# 2022 ENVIRONMENTAL STATISTICS COMPENDIUM

GOVERNMENT OF BERMUDA
**Department of Statistics**

Published by

GOVERNMENT OF BERMUDA
**Department of Statistics**

Research Division
Cedar Park Centre
48 Cedar Avenue
Hamilton, HM 11

Telephone: (441) 297-7761
Fax: (441) 295-8390

E-mail: statistics@gov.bm
Website: www.gov.bm
@bermudastats

# Contents

## FOREWORD

The Department of Statistics is pleased to release its eleventh issue of the *Environmental Statistics Compendium*. In alignment with the Department's mission to produce and provide statistical information for data-driven decision making for Bermuda, this publication reflects the collation of existing data sourced from stakeholders about issues affecting Bermuda's environment.

Additionally, the delivery of this report supports the combined efforts of the United Nations Statistics Division and the Caribbean Community to strengthen capacity and harmonize the compilation of social, gender and environmental statistics and indicators.

The Environmental Statistics Compendium is structured into thirteen (13) sections which include:

1. Population and Housing
2. Tourism
3. Environmental Health and Weather
4. Natural and Environmental Disasters
5. Energy, Minerals and Transport
6. Agriculture
7. Land Use
8. Coastal and Marine Resources
9. Biodiversity
10. Forestry
11. Air
12. Waste
13. Water

The figures in the Environmental Statistics Compendium are mainly totals for calendar months for the period 2017 to 2021.

**COVID-19**

The Coronavirus disease (COVID-19) pandemic led to restrictions being imposed by Government (e.g. curfews, limited group sizes, reduced business hours and temporary business closures), cancellations (e.g. cruises and flights) and changes in behaviour (e.g. less travelling and eating out) as mitigation efforts to reduce the spread of COVID-19 and minimize the number of deaths. Therefore, readers should take the pandemic into account when interpreting the 2020 and 2021 data.

The Department acknowledges the continued support of all subject-area experts and stakeholders who committed to providing the statistical data and information needed to compile and publish this report.

**Melinda Williams**
*Director*
**Department of Statistics**

April 2023

# EXPLANATORY NOTES

| | | | |
|---|---|---|---|
| - | Not applicable | km | Kilometer |
| .. | Not available | $km^2$ | Square kilometer |
| r | Revised figure | mio $m^3/y$ | Million cubic meters per year |
| e | Estimated figure | mT | Metric tonnes |
| — | Nil or negligible | No. | Number |
| '000 | Thousands | $\mu g/m^3$ | Microgram |
| ° | Degrees | $NO_2$ | Nitrogen Dioxide |
| % | Percent | $SO_2$ | Sulfur Dioxide |
| $ | Bermuda dollar | ppb | Parts per billion |
| F | Fahrenheit | TSP | Total Suspended Particles |
| ha | Hectare | $PM_{10}/PM_{2.5}$ | Fine Particulate Matter |
| kg | Kilograms | $mg/nm^3$ | Milligrams per cubic meter |
| ⫽ | Axis scale has a discontinuity | NTR | Note to Reader |

**Note**: In some tables, figures may not add to totals due to rounding.

# MEASURING UNITS CONVERSION TABLE

| METRIC | | IMPERIAL | IMPERIAL | | METRIC |
|---|---|---|---|---|---|
| **LENGTH** | | | | | |
| 1 millimetre (mm) | | 0.03937 inch (in) | 1 inch (in) | | 2.54 centimetre (cm) |
| 1 centimetre (cm) | 10 mm | 0.3937 inch | 1 yard (yd) | 3 feet (ft) | 0.9144 metre (m) |
| 1 metre (m) | 100 cm | 1.0936 yards (yds) | 1 mile | 1,760 yds | 1.6093 kilometre (km) |
| 1 kilometre (km) | 1,000 m | 0.6214 mile | | | |
| **AREA** | | | | | |
| 1 square meter ($m^2$) | 10,000 $cm^2$ | | 1 acre | 4,840 $yd^2$ | 4,046.9 square meter ($m^2$) |
| 1 hectare (ha) | 10,000 $m^2$ | 2.4712 acres | 1 acre | | 0.4047 hectare (ha) |
| 1 square kilometer ($km^2$) | 100 ha | 0.3861 square mile ($mile^2$) | 1 square mile ($mile^2$) | 640 acres | 2.59 square kilometer($km^2$) |
| **MASS** | | | | | |
| 1 kilogram (kg) | 1,000 grams (g) | 2.2046 pounds (lbs) | 1 pound (lb) | 16 ounces (oz) | 0.4536 kg |
| 1 metric tonne (mT) | 1,000 kg | 0.9842 ton | 1 ton | 2,240 lbs | 1.016 metric tonne (mT) |
| **TEMPERATURE** | | | | | |
| 1 degree Celsius (°C) | | 33.8 degrees Fahrenheit (°F) | 1 degree Fahrenheit (°F) | | -17.2 degrees Celsius (°C) |

**CONTRIBUTORS**

Bermuda Fire and Rescue Services
Bermuda Hospitals Board
Bermuda Tourism Authority
Department of Environmental and Natural Resources, Marine Management Section
Department of Environmental Protection
Department of Health
Department of Planning
Department of Statistics
Department of Works and Engineering - Waste and Enforcement Section
The Bermuda Business Development Agency
The Bermuda Weather Service
Liberty Group Limited
Transport Control Department

# POPULATION AND HOUSING

**The Population and Housing Section contains information on the number of persons in Bermuda and the type of households they occupied.**

## POPULATION

- In 2021, the population of Bermuda was projected to be 64,055 persons, a 0.4 percent increase from the 63,779 persons counted in the 2016 Population and Housing Census (Table 1.1).
- Population projections were used to estimate the population for 2017 to 2021.

## HOUSEHOLDS

- In 2016, over one-third (35.4%) of the households were two-unit dwellings (Table 1.2).
- One-person households accounted for 34.1 percent of the total households in Bermuda in 2016 (Table 1.3).
- The average size of a household continued to drop from 2.4 persons in 2010 to 2.3 persons in 2016 (Table 1.3).
- The number of non-owner occupied private dwelling units increased by 0.9 percentage points over the six-year period 2010-2016 to 51.6 percent (Table 1.4).
- In 2016, private dwelling units with two bedrooms accounted for over one-third (36.0%) of households in Bermuda (Table 1.5).
- The average number of persons per bedroom was 1.1 persons in 2016 (Table 1.5).

# NOTE TO READER

**Group Dwelling Unit**: where the occupants live collectively for disciplinary, health, custodial, work or other reasons and share the cooking, sleeping and/or sanitary facilities with other households. Generally, group dwellings are available primarily to selected persons, not the general population. They differ from institutions in that occupants' movements to and from the premises are less restricted. Examples of group dwellings include hotel staff quarters, transitional housing, police barracks and rooming houses catering for six or more paying guests as well as Mid-Atlantic Wellness Institute group homes catering to any number of clients.

**Household**: a person or group of persons living together in a dwelling unit.

**Population Density**: a measure of the average non-institutional population per unit of land area. It is calculated by dividing the de jure civilian non-institutional population by the total land area. Bermuda's land area as of 2016 was 53.6 $km^2$ or 20.7 square miles (source: Department of Land Title and Registration 26 January, 2018).

$$\text{Population Density} = \frac{\text{De Jure Civilian Non-Institutional Population}}{\text{Total Land Area}}$$

**Private Dwelling Unit**: a room or group of rooms used, or intended to be used, for living purposes. It must be capable of permanent human habitation and must have its own:

- separate access to the street or common landing or staircase, and,
- cooking, living, sleeping and sanitary facilities which the occupants of the dwelling do not have to share with any persons other than their own household members.

From a structural perspective, a private dwelling may be contained within a one-unit dwelling, a house comprising two or more apartments, an apartment building, or within part of a building which is used for residential as well as business or other purposes.

*Source: Department of Statistics*

*Table 1.1*

## POPULATION AND POPULATION DENSITY, 2017–2021

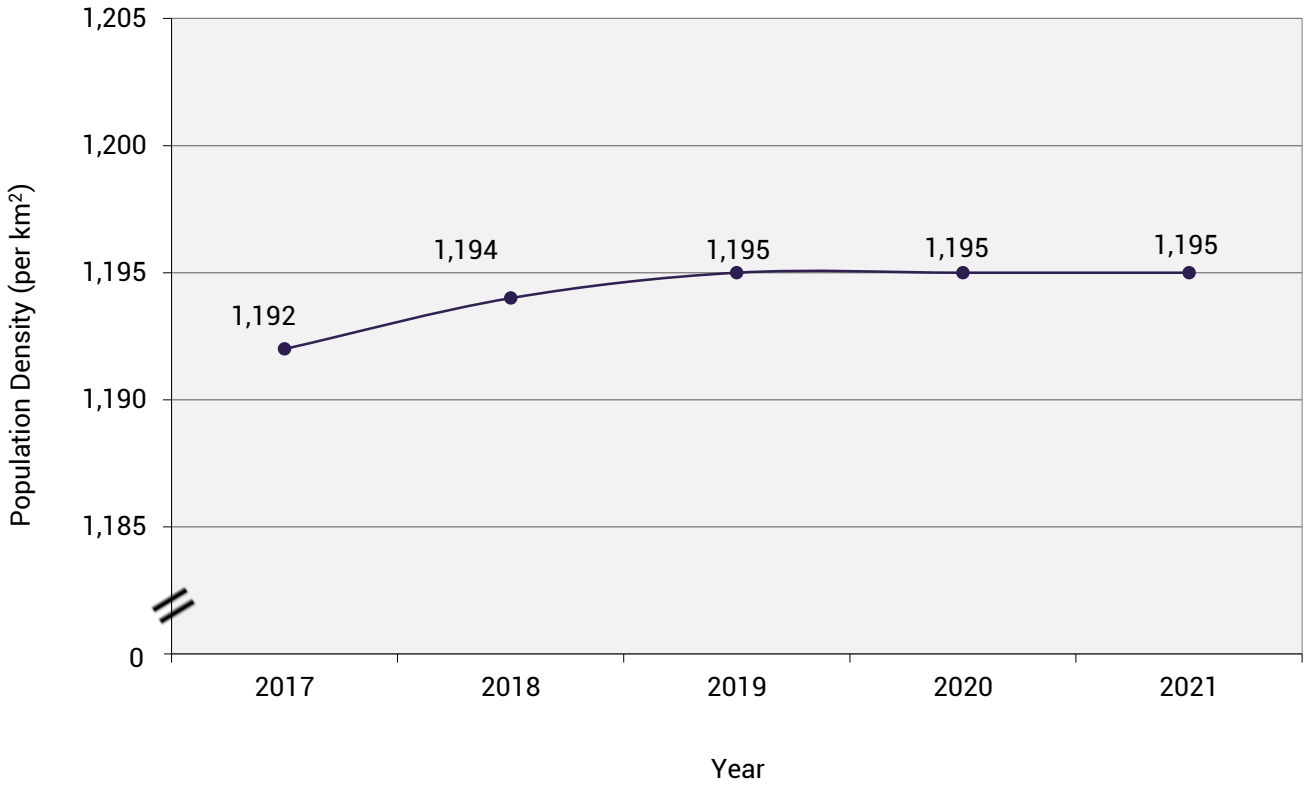
| Year | Population[1] | Population Density (per km$^2$)[2] |
|---|---|---|
| 2017 | 63,892 | 1,192 |
| 2018 | 63,973 | 1,194 |
| 2019 | 64,027 | 1,195 |
| 2020 | 64,054 | 1,195 |
| 2021 | 64,055 | 1,195 |

*Sources: Department of Statistics and the Land Title and Registration Office*

[1] Based on Bermuda's Population Projections 2016-2026.
[2] Bermuda's land area as of 2016 is 53.6 km$^2$ (20.7 square miles).

*Chart 1.1*

## POPULATION DENSITY, 2017–2021




*Source: Department of Statistics*

The 2017-2021 figures are based on Bermuda's Population Projections.

*Table 1.2*

# TYPE OF DWELLING UNITS, 2010 AND 2016

| | Number | | Percentage Distribution | |
|---|---|---|---|---|
| Type of Dwelling | 2010 | 2016 | 2010 | 2016 |
| Total | 26,923[1] | 28,192 | 100.0[2] | 100.0 |
| One-unit dwelling | 6,280 | 6,767 | 24.3 | 24.0 |
| Two-unit dwelling | 8,870 | 9,972 | 34.4 | 35.4 |
| Three-unit dwelling | 4,639 | 4,849 | 18.0 | 17.2 |
| Four or more apartments | 5,024 | 5,253 | 19.5 | 18.6 |
| Group dwellings | 696 | 751 | 2.7 | 2.7 |
| Residential/commercial premises | 281 | 577 | 1.1 | 2.0 |
| Other/not stated | 27 | 23 | 0.1 | 0.1 |

*Source: 2010 and 2016 Population and Housing Censuses*

[1] Includes 1,106 households for which there is no data by type of dwelling.
[2] The denominator for percentage distribution is 25,817 (26,923 - 1,106).

*Table 1.3*

# HOUSEHOLDS BY SIZE OF HOUSEHOLD, 2010 AND 2016

| | Number | | Percentage Distribution | |
|---|---|---|---|---|
| Persons in Household | 2010 | 2016 | 2010 | 2016 |
| Total | 26,923[1] | 28,192 | 100.0[2] | 100.0 |
| Average size of household | 2.4 | 2.3 | | |
| | | | | |
| One | 7,942 | 9,611 | 30.8 | 34.1 |
| Two | 7,999 | 8,841 | 31.0 | 31.4 |
| Three | 4,515 | 4,802 | 17.5 | 17.0 |
| Four | 3,540 | 3,317 | 13.7 | 11.8 |
| Five | 1,238 | 1,141 | 4.8 | 4.0 |
| Six | 385 | 329 | 1.5 | 1.2 |
| Seven | 112 | 99 | 0.4 | 0.4 |
| Eight | 52 | 35 | 0.2 | 0.1 |
| More than eight | 34 | 17 | 0.1 | 0.1 |

*Source: 2010 and 2016 Population and Housing Censuses*

[1] Includes 1,106 households for which there is no data by type of dwelling.
[2] The denominator for percentage distribution is 25,817 (26,923 - 1,106).

*Table 1.4*

# PRIVATE DWELLING UNITS BY TYPE OF TENURE, 2010 AND 2016

| | Number | | Percentage Distribution | |
|---|---|---|---|---|
| Type of Tenure | 2010 | 2016 | 2010 | 2016 |
| Total | 26,200[1] | 27,418 | 100.0[2] | 100.0 |
| | | | | |
| Non-owner occupied | 12,723 | 14,140 | 51.0 r | 51.6 |
| Rented - unfurnished | 7,747 | 8,356 | 31.0 r | 30.5 |
| Rented - partly/fully furnished | 3,972 | 4,650 | 15.9 r | 17.0 |
| Rent Free | 1,004 | 1,134 | 4.0 | 4.1 |
| Owner-occupied | 12,238 | 13,267 | 49.0 r | 48.4 |
| Owned without a mortgage | 6,417 | 7,483 | 25.7 r | 27.3 |
| Owned with a mortgage | 5,821 | 5,784 | 23.3 r | 21.1 |
| Not stated | 133 | 11 | | |

*Source: 2010 and 2016 Population and Housing Censuses*

[1] Includes 1,106 households for which there is no data by type of dwelling.
[2] The denominator for percentage distribution is 24,961 (26,200 - 1,106 - 133).
[3] The denominator for percentage distribution is 27,407 (27,418 - 11).

*Table 1.5*

# PRIVATE DWELLING UNITS BY NUMBER OF BEDROOMS, 2010 AND 2016

| | Number | | Percentage Distribution | |
|---|---|---|---|---|
| Type of Household | 2010 | 2016 | 2010 | 2016 |
| Total | 26,200[1] | 27,418 | 100.0[6] | 100.0[7] |
| | | | | |
| Average number of bedrooms per household | 2.1[2] | 2.1[4] | | |
| Average number of persons per bedroom | 1.1[3] | 1.1[5] | | |
| | | | | |
| None (studio) | 790 | 1,145 | 3.2 | 4.2 |
| One | 6,101 | 6,469 | 24.4 | 23.6 |
| Two | 8,944 | 9,857 | 35.8 | 36.0 |
| Three | 7,473 | 7,928 | 29.9 | 28.9 |
| Four or more | 1,645 | 2,018 | 6.6 | 7.4 |
| Not stated | 141 | 1 | | |

*Source: 2010 and 2016 Population and Housing Censuses*

[1] Includes 1,106 households for which there is no data by type of dwelling.
[2] The calculation is 53,544 bedrooms ÷ 24,953 households.
[3] The calculation is 60,503 persons ÷ 53,544 bedrooms.
[4] The calculation is 58,604 bedrooms ÷ 27,417 households.
[5] The calculation is 62,668 persons ÷ 58,604 bedrooms.
[6] The denominator for percentage distribution is 24,953 (26,200 - 1,106 - 141).
[7] The denominator for percentage distribution is 27,417 (27,418 - 1).

*Table 1.6*

# PRIVATE DWELLING UNITS BY NUMBER OF FULL BATHROOMS, 2010 AND 2016

| | Number | | Percentage Distribution | |
|---|---|---|---|---|
| Number of Full Bathrooms | 2010 | 2016 | 2010 | 2016 |
| Total | 26,200[1] | 27,418 | 100.0[2] | 100.0[3] |
| None | 41 | 16 | 0.2 | 0.1 |
| One | 15,340 | 16,146 | 61.5 | 58.9 |
| Two | 7,532 | 8,550 | 30.2 | 31.2 |
| Three or more | 2,046 | 2,705 | 8.2 | 9.9 |
| Not stated | 135 | 1 | | |

*Source: 2010 and 2016 Population and Housing Censuses*

[1] Includes 1,106 households for which there is no data by type of dwelling.
[2] The denominator for percentage distribution is 24,959 (26,200 - 1,106 - 135).
[3] The denominator for percentage distribution is 27,417 (27,418 - 1).

# TOURISM

**Bermuda's tourism industry is the second largest source of foreign exchange revenue to the economy, only following international business.**

## VISITOR ARRIVALS

- The total number of visitors to Bermuda increased by 67.9 percent from 51,437 in 2020 to 86,356 in 2021 (Table 2.1).
- Air passenger arrivals increased 71.5 percent from 2020 to 2021 (Table 2.1).
- Cruise ship passenger arrivals increased 51.6 percent from 9,366 in 2020 to 14,203 in 2021 (Table 2.1).
- In 2021, the average length of stay for air passengers decreased to 9 days (Table 2.1)

## AIR PASSENGERS

- Air passenger arrivals from the United States increased 105.0 percent from 2020 to 2021 (Table 2.2).
- In 2021, air passengers from United States accounted for 80.1 percent (57,770) of the total number of air visitors in 2021 (Table 2.2).
- Hotels remained the most popular accommodation type as more than half (56.6%) of all air passengers stayed at hotels (Table 2.3).

## TOURIST PROPERTIES

- The number of licensed properties in Bermuda decreased from 41 in 2020 to 40 in 2021 (Table 2.4).
- The licensed room count decreased by 9.5 percent from 2,434 rooms in 2020 to 2,203 in 2021 (Table 2.4).

# SECTION CONT'D.

## VISITOR EXPENDITURE

- Visitor expenditure increased between 2020 ($71.2 million) and 2021 ($134.8 million), a $63.6 million increase (Table 2.5).
- In 2021 there were 3,076 persons employed in the tourism industry; a decrease of 14.3 percent compared to 2020. Males accounted for 1,909 compared to 1,167 females (Table 2.5).

# NOTE TO READER

**Air Passenger Arrivals**: includes all stay-over (overnight) visitors. It does not, however, include cruise passenger and yacht arrivals.

**Average Length of Stay:** intended length of stay or number of nights spent, unless otherwise stated.

**Index of Social Pressure or Ratio of Tourists (or Visitors) to the Local Population:** measures the number of tourists (or visitors) to one resident of the country at any given point in time.

**Number of Hotel Rooms per km$^2$:** commonly accessible indirect proxy to measure tourism's imprint on the physical environment. It is the number of hotel rooms available divided by the total land area (53.6 km$^2$).

**Tourism:** the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes.

**Tourism Density Ratio (TDR):** attempts to show the density of tourist in the country at any one time on average. Its value is limited by the fact that tourists flows are seasonal and tourism activity tends to be concentrated in specific geographical areas. (Caribbean Tourism Organization) Tourism Density Ratio is calculated as:

$$\text{Tourism Density Ratio} = \frac{\text{Number of visitors} * \text{average length of stay}}{\text{land area (53.6 km}^2\text{)} * 365}$$

**Tourism Expenditure:** the total expenditure made by a visitor or on behalf of a visitor for and during his/her stay at a destination.

**Tourism Intensity Rate (TIR):** the indicator "arrivals/population" provides an estimate of tourism intensity in the country of reference. This indicator is calculated by World Tourism Organization (UNWTO) based on the available basic data on inbound and domestic tourism, which can be either the number of visitors or the number of tourists. (UNWTO Methodological Notes to the Tourism Statistics Database at http://cf.cda.unwto.org/sites/all/files/pdf/2015_meth_notes_eng_0.pdf) Tourism Intensity Rate is calculated as:

$$\text{Tourism Intensity Rate} = \frac{\text{Number of visitors/1,000 population}}{\text{land area (53.6 km}^2\text{)}}$$

# NOTE TO READER CONTINUED

**Tourism Penetration Ratio (TPR):** the penetration ratio quantifies the average number of tourist arrivals by air, per thousand local inhabitants, in the country at any one time. (modified Caribbean Tourism Organization definition) Tourist Penetration Ratio is calculated as:

$$\textbf{Tourism Penetration Ratio} = \frac{\textbf{Average length of Stay * number of air visitors * 1,000}}{\textbf{365 * mid-year population estimates}}$$

**Tourist:** a person traveling to and staying in places outside his or her usual environment for not more than one consecutive year but who stays for more than 24 hours in a destination for leisure, business and other purposes.

**Visitor:** any person traveling to a place other than his/her usual environment for less than twelve months and whose main purpose of visit is other than the exercise of an activity remunerated from within the place visited.

*Source: CARICOM Environment Program*

*Table 2.1*

# AIR PASSENGER ARRIVALS, CRUISE SHIP ARRIVALS, AVERAGE LENGTH OF STAY, TOURISM INTENSITY RATE AND PENETRATION RATIO, 2017-2021

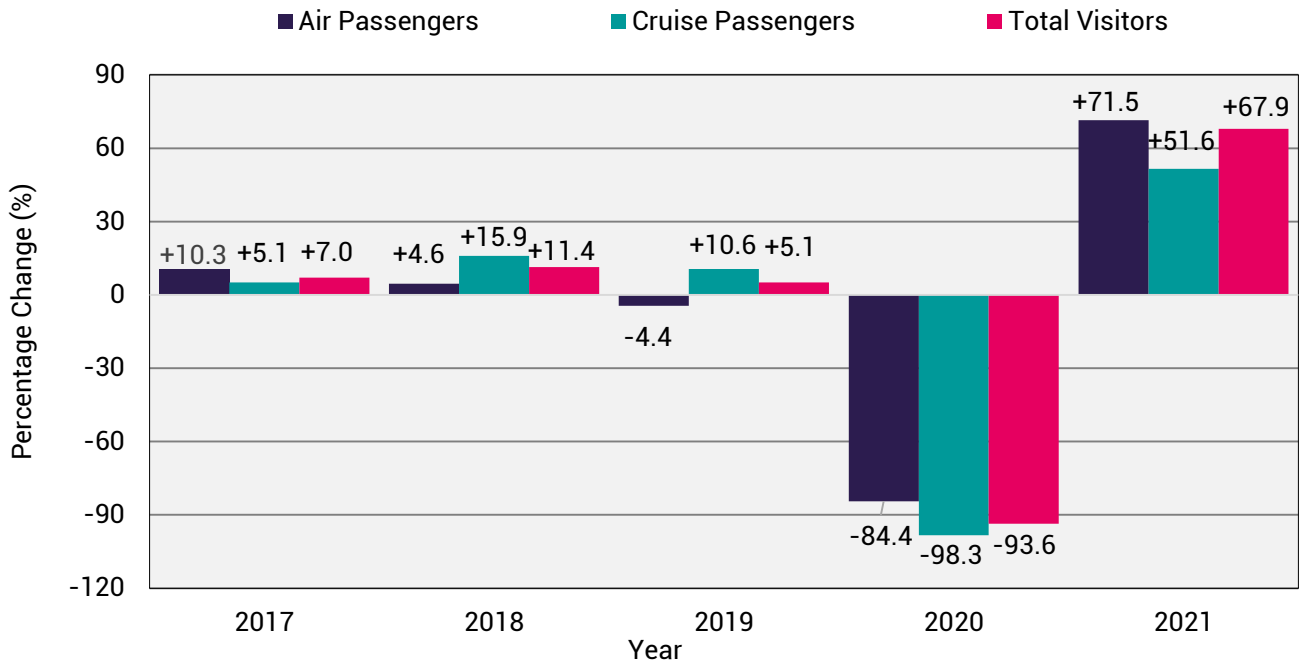
| | Year | | | | |
|---|---|---|---|---|---|
| Indicator | 2017 | 2018 | 2019 | 2020 | 2021 |
| Total visitors[1] | 687,625 | 766,226 | 805,039 | 51,437 r | 86,356 |
| Percentage change (%) | +7.0 | +11.4 | +5.1 | -93.6 | +67.9 |
| Air passengers | 269,576 | 281,887 | 269,478 | 42,071 | 72,153 |
| Percentage change (%) | +10.3 | +4.6 | -4.4 | -84.4 | +71.5 |
| Average length of stay for air passengers | 6.3 | 5.9 | 6.0 | 9.9 | 9.0 |
| Air passengers to residents ratio | 4.2 | 4.4 | 4.2 | 0.7 | 1.1 |
| Tourism density ratio | 86.9 | 85.1 | 82.7 | 21.3 | 33.2 |
| Cruise ship passengers | 418,049 | 484,339 | 535,561 | 9,366 | 14,203 |
| Percentage change (%) | +5.1 | +15.9 | +10.6 | -98.3 | +51.6 |
| Cruise ship passengers to residents ratio | 6.5 | 7.6 | 8.4 | 0.1 | 0.2 |
| Cruise ship arrivals | 161 | 171 | 181 | 4 | 22 |
| Percentage change (%) | +15.8 | +6.2 | +5.8 | -97.8 | +450.0 |
| Population[2] | 63,892 | 63,973 | 64,027 | 64,054 | 64,055 |
| Visitors to residents ratio | 10.8 | 12.0 | 12.6 | 0.8 | 1.3 |
| Land area ($km^2$)[3] | 53.6 | 53.6 | 53.6 | 53.6 | 53.6 |
| Tourism intensity rate | 200.6 | 233.6 | 234.8 | 15.0 | 25.2 |
| Tourism penetration ratio | 72.4 | 71.2 | 69.2 | 17.8 | 27.8 |

*Sources: Bermuda Tourism Authority, Department of Statistics, Department of Planning and the Land Title and Registration Office.*

[1] Does not include yacht passengers.
[2] Bermuda's Population Projections 2016-2026.
[3] Bermuda's land area as of 2016 was 53.6 $km^2$ (20.7 square miles).

