated/created against climate risks; (ii) aesthetic attractiveness, human well-being and tourism activities in coastal areas are (re)generated/enhanced through the revitalization/improvement of coastal facilities/infrastructure; and (iii) institutional capacity and ICZM public policy governance is enhanced to incorporate new tools, skills and competencies and to identify priority coastal zone investments in a sustainable manner. The project's expected impacts are the creation of a resilient, safer, and enhanced socio-economic environment for citizens, communities and tourists in the coastal zone.

The project consists of 2 components:

Component 1. Integrated Coastal Infrastructure Development (US\$47.75M). This component will implement integrated coastal infrastructure development incorporating stabilization of shoreline erosion, climate risk management, coastal infrastructure enhancement and its protection, and improved beach amenity/attractions, respectively. This component will target five priority sites in light of the priorities and challenges identified: Oistins and Rockley Beach to St. Lawrence Gap on the south coast, Clinketts, Sand Street and Mullins on the west coast. The approach to recovering and re-stabilizing beaches from erosion will focus on utilizing natural and nature-friendly materials for the coastal structures (such as breakwaters and groynes), in combination with immediate beach nourishment where erosion is significantly pronounced. The main issues, key engineering solutions, anticipated construction duration and tentative budget for each target area are as follows:

Table 1: Overview of challenges and solutions at each project site

¹ <https://publications.iadb.org/en/disaster-and-climate-change-risk-assessment-methodology-idb-projects-technical-reference-document>

Target area	Main issue	Key engineering Solutions proposed on the designs	Construction duration	Tentative Budget
Clinketts	- Coastal erosion - Shoreline (road) erosion - Drainage - Community Safety	- Offshore-breakwaters - Beach nourishment - Sea Protection wall - Boulder revetments - Groynes - Sidewalks	5 to 10 months	US\$5M
Mullins	- Coastal erosion - Lack of tourist attractions	- Beach fill - Offshore-breakwaters - Beach nourishment - Groynes - Sea protection wall - sidewalks	5 to 10 months	US\$5M
Sand Street	- Coastal erosion - Lack of tourist attractions	- Beach nourishment - Boulder reventments - Offshore breakwaters - Sidewalks	4 to 6 months	US\$5M
Oistins	- Coastal erosion - Coastal Floods - Improving the attractiveness of fish markets	- Drainage - Walkways - Bourder reventments - Offshore breakwaters - Groynes	8 to 12 months	US\$14M
St. Lawrence Gap to Rockley Beach	- Coastal erosion - Incomplete boardwalk connections	- Boardwalk - Groynes	20-24 months	US\$19M

See Annex A for maps of the projects in relation to critical, modified and natural habitat, and natural disasters and climate change vulnerability, as well as project rendering by sites.

Component 2: Strengthening institutional capacity and Inter Coastal Zone Management (ICZM) public policy governance (US\$1.5M). The objective of this component is to enhance the governance and institutional capacity of the country's ICZM public policy to mainstreaming climate change adaptation by strengthening evidence-based public-policy-instrument-development, decision-making and technical capacity of the ICZM and enable sustainable use, development, and protection of coastal areas. In this regard, activities financed by this component include the following items related to addressing the challenges identified previously: (i) enhancing climate and disaster risk information analytics by upgrading the National Coastal Risk Information and Planning Platform (NCRIPP); (ii) developing transparent private-public investment and partnership models; (iii) researching Nature-Based Solutions such as coral gardening and coral re planting technology; introduction of ecosystem accounting; (iv) creating a Monitoring Reporting and Verification (MRV) system; (v) development of a CZMU operations manual; and (vi) training in coastal engineering, numerical modelling, and other priority technical subjects. However, this document focuses on Component 1 with regard to impacts and risks, and mitigation measures.

In addition, the project will incur administrative costs (US\$0.75M) for project management, monitoring, evaluation, and auditing.

Rationale for Classifications/Rating	
E&S Impact Classification	The environmental and social impact classification for the Operation is Category B, as impacts are expected to be localized, temporary and moderate. The works aimed to improve resiliency, and not taking place within critical natural habitat or protected areas. However, there may be some moderate economic displacement, and modified habitat affected, such as benthic and turtle habitat, and possible affectation to vegetation or trees during construction.
E&S Risk Rating	Cause: There may be some economic displacement to vendors and/or small businesses during construction activities, and modified habitat and natural habitat affected, and possible affectation to vegetation or trees during construction. Additionally, the impacts and risks of beach fill to fish, turtle and coral habitat will be assessed during the due diligence utilizing the mitigation hierarchy in addition to submerged construction of breakwaters. Therefore the risk for this factor is Substantial. Contribution: There may be indirect impacts related to the beach fill on species and habitat that aren't well understood, therefore the risk for this factor is Substantial. Context: the sub-projects take place within a high vulnerability and exposure to natural disasters, specifically hurricanes, sea level rise, intense waves, and flooding, and therefore the risk for this factor is High. Performance: the Executing Agency has some understanding of environmental and social management but the extent of their capacity isn't fully clear yet, so the risk for this factor is Moderate. Therefore, the aggregate of the four risk factors is Substantial.
DCC Risk Classification	The disaster risk and climate change classification for this Operation is high, given that the projects are exposed to hurricanes, high waves, flooding, and sea level rise and since the works can be considered as vulnerable and with high criticality. The works themselves should improve the resiliency of these beaches to these disasters, but the relationship between the works and disaster risk should be studied carefully to ensure that the solutions proposed improve resiliency and proper mitigation and adaptation.
Use of Borrower E&S Framework	
No	
The operation will not use the Borrower framework and will comply with the requirements of the ESPF.	
Is a framework approach applied?	
No	
This operation will not use the framework approach.	
Will the operation be co-financed or is there a possibility of being co-financed?	
No	
This Operation is not expected to involve co-financing.	