*Chart 2.1*

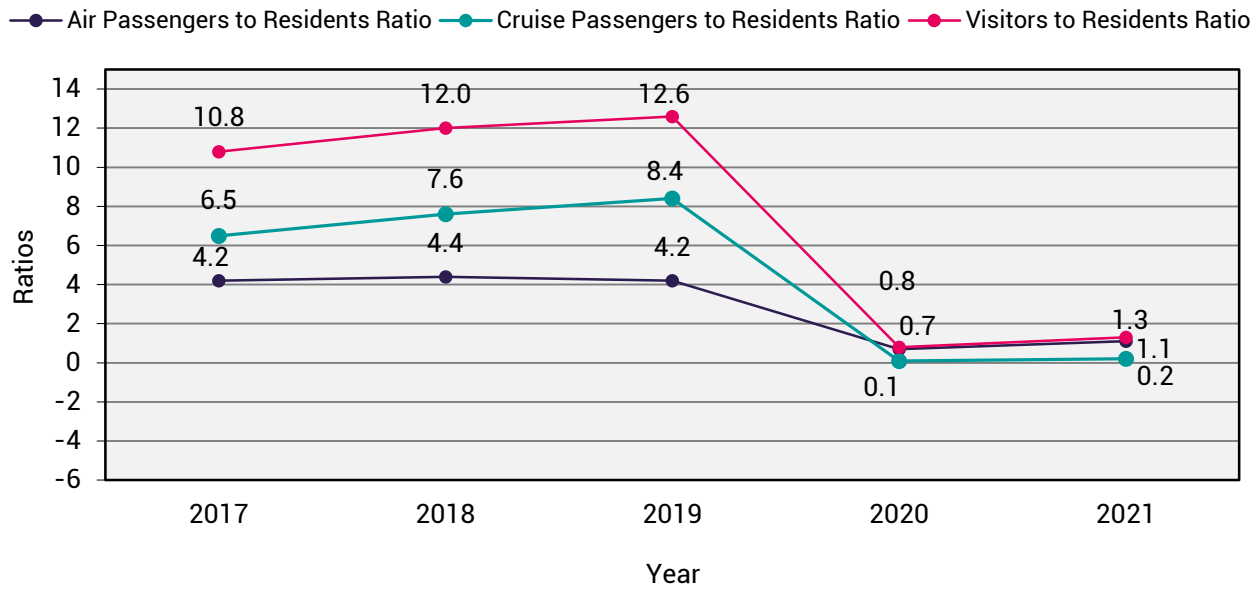
## GROWTH IN AIR PASSENGERS, CRUISE SHIP PASSENGERS AND TOTAL VISITORS, 2017-2021




*Sources: Bermuda Tourism Authority and Department of Statistics*

*Chart 2.2*

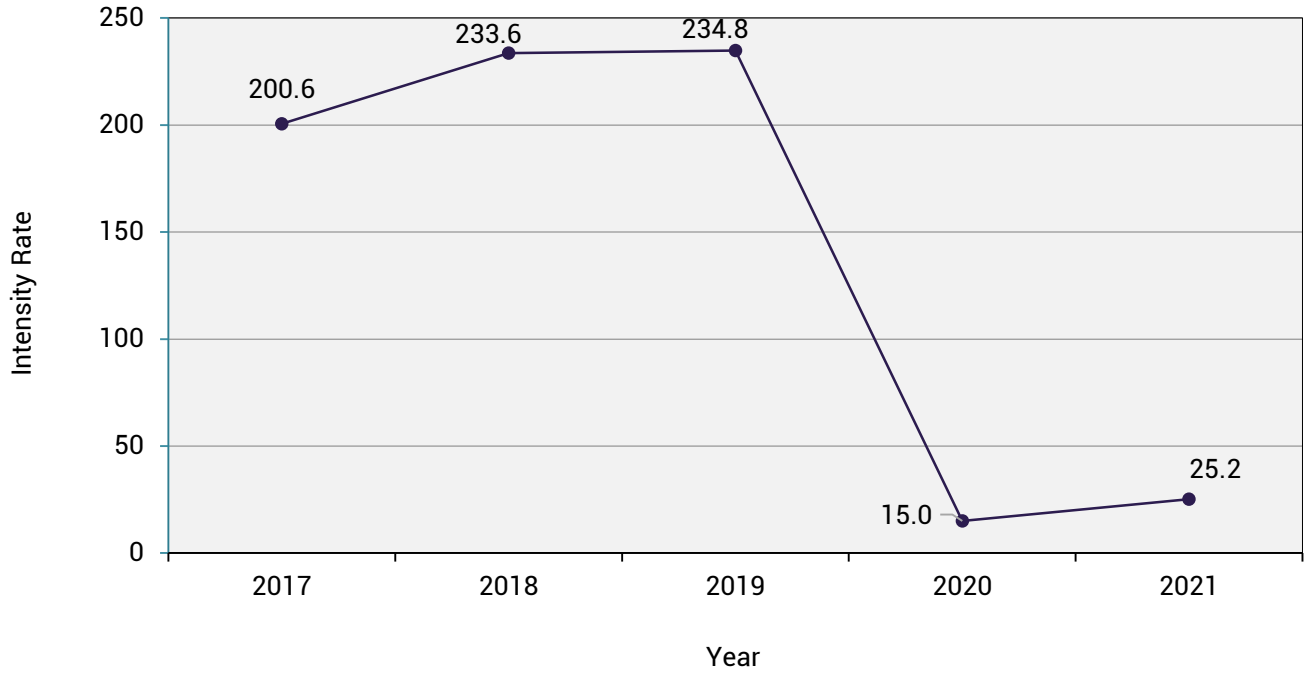
## AIR PASSENGERS TO RESIDENTS, CRUISE SHIP PASSENGERS TO RESIDENTS AND VISITORS TO RESIDENTS RATIOS, 2017-2021




*Sources: Bermuda Tourism Authority and Department of Statistics*

*Chart 2.3*

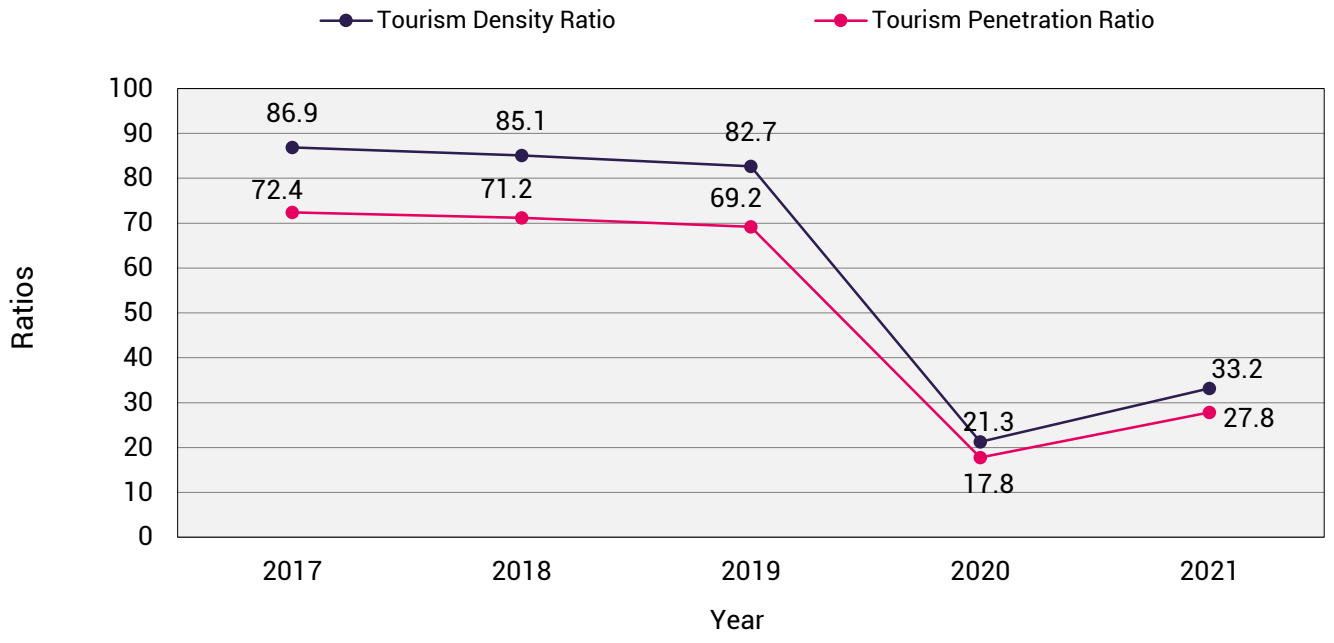
## TOURISM INTENSITY RATE, 2017-2021




*Sources: Bermuda Tourism Authority and Department of Statistics*

*Chart 2.4*

## TOURISM DENSITY AND PENETRATION RATIOS, 2017-2021




*Sources: Bermuda Tourism Authority and Department of Statistics*

*Table 2.2*

## AIR PASSENGER ARRIVALS BY COUNTRY OF ORIGIN, 2017–2021

| | Year | | | | |
|---|---|---|---|---|---|
| Country of Origin | 2017 | 2018 | 2019 | 2020 | 2021 |
| Total | 269,576 | 281,887 | 269,478 | 42,071 | 72,153 |
| United States | 198,259 | 214,499 | 202,460 | 28,183 | 57,770 |
| Canada | 27,416 | 27,637 r | 27,748 | 4,936 | 3,514 |
| United Kingdom | 22,997 | 20,955 | 21,641 | 5,955 | 7,274 |
| Other | 20,904 | 18,796 r | 17,629 | 2,997 | 3,595 |

*Source: Bermuda Tourism Authority*

*Table 2.3*

## AIR PASSENGERS BY INTENDED TYPE OF ACCOMMODATION, 2017–2021

| | Year | | | | |
|---|---|---|---|---|---|
| Type of Accommodation | 2017 | 2018 | 2019 | 2020 | 2021 |
| Total | 269,576 | 281,887 | 269,478 | 42,071 | 72,153 |
| Commercial properties | 189,413 | 203,754 | 194,132 | 27,398 | 43,745 |
| Hotels or similar accomodations[1] | 179,272 | 192,963 | 182,388 | 25,413 | 40,851 |
| Bed and Breakfast/Guest House[2] | 10,141 | 10,791 | 11,744 | 1,985 | 2,894 |
| Residential homes | 73,477 | 74,392 | 71,418 | 13,171 | 19,966 |
| Friends and relatives | 39,530 | 38,002 | 35,978 | 6,433 | 8,979 |
| Rental house or apartment | 26,691 | 31,383 | 26,995 | 4,119 | 6,276 |
| Private homes | 7,256 | 5,007 | 8,445 | 2,619 | 4,711 |
| Other[3] | 6,686 | 3,741 | 3,928 | 1,502 | 8,442 |

*Source: Bermuda Tourism Authority*
[1]Includes resort hotels, small hotels, cottage colonies and clubs.
[2] Includes housekeeping accommodations.
[3] Includes not stated.

*Table 2.4*

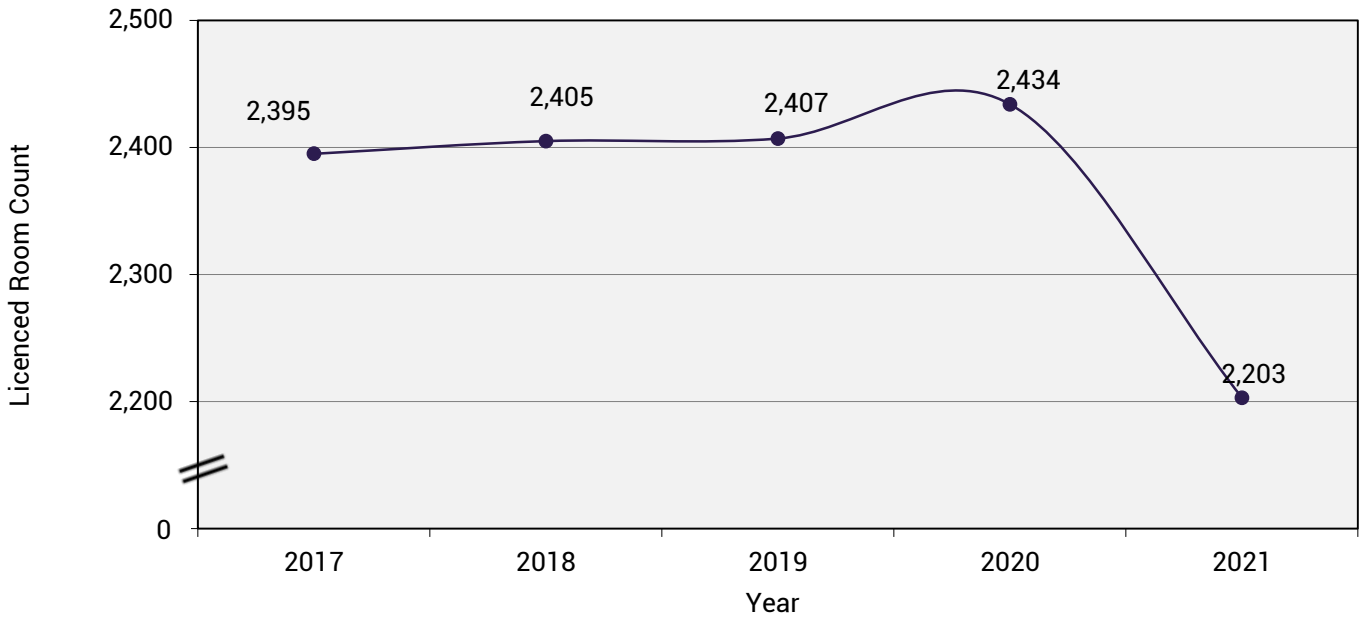
## NUMBER OF LICENCED PROPERTIES[1], HOTEL OCCUPANCY AND LICENCED ROOM COUNT PER KM², 2017–2021

| | Year | | | | |
|---|---|---|---|---|---|
| Item | 2017 | 2018 | 2019 | 2020 | 2021 |
| Number of licenced properties[2] | 42 | 41 | 41 | 41 | 40 |
| Licenced room count[3] | 2,395 | 2,405 | 2,407 | 2,434 | 2,203 |
| Hotel occupancy (%)[4] | 63.1 | 63.7 | 61.0 | 24.1 | 37.1 |
| Number of rooms per km² | 44.7[5] | 44.9[5] | 44.9[5] | 45.4[5] | 41.1[5] |

*Sources: Bermuda Tourism Authority, Department of Planning and the Land Title and Registration Office*
[1] The format for this table changed in 2022.
[2] Average number of licensed properties for the calendar year January to December.
[3] Average number of licensed room count for the calendar year January to December.
[4] Average occupancy for the calendar year January to December.
[5] Bermuda's land area as of 2016 was 53.6 km² (20.7 square miles).

*Chart 2.5*

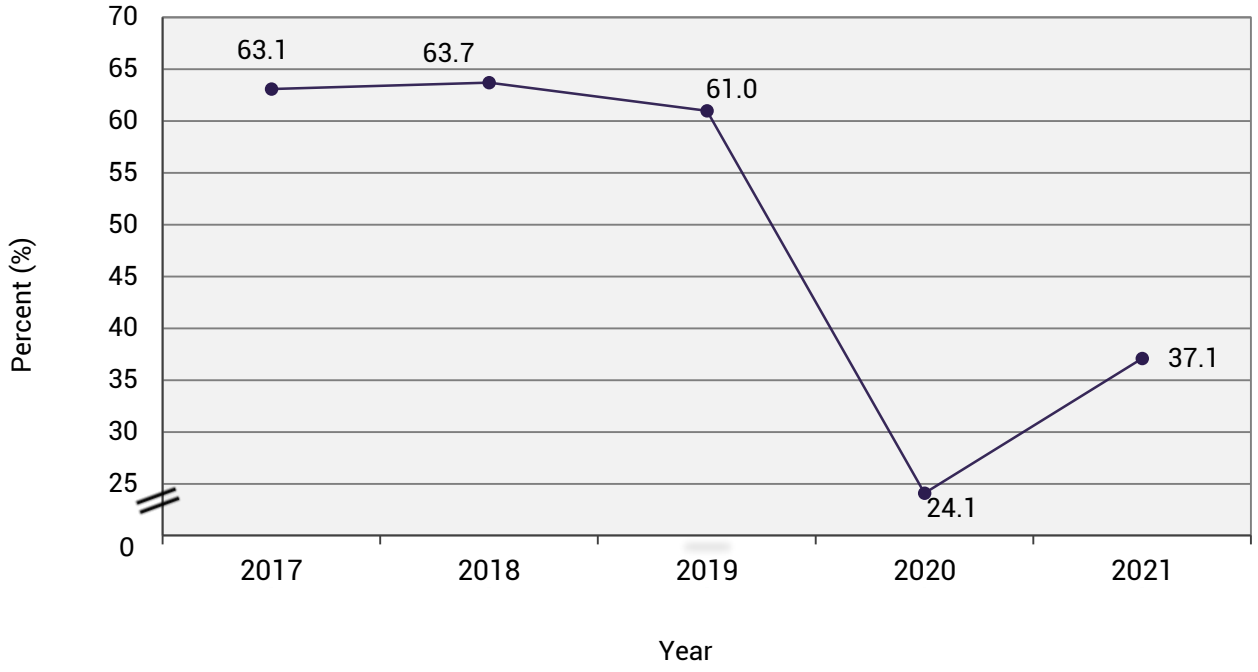
## LICENCED ROOM COUNT[1], 2017–2021




*Source: Bermuda Tourism Authority*
[1] Average number of licensed room count for the calendar year January to December.

*Chart 2.6*

## HOTEL OCCUPANCY[1], 2017-2021




*Sources: Bermuda Tourism Authority*
[1] Average occupancy for the calendar year January to December.

*Table 2.5*

## VISITOR EXPENDITURE AND NUMBER OF EMPLOYEES IN TOURISM, 2017-2021

| | Year | | | | |
|---|---|---|---|---|---|
| Item | 2017 | 2018 | 2019 | 2020 | 2021 |
| Visitor expenditure (in US$'000) | 468,760 | 544,180 | 556,520 | 71,200 | 134,785 |
| Expenditure on same-day visits | 66,040 | 130,670 | 141,740 | 2,100 | 4,971 |
| Expenditure on accommodation, meals and drinks, shopping, entertainment, etc. | 402,720 | 413,510 | 414,780 | 69,100 | 129,814 |
| Number of employees in tourism[1] | | | | | |
| Total | 4,370 | 4,546 | 4,691 | 3,591 | 3,076 |
| Male | 2,648 | 2,785 | 2,849 | 2,161 | 1,909 |
| Female | 1,722 | 1,761 | 1,842 | 1,430 | 1,167 |

*Sources: Bermuda Tourism Authority and Department of Statistics*
[1] Includes hotels, restaurants, cafés and bars.

# ENVIRONMENTAL HEALTH AND WEATHER

**The Environmental Health and Weather Section contains information concerning environmentally-related diseases as well as weather data for Bermuda.**

## ENVIRONMENTAL HEALTH

- In 2021, there were 2,852 reported cases of environmentally-related diseases in Bermuda, with females accounting for more than half (52.5%). Males accounted for 47.5% of environmentally-related diseases (Table 3.1).
- Respiratory diseases accounted for 2,466 (86.5%) of the total reported cases in 2021 (Table 3.1).

## WEATHER

- Total rainfall in Bermuda increased by 15.4% over the period 2020 to 2021 (Table 3.2).
- In 2021, March had the most rain days (22) while the least rain days (9) was recorded in June (Table 3.2).
- During 2021, August had the highest mean air temperatures with an average daily air temperature of 82.1˚F. The lowest mean air temperature during the same year was recorded in January (64.3˚F) (Table 3.3). The highest temperature recorded in 2021 was 88.0˚F (August and September), while the lowest temperature recorded was 49.1˚F (January).
- In 2021, July had the highest average humidity (80.0%), while the lowest was recorded in January and April (72.1%). The average relative humidity for the five-year period, 2017 to 2021, was 75.3% (Table 3.4). The highest humidity recorded in 2021 was 100% (January), while the lowest recorded was 38% (February).
- August had the highest mean sea surface temperature during 2021, with an average daily sea surface temperature of 84.6˚F. The lowest mean sea surface temperature during the same year was recorded in January (65.2˚F) (Table 3.5). The highest sea surface temperature recorded in 2021 was 85.5˚F (September), while the lowest sea surface temperature recorded was 61.0˚F (January and February).

# SECTION CONT'D.

- In 2021, the month with the most sunlight (325.7 hours) was August while the least amount of sunlight (131.0 hours) was recorded in January (Table 3.6).
- January had the highest daily average wind speed during 2021, with an average wind speed of 24.2 knots (Table 3.7). The lowest daily average wind speed (12.4 knots) was recorded in August. The highest peak wind speed recorded in 2021 was 65.0 knots in January.

*Table 3.1*

# REPORTED CASES OF ENVIRONMENTALLY-RELATED DISEASES BY SEX, 2017-2021

| Cause | Sex | Year | | | | |
|---|---|---|---|---|---|---|
| | | 2017 | 2018 | 2019 | 2020 | 2021 |
| **Gastroenteritis** [1, 2] | Total | 446 | 529 | 467 | 130 | 108 |
| | Male | 187 | 234 | 194 | 58 | 44 |
| | Female | 259 | 295 | 273 | 72 | 64 |
| **Malaria (imported)** | Total | 1 | 3 | 1 | — | — |
| | Male | 1 | 3 | 1 | — | — |
| | Female | — | — | — | — | — |
| **Dengue (imported)** | Total | — | — | 2 | — | — |
| | Male | — | — | 1 | — | — |
| | Female | — | — | 1 | — | — |
| **Accidental pesticide** | Total | 1 | 4 | 1 | — | 3 |
| | Male | — | 3 | 1 | — | 1 |
| | Female | 1 | 1 | — | — | 2 |
| **Poisoning** | Total | 96 | 66 | 75 | 142 r | 175 |
| | Male | 46 | 34 | 34 | 69 r | 84 |
| | Female | 50 | 32 | 41 | 73 r | 91 |
| **Diarrhea** | Total | 96 | 133 | 169 | 98 | 100 |
| | Male | 42 | 49 | 76 | 47 | 36 |
| | Female | 54 | 84 | 93 | 51 | 64 |
| **Respiratory diseases (all)** [3] | Total | 4,627 | 4,833 | 5,071 | 2,548 | 2,466 |
| | Male | 2,017 | 2,133 | 2,236 | 1,096 | 1,190 |
| | Female | 2,610 | 2,700 | 2,835 | 1,452 | 1,276 |
| **Acute bronchitis** | Total | 407 | 420 | 546 | 170 | 107 |
| | Male | 159 | 169 | 218 | 74 | 45 |
| | Female | 248 | 251 | 328 | 96 | 62 |
| **Chronic sinusitis** | Total | 88 | 113 | 29 | 10 | 4 |
| | Male | 30 | 40 | 10 | 2 | 4 |
| | Female | 58 | 73 | 19 | 8 | 0 |
| **Other** | Total | 4,132 | 4,300 | 4,496 | 2,368 | 2,355 |
| | Male | 1,828 | 1,924 | 2,008 | 1,020 | 1,141 |
| | Female | 2,304 | 2,376 | 2,488 | 1,348 | 1,214 |
| **TOTAL CASES, all causes** | Total | 5,267 | 5,568 | 5,786 | 2,918 r | 2,852 |
| | Male | 2,293 | 2,456 | 2,543 | 1,270 r | 1,355 |
| | Female | 2,974 | 3,112 | 3,243 | 1,648 r | 1,497 |
| **Percentage change (%)** | Total | -10.4 | +5.7 | +3.9 | -47.6 r | -2.3 |
| | Male | -13.9 | +7.1 | +3.5 | -48.3 r | +6.7 |
| | Female | -7.4 | +4.6 | +4.2 | -47.0 r | -9.2 |

*Sources: Department of Health and Bermuda Hospitals Board*

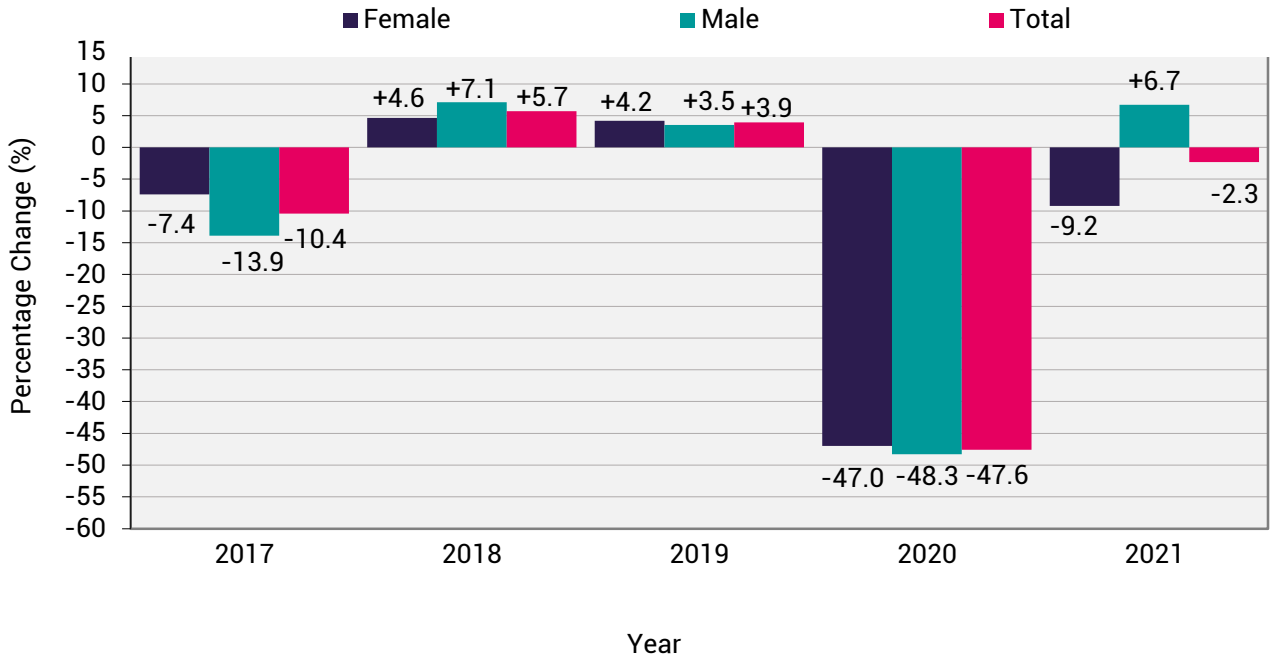
[1] Includes inpatient discharges and emergency encounters.

[2] Includes cases that may have been inadvertently coded as non-infectious gastroenteritis.

[3] Respiratory diseases (all) includes acute bronchitis, chronic sinusitis, asthma, pneumonia, etc.

*Chart 3.1*

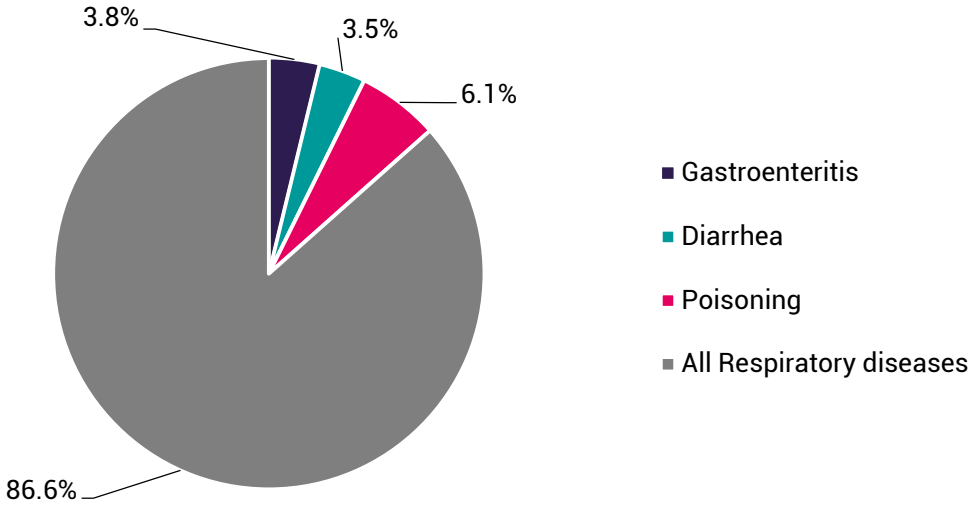
## PERCENTAGE CHANGE IN REPORTED CASES OF ENVIRONMENTALLY-RELATED DISEASES BY SEX AND TOTAL, 2017-2021




*Sources: Department of Health and Bermuda Hospitals Board*

*Chart 3.2*

## REPORTED CASES OF ENVIRONMENTALLY-RELATED DISEASES BY CAUSE, 2021[1]




*Sources: Department of Health and Bermuda Hospitals Board*

[1] Excludes Malaria, Dengue and Accidental pesticides

*Table 3.2*

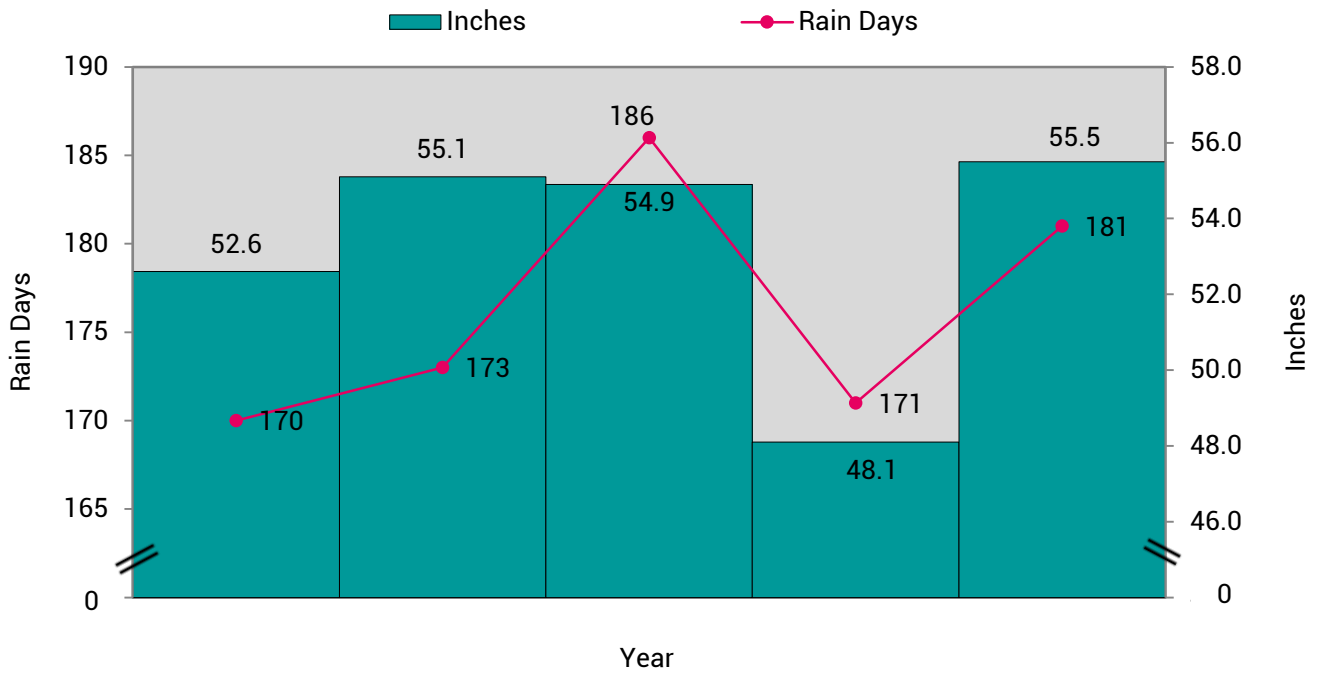
## TOTAL NUMBER OF INCHES OF RAINFALL AND RAIN DAYS, 2017–2021

| Year | | Month | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. | Total |
| 2017 | Inches | 9.7 | 3.8 | 2.8 | 0.7 | 0.8 | 4.8 | 5.6 | 5.6 | 4.0 | 6.4 | 3.6 | 4.8 | 52.6 |
| | Rain Days | 15 | 13 | 16 | 8 | 10 | 15 | 17 | 15 | 13 | 16 | 15 | 17 | 170 |
| | Largest Daily Total | 5.3 | 1.1 | 0.7 | 0.5 | 0.2 | 2.1 | 1.2 | 1.3 | 1.4 | 1.8 | 0.7 | 1.2 | |
| 2019 | Inches | 3.8 | 2.9 | 7.6 | 3.6 | 2.7 | 5.8 | 3.7 | 3.2 | 6.8 | 3.3 | 8.2 | 3.5 | 55.1 |
| | Rain Days | 16 | 12 | 20 | 12 | 6 | 16 | 16 | 14 | 15 | 12 | 19 | 15 | 173 |
| | Largest Daily Total | 1.0 | 1.3 | 4.2 | 1.9 | 1.1 | 2.0 | 0.9 | 1.6 | 2.2 | 1.1 | 1.6 | 0.9 | |
| 2019 | Inches | 7.0 | 4.9 | 9.0 | 1.6 | 3.0 | 4.2 | 2.8 | 7.6 | 4.2 | 1.1 | 4.8 | 4.8 | 54.9 |
| | Rain Days | 20 | 15 | 16 | 8 | 11 | 18 | 12 | 21 | 15 | 11 | 19 | 20 | 186 |
| | Largest Daily Total | 2.6 | 1.7 | 1.8 | 0.5 | 1.3 | 1.2 | 1.2 | 1.6 | 1.5 | 0.4 | 1.9 | 0.8 | |
| 2020 | Inches | 4.4 | 5.3 | 2.1 | 3.2 | 5.0 | 4.8 | 1.8 | 5.0 | 5.3 | 1.9 | 6.5 | 2.8 | 48.1 |
| | Rain Days | 17 | 16 | 12 | 17 | 13 | 11 | 9 | 17 | 12 | 16 | 16 | 15 | 171 |
| | Largest Daily Total | 1.5 | 1.9 | 0.4 | 0.8 | 1.7 | 1.8 | 0.9 | 1.5 | 2.0 | 0.5 | 3.6 | 0.9 | |
| 2021 | Inches | 7.9 | 3.6 | 6.4 | 4.2 | 5.1 | 1.7 | 5.1 | 2.2 | 5.3 | 4.4 | 6.9 | 2.7 | 55.5 |
| | Rain Days | 21 | 10 | 22 | 18 | 13 | 9 | 16 | 14 | 17 | 15 | 14 | 12 | 181 |
| | Largest Daily Total | 2.5 | 2.0 | 1.2 | 2.0 | 3.8 | 0.9 | 2.2 | 0.7 | 1.3 | 1.9 | 1.7 | 0.7 | |

*Source: The Bermuda Weather Service*

*Chart 3.3*

## TOTAL NUMBER OF INCHES OF RAINFALL AND RAIN DAYS, 2017–2021




*Source: The Bermuda Weather Service*

*Table 3.3*

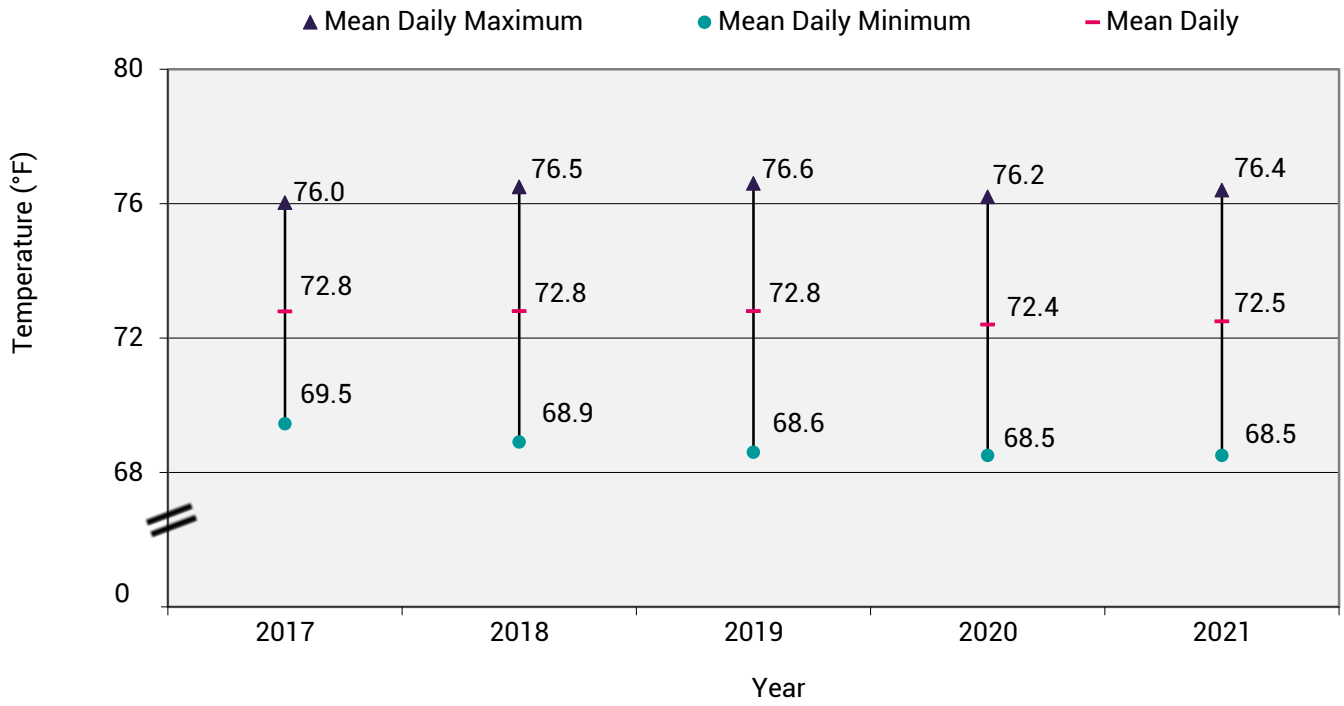
# MEAN DAILY MAXIMUM, MINIMUM AND DAILY AIR TEMPERATURE, 2017–2021

| Year | | Month | | | | | | | | | | | | (°F) Yearly Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. | |
| 2017 | Mean Daily Max. | 69.4 | 68.9 | 67.0 | 71.9 | 68.7 | 82.2 | 85.6 | 86.4 | 84.2 | 79.6 | 76.1 | 72.4 | 76.0 |
| | Mean Daily Min. | 61.8 | 60.4 | 58.8 | 64.4 | 76.8 | 74.3 | 77.4 | 78.3 | 77.3 | 71.7 | 67.8 | 64.4 | 69.5 |
| | Mean Daily | 65.9 | 64.9 | 62.9 | 67.9 | 72.3 | 78.1 | 81.7 | 82.5 | 80.8 | 75.9 | 72.0 | 68.6 | 72.8 |
| | Max. Temperature | 73.9 | 73.9 | 73.2 | 76.3 | 81.0 | 85.5 | 88.5 | 89.2 | 87.4 | 82.4 | 79.5 | 78.8 | |
| | Min. Temperature | 53.1 | 54.9 | 47.7 | 59.5 | 63.7 | 67.5 | 72.0 | 72.9 | 72.5 | 65.8 | 63.9 | 57.6 | |
| 2018 | Mean Daily Max. | 68.8 | 70.9 | 67.8 | 72.3 | 78.3 | 81.5 | 83.4 | 85.8 | 84.7 | 79.2 | 75.1 | 70.7 | 76.5 |
| | Mean Daily Min. | 61.5 | 63.9 | 59.0 | 64.4 | 70.6 | 74.2 | 75.9 | 78.2 | 76.1 | 71.7 | 68.0 | 63.3 | 68.9 |
| | Mean Daily | 65.4 | 67.1 | 64.0 | 68.4 | 74.2 | 77.8 | 79.7 | 82.0 | 80.6 | 75.6 | 71.7 | 67.5 | 72.8 |
| | Max. Temperature | 74.7 | 74.1 | 74.1 | 75.4 | 81.9 | 84.6 | 84.7 | 87.3 | 88.2 | 84.7 | 79.2 | 77.2 | |
| | Min. Temperature | 55.2 | 56.5 | 50.7 | 58.3 | 62.6 | 70.5 | 70.0 | 74.1 | 68.4 | 63.5 | 58.5 | 55.2 | |
| 2019 | Mean Daily Max. | 68.8 | 68.8 | 68.8 | 72.6 | 76.1 | 81.7 | 85.4 | 86.5 | 84.2 | 79.8 | 75.5 | 70.4 | 76.6 |
| | Mean Daily Min. | 60.8 | 60.6 | 61.0 | 64.8 | 67.9 | 74.1 | 77.3 | 77.9 | 76.5 | 72.5 | 67.3 | 62.5 | 68.6 |
| | Mean Daily | 65.4 | 65.1 | 65.0 | 68.7 | 72.1 | 77.8 | 81.5 | 82.5 | 80.2 | 76.0 | 71.7 | 67.1 | 72.8 |
| | Max. Temperature | 74.3 | 72.5 | 74.8 | 75.9 | 80.6 | 85.3 | 88.9 | 90.3 | 88.0 | 83.1 | 80.8 | 75.4 | |
| | Min. Temperature | 53.4 | 54.7 | 54.9 | 61.0 | 62.4 | 66.4 | 71.6 | 72.7 | 71.6 | 68.9 | 58.6 | 54.7 | |
| 2020 | Mean Daily Max. | 68.6 | 69.9 | 69.7 | 70.8 | 73.9 | 78.3 | 84.4 | 87.2 | 83.8 | 81.0 | 75.4 | 71.5 | 76.2 |
| | Mean Daily Min. | 60.7 | 61.8 | 61.5 | 62.6 | 65.9 | 71.0 | 77.0 | 78.9 | 76.5 | 74.2 | 67.7 | 64.4 | 68.5 |
| | Mean Daily | 64.9 | 66.2 | 65.9 | 67.2 | 69.8 | 74.5 | 80.6 | 83.0 | 80.2 | 77.3 | 71.6 | 68.1 | 72.4 |
| | Max. Temperature | 74.7 | 74.1 | 73.2 | 75.7 | 79.5 | 84.4 | 88.3 | 89.1 | 87.4 | 83.5 | 80.1 | 75.0 | |
| | Min. Temperature | 51.3 | 53.6 | 50.2 | 56.1 | 58.1 | 62.2 | 69.1 | 72.9 | 68.4 | 69.4 | 61.0 | 57.7 | |
| 2021 | Mean Daily Max. | 67.6 | 68.9 | 68.8 | 69.9 | 75.3 | 82.4 | 84.5 | 86.4 | 84.6 | 80.5 | 74.9 | 72.5 | 76.4 |
| | Mean Daily Min. | 59.5 | 62.7 | 60.6 | 61.7 | 67.3 | 74.4 | 76.5 | 78.0 | 76.4 | 72.6 | 67.6 | 64.9 | 68.5 |
| | Mean Daily | 64.3 | 66.1 | 64.5 | 66.2 | 71.1 | 78.0 | 80.4 | 82.1 | 80.4 | 76.8 | 71.3 | 68.9 | 72.5 |
| | Max. Temperature | 72.5 | 71.8 | 77.5 | 75.4 | 80.2 | 85.1 | 87.1 | 88.0 | 88.0 | 84.2 | 81.1 | 75.9 | |
| | Min. Temperature | 49.1 | 53.1 | 51.4 | 55.4 | 58.5 | 69.6 | 70.5 | 74.1 | 70.2 | 68.0 | 59.9 | 56.8 | |

*Source: The Bermuda Weather Service*

*Chart 3.4*

## MEAN DAILY MAXIMUM, MINIMUM AND DAILY AIR TEMPERATURE, 2017-2021




*Source: The Bermuda Weather Service*

*Table 3.4*

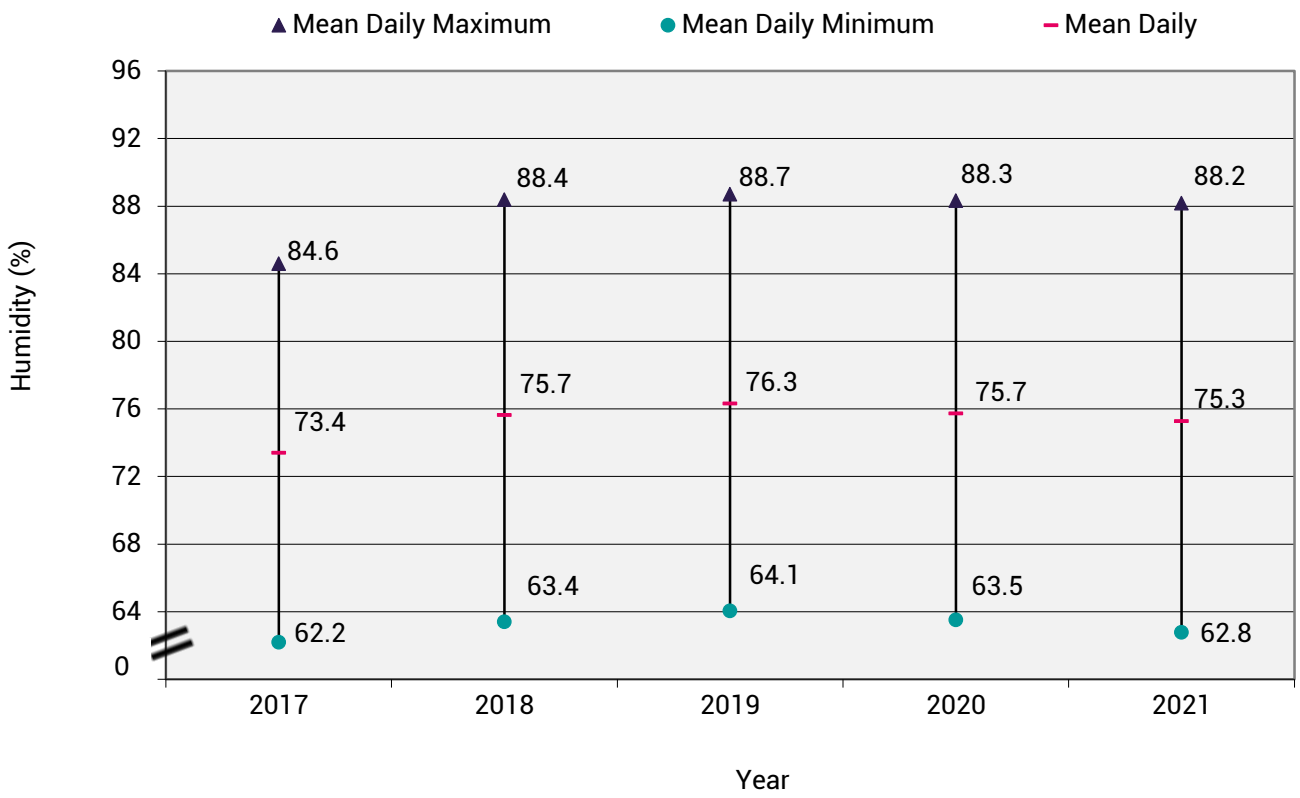
# MEAN DAILY MAXIMUM, MINIMUM AND DAILY RELATIVE HUMIDITY, 2017-2021

| Year | | Month | | | | | | | | | | | | (%) Yearly Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. | |
| 2017 | Mean Daily Max. % | 85.2 | 83.0 | 80.1 | 82.0 | 85.3 | 87.5 | 84.7 | 83.7 | 82.3 | 84.8 | 89.2 | 86.8 | 84.6 |
| | Mean Daily Min. % | 62.7 | 57.3 | 53.7 | 60.1 | 62.5 | 66.4 | 65.9 | 64.5 | 64.1 | 63.5 | 65.4 | 60.0 | 62.2 |
| | Mean Daily % | 74.3 | 69.9 | 66.4 | 70.1 | 74.2 | 78.2 | 76.1 | 74.3 | 73.4 | 74.0 | 77.2 | 72.1 | 73.4 |
| | Max. % | 95.0 | 93.0 | 93.0 | 93.0 | 91.0 | 94.0 | 92.0 | 92.0 | 92.0 | 98.0 | 100.0 | 98.0 | |
| | Min. % | 45.0 | 41.0 | 40.0 | 33.0 | 46.0 | 47.0 | 57.0 | 51.0 | 53.0 | 46.0 | 44.0 | 47.0 | |
| 2018 | Mean Daily Max. % | 87.6 | 90.4 | 89.1 | 89.8 | 89.7 | 90.7 | 90.0 | 86.1 | 88.1 | 84.1 | 88.9 | 86.2 | 88.4 |
| | Mean Daily Min. % | 59.7 | 66.4 | 54.6 | 65.2 | 67.8 | 69.2 | 70.3 | 64.4 | 63.5 | 57.6 | 63.3 | 58.9 | 63.4 |
| | Mean Daily % | 73.1 | 78.3 | 69.8 | 78.1 | 79.7 | 80.9 | 80.4 | 75.5 | 75.2 | 70.0 | 75.7 | 71.1 | 75.7 |
| | Max. % | 99.0 | 97.0 | 99.0 | 99.0 | 98.0 | 99.0 | 97.0 | 94.0 | 99.0 | 97.0 | 98.0 | 98.0 | |
| | Min. % | 39.0 | 40.0 | 44.0 | 37.0 | 48.0 | 56.0 | 60.0 | 58.0 | 49.0 | 42.0 | 43.0 | 42.0 | |
| 2019 | Mean Daily Max. % | 90.8 | 88.3 | 88.5 | 87.0 | 87.9 | 91.8 | 88.3 | 89.8 | 86.4 | 86.8 | 89.3 | 89.7 | 88.7 |
| | Mean Daily Min. % | 62.9 | 62.6 | 64.4 | 64.7 | 62.0 | 71.0 | 64.7 | 67.1 | 64.6 | 62.0 | 62.8 | 59.9 | 64.1 |
| | Mean Daily % | 75.8 | 75.9 | 77.3 | 75.4 | 74.7 | 82.2 | 76.9 | 78.7 | 75.6 | 74.3 | 75.9 | 73.3 | 76.3 |
| | Max. % | 99.0 | 98.0 | 99.0 | 98.0 | 98.0 | 97.0 | 98.0 | 97.0 | 98.0 | 96.0 | 97.0 | 99.0 | |
| | Min. % | 44.0 | 43.0 | 44.0 | 51.0 | 47.0 | 48.0 | 51.0 | 56.0 | 48.0 | 40.0 | 43.0 | 41.0 | |
| 2020 | Mean Daily Max. % | 87.0 | 91.7 | 88.8 | 88.0 | 89.1 | 89.0 | 87.6 | 85.9 | 87.2 | 90.0 | 88.3 | 87.3 | 88.3 |
| | Mean Daily Min. % | 57.2 | 65.2 | 61.9 | 61.7 | 63.2 | 68.1 | 69.2 | 63.9 | 67.9 | 68.2 | 59.2 | 56.6 | 63.5 |
| | Mean Daily % | 71.0 | 77.9 | 74.8 | 74.1 | 76.1 | 79.6 | 79.4 | 75.5 | 78.0 | 79.0 | 72.9 | 70.5 | 75.7 |
| | Max. % | 98.0 | 99.0 | 99.0 | 98.0 | 99.0 | 98.0 | 94.0 | 94.0 | 97.0 | 99.0 | 100.0 | 100.0 | |
| | Min. % | 38.0 | 38.0 | 40.0 | 43.0 | 43.0 | 40.0 | 59.0 | 54.0 | 46.0 | 50.0 | 40.0 | 45.0 | |
| 2021 | Mean Daily Max. % | 90.9 | 89.3 | 89.9 | 86.7 | 88.5 | 86.8 | 89.9 | 85.7 | 87.7 | 87.2 | 86.4 | 89.2 | 88.2 |
| | Mean Daily Min. % | 58.0 | 63.5 | 63.0 | 58.9 | 64.5 | 64.6 | 68.4 | 63.6 | 64.4 | 61.3 | 59.6 | 63.5 | 62.8 |
| | Mean Daily % | 72.1 | 76.5 | 76.2 | 72.1 | 76.5 | 76.6 | 80.0 | 74.9 | 76.2 | 73.8 | 73.0 | 75.6 | 75.3 |
| | Max. % | 100.0 | 99.0 | 99.0 | 96.0 | 97.0 | 97.0 | 97.0 | 94.0 | 97.0 | 98.0 | 99.0 | 99.0 | |
| | Min. % | 44.0 | 38.0 | 42.0 | 40.0 | 46.0 | 52.0 | 56.0 | 50.0 | 52.0 | 41.0 | 45.0 | 45.0 | |