Environmental and Social Performance Standards (ESPSs) that apply to the proposed project	
ESPS-1. Assessment and Management of E&S Risks and Impacts	Yes
The Operation will be executed for all components by the Coastal Zone Management Unit (CZMU). An ESA/ESMP will be conducted for all the five sites; in addition, an ESMS for the Operation will be prepared and implemented in execution. The main potential impacts during the construction phase are the generation of noise, dust, solid and liquid waste, risk of fuel spillage, increased traffic due to the use of machinery, alteration of soil quality due to preparation and placement of concrete and equipment, and occupational and community health and safety. Also, possible impacts to water sources and coastal waters due to contamination of preparation work. These impacts will be local and short-lived, and effective mitigation measures are in place for them. The risks of affecting archaeological sites and/or sites of cultural value, as well as protected areas (indirectly) and natural and modified habitats will be subject to due diligence assessment. The impacts of sand extraction and dumping will be analysed further as they may have indirect and cumulative impacts on coral reefs in the area and therefore on ecosystem services. This will be further analysed during the due diligence. As for negative social impacts, the main ones are associated with the construction phase and are temporary, such as the interruption of vehicle and pedestrian traffic, blocking access to housing and / or businesses, impacts on communities, an increase in the probability of accidents and possible conflicts between construction personnel and the population. As part of the ESA, a survey of the main socioeconomic activities of the local population residing near the 5 sites will be carried out. Therefore, the ESA/ESMP will include an assessment of resettlement impacts (physical and economic displacement) and a Livelihood Restoration Plan or Resettlement for any impacts that are unavoidable. Likewise, an analysis of the possible effects on ecosystem services that the habitats on the beaches present to the local population such as artisanal fishing and see possibilities of affectation to it will be done. During the operational stage, the potential impacts would be soil contamination due to inadequate solid and liquid waste management, and contamination of water sources due to poor management of organic waste from the proposed facilities. The ESMS will include the ESA/ESMP and will include all 7 elements: project specific framework; identification of risks and impacts; management plans; organizational capacity and competency; emergency preparedness and response; stakeholder engagement; and monitoring and review. A consulting firm will be responsible for preparing the ESMS for the project and will also be responsible for the development of the ESA/ESMP. Environmental and Social assessments and some consultations have been done for each of the five sites, this will be analysed during the due diligence process, and the firm will produce complementary studies in line with the requirements of the ESPF. The five existing environmental and social studies were prepared according to national law. The initial version of the ESMS (which will include the ESA/ESMP, and the Resettlement or Livelihood Restoration Plan if required in case it was identified during the DD) will be disclosed prior to the analysis mission in September 2023. Consultations on the ESA/ESMP of the project will be carried out, as well as specific consultation with those potentially affected by resettlement (if any). A Stakeholder Engagement Plan (SEP) will be prepared and disclosed as part of the ESA/ESMP for all works in early September 2023, in accordance with ESPS 1 and 10. These will guide the consultation process before the Board approval, and the engagement with the communities during execution phase. The ESMS will include a grievance redress mechanism for the Operation. The consultation report describing the results of the meaningful consultation process and the updated versions of the ESA/ESMP and LRP or RP (if needed) will be disclosed before OPC, estimated to occur in October 2023. Based on an initial screening, there are no Indigenous territories or communities	

within the area of influence nor natural or key biodiversity areas given the urban development context of the project (only modified habitat). However, the ESA will study more closely possibility of sub-projects being within or close to natural habitat or critical habitat. The Executing Agency must submit a report every six months on the environmental and social performance of the Operation. There has been good experience already working with the executing agency the CZMU as part of other projects. Nevertheless, the operation will create a new Program Execution Unit (PEU) to properly manage the Operation.	
ESPS-2. Labor and Working Conditions	Yes
The works entails processes of construction and mobilization of personnel which present risks and impacts associated with labor and working conditions. The main risks related to occupational health and safety will be those associated with construction activities. The ESA will study the labor conditions in Barbados and labor practices of the executing agency, including an analysis of risk of child labor and any gaps in ensuring human rights of workers as a contextual risk. The ESMP will include required measures to address any risks identified through a series of Labor Management Procedures (LMP). The LMP will prohibit child labor, and give clear conditions for ensuring that workers human rights and occupational health and safety will be guaranteed, which will be part of any contractor bidding documents. A grievance redress mechanism specific for workers will be developed, as well as a code of conduct.	
ESPS-3. Resource Efficiency and Pollution Prevention	Yes
The project requires heavy machinery in some of the works to install docks and tourist support infrastructure, and machinery such as excavators and barges for the extraction and dumping of sand. It is expected that the main potential impacts during the construction phase are the generation of noise, dust, solid and liquid waste (including hazardous), risk of fuel spillage, increased traffic due to the use of machinery, alteration of the quality of soils due to preparation work and placement of concrete and equipment and occupational and community health and safety. These impacts will be local and short-lived, and there are effective mitigation measures for them, which will be included in the ESMP. During the operation stage, the potential impacts would be soil contamination due to inadequate solid and liquid waste management, and contamination of water sources due to poor management of organic waste, especially because the works are in direct proximity to water or underwater. The ESA will evaluate all direct, indirect, and cumulative impacts and risks associated with ESPS 3 and identify appropriate mitigation measures which will be included in the ESMP using the mitigation hierarchy. The preparation of environmental studies will include the analysis of technological alternatives (including ones to avoid or minimize project-related GHG emissions) and best environmental practices of the industry for the extraction of sand and its discharge, and actions to minimize possible impacts on the environment.	
ESPS-4. Community Health, Safety, and Security	Yes
The anticipated impacts and risks to the communities within the immediate area of influence are expected to be those typically associated with the type of works which include, nuisances due to noise, vibrations, dust, emissions, traffic, presence of heavy machinery, temporary blockage of access to residences, businesses and/or public infrastructure, and risk of pedestrian accidents, and possible conflicts between construction personnel and the communities. The ESA will study the main risks and impacts to community health, safety and security and include measures in the ESMP to address them. The design studies included a preliminary assessment of impacts to traffic that estimate the detours	

during construction to only increase travel time by about 10 minutes in car to get from one side of the work to the other side.