*Source: The Bermuda Weather Service*

*Chart 3.5*

## MEAN DAILY MAXIMUM, MINIMUM AND DAILY RELATIVE HUMIDITY, 2017-2021




*Source: The Bermuda Weather Service*

*Table 3.5*

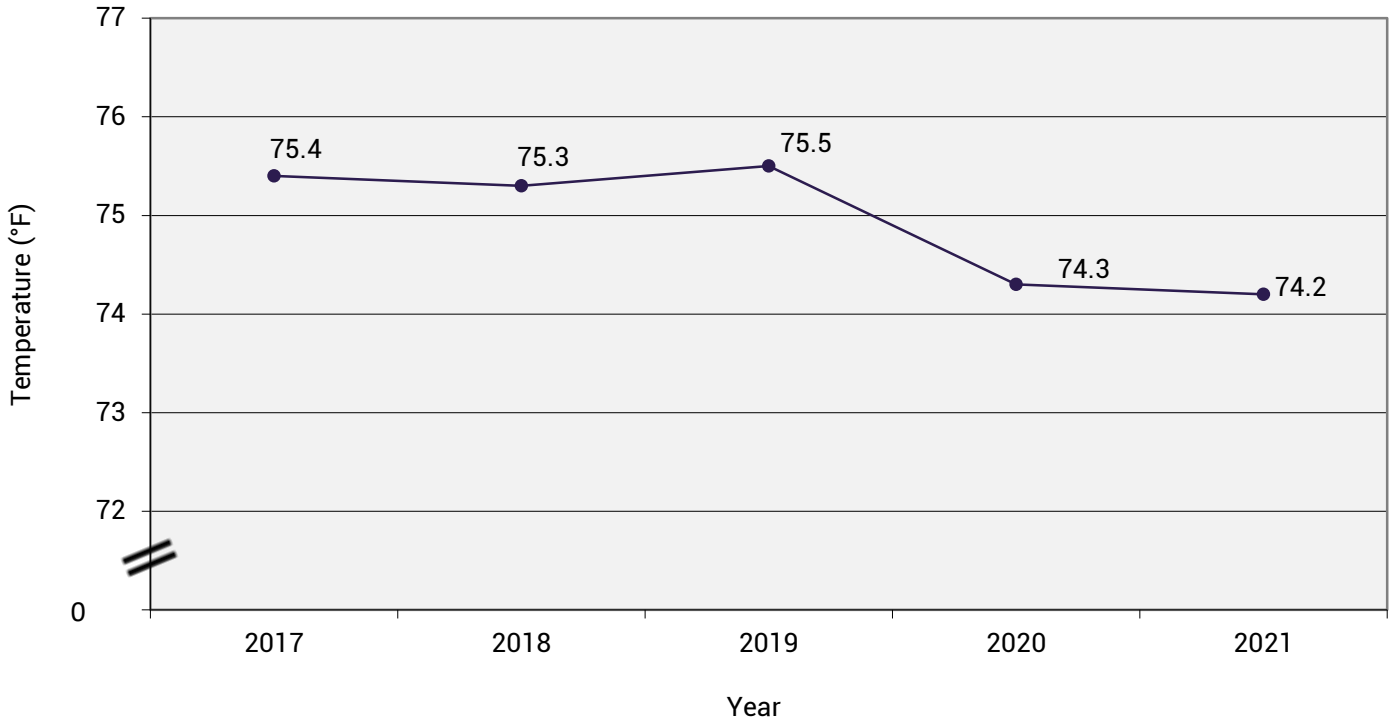
# MEAN DAILY SEA SURFACE TEMPERATURE, 2017–2021

| Year | | Month | | | | | | | | | | | | (°F) Yearly Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. | |
| 2017 | Mean Daily | 67.1 | 66.2 | 65.3 | 69.5 | 75.4 | 81.8 | 84.7 | 85.8 | 84.1 | 79.2 | 75.3 | 70.1 | 75.4 |
| | Max. Temperature | 69.8 | 67.5 | 67.8 | 72.1 | 79.2 | 83.7 | 85.8 | 86.9 | 85.1 | 83.3 | 77.2 | 73.4 | |
| | Min. Temperature | 65.8 | 64.0 | 63.3 | 67.8 | 74.8 | 79.2 | 83.7 | 84.9 | 82.4 | 76.8 | 72.0 | 68.4 | |
| 2018 | Mean Daily | 67.6 | 68.5 | 65.9 | 70.5 | 76.1 | 80.9 | 82.8 | 85.9 | 84.8 | 78.1 | 74.0 | 68.3 | 75.3 |
| | Max. Temperature | 70.2 | 70.7 | 70.7 | 71.8 | 80.4 | 82.0 | 84.4 | 88.7 | 88.7 | 80.4 | 75.4 | 68.7 | |
| | Min. Temperature | 64.9 | 65.3 | 64.4 | 64.6 | 70.9 | 79.5 | 82.0 | 84.2 | 80.6 | 73.9 | 68.5 | 67.1 | |
| 2019 | Mean Daily | 67.0 | 67.6 | 67.3 | 71.6 | 75.9 | 80.2 | 84.6 | 86.4 | 84.2 | 78.0 | 74.1 | 69.1 | 75.5 |
| | Max. Temperature | 68.0 | 68.0 | 69.1 | 75.6 | 77.0 | 83.1 | 86.9 | 87.1 | 87.8 | 79.9 | 77.2 | 70.9 | |
| | Min. Temperature | 64.8 | 66.9 | 66.0 | 67.6 | 75.4 | 75.9 | 82.2 | 85.8 | 79.0 | 77.2 | 70.0 | 67.3 | |
| 2020 | Mean Daily | 66.8 | 66.9 | 66.5 | 69.2 | 72.5 | 76.8 | 82.1 | 86.5 | 83.2 | 79.3 | 73.9 | 68.2 | 74.3 |
| | Max. Temperature | 67.8 | 68.7 | 68.4 | 72.0 | 74.1 | 79.5 | 86.0 | 87.8 | 85.3 | 81.3 | 77.0 | 71.6 | |
| | Min. Temperature | 64.4 | 65.5 | 64.8 | 68.4 | 71.2 | 74.8 | 79.0 | 85.1 | 80.1 | 77.0 | 70.3 | 66.9 | |
| 2021 | Mean Daily | 65.2 | 65.8 | 66.4 | 68.1 | 73.0 | 79.2 | 82.8 | 84.6 | 83.5 | 79.1 | 73.3 | 68.9 | 74.2 |
| | Max. Temperature | 67.3 | 70.3 | 70.9 | 70.2 | 77.9 | 81.0 | 84.4 | 85.1 | 85.5 | 81.7 | 76.8 | 70.3 | |
| | Min. Temperature | 61.0 | 61.0 | 63.9 | 64.8 | 71.1 | 77.0 | 80.6 | 83.7 | 80.6 | 76.8 | 69.1 | 67.1 | |

*Source: The Bermuda Weather Service*

*Chart 3.6*

## MEAN DAILY SEA SURFACE TEMPERATURE, 2017-2021




*Source: The Bermuda Weather Service*

*Table 3.6*

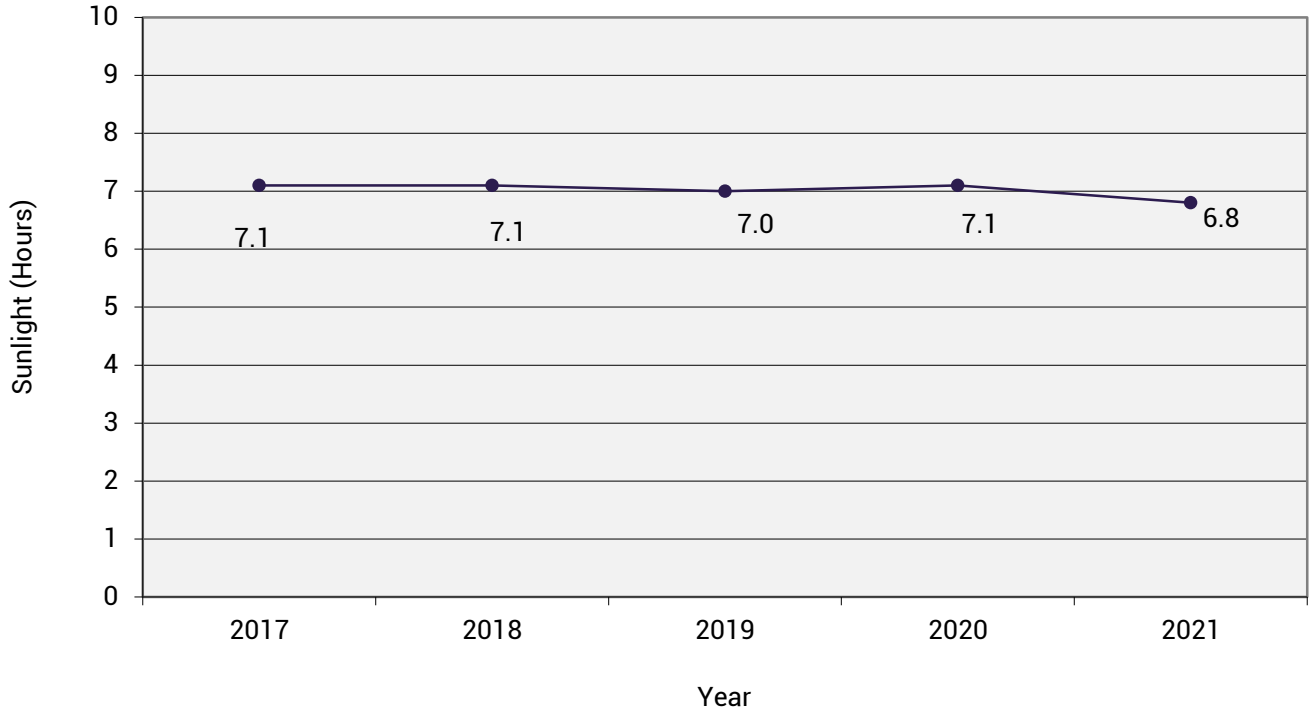
# MEAN DAILY AND TOTAL HOURS OF SUNSHINE, 2017-2021

| Year | | Month | | | | | | | | | | | | (Hours) Yearly Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. | |
| 2017 | Mean Daily | 5.1 | 5.9 | 5.9 | 8.5 | 8.3 | 8.2 | 9.6 | 9.5 | 7.3 | 6.4 | 5.7 | 5.1 | 7.1 |
| | Max. Hours | 9.4 | 10.7 | 10.5 | 12.0 | 12.4 | 13.0 | 12.7 | 12.4 | 11.3 | 10.3 | 9.8 | 9.3 | |
| | Min. Hours | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 1.0 | 1.2 | 0.5 | 0.7 | 0.0 | 0.0 | 0.0 | |
| | Total Hours | 156.9 | 165.9 | 181.9 | 254.5 | 256.8 | 247.0 | 298.3 | 295.8 | 219.3 | 197.8 | 170.2 | 159.5 | |
| 2018 | Mean Daily | 3.8 | 6.3 | 6.5 | 7.1 | 9.4 | 8.0 | 8.7 | 10.7 | 8.0 | 7.3 | 5.0 | 4.3 | 7.1 |
| | Max. Hours | 9.7 | 10.8 | 10.4 | 12.0 | 12.5 | 12.6 | 12.5 | 12.3 | 11.6 | 10.9 | 9.7 | 8.9 | |
| | Min. Hours | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 1.7 | 5.2 | 0.0 | 0.9 | 0.0 | 0.0 | |
| | Total Hours | 118.1 | 176.2 | 200.6 | 214.1 | 291.2 | 240.7 | 268.2 | 330.3 | 240.3 | 225.4 | 150.7 | 133.6 | |
| 2019 | Mean Daily | 4.6 | 5.7 | 5.0 | 8.7 | 9.0 | 8.2 | 9.7 | 9.0 | 7.7 | 6.7 | 5.6 | 4.6 | 7.0 |
| | Max. Hours | 8.9 | 10.0 | 10.8 | 12.4 | 12.5 | 12.7 | 13.2 | 12.2 | 11.0 | 10.7 | 10.2 | 9.1 | |
| | Min. Hours | 0.0 | 0.0 | 0.0 | 1.8 | 1.7 | 1.5 | 0.0 | 0.3 | 0.0 | 0.7 | 0.0 | 0.0 | |
| | Total Hours | 143.7 | 160.7 | 154.4 | 259.9 | 277.5 | 247.4 | 301.0 | 277.6 | 231.5 | 207.8 | 166.8 | 143.0 | |
| 2020 | Mean Daily | 5.1 | 5.3 | 6.0 | 7.1 | 8.8 | 7.8 | 9.6 | 9.3 | 7.9 | 7.2 | 6.2 | 4.6 | 7.1 |
| | Max. Hours | 8.9 | 10.2 | 10.8 | 11.9 | 12.3 | 12.6 | 12.7 | 12.6 | 11.3 | 9.8 | 9.8 | 8.6 | |
| | Min. Hours | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | |
| | Total Hours | 159.5 | 155.1 | 184.9 | 213.7 | 273.0 | 233.3 | 297.0 | 289.3 | 236.8 | 222.0 | 185.1 | 143.5 | |
| 2021 | Mean Daily | 4.2 | 5.9 | 5.0 | 6.6 | 8.6 | 9.7 | 7.1 | 10.5 | 7.3 | 6.3 | 4.9 | 5.7 | 6.8 |
| | Max. Hours | 8.5 | 10.7 | 10.4 | 11.8 | 12.9 | 12.7 | 12.4 | 12.3 | 11.9 | 10.2 | 9.1 | 9.2 | |
| | Min. Hours | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.9 | 1.2 | 6.3 | 0.0 | 0.0 | 0.0 | 0.0 | |
| | Total Hours | 131.0 | 165.0 | 155.6 | 198.9 | 265.8 | 289.5 | 220.2 | 325.7 | 219.8 | 196.8 | 146.7 | 177.0 | |

*Source: The Bermuda Weather Service*

*Chart 3.7*

## MEAN DAILY HOURS OF SUNLIGHT, 2017-2021




*Source: The Bermuda Weather Service*

*Table 3.7*

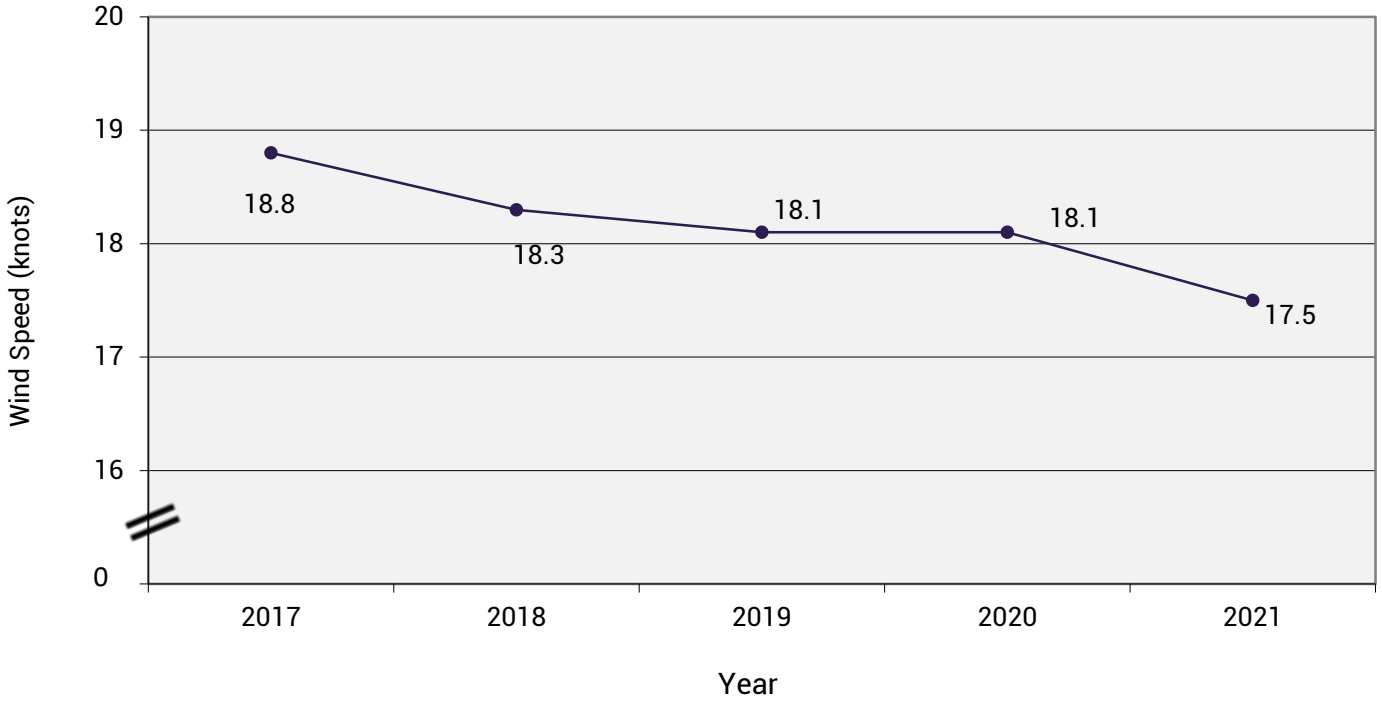
# MEAN DAILY, MAXIMUM, MINIMUM AND PEAK WIND SPEEDS, 2017–2021

| Year | | Month | | | | | | | | | | | | (Knots) Yearly Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. | |
| 2017 | Mean Daily | 22.3 | 23.3 | 22.6 | 18.4 | 17.2 | 15.7 | 16.4 | 17.0 | 16.9 | 18.9 | 16.7 | 20.5 | 18.8 |
| | Max. Wind Speed | 36.0 | 35.0 | 33.0 | 30.0 | 38.0 | 27.0 | 23.0 | 29.0 | 21.0 | 31.0 | 28.0 | 30.0 | |
| | Min. Wind Speed | 7.0 | 13.0 | 11.0 | 9.0 | 7.0 | 11.0 | 8.0 | 7.0 | 9.0 | 9.0 | 9.0 | 11.0 | |
| | Peak Wind Speed | 49.0 | 52.0 | 46.0 | 38.0 | 49.0 | 38.0 | 35.0 | 45.0 | 40.0 | 44.0 | 36.0 | 46.0 | |
| 2018 | Mean Daily | 21.8 | 15.9 | 27.5 | 18.7 | 14.5 | 18.0 | 16.5 | 12.5 | 16.5 | 17.2 | 19.4 | 21.4 | 18.3 |
| | Max. Wind Speed | 36.0 | 21.0 | 44.0 | 40.0 | 22.0 | 26.0 | 29.0 | 21.0 | 29.0 | 24.0 | 38.0 | 34.0 | |
| | Min. Wind Speed | 8.0 | 8.0 | 7.0 | 8.0 | 8.0 | 11.0 | 9.0 | 8.0 | 6.0 | 7.0 | 9.0 | 13.0 | |
| | Peak Wind Speed | 50.0 | 31.0 | 59.0 | 71.0 | 37.0 | 37.0 | 38.0 | 32.0 | 39.0 | 33.0 | 50.0 | 46.0 | |
| 2019 | Mean Daily | 21.4 | 19.1 | 19.7 | 16.6 | 16.8 | 16.5 | 14.8 | 16.6 | 18.4 | 16.4 | 20.6 | 20.1 | 18.1 |
| | Max. Wind Speed | 34.0 | 29.0 | 31.0 | 26.0 | 29.0 | 39.0 | 24.0 | 25.0 | 71.0 | 28.0 | 32.0 | 35.0 | |
| | Min. Wind Speed | 10.0 | 7.0 | 10.0 | 9.0 | 7.0 | 7.0 | 6.0 | 8.0 | 7.0 | 7.0 | 10.0 | 7.0 | |
| | Peak Wind Speed | 45.0 | 41.0 | 41.0 | 33.0 | 49.0 | 49.0 | 35.0 | 36.0 | 101.0 | 35.0 | 47.0 | 47.0 | |
| 2020 | Mean Daily | 21.8 | 21.1 | 18.8 | 23.9 | 18.4 | 15.0 | 13.2 | 14.3 | 17.3 | 15.7 | 18.3 | 19.4 | 18.1 |
| | Max. Wind Speed | 38.0 | 36.0 | 43.0 | 37.0 | 30.0 | 29.0 | 25.0 | 25.0 | 51.0 | 26.0 | 26.0 | 37.0 | |
| | Min. Wind Speed | 10.0 | 12.0 | 7.0 | 13.0 | 10.0 | 8.0 | 7.0 | 7.0 | 8.0 | 8.0 | 10.0 | 10.0 | |
| | Peak Wind Speed | 52.0 | 46.0 | 53.0 | 52.0 | 46.0 | 41.0 | 33.0 | 38.0 | 77.0 | 37.0 | 38.0 | 48.0 | |
| 2021 | Mean Daily | 24.2 | 20.9 | 18.6 | 19.8 | 16.6 | 14.6 | 15.0 | 12.4 | 14.9 | 16.6 | 19.3 | 17.4 | 17.5 |
| | Max. Wind Speed | 45.0 | 34.0 | 34.0 | 29.0 | 28.0 | 24.0 | 23.0 | 20.0 | 27.0 | 33.0 | 34.0 | 26.0 | |
| | Min. Wind Speed | 10.0 | 13.0 | 7.0 | 8.0 | 7.0 | 8.0 | 8.0 | 7.0 | 6.0 | 8.0 | 10.0 | 8.0 | |
| | Peak Wind Speed | 65.0 | 49.0 | 49.0 | 42.0 | 39.0 | 40.0 | 34.0 | 32.0 | 37.0 | 44.0 | 50.0 | 36.0 | |

*Source: The Bermuda Weather Service*

*Chart 3.8*

## YEARLY AVERAGE WIND SPEED, 2017-2021




*Source: The Bermuda Weather Service*

# NATURAL AND ENVIRONMENTAL DISASTERS

**Occurrences of natural and environmental disasters are rare in Bermuda.**

## HURRICANES

- There were no hurricanes that affected Bermuda in 2021.

## EMERGENCY INCIDENTS

- In 2021, there were 4,169 emergency incidents attended by the Bermuda Fire and Rescue Service (Table 4.2). This represents a 6.9 percent increase over the amount of incidents attended in 2020.

# NOTE TO READER

**Natural Disaster:** a natural event which overwhelms local capacity, necessitating a request for national or international assistance, or is recognized as such by a multilateral agency, or by at least two sources, such as national, regional or international assistance groups and the media. There are two types: sudden-impact disasters e.g. earthquakes; or those that develop gradually, e.g. drought.

**Types of Disaster:** Avalanches, floods, earthquakes, hurricanes, torrential rains, volcanic eruptions, droughts, landslides, mudslides, fires, blizzards, tsunamis, etc.

*Source: CARICOM Environment Program*

*Table 4.1*

## NATURAL DISASTERS, 2021

| Item | |
|---|---|
| Type of disaster | – |
| Date started | – |
| Total casualties: | – |
| of which: dead | – |
| Total population affected | – |
| Damage ($ million) | – |

*Table 4.2*

## EMERGENCY INCIDENTS ATTENDED BY THE BERMUDA FIRE AND RESCUE SERVICE[1], 2017-2021

| | | Type of Emergency Incident Attended | | | | |
|---|---|---|---|---|---|---|
| Year | Total | Structure Fires[2] | Vehicle Fires | EMS[3] | Minor Incidents[4] | Other[2,5] |
| 2017 | 3,947 | 1,049 | 18 | 1,914 | 337 | 629 |
| 2018 | 4,188 | 1,109 | 15 | 2,086 | 384 | 594 |
| 2019 | 4,791 | 1,081 | 28 | 2,171 | 553 | 958 |
| 2020 | 3,899 | 1,098 | 24 | 1,713 | 232 | 832 |
| 2020 | 4,169 | 1,011 | 18 | 1,981 | 268 | 891 |

*Source: Bermuda Fire and Rescue Service*

[1] This table format was revised in 2022.

[2] Includes false alarms.

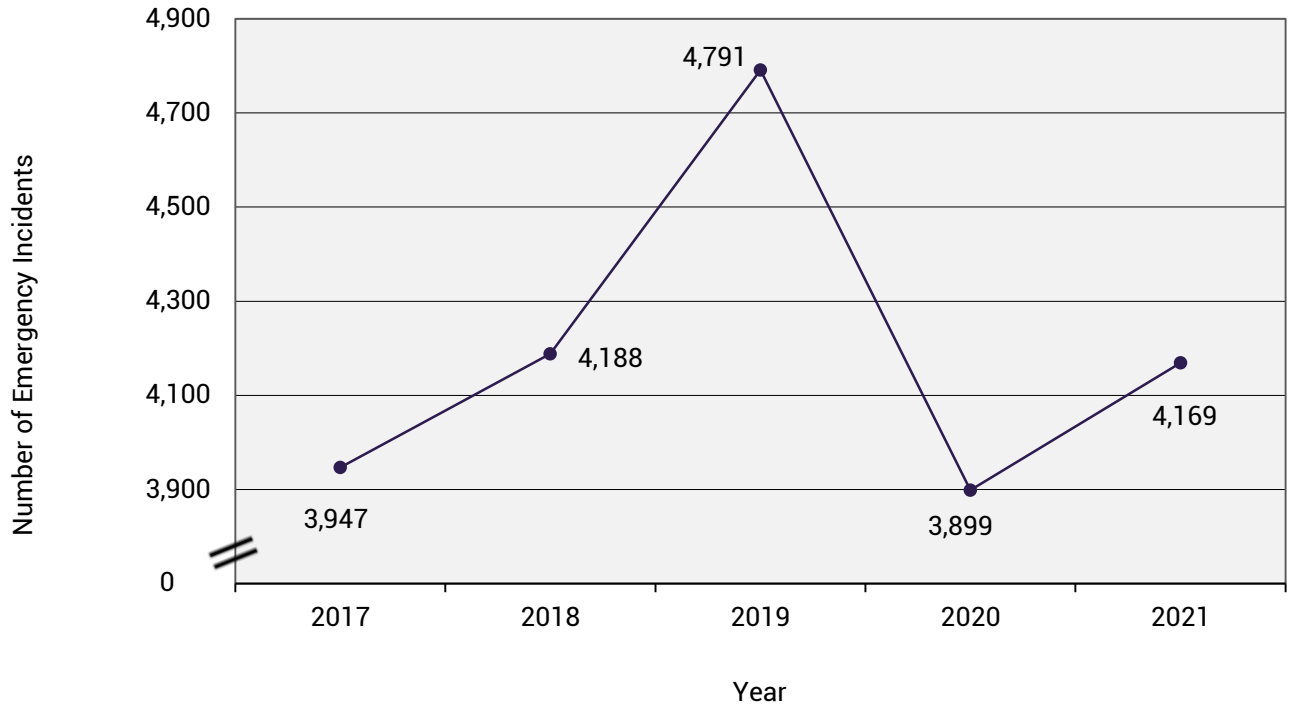
[3] Emergency Medical Services

[4] Includes brush fires, trash fires, gas cylinder leaks, oil spills, floodings, pole fires, etc.

[5] Reflects the activities of the Crash and Fire Rescue Service in other emergency duties such as Airport Operations Division incidents, foreign object debris checks, hot refuel, aircraft standby, etc.

*Chart 4.1*

## EMERGENCY INCIDENTS ATTENDED BY THE BERMUDA FIRE AND RESCUE SERVICE[1], 2017-2021




*Source: Bermuda Fire and Rescue Service*

# ENERGY, MINERALS AND TRANSPORT

**The Energy, Minerals and Transport Section comprises information on the types of fuels imported to Bermuda such as gasoline, diesel and propane. It also contains statistics on electricity consumption by type of consumer and the types of vehicles on Bermuda's roads.**

## FUEL

- In 2021, the value of imported petroleum oils and oils from bituminous minerals (other than crude) imported into Bermuda, was $86.6 million, an increase of 239.9 percent from the total value imported in 2020 (Table 5.1).
- The quantity of gas oils (diesel) decreased significantly to 8.6 million kg in 2021, a decrease of 58.7 percent over the previous year, with a decrease in value (-11.1%) (Table 5.1).
- Although the quantity of kerosene and other medium oils (not including gas oils) decreased from 2020 to 2021 (27.2%), the value of the same type increased (22.2%) over the same period (Table 5.1).