The project is classified as having high disaster and climate change risks mainly because of its geographical location and the threat of hurricanes, storm surge, sea level rise and floods and because of the projects' high criticality and vulnerability. This will be confirmed during the due diligence by applying step 2 and 3 of the methodology of disaster risk and climate change. Studies including threat and vulnerability as well as variations in climate change have been conducted to ensure that the infrastructure to be placed will be resilient to these disaster risks including variations due to climate change. Disaster risk and climate change risk information is available already, but the information will be analysed and a qualitative analysis will be done as part of the ESA/ESMP following step 4 of the Disaster Risk Assessment and Climate Change Methodology for IDB projects.

The projects aim to address resilience in the coastal areas. One of the objectives of the projects is to expand the beaches to a more appealing size for tourists and sunbathers, as well as locals, because the beaches have been eroding due to hurricanes, waves, climate change and anthropic use. However, one of the risks of the sustainability of the project is the fact that procuring sand is difficult and it is not clear where it will be its origin. Therefore, an analysis will have to be carried out on the extraction.

In addition to grey infrastructure such as groynes and the instalment of new sand, natural and green solutions should be analysed as part of the project to provide the community with green and longer lasting solutions. This will be analysed as part of the ESA.

ESPS-5. Land Acquisition and Involuntary Resettlement	Yes
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According to the pre-feasibility studies, the works will take place on crown land and therefore land acquisition is not required. No physical involuntary resettlement is anticipated, but this should be verified by the ESA and there may be temporary impacts to the livelihood of small vendors or businesses during construction. The ESA will study the likelihood and estimate these impacts, and if necessary, a resettlement or livelihood restoration plan will be prepared and will be carried out a specific consultation with affected people. However, the preference will be to avoid impacts altogether through changes to the project design.

ESPS-6. Biodiversity Conservation and Sustainable Management of Living Natural Resources	Yes
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None of the projects will take place within critical natural habitat or protected areas, however they will be near coral reefs and natural habitat and modified habitat for fish and turtles, among other species. There are 3 protected areas nearby to the project areas but there is no intersection (see Annex A for more detailed maps of protected areas).

The west coast of Barbados is defined as a Key Biodiversity Area given its importance to birds. But currently there are no important bird areas on the same beaches where the projects will take place (see annex A for more info).

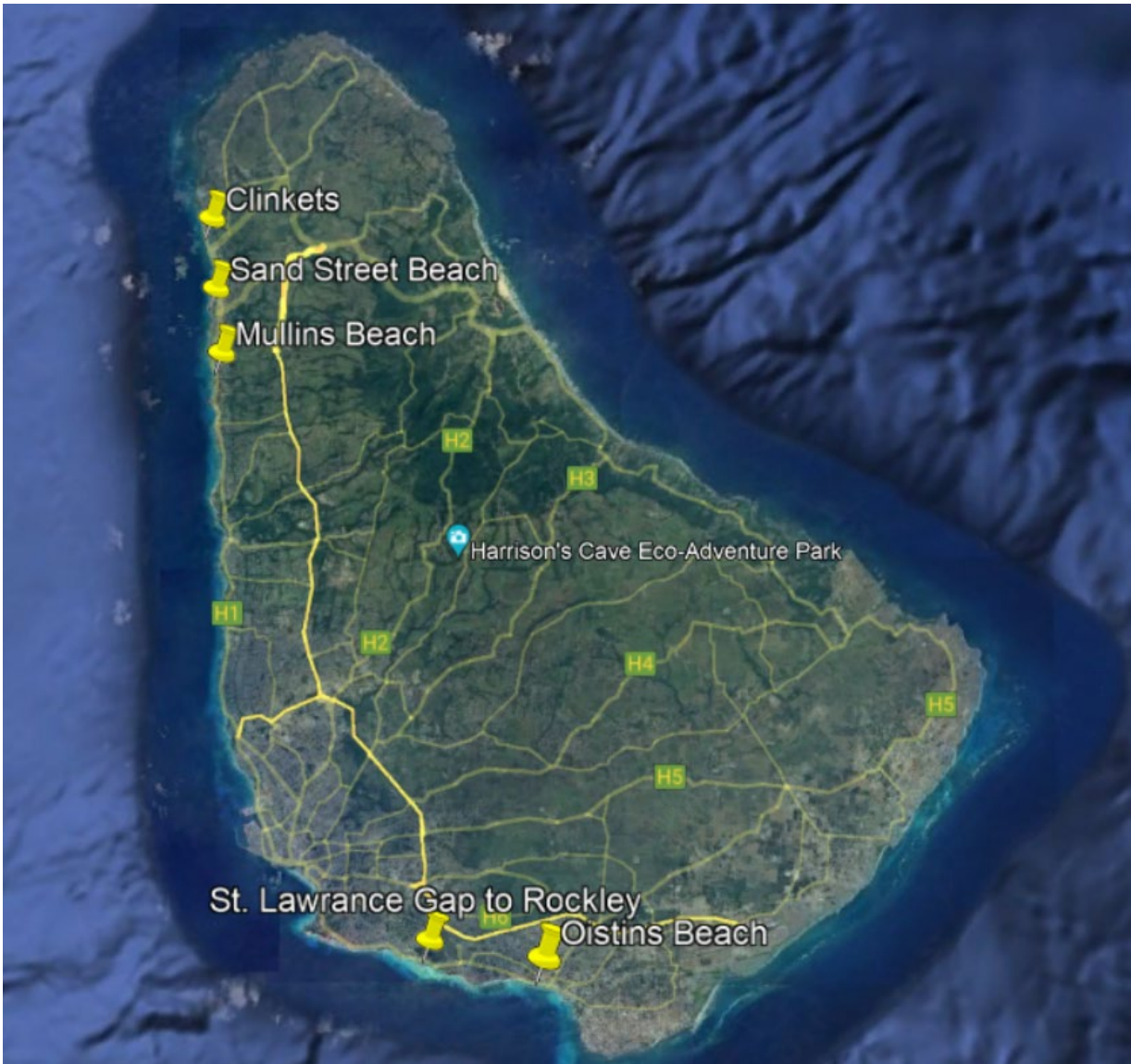
Regarding natural habitat and modified habitat there may be some loss of small trees during construction, and some impacts to turtle nesting habitat and benthic habitat, as well as turbidity in the water. The project design of submerged breakwaters (groynes) is searching for the best locations to avoid harming the reefs, most of which are no longer living. There is not enough data to understand the impacts of beach fill on the various species present in the water and on the shore (fish, turtles, any coral reef that is still living in the area of impact of the project). However, projects will also contemplate restoring coral, natural vegetation and trees where possible, and nature-based solutions to correct and prevent further erosion of beaches in order to have no net loss to biodiversity. The impacts of beach fill

on natural or modified habitat will be studied as part of the ESA and mitigation measures included in the ESMP. Also, monitoring will be a strong part of the ESMP in order to detect any negative impacts of the beach fill not detected by the ESA, if this will be financed as expected.	
ESPS-7. Indigenous Peoples	No
There isn't indigenous communities that comply with the criteria of ESPS 7, nor indigenous territories, in the area of influence of the projects. This will be verified by the ESA.	
ESPS-8. Cultural Heritage	Yes
There are no critical cultural heritage sites around the area of influence of the projects, but during construction, which will be both on dry land as well as underwater offshore, there could be artefacts or archaeological remains uncovered unexpectedly. Therefore, a chance finds procedure will be included in the ESMP. Also, the ESA will review literature and include field visits to verify whether there is any cultural heritage tangible or intangible present and known at this time within the projects area.	
ESPS-9. Gender Equality	Yes
No significant increase in gender violence is expected due to the construction works which are small. However, the number of workers that will come from outside of the community and the length of their stay will be estimated in the ESA, and a code of conduct addressing gender violence will be included in the ESMP. As part of the ESA, the risks, and impacts of the influx of workers will be analysed and measures will be included so that the grievance mechanism is properly equipped to deal with these cases, if necessary. Also, measures will be included in the Stakeholder Engagement Plan (SEP) to ensure the inclusion of women's voices in the consultation process, including those directly affected or benefited by projects. Finally, it's possible that there is economic displacement to small vendors and businesses in the beaches where projects will take place, and that they may be headed by women and therefore construction impacts to their income may have a differential impact on women vendors and the families they support. The RP or LRP must contain measures to guarantee equitable access to compensation for women or any other vulnerable group. This will be studied as part the ESA and every effort made to avoid these impacts, and what cannot be avoided to be compensated as part of the RP or LRP.	
ESPS-10. Stakeholder Engagement and Information Disclosure	Yes
A Stakeholder Engagement Plan (SEP), in compliance with ESPS 1 and 10, will be prepared as part of the ESA to give a blueprint for carrying out a meaningful consultation process for the Operation during the design and preparation phase, that is inclusive of vulnerable and affected actors, including women, as well as ongoing stakeholder engagement for each of the projects during implementation. The ESMP will include a Grievance Redress Mechanism for workers and for the Operation. It is worth noting that during the preparation of the design of the projects, an initial series of consultation events were held for each of the project that give interesting feedback in terms of who most uses the beaches where the projects will take place, and what the main concerns are, as well as initial reactions to the project. However, this must be complemented with a meaningful consultation process per this ESPS to ensure inclusiveness of vulnerable actors and to present potential risks and impacts. Reports of the consultations carried out (of the project in general and with those affected by resettlement, if applicable) will be prepared, which must be integrated into the ESA/ESMP and published on the IDB website in October 2023.	