## MINERAL FUELS

- In 2021, the value of imported mineral fuels, mineral oils and related products rose to $90.6 million. This is a 70.9 percent increase from the $53.0 million imported in 2020 (Table 5.2).

## ELECTRICITY

- Total electricity consumption in 2021 grew to approximately 522.6 million kWh from 517.9 million kWh in 2020. The residential sector accounted for just under half (47.0%) of all electricity consumed in Bermuda (Table 5.3).

## TRANSPORT

- In 2021, there were 48,994 registered road vehicles in Bermuda. Private cars accounted for nearly half (46.4%) of this total, while just over one-third (36.5%) were motorcycles and scooters (Table 5.6).

*Table 5.1*

# VALUE AND QUANTITY OF IMPORTED FUEL[1] BY TYPE, 2019–2021

| | Year | | | | | |
|---|---|---|---|---|---|---|
| | 2019 | | 2020 | | 2021 | |
| Type | Value ($) | Quantity (kg) | Value ($) | Quantity (kg) | Value ($) | Quantity (kg) |
| Total | 97,593,222 | 184,782,215 | 25,485,540 | 96,468,426 | 86,612,938 | 163,055,924 |
| Percentage change (%) | -22.4 | -17.5 | -73.9 | -47.8 | +239.9 | +69.0 |
| Light oils and preparations (i.e. motor spirits) | 13,504,338 | 13,819,065 | 8,591,376 | 16,186,610 | 19,890,901 | 19,150,374 |
| Gas oils (diesel) | 20,757,302 | 28,793,199 | 11,308,505 | 20,777,052 | 10,058,294 | 8,580,203 |
| Gas oils (heavy atmospheric) | – | – | – | – | – | – |
| Kerosene and other medium oils (not including gas oils) | 14,474,603 | 25,851,350 | 5,211,921 | 12,034,416 | 6,369,135 | 8,755,200 |
| Fuel oils not elsewhere specified | 45,794,276 | 115,422,850 | 24,599,716 | 96,229,353 | 49,158,350 | 126,156,919 |
| Other lubricating oils and grease, etc. | 3,045,498 | 891,539 | 835,885 | 226,618 | 1,121,957 | 409,962 |
| Other waste oils | 17,205 | 4,213 | 49,939 | 12,455 | 14,302 | 3,268 |

*Source: Department of Statistics*

[1] Petroleum oils and oils obtained from bituminous minerals, other than crude.

*Table 5.2*

# VALUE AND QUANTITY OF IMPORTED MINERAL FUELS, MINERAL OILS AND RELATED PRODUCTS CONSUMED BY TYPE, 2019–2021

| | Year | | | | | |
|---|---|---|---|---|---|---|
| | 2019 | | 2020 | | 2021 | |
| Type | Value ($) | Quantity (kg) | Value ($) | Quantity (kg) | Value ($) | Quantity (kg) |
| Total | 100,302,740 | 199,736,387 | 53,033,454 | 149,959,788 | 90,614,063 | 169,087,092 |
| Percentage change (%) | -22.7 | -16.9 | -47.1 | -24.9 | +70.9 | +12.8 |
| Coal, briquettes | 14,301 | 8,125 | 14,184 | 3,447 | 8,840 | 7,047 |
| Lignite | 760 | 72 | — | — | 102 | 15 |
| Peat | 165,783 | 78,180 | 240,384 | 86,530 | 259,715 | 171,903 |
| Coke and semi coke | 46,019 | 30,786 | 91,553 | 54,316 | 67,757 | 40,035 |
| Coal gas, water gas | — | — | — | — | 15 | 12 |
| Tar distilled | — | — | — | — | — | — |
| Oils and other products | 1,967 | 626 | 1,251 | 503 | 11,274 | 805 |
| Pitch and pitch coke | — | — | — | — | — | — |
| Petroleum oils | — | — | — | — | — | — |
| Petroleum oils other than crude | 97,593,222 | 184,782,215 | 50,597,342 | 145,466,505 | 86,612,938 | 163,055,924 |
| Petroleum gases & other gaseous hydrocarbons | 1,560,651 | 13,825,338 | 1,258,205 | 3,055,165 | 3,040,053 | 4,913,401 |
| Petroleum jelly | 47,161 | 4,610 | 57,048 | 5,227 | 94,755 | 4,948 |
| Petroleum coke | 38,659 | 3,919 | 29,766 | 2,614 | 30,388 | 3,214 |
| Other bitumen and asphalt | 588,921 | 647,407 | 434,109 | 366,573 | 22,511 | 30,472 |
| Bituminous mixtures | 245,296 | 355,108 | 309,612 | 918,910 | 465,716 | 859,315 |
| Electrical energy | — | — | — | — | — | — |

*Source: Department of Statistics*

*Table 5.3*

## ELECTRICITY CONSUMPTION BY TYPE OF CONSUMER, 2017-2021

| | | Type | | |
|---|---|---|---|---|
| Year | Total ('000 kWh) | Residential ('000 kWh) | Commercial ('000 kWh) | Other[1] ('000 kWh) |
| 2017 | 584,518 | 245,124 | 284,866 | 54,528 |
| 2018 | 567,827 | 240,302 | 274,770 | 52,755 |
| 2019 | 554,100 | 237,710 | 263,793 | 52,597 |
| 2020 | 517,883 | 242,697 | 224,744 | 50,442 |
| 2021 | 522,566 | 245,639 | 226,346 | 50,581 |

*Source: Liberty Group Limited*
[1] Includes street lighting paid by Parish Councils and sales to Government for offices, distillation plant, etc.

*Table 5.4*

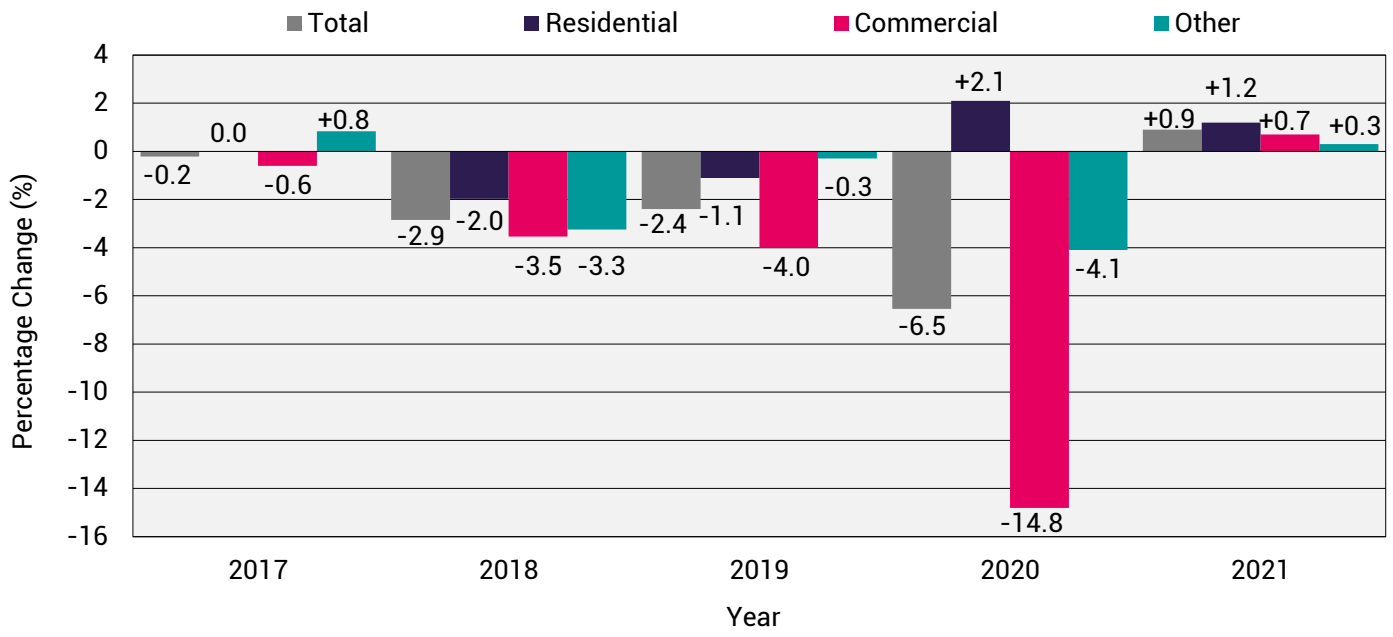
## GROWTH IN ELECTRICITY CONSUMPTION BY TYPE OF CONSUMER, 2017-2021

| | Growth | Type | | |
|---|---|---|---|---|
| Year | Total Electricity Consumption | Residential Percentage | Commercial Percentage | Other[1] Percentage |
| 2017 | -0.2 | 0.0 | -0.6 | +0.8 |
| 2018 | -2.9 | -2.0 | -3.5 | -3.3 |
| 2019 | -2.4 | -1.1 | -4.0 | -0.3 |
| 2020 | -6.5 | +2.1 | -14.8 | -4.1 |
| 2021 | +0.9 | +1.2 | +0.7 | +0.3 |

*Source: Liberty Group Limited*
[1] Includes street lighting paid by Parish Councils and sales to Government for offices, distillation plant, etc.

*Chart 5.1*

## GROWTH IN ELECTRICITY CONSUMPTION BY TYPE OF CONSUMER AND TOTAL CONSUMPTION, 2017–2021




*Source: Liberty Group Limited*

*Table 5.5*

## PERCENTAGE DISTRIBUTION OF TOTAL ELECTRICITY CONSUMPTION BY TYPE OF CONSUMER, 2017–2021

| | | Type | | |
|---|---|---|---|---|
| | | Residential | Commercial | Other[1] |
| Year | Total | Percentage | Percentage | Percentage |
| 2017 | 100 | 41.9 | 48.7 | 9.3 |
| 2018 | 100 | 42.3 | 48.4 | 9.3 |
| 2019 | 100 | 42.9 | 47.6 | 9.5 |
| 2020 | 100 | 46.9 | 43.4 | 9.7 |
| 2021 | 100 | 47.0 | 43.3 | 9.7 |

*Source: Liberty Group Limited*

*Table 5.6*

# REGISTERED ROAD VEHICLES[1,2], 2017–2021

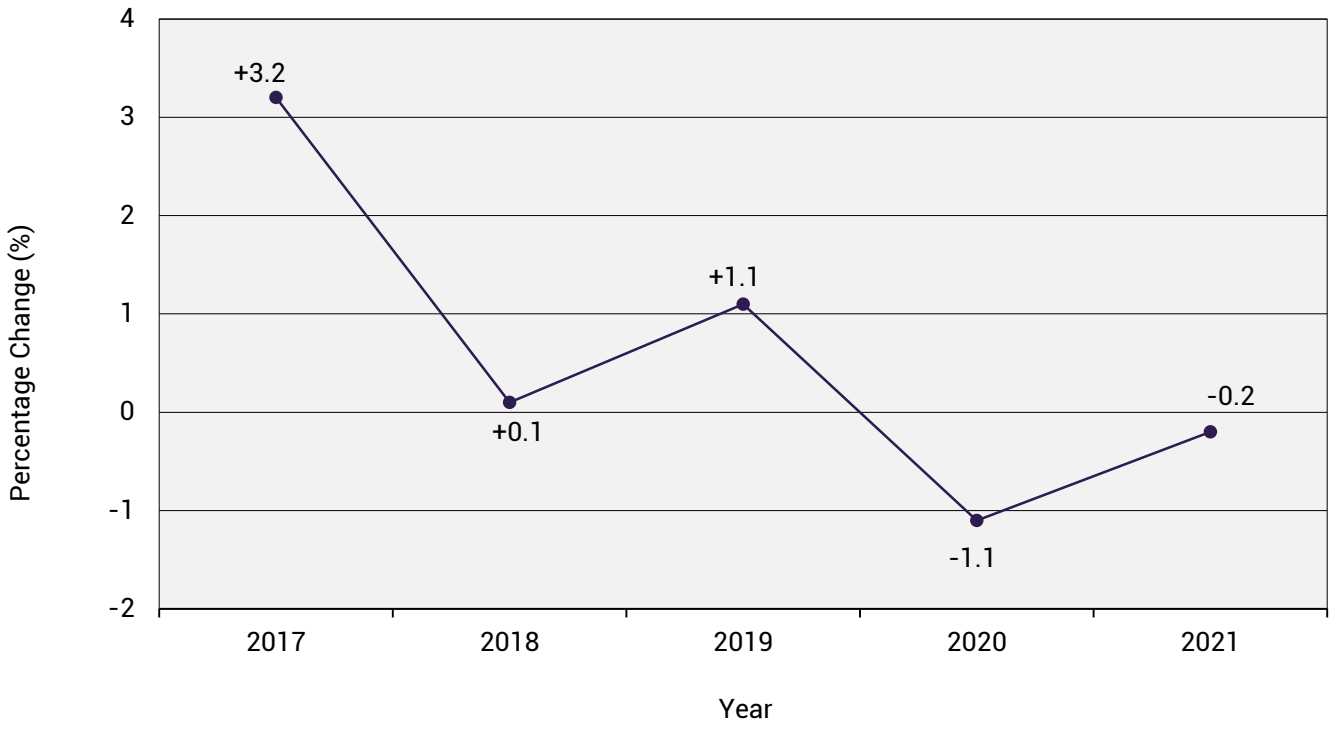
| | Year | | | | |
|---|---|---|---|---|---|
| Type | 2017 | 2018 | 2019 | 2020 | 2021 |
| Total | 49,019 | 49,087 r | 49,647 | 49,114 r | 48,994 |
| Percentage change (%) | +3.2 | +0.1 | +1.1 | -1.1 | -0.2 |
| Private Cars | 22,046 | 22,151 | 22,238 | 22,515 | 22,757 |
| Motorcycles & Scooters | 17,148 | 17,438 | 17,857 | 18,042 | 17,878 |
| Auxiliary & Livery Cycles | 3,925 | 3,547 | 3,351 | 2,392 | 2,122 |
| Trucks | 3,742 | 3,762 | 3,778 | 3,806 | 3,904 |
| Taxis | 555 | 557 | 573 | 558 | 535 |
| Tractors & Tractor Trailers[3] | 280 | 268 | 351 | 329 | 341 |
| Government Private (GP) Vehicles[4] | 272 | 246 | 245 | 238 | 228 |
| Trailers | 258 | 276 | 280 | 261 r | 267 |
| Buses, Minibuses & Limousines | 250 | 258 | 292 | 295 | 276 |
| Rental Minicars[5] | 40 | 89 | 191 | 195 | 190 |
| Light Private Cars | 71 | 63 | 64 | 68 | 72 |
| Ambulances & Fire Engines | 47 | 48 | 46 | 45 | 45 |
| Construction Vehicles[6] | 45 | 47 | 44 | 38 | 37 |
| Military Vehicles | 42 | 49 | 47 | 50 | 53 |
| Other [7] | 298 | 288 r | 290 | 282 | 289 |

*Source: Transport Control Department*

[1] Number of vehicles for which a valid license was in effect as of 31st December.
[2] This table format was revised in 2021.
[3] Includes farm tractors.
[4] Includes cars (classes A-H) and government minibuses.
[5] Rental minicars were introduced in 2017.
[6] Includes cement mixers.
[7] Includes classic cars, community service vehicles, doctors' cars, garbage trucks, hearses, instructional vehicles, loaner vehicles, locomotives, police utility vehicles, public carriages and sporting associations.

*Chart 5.2*

## PERCENTAGE CHANGE IN REGISTERED ROAD VEHICLES, 2017-2021




*Source: Transport Control Department*

# AGRICULTURE

**The Agriculture Section includes tables and charts on the importation of fertilizers and pesticides to Bermuda.**

## FERTILIZERS AND PESTICIDES

- In 2021, the value of fertilizers imported into Bermuda totaled $655,363 for 247,476 kg, an 18.5 percent decrease from 2020 (Table 6.1).
- Other fertilizers accounted for 60.2 percent of the total value of fertilizers imported to Bermuda in 2021 (Table 6.1).
- In 2021, the total value of pesticides imported into Bermuda fell to approximately $3.2 million for 468,629 kg, a 9.0 percent decrease from 2020 (Table 6.2).
- Disinfectants accounted for less than half (48.8%) of the total value of pesticides imported to Bermuda in 2021 (Table 6.2).

*Table 6.1*

## IMPORTED FERTILIZERS BY TYPE, 2019–2021

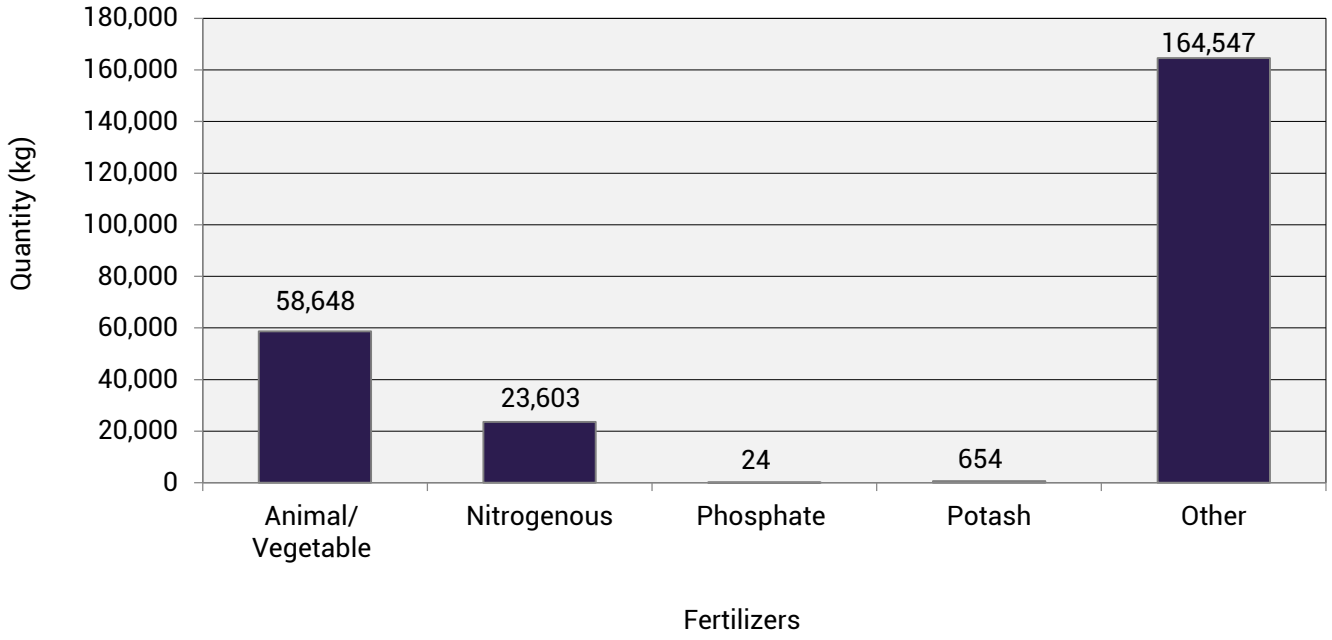
| | Year | | | | | |
|---|---|---|---|---|---|---|
| | 2019 | | 2020 | | 2021 | |
| Category | Value ($) | Quantity (kg) | Value ($) | Quantity (kg) | Value ($) | Quantity (kg) |
| Total | 631,678 | 285,545 | 803,979 | 305,061 | 655,363 | 247,476 |
| Percentage change (%) | -1.1 | +0.4 | +27.3 | +6.8 | -18.5 | -18.9 |
| Animal/Vegetable fertilizers | 129,279 | 53,951 | 166,400 | 48,657 | 196,980 | 58,648 |
| Nitrogenous fertilizers | 77,176 | 38,994 | 68,327 | 50,134 | 58,804 | 23,603 |
| Phosphate fertilizers | — | — | 2,703 | 62 | 1,859 | 24 |
| Potash fertilizers | 4,448 | 6,308 | 1,189 | 158 | 3,488 | 654 |
| Other fertilizers [1] | 420,774 | 186,292 | 565,359 | 206,051 | 394,231 | 164,547 |

*Source: Department of Statistics*

[1] Other fertilizers include mixtures of two or three of the fertilizing elements nitrogen, phosphorus or potassium.

*Chart 6.1*

## IMPORTED FERTILIZERS BY TYPE, 2021




*Source: Department of Statistics*

*Table 6.2*

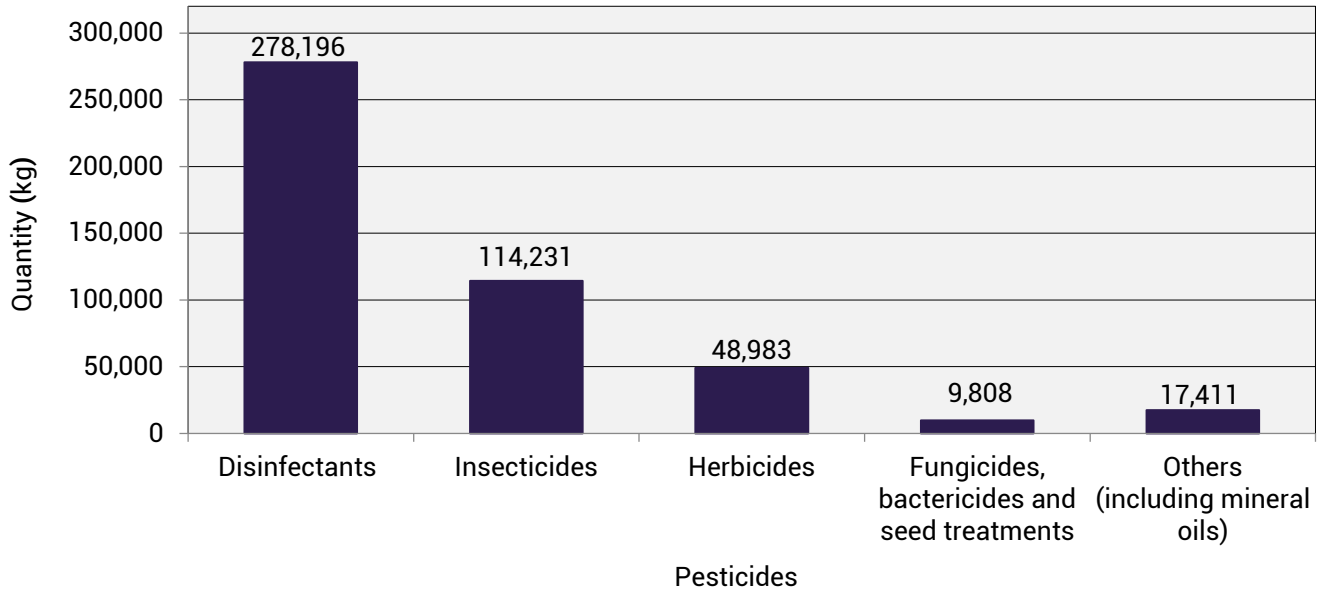
## IMPORTED PESTICIDES BY TYPE, 2019–2021

| Category | Year | | | | | |
|---|---|---|---|---|---|---|
| | 2019 | | 2020 | | 2021 | |
| | Value ($) | Quantity (kg) | Value ($) | Quantity (kg) | Value ($) | Quantity (kg) |
| Total | 2,079,537 | 360,631 | 3,543,550 | 793,217 | 3,225,713 | 468,629 |
| Percentage change (%) | +5.9 | +4.7 | +70.4 | +120.0 | -9.0 | -40.9 |
| Disinfectants | 677,375 | 79,651 | 2,112,056 | 543,825 | 1,572,918 | 278,196 |
| Insecticides | 821,973 | 107,475 | 876,168 | 92,242 | 1,098,756 | 114,231 |
| Herbicides | 305,915 | 62,388 | 214,340 | 57,948 | 280,167 | 48,983 |
| Fungicides, bactericides and seed treatments | 80,377 | 15,282 | 91,388 | 19,909 | 82,742 | 9,808 |
| Others (including mineral oils) | 193,896 | 95,835 | 249,598 | 79,293 | 191,130 | 17,411 |

*Source: Department of Statistics*

*Chart 6.2*

## IMPORTED PESTICIDES BY TYPE, 2021




*Source: Department of Statistics*

# LAND USE

**The data in the Land Use Section was collected in 2001 and 2016, respectively by the Department of Planning and has not been updated.**

## LAND USE

- Residential land occupied 46.7 percent of all land in Bermuda, covering roughly 6,210 acres of land (Table 7.1).
- 4,335 acres were dedicated to open space land use which is comprised of nature reserves, rural areas, golf courses, recreational spaces and other open spaces. This represents nearly one-third (32.6%) of Bermuda's land (Table 7.1).
- Land use for commercial purposes (such as retail and office space) accounted for 2.0 percent of all occupied land space in Bermuda (Table 7.1).

## PARISHES

- A comparison of land use by parish showed that St. George's holds the largest share of land (2,162.7 acres) and Pembroke has the least (1,170.3 acres) (Table 7.2.1).

## MUNICIPALITIES

- Among the two municipalities, the City of Hamilton occupies the least amount of land in Bermuda (176.3 acres) and the Town of St. George holds the most (341.0 acres) (Table 7.2.1).

**Note**: The Land Use Section uses data collected from the Department of Planning, Land Use Survey 2001 and 2016, respectively. In some tables, figures will not be comparable.

*Table 7.1*

# LAND USE, 2016

| Main Use | Sub-Category | Total Area (Acres) | Percentage Distribution |
|---|---|---|---|
| Total | | 13,289.3 | 100.0 |
| Residential | Total | 6,209.8 | 46.7 |
| | Housing | 5,924.1 | 44.5 |
| | Condos | 257.7 | 1.9 |
| | Institutional | 28.0 | 0.2 |
| Open space | Total | 4,335.0 | 32.6 |
| | Nature reserve | 1,231.4 | 9.3 |
| | Rural | 1,088.7 | 8.2 |
| | Other | 960.7 | 7.2 |
| | Golf courses | 790.1 | 5.9 |
| | Recreation | 264.1 | 2.0 |
| Utilities | Total | 752.0 | 5.7 |
| | Airport | 548.6 | 4.1 |
| | Waste | 89.7 | 0.7 |
| | Transport | 44.0 | 0.3 |
| | BELCO | 37.9 | 0.3 |
| | Docks | 31.8 | 0.2 |
| Institutional | Total | 580.6 | 4.4 |
| | Education | 258.0 | 1.9 |
| | Religious | 106.0 | 0.8 |
| | Government | 78.1 | 0.6 |
| | Police | 31.5 | 0.2 |
| | Hospital | 34.7 | 0.3 |
| | Prison | 29.3 | 0.2 |
| | Social | 43.0 | 0.3 |
| Tourism | Total | 293.2 | 2.2 |
| | Cottage colonies | 185.4 | 1.4 |
| | Hotels | 107.8 | 0.8 |
| Industrial | Total | 313.4 | 2.4 |
| | General | 197.9 | 1.5 |
| | Light industrial | 65.2 | 0.5 |
| | Quarry | 50.3 | 0.4 |
| Vacant | Total | 553.7 | 4.2 |
| | Vacant land | 506.2 | 3.8 |
| | Vacant buildings | 47.5 | 0.4 |
| Commercial | Total | 260.7 | 2.0 |
| | Retail | 144.8 | 1.1 |
| | Office | 64.4 | 0.5 |
| | Mixed-use | 51.5 | 0.4 |

*Source: Department of Planning, Land Use Survey 2016*

The 2016 Land Use Survey was based on the 2012 digital survey of the islands, whose coastline was probably taken at the high water mark hence the discrepancy in total area which now stands at 13,430.4 acres (low tide mark) in 2007 as a result of the more accurate 2003 Topographic Mapping Database.