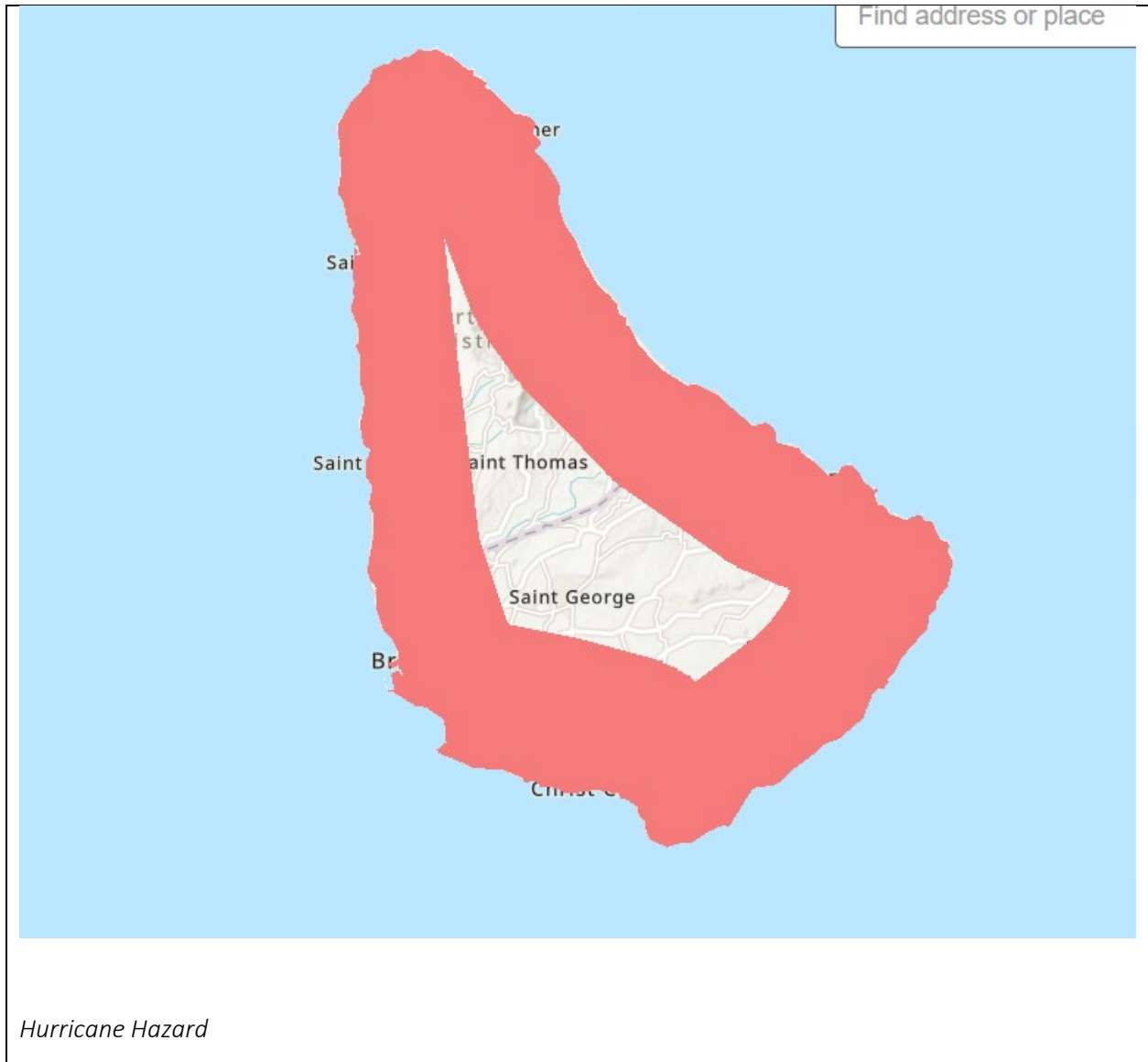
IDB Environmental and Social Due Diligence			
Strategy for Due Diligence			
E&S Assessment requirement	Status of development	Estimated resources to finalize (specify Bank or Borrower cost)	Estimated timeline to finalize (inc. consultation)
Environmental and Social Analysis (ESA) and Environmental and Social Management Plan (ESMP) including Stakeholder Engagement Plan (SEP) – all these parts of ESMS	Not yet prepared	US\$35k	Execution: 2-3 month Intended start: Early July 2023 Consultation: September 2023
Disaster and Climate Change Risk Assessment	Not yet prepared	US\$35k (part of same consultancy)	Execution: 2-3 month Intended start: Early July 2023
Environmental and Social Management System (ESMS)	Not yet prepared	US\$35k (part of same consultancy)	Execution: 2-3 month Intended start: Early July 2023 Consultation: September 2023
Resettlement or Livelihood Restoration Plan (that will be part of ESMS)	As needed. Not yet prepared	US\$35k (part of same consultancy)	Execution: 2-3 month Intended start: Early July 2023 Consultation: September 2023
Annexes			
Annex A.	E&S Maps		