*Table 7.2.1*

# LAND USE BY PARISH, CITY AND TOWN IN ACRES, 2001

| Main Use / Sub-Category | Parish/Town/City | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | St. George's | Town of St. George | Hamilton | Smith's | Devonshire | Pembroke | The City of Hamilton | Paget | Warwick | South-ampton | Sandy's |
| **Total** | **2,162.7** | **341.0** | **1,312.2** | **1,216.3** | **1,221.4** | **1,170.3** | **176.3** | **1,303.0** | **1,415.4** | **1,511.7** | **1,438.4** |
| Residential | 450.3 | 98.6 | 585.4 | 709.7 | 562.4 | 758.1 | 27.4 | 803.6 | 707.0 | 610.7 | 669.5 |
| Housing | 444.2 | 95.9 | 570.1 | 696.0 | 527.2 | 742.8 | 25.7 | 780.0 | 686.2 | 586.1 | 645.4 |
| Condos | 6.1 | 2.7 | 15.3 | 10.6 | 28.0 | 11.9 | – | 21.8 | 20.8 | 24.6 | 20.4 |
| Institutional | – | – | – | 3.1 | 7.2 | 3.5 | 1.7 | 1.8 | – | – | 3.7 |
| Open space | 715.6 | 138.8 | 611.3 | 432.7 | 499.3 | 132.3 | 7.9 | 296.8 | 584.8 | 614.4 | 383.0 |
| Nature reserve | 296.4 | 8.4 | 156.2 | 106.0 | 163.7 | 74.0 | 6.4 | 70.3 | 164.5 | 104.3 | 107.8 |
| Other | 218.9 | 30.2 | 167.9 | 75.3 | 57.0 | 25.4 | 1.5 | 59.3 | 65.3 | 121.7 | 124.0 |
| Golf courses | 139.5 | 79.7 | 127.7 | – | 76.6 | – | – | 10.8 | 171.0 | 198.1 | 5.4 |
| Recreation | 36.0 | – | 9.1 | 24.8 | 35.4 | 27.3 | – | 4.2 | 53.4 | 16.9 | 33.9 |
| Rural | 24.9 | 20.4 | 150.4 | 226.6 | 166.6 | 5.7 | – | 152.2 | 130.7 | 173.5 | 111.9 |
| Utilities | 606.2 | 9.4 | 10.8 | 6.7 | 23.5 | 23.5 | 26.4 | – | – | 4.7 | 20.2 |
| Airport | 548.4 | – | – | – | – | – | – | – | – | – | – |
| Waste | 37.0 | 2.4 | 10.8 | – | 14.1 | – | – | – | – | – | 2.7 |
| Transport | 10.2 | 3.2 | – | – | 5.0 | 3.2 | 16.1 | – | – | 3.3 | 2.5 |
| Docks | 6.5 | 3.7 | – | – | – | – | 10.3 | – | – | – | 15.1 |
| BELCO | 4.1 | – | – | 6.7 | 4.4 | 20.3 | – | – | – | 1.4 | – |
| Institutional | 48.1 | 33.9 | 13.0 | 15.8 | 72.6 | 96.2 | 29.9 | 66.4 | 54.6 | 30.7 | 60.6 |
| Education | 27.3 | 20.4 | 8.9 | 11.3 | 36.0 | 47.8 | 4.4 | 27.9 | 28.0 | 17.0 | 25.3 |
| Police | 15.5 | 0.5 | – | – | 9.3 | 1.3 | 1.1 | – | 9.0 | 6.8 | 15.4 |
| Religious | 2.3 | 10.0 | 4.1 | 4.5 | 5.0 | 15.7 | 6.6 | 10.3 | 10.3 | 6.9 | 11.9 |
| Prison | 1.5 | – | – | – | – | 2.8 | 5.3 | 4.6 | 2.6 | – | – |
| Government | 1.5 | 2.9 | – | – | 11.0 | 25.5 | 12.5 | 8.9 | – | – | 1.2 |
| Hospital | – | – | – | – | 11.3 | – | – | 14.7 | – | – | 3.2 |
| Social | – | – | – | – | – | 3.2 | – | – | 4.7 | – | 3.7 |

*Source: Department of Planning, Land Use Survey 2001*

The 2001 Land Use Survey was based on the 1997 digital survey of the islands, whose coastline was probably taken at the high water mark hence the discrepancy in total area which now stands at 13,430.4 acres (low tide mark) in 2007 as a result of the more accurate 2003 Topographic Mapping Database.

*Table 7.2.2*

# LAND USE BY PARISH, CITY AND TOWN IN ACRES, 2001

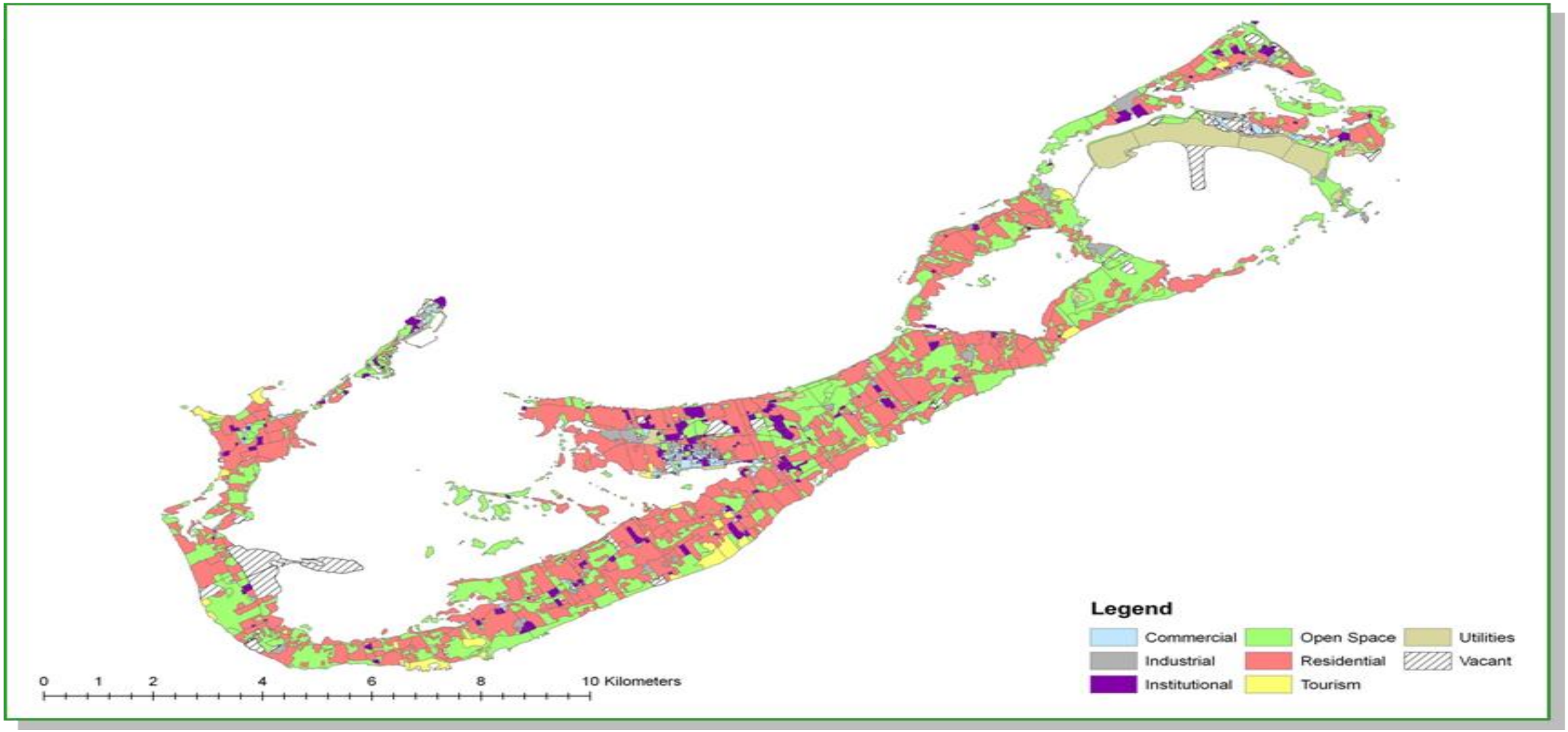
| Main Use / Sub-Category | Parish/Town/City | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | St. George's | Town of St. George | Hamilton | Smith's | Devonshire | Pembroke | The City of Hamilton | Paget | Warwick | South-ampton | Sandy's |
| Tourism | 4.0 | 10.2 | 18.7 | 15.3 | 14.2 | 15.7 | — | 112.1 | 8.7 | 88.7 | 44.7 |
| Cottage colonies | 4.0 | 10.2 | 18.7 | 15.3 | 14.2 | 3.0 | — | 62.4 | 8.7 | 23.6 | 44.7 |
| Hotels | — | — | — | — | — | 12.7 | — | 49.8 | — | 65.2 | — |
| Industrial | 99.6 | 8.9 | 47.5 | 21.1 | 18.9 | 55.6 | 12.3 | 4.1 | 18.0 | 21.8 | 13.9 |
| General | 66.6 | 1.3 | 11.5 | 9.5 | 11.3 | 52.9 | 6.0 | 0.7 | 7.8 | 18.9 | 13.9 |
| Light industrial | 33.0 | 7.6 | — | — | 7.5 | 2.7 | 6.4 | 3.4 | 1.0 | 2.9 | — |
| Quarry | — | — | 36.0 | 11.6 | — | — | — | — | 9.2 | — | — |
| Vacant | 206.5 | 29.1 | 14.0 | 12.2 | 19.5 | 60.5 | 3.6 | 3.1 | 30.8 | 130.2 | 219.4 |
| Vacant land | 155.4 | 10.3 | — | 12.2 | 19.5 | 60.5 | 3.6 | — | 21.3 | 130.2 | 197.1 |
| Vacant buildings | 51.2 | 18.8 | 14.0 | — | — | — | — | 3.1 | 9.5 | — | 22.3 |
| Commercial | 32.5 | 10.6 | 11.0 | 2.9 | 10.8 | 27.2 | 66.8 | 16.4 | 9.1 | 10.2 | 27.0 |
| Office | 19.0 | — | — | — | 4.2 | 15.1 | 16.9 | 6.6 | — | — | — |
| Retail | 13.5 | 6.3 | 11.0 | 2.9 | 6.6 | 12.1 | 17.7 | 9.8 | 9.1 | 10.2 | 27.0 |
| Mixed-use | — | 4.3 | — | — | — | — | 32.2 | — | — | — | — |

*Source: Department of Planning, Land Use Survey 2001*

The 2001 Land Use Survey was based on the 1997 digital survey of the islands, whose coastline was probably taken at the high water mark hence the discrepancy in total area which now stands at 13,430.4 acres (low tide mark) in 2007 as a result of the more accurate 2003 Topographic Mapping Database.

*Map 7.1*

## LAND USE BY PARISH, CITY AND TOWN IN ACRES, 2001




*Source: Department of Planning, Land Use Survey 2001*

# COASTAL AND MARINE RESOURCES

**This Section includes information on various marine areas by name, location, activities permitted in these areas and the date they were established in Bermuda. It also provides information about Bermuda's fishing industry.**

## MARINE PROTECTED AREAS BY CATEGORY AND AREA

- Bermuda's total marine area covers 4,236.1 $km^2$ , of which 7.0 percent or 294.7 $km^2$ is classified as protected marine area (Table 8.1 and Chart 8.1).
- There are 29 protected dive sites located in Bermuda covering an area of 13.9 $km^2$ (Table 8.2).
- A total of 12 marine parks have been established in Bermuda covering an area of 1.9 $km^2$ (Table 8.2).
- There are two fisheries seasonal protected areas that measure 153.4 $km^2$ (Table 8.2).
- Two coral reef preserves occupy a total of 131.1 $km^2$ (Table 8.2).

## FISHERIES

- Fish landings, excluding bait and shellfish, totaled 359.5 metric tonnes (mT) in 2021, an increase of 24.1 percent from 2020 (Table 8.4).
- Tuna and pelagic group remained the most popular catch at 186.8 mT, an increase of 29.8 percent from 2020 (Table 8.4).
- In 2021, 316 registered fishermen spent a total of 91,794 hours at sea. There was a 7.6 percent decrease in registered fishermen which accounted for 24,469 more hours spent at sea (Table 8.5).

**Note**: Bermuda measures 1 mile at its widest point. Based on the standard definition of coastal area, the entire island will be considered coastal.

*Table 8.1*

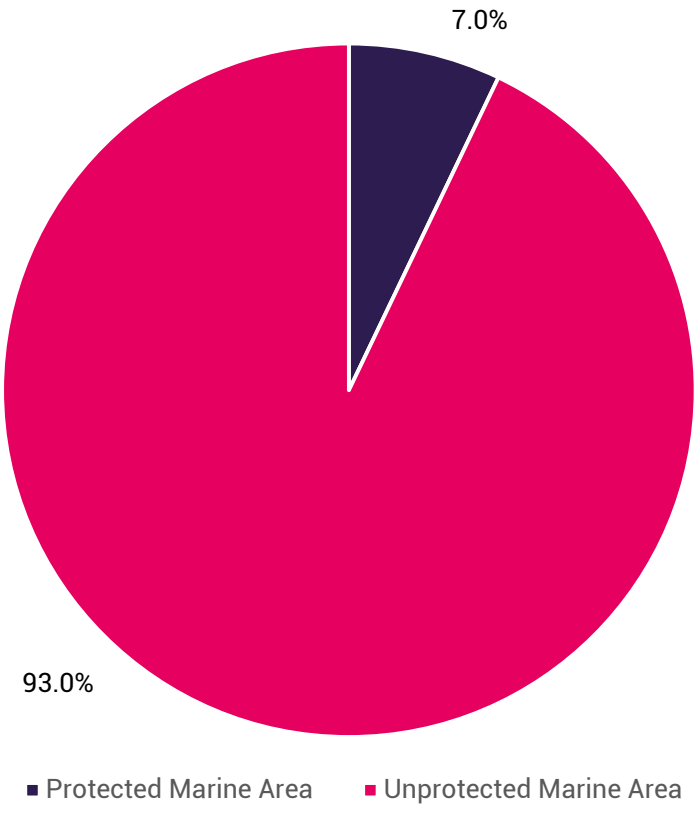
## TOTAL AND PROTECTED MARINE AREA, 2016

| Indicator | |
|---|---|
| Total land and marine area ($km^2$) | 4,289.7 |
| Total marine area ($km^2$) | 4,236.1 |
| Protected marine area ($km^2$) | 294.7 |
| Protected marine area as a % of total marine area | 7.0 |
| Protected marine area as a % of total land and marine area | 6.9 |

*Source: Department of Planning, Land Use Survey 2016*

*Chart 8.1*

## PROTECTED MARINE AREA AS A PERCENTAGE OF TOTAL MARINE AREA, 2016




*Source: Department of Planning, Land Use Survey 2016*

*Table 8.2*

# MARINE PROTECTED AREAS BY CATEGORY AND AREA, 2001

| Marine Protected Areas | Area ($km^2$) |
|---|---|
| Coral Reef Preserves | |
| Subtotal | 131.1 |
| North Shore Coral Reef Preserve | 126.3 |
| South Shore Coral Reef Preserve | 4.8 |
| | |
| Fisheries Seasonal Protected Areas | |
| Subtotal | 153.4 |
| South Western Area | 114.7 |
| North Eastern Area | 38.7 |
| | |
| Marine Parks | |
| Subtotal | 1.9 |
| Castle Island Marine Park | 0.7 |
| South Shore Marine Park | 0.4 |
| Cooper's Island Marine Park | 0.3 |
| Walsingham Marine Park | 0.2 |
| John's Smiths Bay Marine Park | 0.1 |
| Tobacco Bay Marine Park | 0.1 |
| Spittal Pond Marine Park | 0.1 |
| Church Bay Marine Park | 0.0 |
| Astwood Bay Marine Park | 0.0 |
| Shelly Bay Marine Park | 0.0 |
| Daniel's Head Marine Park | 0.0 |
| Somerset Long Bay Marine Park | 0.0 |

| Marine Protected Areas | Area ($km^2$) |
|---|---|
| Protected Dive Sites | |
| Subtotal | 13.9 |
| North Rock | 3.1 |
| SW Breaker | 1.1 |
| Eastern Blue Cut | 1.1 |
| Pelinaion | 0.8 |
| Hermes | 0.8 |
| Constellation | 0.8 |
| Cristobal Colon | 0.3 |
| NE Breaker | 0.3 |
| Taunton | 0.3 |
| Aristo | 0.3 |
| Mills Breaker | 0.3 |
| Cathedral | 0.3 |
| Kate | 0.3 |
| Tarpon Hole | 0.3 |
| Marie Celeste | 0.3 |
| North Carolina | 0.3 |
| Airplane | 0.3 |
| Blanche King | 0.3 |
| Darlington | 0.3 |
| L'Herminie | 0.3 |
| Lartington | 0.3 |
| Montana | 0.3 |
| Snake Pit | 0.3 |
| Hog Breaker | 0.3 |
| Caraquet | 0.3 |
| Madiana | 0.3 |
| Commissioner's Point | 0.1 |
| Xing Da | 0.1 |
| Vixen | 0.0 |

| Marine Protected Areas | Area ($km^2$) |
|---|---|
| Merged marine protected areas (no overlaps)[1] | 294.7 |
| Territorial area (net)[2] | 4,236.1 |

*Source: Department of Planning, Land Use Survey 2001*

[1] Total marine protected area does not equal to the sum of the sub-totals as it excludes any overlapping areas (5.3 $km^2$) to avoid double counting.

[2] Territorial area (net) means total water area and does not include the land area of 53.6 $km^2$.

*Table 8.3.1*

# MARINE PROTECTED AREAS AROUND BERMUDA, 2001

| Marine Protected Area/ No-Take Reserve | Year Established | Anchoring Permitted? | Scuba Diving Permitted? | No-Take Reserve? |
|---|---|---|---|---|
| North Shore Coral Reef Preserve | 1966 | Yes | Yes | Line fishing is permitted throughout this Preserve, as is lobster diving and spear fishing provided they are within the limits of the prevailing fisheries regulations. It is an offence to remove, damage or be in possession of plants or animals, whether dead or alive, which are attached to the coast, the seabed or any reef in this preserve. |
| South Shore Coral Reef Preserve | 1966 | Yes | Yes | Line fishing is permitted throughout this Preserve, as is lobster diving and spear fishing provided they are within the limits of the prevailing fisheries regulations. It is an offence to remove, damage or be in possession of plants or animals, whether dead or alive, which are attached to the coast, the seabed or any reef in this preserve. |
| Vixen (Wreck) | 1973 | No | Yes | Yes |
| The Eastern Area | Established in 1974 but in 1990 the area was expanded to the current size. | Yes | Yes | Seasonally protected area, no fishing from 1 May to 31 August. First act (1974) stated no fishing between 1 May and 15 August. This was amended in 1975 to 24 May and 15 August, in 1976 it was amended to 1 May and 15 August, in 1990 it was amended to 1 May and 30 September and finally in 1993 it was amended to 1 May and 31 August. Trolling for pelagic species is permitted seaward of the 30 fathom depth contour and shore fishing is also permitted. |
| The South Western Area | Established in 1974 but in 1990 the area was expanded to the current size. | Yes | Yes | Seasonally protected area, no fishing from 1 May to 31 August. First act (1974) stated no fishing between 1 May and 15 August. This was amended in 1975 to 24 May and 15 August, in 1976 it was amended to 1 May and 15 August, in 1990 it was amended to 1 May and 30 September and finally in 1993 it was amended to 1 May and 31 August. Trolling for pelagic species is permitted seaward of the 30 fathom depth contour and shore fishing is also permitted. |

*Source: Department of Environmental Protection*

*Table 8.3.2*

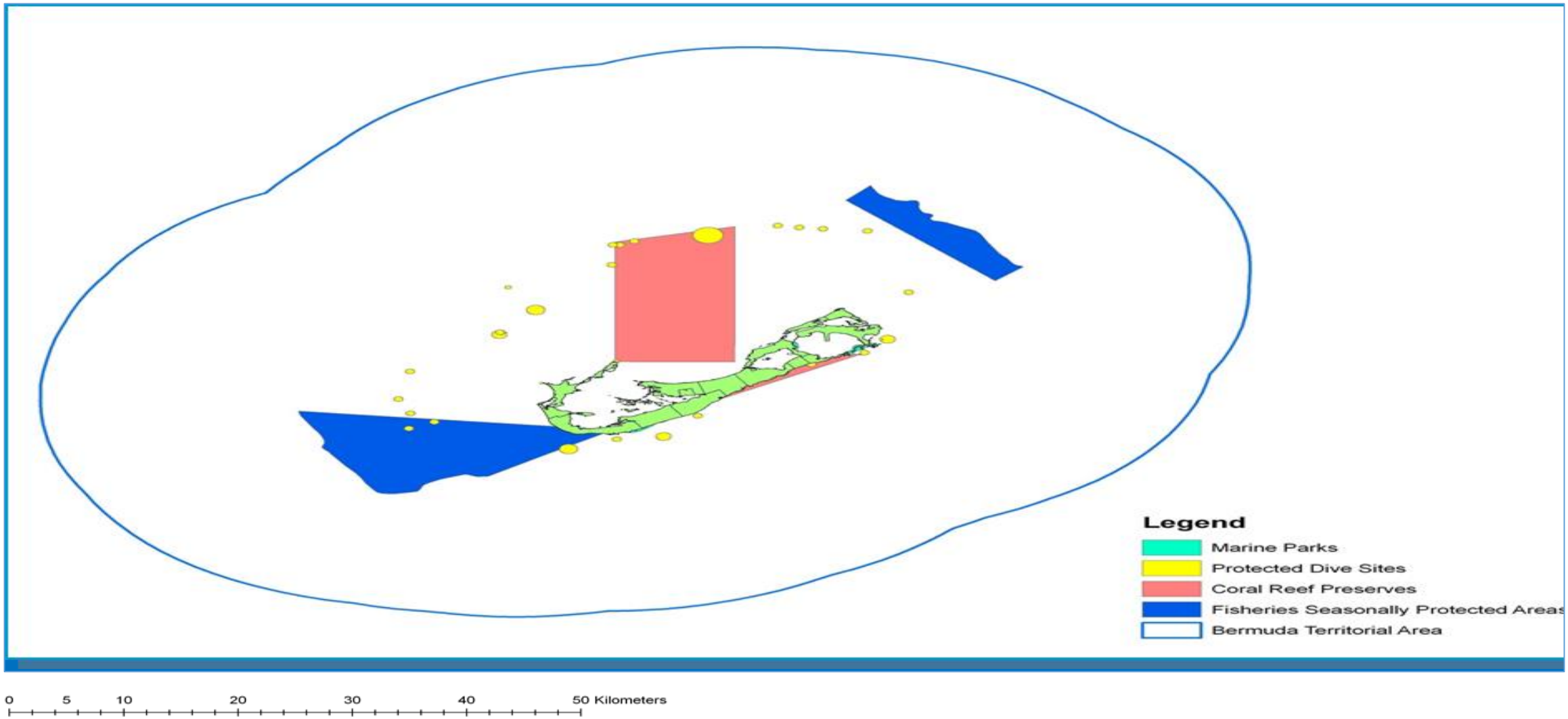
# MARINE PROTECTED AREAS AROUND BERMUDA, 2001

| Marine Protected Area/ No-Take Reserve | Year Established | Anchoring Permitted? | Scuba Diving Permitted? | No-Take Reserve? |
|---|---|---|---|---|
| Constellation (Wreck) | 1988 | No | Yes | Yes |
| South West Breaker Area | 1988 | No | Yes | Yes |
| Eastern Blue Cut | 1989 | No | Yes | Yes |
| Pelinaion and Rita Zovetta Wrecks) | 1989 | No | Yes | Yes |
| Kate (Wreck) | 1989 | No | Yes | Yes |
| Hermes and Minnie Bressleur (Wrecks) | 1989 | No | Yes | Yes |
| North Rock | 1990 | No | Yes | Yes |
| The North Eastern Area | 1990<br>It was merged in 2005 with the Eastern Area and redesigned. | Yes | Yes | Seasonally protected area, no fishing from 1 May to 31 August. Initially there was no fishing between 1 May and 30 September, but in 1993 this was amended to 1 May and 31 August. Trolling for pelagic species is permitted seaward of the 30 fathom depth contour and shore fishing is also permitted. |
| Walsingham Marine Reserve | 1991 | No | Yes | Yes |
| Commissioner's Pt. Area | 1996 | No | Yes | Yes |
| Xing Da (Wreck) | 1997 | No | Yes | Yes |
| Cristobal Colon (Wreck) | 2000 | No | Yes | Yes |
| North East Breaker | 2000 | No | Yes | Yes |
| Taunton (Wreck) | 2000 | No | Yes | Yes |
| Aristo (Wreck) | 2000 | No | Yes | Yes |
| Mills Breaker | 2000 | No | Yes | Yes |
| The Cathedral | 2000 | No | Yes | Yes |
| Tarpon Hole | 2000 | No | Yes | Yes |
| Marie Celeste (Wreck) | 2000 | No | Yes | Yes |
| North Carolina (Wreck) | 2000 | No | Yes | Yes |
| Airplane (Wreck) | 2000 | No | Yes | Yes |
| Blanche King (Wreck) | 2000 | No | Yes | Yes |
| Darlington (Wreck) | 2000 | No | Yes | Yes |
| L'Herminie (Wreck) | 2000 | No | Yes | Yes |
| Lartington (Wreck) | 2000 | No | Yes | Yes |
| Montana (Wreck) | 2000 | No | Yes | Yes |
| Snake Pit | 2000 | No | Yes | Yes |
| Hog Breaker | 2000 | No | Yes | Yes |
| Caraquet (Wreck) | 2000 | No | Yes | Yes |
| Madiana (Wreck) | 2000 | No | Yes | Yes |

*Source: Department of Environmental Protection*

*Map 8.1*

## MARINE PROTECTED AREAS, 2001




*Source: Department of Planning, Land Use Survey 2001*

*Table 8.4*

# QUANTITY OF FISH LANDINGS BY TYPE, 2017–2021

| | Year | | | | |
|---|---|---|---|---|---|
| Species Group (mT) | 2017 | 2018 | 2019 | 2020 | 2021 |
| Total including bait and shellfish | 385.0 | 353.8 | 376.6 | 354.6 | 415.0 |
| Percentage change (%) | -4.4 | -8.1 | +6.4 | -5.8 | +17.0 |
| Total fish | 320.7 | 295.5 | 306.6 | 289.7 | 359.5 |
| Tuna and pelagic | 151.5 | 133.9 | 160.2 | 143.9 | 186.8 |
| Groupers | 45.1 | 55.2 | 49.4 | 49.2 | 56.1 |
| Jacks and related species | 41.0 | 40.7 | 41.6 | 53.5 | 53.7 |
| Snappers | 53.5 | 42.1 | 37.1 | 27.3 | 38.9 |
| Miscellaneous | 25.2 | 20.6 | 15.3 | 14.3 | 22.4 |
| Sharks | 4.4 | 3.1 | 3.0 | 1.5 | 1.6 |
| Bait | 35.5 | 32.2 | 37.6 | 33.0 | 34.2 |
| Shellfish[1] | 28.8 | 26.2 | 32.4 | 31.9 | 21.3 |

*Source: Department of Environmental and Natural Resources, Marine Management Section*

[1] Shellfish includes spiny lobster.