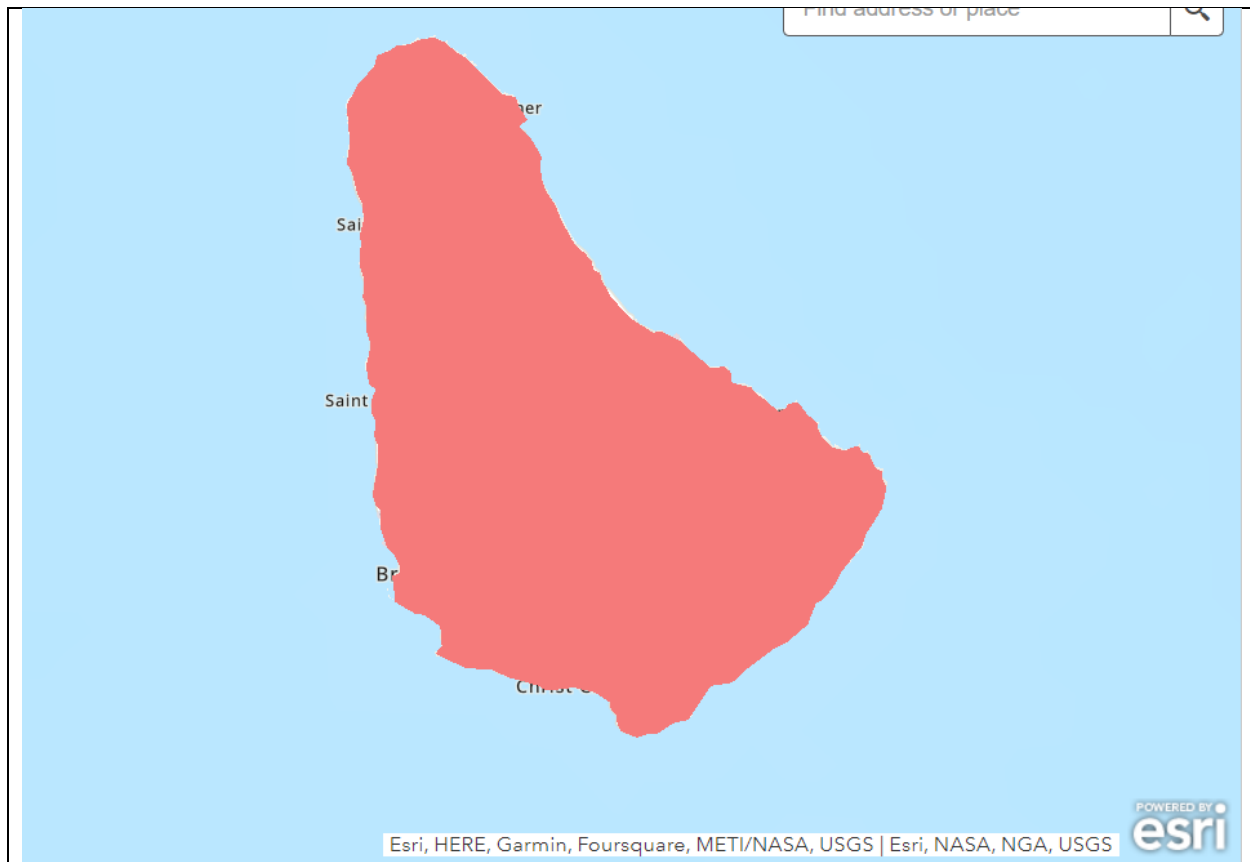
Annex A. E&S Maps

Location of beaches

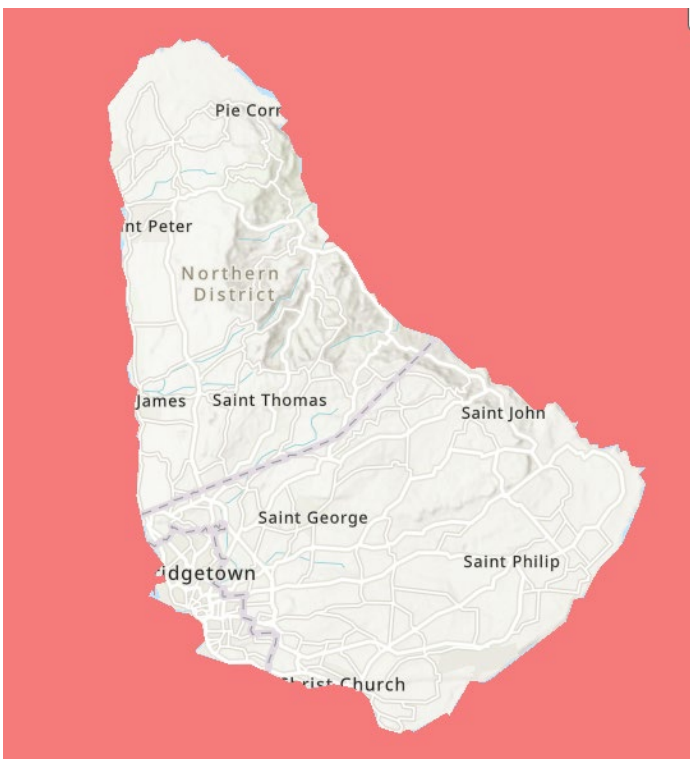


Storm Surge Hazard

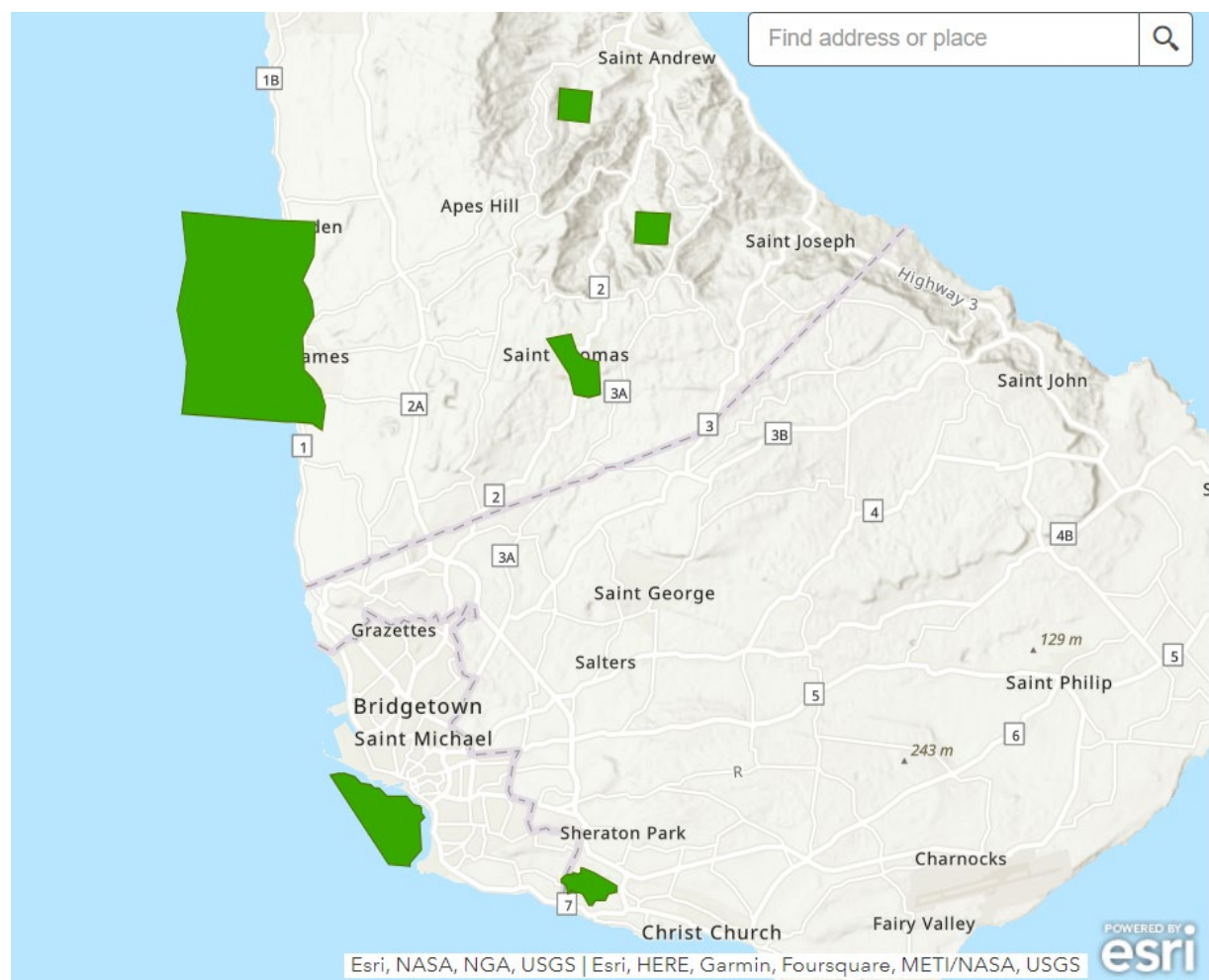


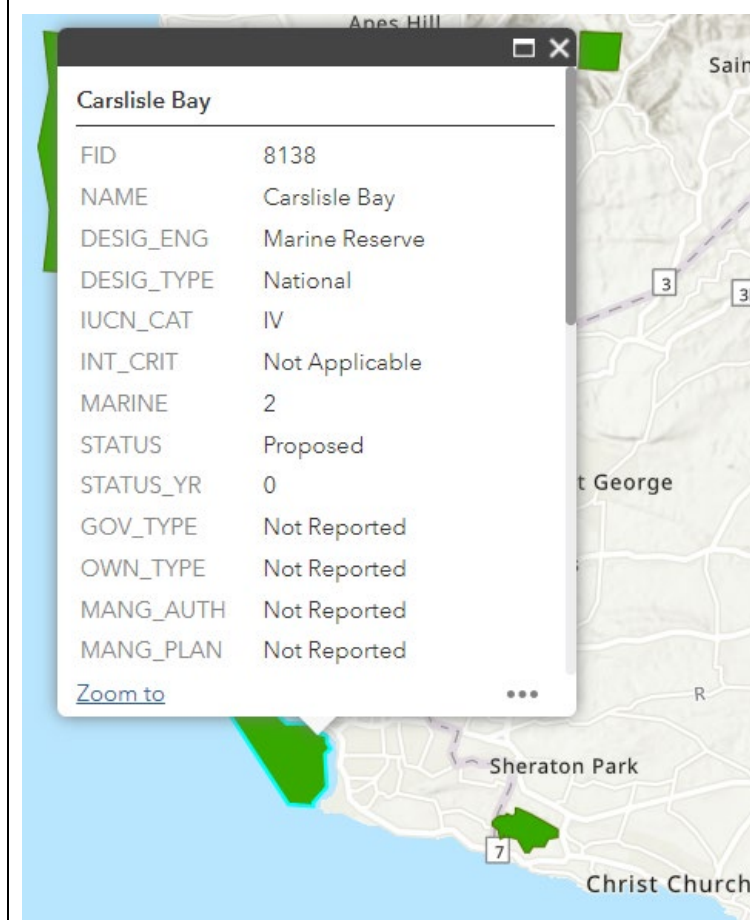
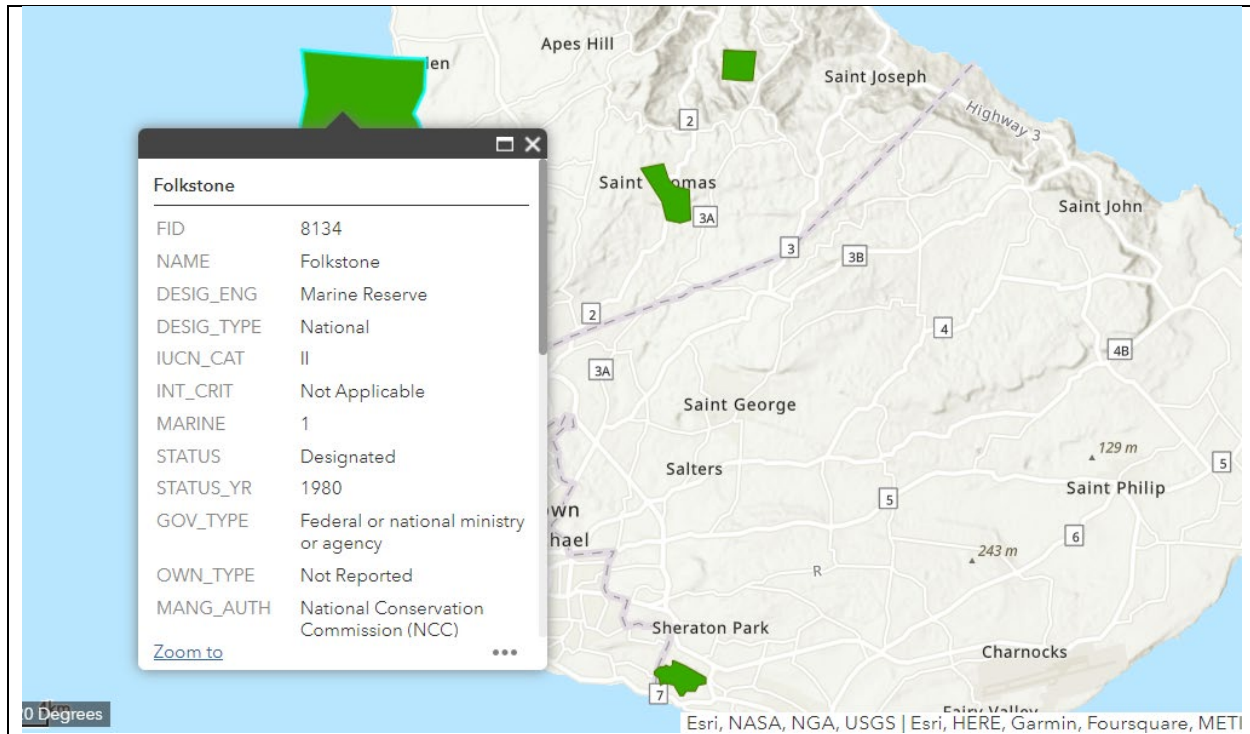