*Table 8.5*

# TOTAL CATCH BY HOURS AT SEA, AVERAGE CATCH OF FISHING AREA AND NUMBER OF REGISTERED FISHERMEN, 2017–2021

| | Year | | | | |
|---|---|---|---|---|---|
| Indicators | 2017 | 2018 | 2019 | 2020 | 2021 |
| Total catch[1] (mT) | 385.0 | 353.8 | 376.6 | 354.6 | 415.0 |
| Percentage change (%) | -4.4 | -8.1 | +6.4 | -5.8 | +17.0 |
| Average catch of fishing area[2] (mT per km$^2$) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total hours at sea | 74,019 | 72,231 | 68,868 | 67,325 | 77,233 |
| Percentage change (%) | +9.3 | -2.4 | -4.7 | -2.2 | +14.7 |
| Total number of licences[3] | 174 | 168 | 167 | 172 | 162 |
| Percentage change (%) | -1.1 | -3.4 | -0.6 | +3.0 | -5.8 |
| Total hours at sea per licence | 425.4 r | 429.9 r | 412.4 r | 391.4 r | 476.7 |
| Percentage change (%) | +10.6 r | +1.1 r | -4.1 r | -5.1 | +21.8 |
| Total registered fishermen | 325 | 315 | 309 | 342 | 316 |
| Percentage change (%) | +17.3 | -3.1 | -1.9 | +10.7 | -7.6 |

*Source: Department of Environmental and Natural Resources, Marine Management Section*

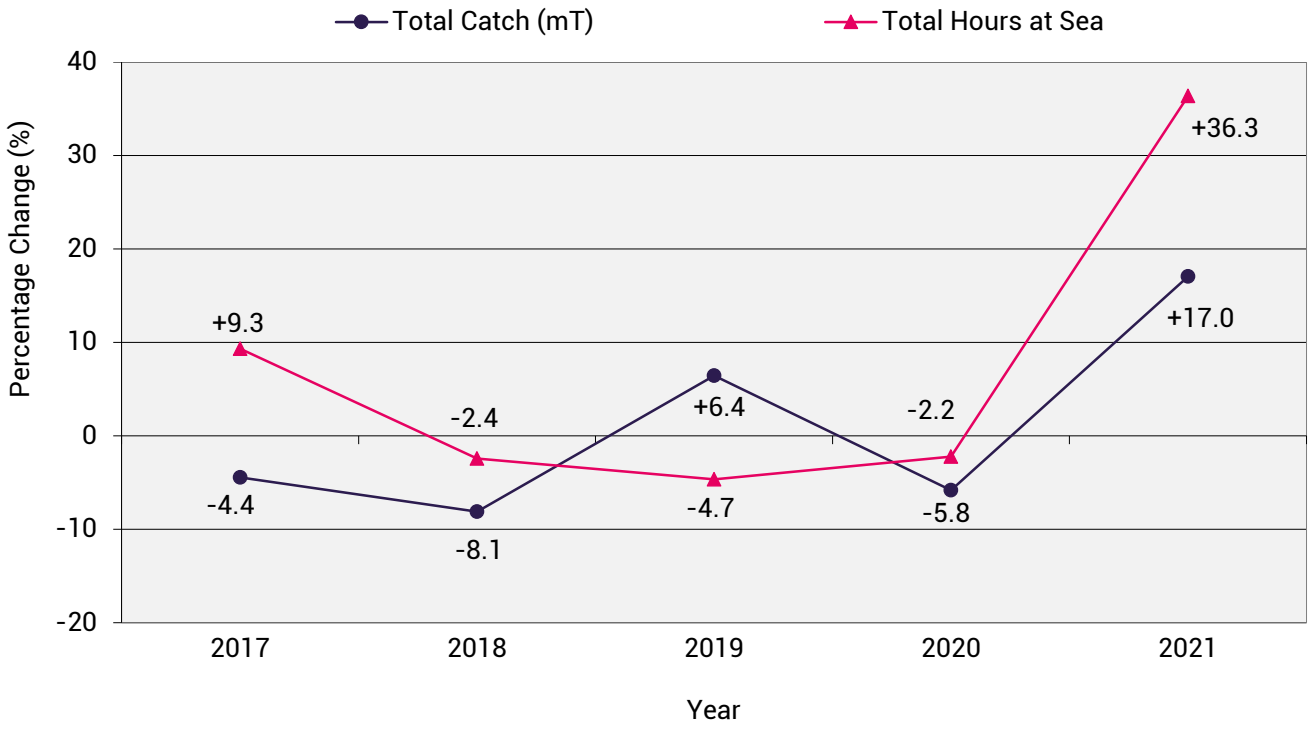
[1] Total catch include fish landings in addition to bait and lobster catches.

[2] Total fishing area is estimated as 4,236.1 km$^2$ (Department of Planning, see Table 8.1). Fishing area includes the fisheries seasonal protected areas (153.4 km$^2$) which are closed between May 1st and August 31st.

[3] Some licences have a smaller ancillary vessel attached.

*Chart 8.2*

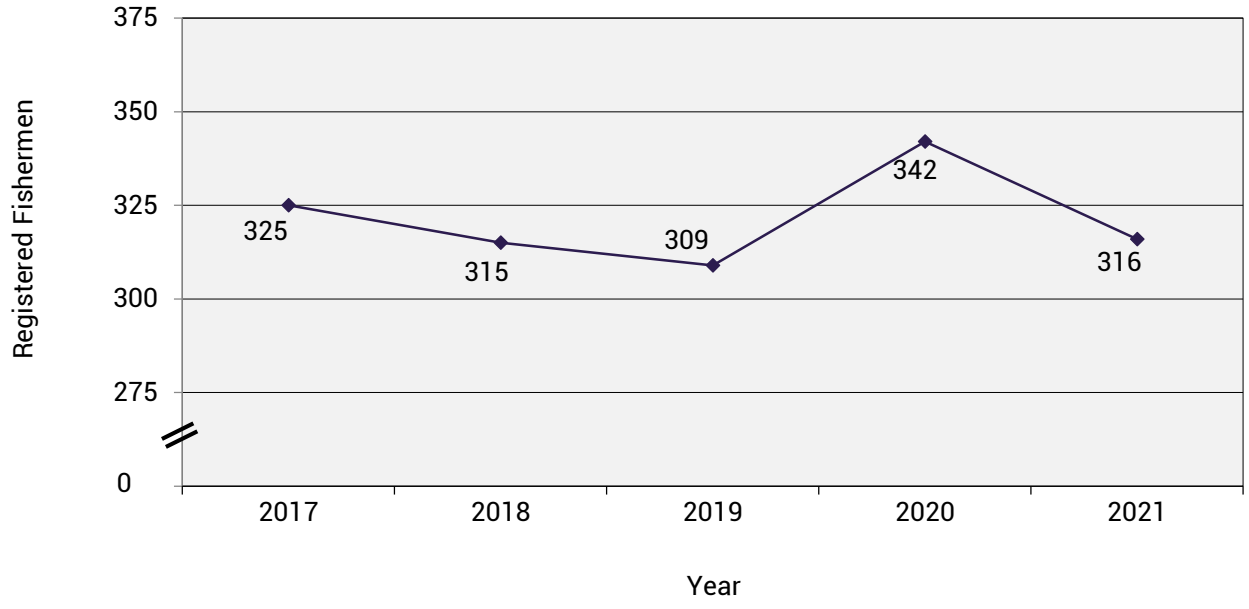
## GROWTH IN TOTAL CATCH AND TOTAL HOURS AT SEA, 2017-2021




*Source: Department of Environmental and Natural Resources, Marine Management Section*

*Chart 8.3*

## NUMBER OF REGISTERED FISHERMEN, 2017-2021




*Source: Department of Environmental and Natural Resources, Marine Management Section*

*Table 8.6*

## NUMBER OF HOUSEHOLDS AND POPULATION OF COASTAL AREAS FOR SELECTED CENSUS YEARS

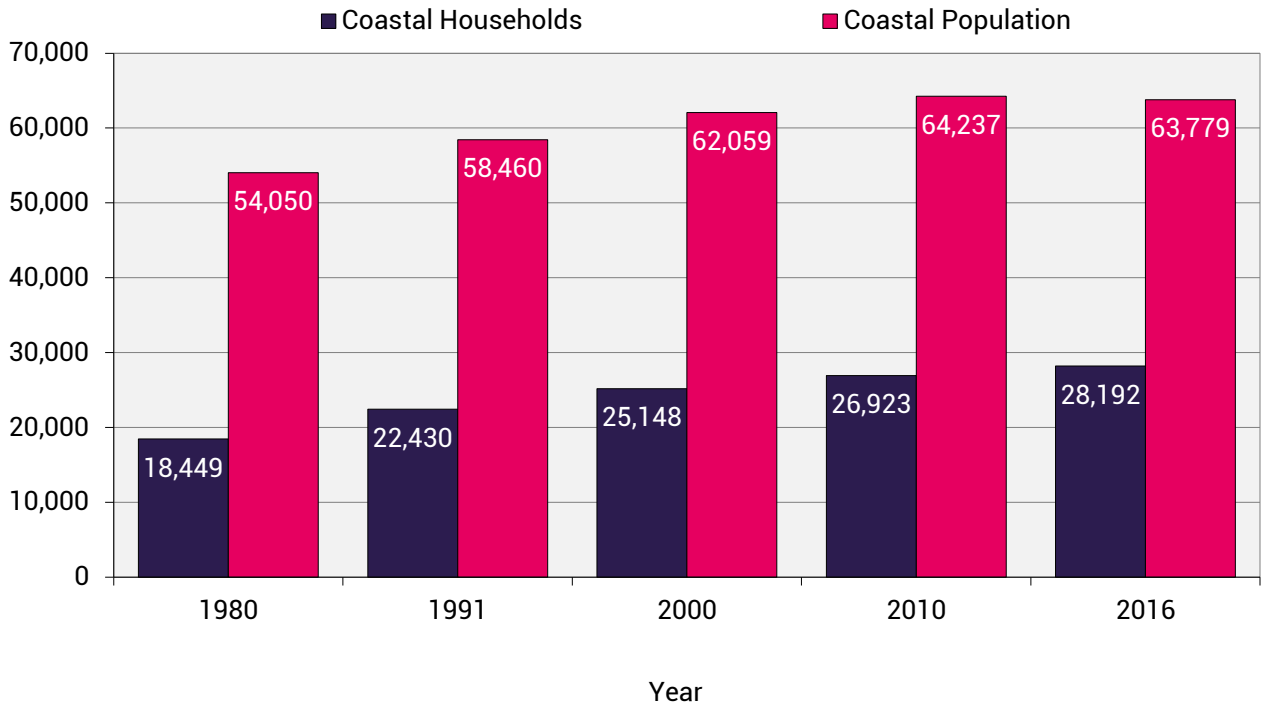
| | Census Years | | | | |
|---|---|---|---|---|---|
| Indicators | 1980 | 1991 | 2000 | 2010 | 2016 |
| Number of households in coastal areas | 18,449 | 22,430 | 25,148 | 26,923 | 28,192 |
| Percentage change (%) | .. | +21.6 | +12.1 | +7.1 | +4.7 |
| Population in coastal areas [1] | 54,050 | 58,460 | 62,059 | 64,237 | 63,779 |
| Percentage change (%) | .. | +8.2 | +6.2 | +3.5 | -0.7 |

*Sources: 1980 to 2016 Population and Housing Censuses*

[1] Does not include the non-sheltered and institutionalized populations.

*Chart 8.4*

## NUMBER OF HOUSEHOLDS AND POPULATION OF COASTAL AREAS FOR SELECTED CENSUS YEARS




*Sources: 1980 to 2016 Population and Housing Censuses*

# BIODIVERSITY

**The Biodiversity Section contains information on the protected land areas in Bermuda such as; protected coastal reserves, protected open space, historical cove areas and parks.**

## PROTECTED AREA: LAND AND WATER

- Bermuda's protected area, inclusive of land and water, totals 319.6 $km^2$. This represents 7.5 percent of the total area (6.9% water and 0.6% land) (Table 9.1).
- As a proportion of the total land area (53.6 $km^2$), protected land area represents 46.5 percent or 24.9 $km^2$. Protected water area represents 7.0 percent of 294.7 $km^2$ of the total water area (Table 9.1).

# NOTE TO READER

**Biodiversity**: the range of genetic differences, species differences, and ecosystem differences in a given area.

**Protected Area**: is legally established land or water area under either public or private ownership that is regulated and managed to achieve specific conservation objectives. A protected area, as adopted by the International Union for Conservation of Nature (IUCN), is defined as an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, natural and associated cultural resources and managed through legal or other effective means. It includes seven (7) categories which are:

Category Ia: Strict Nature Reserve
Category Ib: Wilderness Area
Category II: National Park
Category III: National Monument
Category IV: Habitat/Species Management Area
Category V: Protected Landscape/Seascape
Category VI: Managed Resource Protected Area

**Total Area:** Total area (of country) including area under inland water bodies, but excluding off-shore territorial waters (= total land area + water).

*Source: CARICOM Environment Programme*

*Table 9.1*

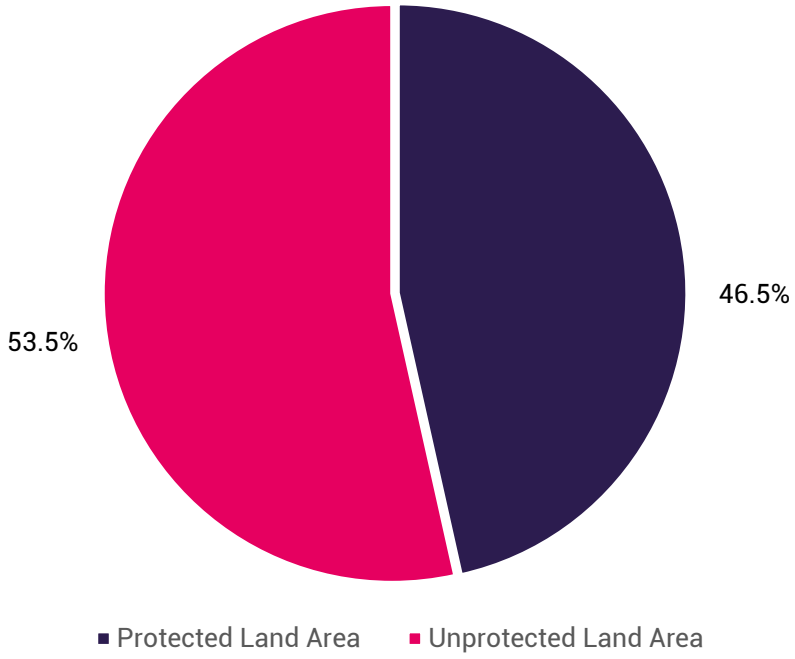
# PROTECTED AREAS, 2016

| Category | |
|---|---|
| Total area ($km^2$) | 4,289.7 |
| Total land area (low tide mark) ($km^2$) | 53.6 |
| Total water area ($km^2$) | 4,236.1 |
| Protected land area ($km^2$) | 24.9 |
| Protected land area as a % of total land area | 46.5 |
| Protected land area as a % of total area | ** |
| Protected water area ($km^2$) | 294.7 |
| Protected water area as a % of total water area | 7.0 |
| Protected water area as a % of total area | 6.9 |
| Total protected area (land and water) ($km^2$) | 319.6 |
| Total protected area as a % of total area | 7.5 |

*Source: Department of Planning, Land Use Survey 2016*

*Chart 9.1*

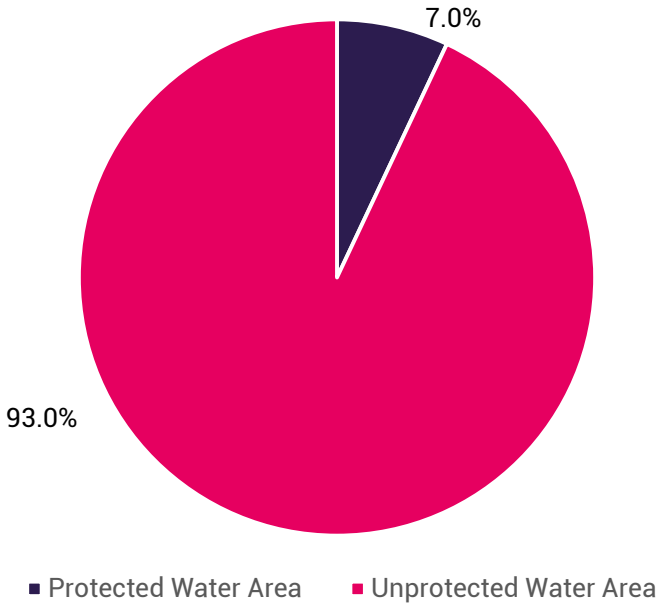
## PROTECTED LAND AREA AS A PERCENTAGE OF TOTAL LAND AREA, 2016




*Source: Department of Planning, Land Use Survey 2016*

*Chart 9.2*

## PROTECTED WATER AREA AS A PERCENTAGE OF TOTAL WATER AREA, 2016




*Source: Department of Planning, Land Use Survey 2016*

*Table 9.2*

# PROTECTED AREAS BY CATEGORY AND AREA, 2008

| Protected Area Category | Acres | $km^2$ |
|---|---|---|
| Conservation base zones | | |
| Sub-total | 4,740.0 | 19.2 |
| Open space reserve | 1,298.1 | 5.3 |
| Recreation | 963.9 | 3.9 |
| Park | 884.6 | 3.6 |
| Coastal reserve | 823.3 | 3.3 |
| Nature reserve | 770.1 | 3.1 |
| Conservation areas | | |
| Sub-total | 1,715.5 | 6.9 |
| Woodland reserve | 983.9 | 4.0 |
| Agricultural reserve | 731.6 | 3.0 |
| Cave protection area | 1,107.2 | 4.5 |
| Historic protection area | 201.1 | 0.8 |
| Conservation base zone and conservation areas (no overlap)[1] | 6,156.8 | 24.9 |
| Overlapping area | 1,670.1 | 6.8 |
| Total terrestrial area (low tide mark) | 13,430.4 | 53.6 |
| Water resources protection area[2] | 4,000.6 | 16.2 |

*Source: Department of Planning, Bermuda Plan 2008*

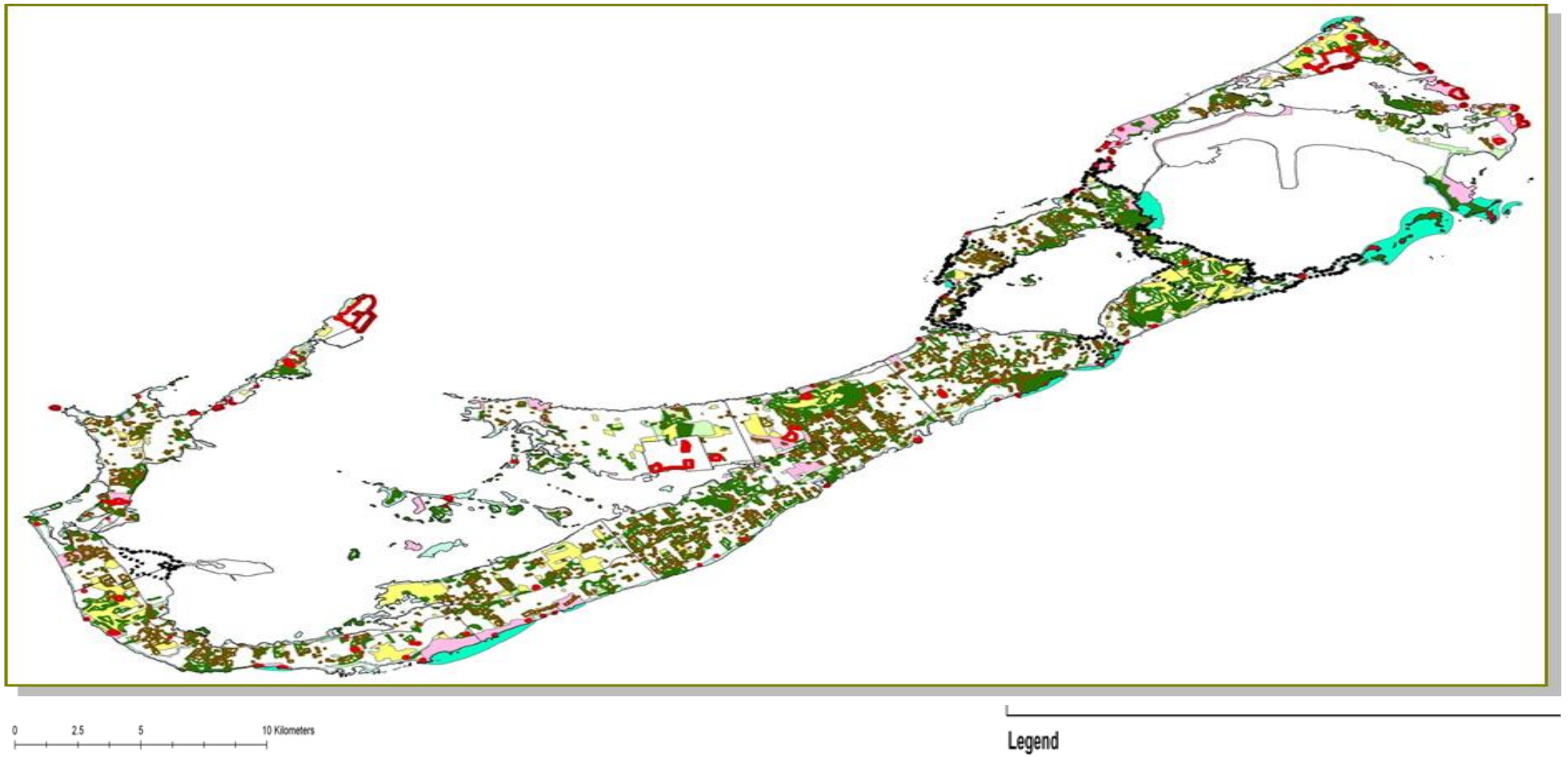
[1] Total protected area does not equal to the sum of the sub-totals as it excludes any overlapping areas (6.8 $km^2$) to avoid double counting.

[2] The Water Resources Protection Area is not considered as a "protected area" and hence has not been included in the 24.9 $km^2$ of protected area but is contained in the total terrestrial area of 53.6 $km^2$.

Note: 1 $km^2$ = 247.1 acres

*Map 9.1*

## TERRESTRIAL PROTECTION AREAS INCLUDING MARINE PARKS, 2008




*Source: Department of Planning, Bermuda Plan 2008*

# FORESTRY

**The Forestry Section of the Environmental Statistics Compendium includes a table and chart with information on the forest area in Bermuda.**

## FORESTRY

- In 2021, Bermuda's total forest area was 4.2 $km^2$. This represents 7.8% of Bermuda's total land area and is inclusive of woodland reserves (Table 10.1).

# NOTE TO READER

**Forest:** is land under forestry or no land use, spanning more than 0.005 $km^2$ (0.5 hectares); with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. Includes mangroves and forests on wetlands according to the above height and canopy coverage.

**Land Area:** is the land area excluding area under inland or tidal water bodies.

**Protected Area:** a protected area, as adopted by the International Union for Conservation of Nature (IUCN), is defined as an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, natural and associated cultural resources and managed through legal or other effective means.

**Total Area:** the sum of land and water areas within international boundaries and coastlines (= total land area + water).

*Source: CARICOM Environment Programme*

*Table 10.1*

## PROTECTED FOREST AREA AS A PERCENTAGE OF TOTAL LAND AREA, 2016

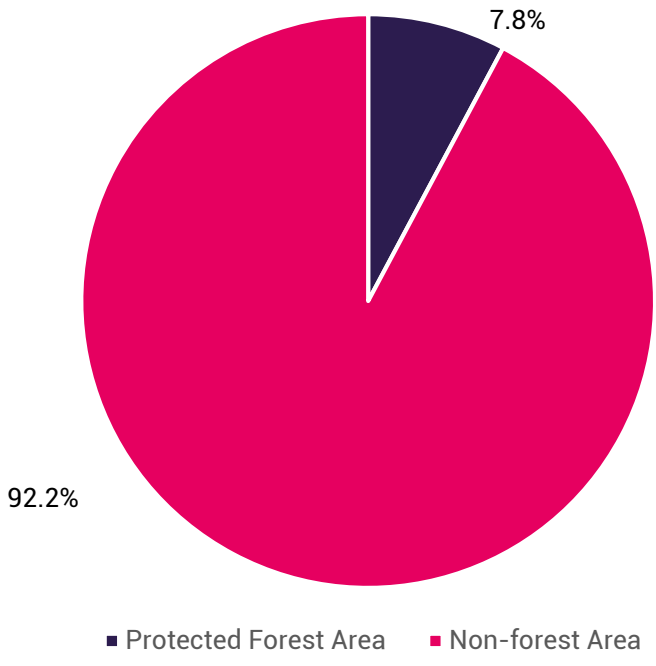
| Protected Area Category | Area $km^2$ |
|---|---|
| Total forest area | 4.2[1] |
| Total land area | 53.6 |
| Protected forest area as a % of total forest area | 100.0 |
| Protected forest area as a % of total land area | 7.8 |

*Source: Department of Planning, Land Use Survey 2016*

[1] This includes woodland reserves.

*Chart 10.1*

## PROTECTED FOREST AREA AS A PERCENTAGE OF TOTAL LAND AREA, 2016




*Source: Department of Planning, Land Use Survey 2016*

# AIR

**The air quality in Bermuda is a valued part of its natural resources.**

## AIR EMISSIONS

- Data for 2020 and 2021 is not available.