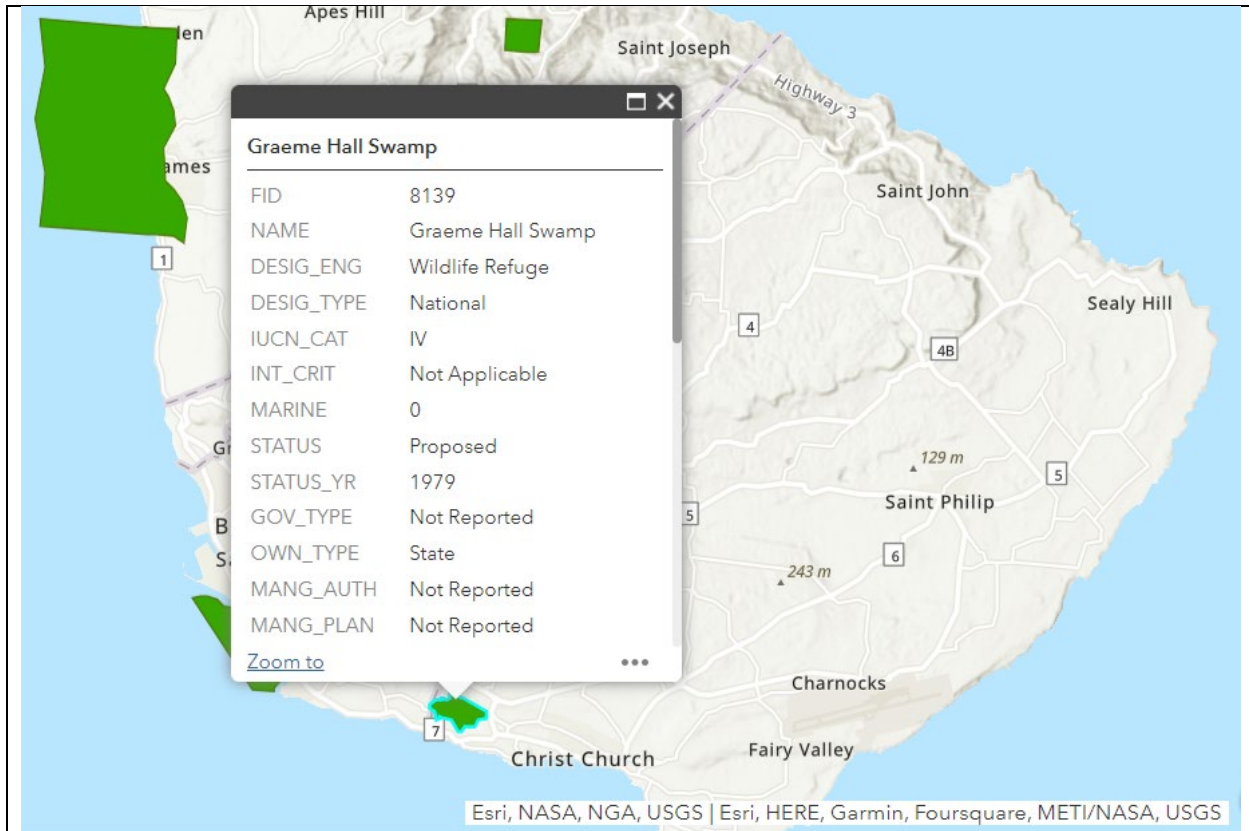
Sea Level Rise



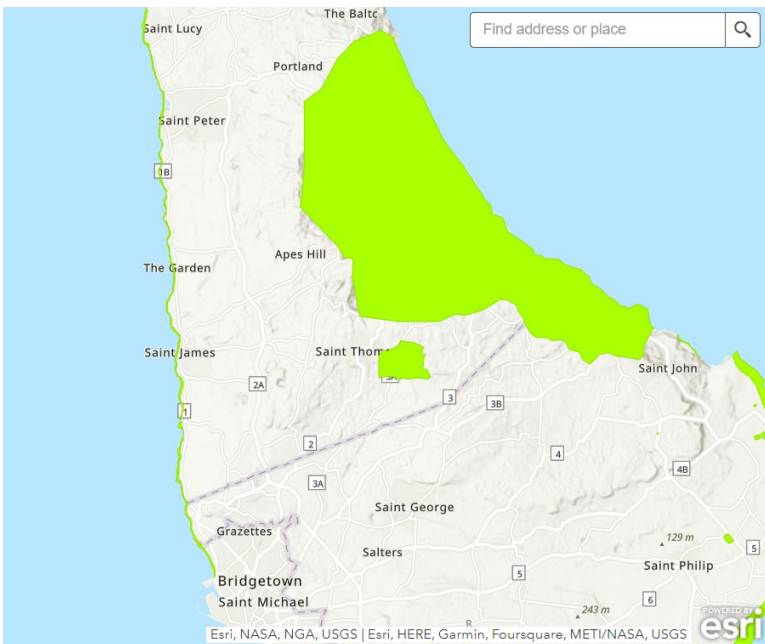
Protected Areas



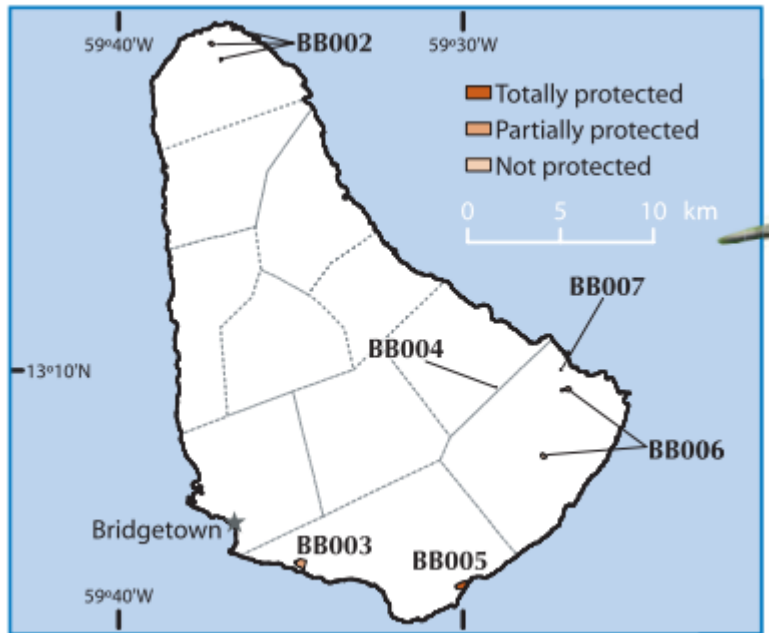




Key Biodiversity Areas



Important bird areas



Render of projects -Clinketts



Render of projects - Mullins



Render of projects - Oistins



Render of projects - Sand Beach



Render of projects St. Lawrence Gap to Rockley



CONFIDENTIAL

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