## AIR CONCENTRATIONS

- Bermuda contains five ambient air monitoring sites that are located across the island (Table 11.2).
- The maximum daily concentrations for the ambient air monitoring sites recorded pollutant concentration levels below Bermuda's limit, except for the pollutant $PM_{10}$ (Table 11.3).

*Table 11.1*

# ANNUAL AIR EMISSIONS FROM TYNES BAY WASTE TO ENERGY INCINERATOR, 2017–2021

| | Year | | | | |
|---|---|---|---|---|---|
| Pollutant | 2017 | 2018 | 2019 | 2020 | 2021 |
| VOCs (mg/nm$^3$) | 2.0 | 0.2 | 0.5 | .. | .. |
| $NO_2$ (mg/nm$^3$) | 242.9 | 322.7 | 353.3 | .. | .. |
| $SO_2$ (mg/nm$^3$) | 43.8 | 1.7 | 69.4 | .. | .. |
| Lead (mg/nm$^3$) | 0.0 | 0.0 | 0.3 | .. | .. |
| Particulate Matter (mg/nm$^3$) | 8.1 | 2.8 | 39.6 | .. | .. |

*Source: Department of Environmental Protection*

**Note**: The data is captured through isokinetic sampling over a two day period each year and is reported normalised to 11% oxygen.

.. Data from Tynes Bay was Not available in 2020 and 2021 due to COVID-19.

*Table 11.2*

# AVERAGE CONCENTRATIONS FOR AMBIENT AIR MONITORING SITES, 2019-2021

| | Pollutants | Units | Bermuda Limit (Clean Air Regulations 1993) | 2019 | | | | | 2020 | | | | | 2021 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Prospect | East Broadway | Cemetery Lane (BDA#1) (Belco-Operated ISO14001) | Langton Hill (BDA#2) (Belco-Operated ISO14001) | BIOS | Prospect | East Broadway | Cemetery Lane (BDA#1) (Belco-Operated ISO14001) | Langton Hill (BDA#2) (Belco-Operated ISO14001) | BIOS | Prospect | East Broadway | Cemetery Lane (BDA#1) (Belco-Operated ISO14001) | Langton Hill (BDA#2) (Belco-Operated ISO14001) | Ocean Lane (BDA#4) (Belco-Operated) | BIOS |
| **Hourly** | $NO_2$ | µg/m$^3$ | **400** | 23.7 | 14.4 | 14.4 | 4.0 | - | 3.6 | 4.8 | 6.0 | 3.0 | - | 1.7 | 6.2 | 4.3 | 4.9 | 6.2 | - |
| | $SO_2$ | µg/m$^3$ | **450** | 3.4 | 0.4 ‡ | 5.1 | 3.8 | - | 1.4 | - | 2.4 | 2.4 | - | 2.0 | 0.9 | 0.9 | 2.6 | 11.1 | - |
| | $PM_{10}$ | µg/m$^3$ | **-** | - | 26.3 | 13.0 | 11.5 | - | 16.0 | 15.6 | 10.7 | 11.5 | - | 17.6 | 14.2 | 10.7 | 12.3 | 15.1 | - |
| | $PM_{2.5}$ | µg/m$^3$ | **-** | 5.9 | 11.8 | - | - | - | 4.9 | 12.1 | - | - | - | 3.8 | 14.4 | - | - | | - |
| | TSP | µg/m$^3$ | **-** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - |
| **24-Hour** | $NO_2$ | µg/m$^3$ | **200** | 23.2 | 13.8 | 14.3 | 4.1 | - | - | - | 6.0 | 3.1 | - | - | - | 4.2 | 4.4 | 5.9 | - |
| | $SO_2$ | µg/m$^3$ | **150** | 3.0 | 0.4 ‡ | 5.1 | 3.9 | - | - | - | 2.4 | 25.0 | - | - | - | 0.9 | 9.3 | 10.7 | - |
| | $PM_{10}$ | µg/m$^3$ | **50** | 19.8 | 13.9 | 13.0 | 11.5 | - | 18.5 | 21.8 | 10.8 | 11.5 | 14.4 | 18.6 | 22.5 | 10.0 | 11.9 | 14.7 | 18.6 |
| | $PM_{2.5}$ | µg/m$^3$ | **-** | 5.6 | 12.4 | 15.6 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | TSP | µg/m$^3$ | **100** | - | - | - | 16.6 | - | - | - | 16.1 | 16.8 | - | - | - | - | - | - | - |
| **1-year** | $NO_2$ | µg/m$^3$ | **60** | 23.2 | - | 14.2 | 3.9 | - | 3.6 | 4.8 | 6.0 | 3.0 | - | 1.4 | 6.2 | 4.3 | 4.9 | 6.2 | - |
| | $SO_2$ | µg/m$^3$ | **30** | 3.0 | - | 5.1 | 3.9 | - | 1.4 | - | 2.4 | 2.4 | - | 1.2 | 0.6 | 0.9 | 2.6 | 11.1 | - |
| | $PM_{10}$ | µg/m$^3$ | **30** | 19.5 | 13.8 | 13.2 | 11.6 | 16.4 | 13.4 | 13.6 | 10.8 | 11.5 | 16.6 | 17.6 | 14.1 | 10.7 | 12.3 | 15.1 | 18.6 |
| | $PM_{2.5}$ | µg/m$^3$ | **-** | 5.6 | - | - | - | - | 4.9 | 12.1 | - | - | - | 3.6 | 14.4 | - | - | - | - |
| | TSP | µg/m$^3$ | **60** | - | - | 15.5 | 15.8 | - | - | - | - | - | - | - | - | - | - | - | - |

*Source: Department of Environmental Protection*

- Not Required or Not determined as part of the current protocols.

**Note**: Amount in red shows that the limit according to the 1993 Clean Air Regulation was exceeded.

**Note**: East Broadway monitoring station had a new PM-2.5 sensor installed in November 2017.

**†** - The second PM-10 BAM-1020 sensor operated at East Broadway station, which is considered a US EPA Federal Equivalent Method, demonstrated an exceedance of the annual average PM-10 concentration at 33.8µg/m$^3$.

*Table 11.3*

# MAXIMUM CONCENTRATIONS FOR AMBIENT AIR MONITORING SITES, 2019-2021

| | Pollutants | | Bermuda Limit (Clean Air Regulations 1993) | 2019 | | | | | 2020 | | | | | 2021 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Prospect | East Broadway | Cemetery Lane (BDA#1) (Belco-Operated ISO14001) | Langton Hill (BDA#2) (Belco-Operated ISO14001) | BIOS | Prospect | East Broadway | Cemetery Lane (BDA#1) (Belco-Operated ISO14001) | Langton Hill (BDA#2) (Belco-Operated ISO14001) | BIOS | Prospect | East Broadway | Cemetery Lane (BDA#1) (Belco-Operated ISO14001) | Langton Hill (BDA#2) (Belco-Operated ISO14001) | Ocean Lane (BDA#4) (Belco-Operated) | BIOS |
| **Hourly** | $NO_2$ | µg/m$^3$ | **400** | 119.5 | 90.1 | 272.1 | 116.4 | - | 36.8 | 37.6 | 271.3 | 86.9 | - | 49.00 | 46.30 | 71.55 | 86.77 | 105.19 | - |
| | $SO_2$ | µg/m$^3$ | **450** | 131.1 | 22.3 | 88.8 | 186.8 | - | 37.3 | 9.5 | 65.5 | 272.8 | - | 49.10 | 23.60 | 8.62 | 158.81 | 299.60 | - |
| | $PM_{10}$ | µg/m$^3$ | **-** | - | 273.0 | 75.2 | 87.0 | - | 112.0 | 202.0 | 94.8 | 225.1 | - | 70.00 | 177.00 | 66.67 | 268.48 | 128.68 | - |
| | $PM_{2.5}$ | µg/m$^3$ | **-** | 48.4 | - | - | - | - | 261.8 | 63.0 | - | - | - | 39.00 | 58.00 | - | - | - | - |
| | TSP | µg/m$^3$ | **-** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **24-Hour** | $NO_2$ | µg/m$^3$ | **200** | 85.0 | 49.5 | 110.6 | 50.7 | - | - | - | 91.9 | 55.4 | - | - | - | 22.48 | 52.06 | 69.01 | - |
| | $SO_2$ | µg/m$^3$ | **150** | 17.7 | 5.2 | 33.2 | 73.4 | - | - | - | 30.2 | 130.2 | - | - | - | 2.44 | 74.00 | 123.05 | - |
| | $PM_{10}$ | µg/m$^3$ | **50** | 53.1 | 48.3 | 47.0 | 43.8 | 52.3 | 44.2 | 46.4 | 40.7 | 51.5 | 46.4 | 46.90 | 47.50 | 43.85 | 46.56 | 46.19 | 57.70 |
| | $PM_{2.5}$ | µg/m$^3$ | **-** | 24.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | TSP | µg/m$^3$ | **100** | 73.0 | - | 37.9 | 30.2 | - | - | - | 28.3 | 29.7 | - | - | - | - | - | - | - |
| Total number of exceedances of the limits set in the Clean Air Regulations 1993 over each year | | | | 1 | 0 | 0 | 0 | 1 | 1 ** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |

*Source: Department of Environmental Protection*

- Not Required or Not determined as part of the current protocols.

**Note**: Amount in red shows that the limit according to the 1993 Clean Air Regulation was exceeded.

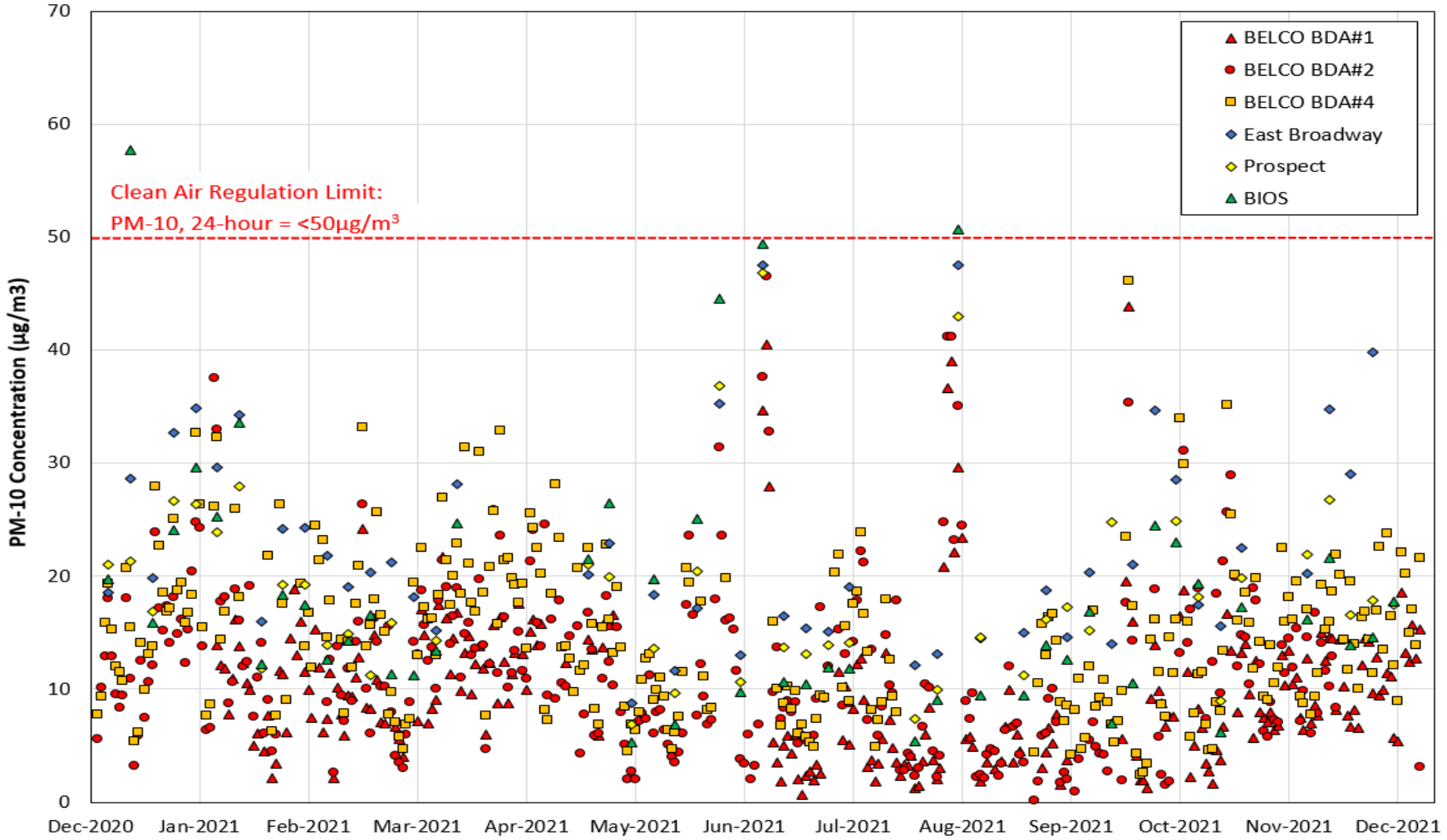
* 10 of the 17 exceedances occurred before calibration highlighted a problem with the instruments.

† A second PM10 sensor at East Broadway that uses a US EPA Federal Equivalent Method records data every hour and identified a total of 10 exceedances of 24-hour PM10 over 2017.

** A second PM10 sensor at prospect monitoring that uses a US EPA Federal Equivalent Method records one exceedance of the 24-hour PM10 limit at 51.0/m3 on the 31st July 2020.

*Figure 11.1*

## 24-HOUR AVERAGE $PM_{10}$ CONCENTRATION, 2021




*Source: Department of Environmental Protection*

# WASTE

**The Waste Section comprises of information regarding the generation and disposal of solid waste in Bermuda.**

- In 2021, the amount of waste totaled 73,200 mT. This represents an increase of 5.8% over the 69,200 mT of waste in 2020 (Table 12.1).
- In 2021, an estimated 1,200 mT of waste was recycled, 14,000 mT was composted, 48,000 mT was incinerated and 10,000 mT was landfilled (Table 12.2).
- There were 80 container loads of materials recycled in 2021. Thirty container loads of special waste items were processed and exported for the United States recycling market (Chart 12.1). The remaining 50 container loads of glass remained in Bermuda and was re-used on-island as a drainage medium.
- Bermuda exported 1,698,000 pounds of hazardous waste in 2021 (Table 12.3).

# NOTE TO READER

**Household Waste:** is waste that comes from a private dwelling, being a dwelling that is not considered as commercial premises; or waste from premises operated by a charity registered under the Charities Act 1978.

**Waste:** is any article or substance (including scrap metal or other surplus arising from the application of a process) which is not liquid and either requires to be disposed of as being unwanted, broken, worn out, contaminated or otherwise spoilt or useless, or in relation to a particular person, has been discarded by.

*Source: Waste and Litter Control Act, 1987*

*Table 12.1*

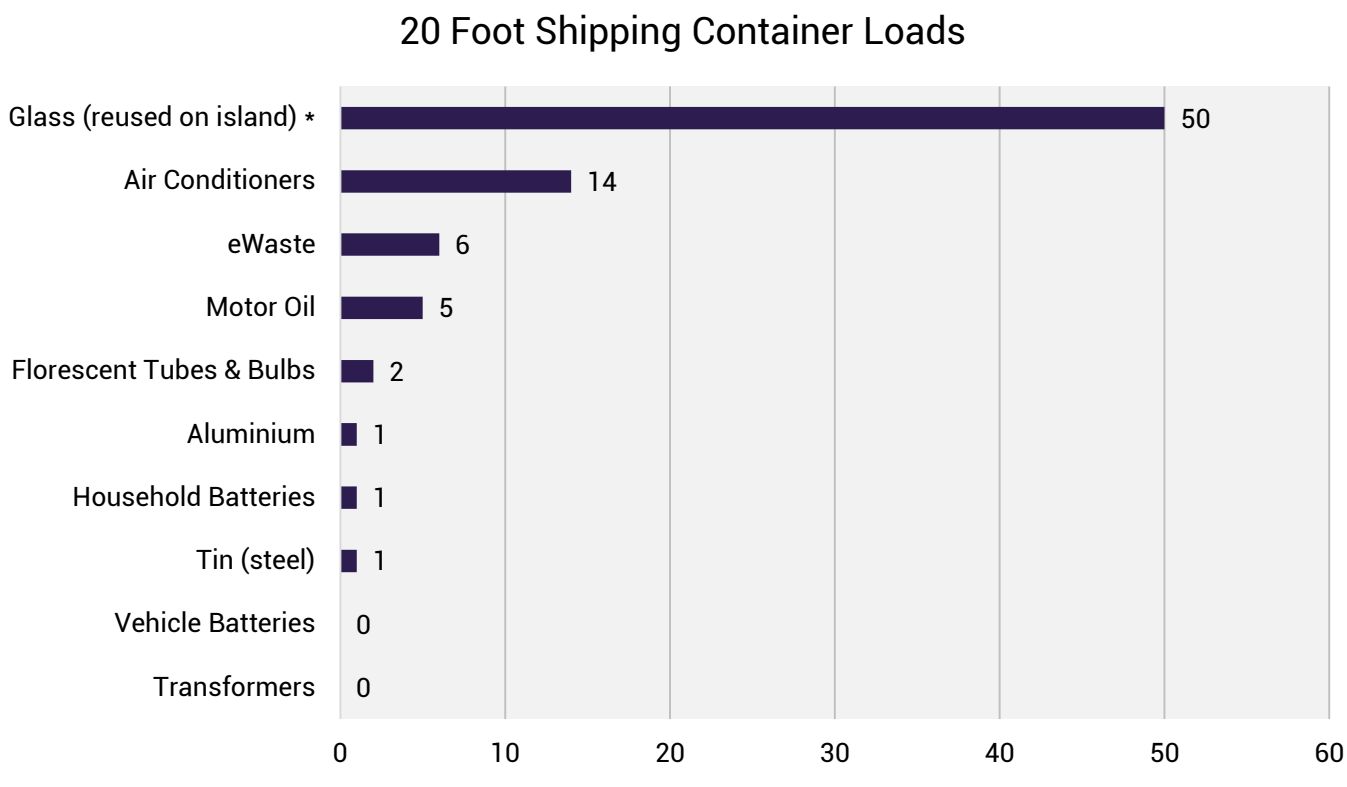
## GENERATION OF WASTE BY SOURCE, 2017–2021

| | Year | | | | |
|---|---|---|---|---|---|
| Indicator (1,000 mT) | 2017 | 2018 | 2019 | 2020 | 2021 |
| Total amount of waste | 95.7 | 93.8 | 86.4 | 69.2 | 73.2 |
| Waste from households | 31.9 | 31.3 | 28.8 | 23.1 | 24.4 |
| Waste from other origins | 63.8 | 62.5 | 57.6 | 46.1 | 48.8 |

*Source: Department of Works and Engineering, Waste and Enforcement Section*

*Chart 12.1*

## ESTIMATED EXPORT OF RECYCLABLE WASTE, 2021




*Source: Department of Works and Engineering, Waste and Enforcement Section*
*All Glass is reused on-island as a drainage medium.

*Table 12.2*

## MANAGEMENT OF MUNICIPAL WASTE, 2017–2021

| | Year | | | | |
|---|---|---|---|---|---|
| Indicator (1,000 mT) | 2017 | 2018 | 2019 | 2020 | 2021 |
| Total amount of waste | 95.7 | 93.8 | 86.4 | 68.7 r | 73.0 |
| Amounts going to | | | | | |
| Recycling | 1.0 | 1.5 | 0.4 | 1.2 e | 1.2 e |
| Composting | 18.0 e | 13.0 | 11.0 | 11.0 | 14.0 |
| Incineration | 66.6 | 69.3 | 65.0 | 46.5 r | 47.8 |
| Landfilling | 10.0 e | 10.0 e | 10.0 e | 10.0 e | 10.0 e |

*Source: Department of Works and Engineering, Waste and Enforcement Section*

*Table 12.3*

## MANAGEMENT OF SPECIAL WASTE, 2017–2021

| | Year | | | | |
|---|---|---|---|---|---|
| Indicator (1,000 lbs.) | 2017 e | 2018 | 2019 e | 2020 e | 2021 e |
| Stock of hazardous waste at the beginning of the year | 20.4 | 15.4 | 153.4 | 255.4 | 357.4 |
| Hazardous waste generated during the year | 525.0 | 1,500.0 | 1,800.0 | 1,800.0 | 1,800.0 |
| Hazardous waste exported during the year: | | | | | |
| Recycling | 310.0 | 633.0 | 642.0 | 642.0 | 642.0 |
| Incineration | 5.0 | - | - | - | - |
| Landfilling | 215.0 | 729.0 * | 1,056.0 * | 1,056.0 * | 1,056.0 * |
| Total Hazardous Waste | 530.0 | 1,362.0 | 1,698.0 | 1,698.0 | 1,698.0 |
| Stock of hazardous waste at the end of the year | 15.4 | 153.4 | 255.4 | 357.4 | 459.4 |

*Source: Department of Works and Engineering, Waste and Enforcement Section*
* Increase in Landfilling of Special Waste is the result of the export of a large backlog of asbestos to the USA where it is being landfilled in Title D regulated landfill facilities.

*Table 12.4*

# MANAGEMENT OF WASTE BY TYPE, 2017-2021

| | Year | | | | |
|---|---|---|---|---|---|
| Indicator | 2017 | 2018 e | 2019 e | 2020 e | 2021 e |
| Total (%) | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Paper, paperboard | 27.0 | 27.0 | 27.0 | 27.0 | 27.0 |
| Textiles | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Plastics | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Glass | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 |
| Metals | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Other inorganic material | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| Organic material | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 |

*Source: Department of Works and Engineering, Waste and Enforcement Section*

Waste audits are conducted every 2 to 4 years by the Waste Management Section of the Ministry of Public Works.
e = estimated data based on previous years data.

# WATER

**Water is an essential ingredient for all life and is used in the production of almost all goods. It is therefore vital to monitor the state of water resources and to ensure sustainable use of this important commodity.**

- In 2021, the total volume of precipitation in Bermuda was 75.6 mio m3/y (Table 13.1). This represents a 15.4% increase from the level received in 2020.

# NOTE TO READER

**Actual Evapotranspiration**: total actual volume of evaporation from the ground, wetlands, natural water bodies and transpiration of plants.

**Internal Flow**: total volume of river run-off and groundwater generated over the period of a year, in natural conditions, exclusively by precipitation into a territory. It is equal to the precipitation less actual evapotranspiration.

**Precipitation**: total volume of atmospheric wet precipitation (rain, dew, etc.) falling on the territory of the country over one year.

**Regular Freshwater Resources 95.0% of the Time**: a portion of the total freshwater resource that can be depended on for annual water development during 19 out of 20 consecutive years, or at least 95.0% of the years included in longer consecutive periods. This item yields information about the average annual long-term availability of freshwater for use in human activities.

**Renewable Freshwater Resources**: equal internal flow plus any inflow of surface and groundwaters.

***Sources**: United Nations Statistics Division and United Nations Environment Programme*

*Table 13.1*

## RENEWABLE FRESHWATER RESOURCES, 2017–2021

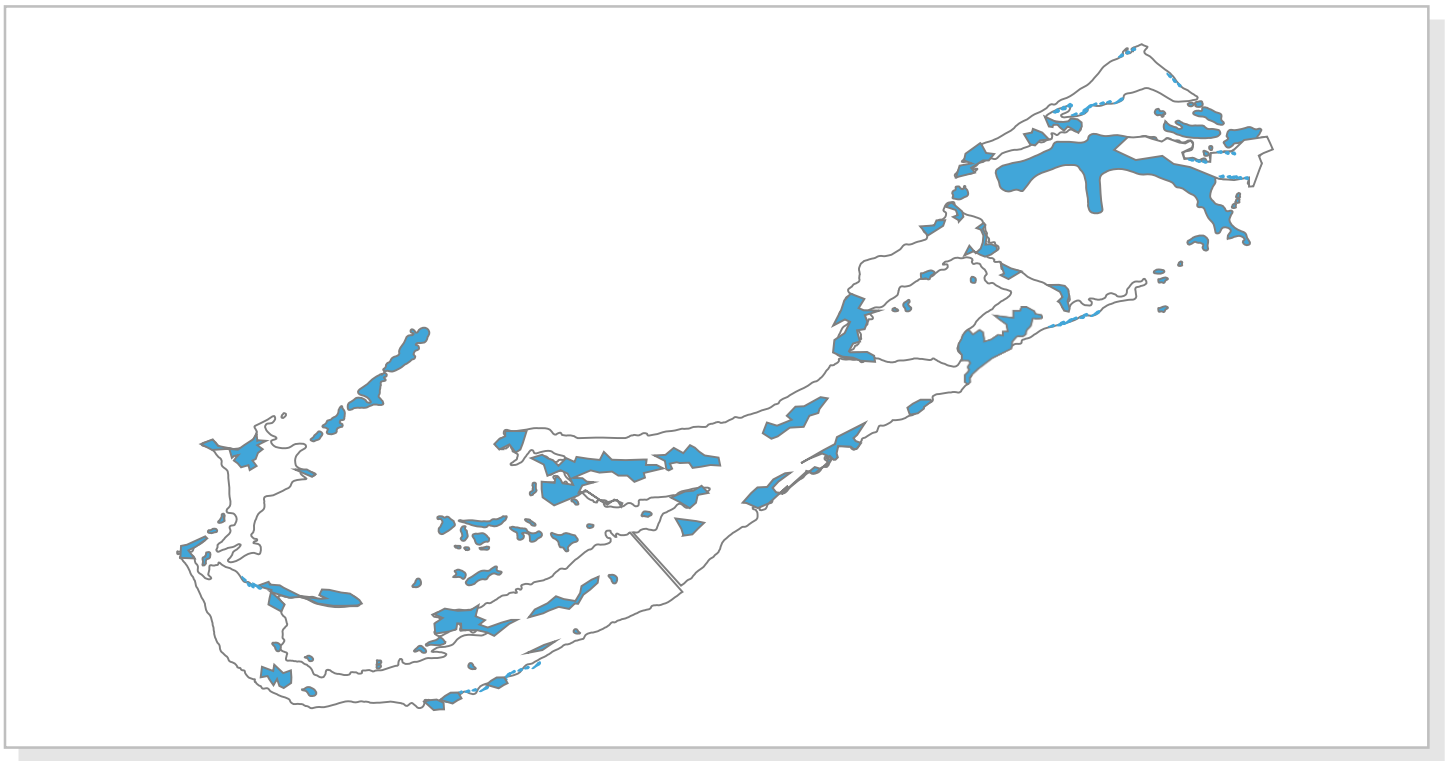
| | Year | | | | |
|---|---|---|---|---|---|
| Category (mio $m^3$/y) | 2017 | 2018 | 2019 | 2020 | 2021 |
| Precipitation[1] | 72.6 | 75.0 | 74.9 | 65.5 | 75.6 |
| Actual evapotranspiration | 49.4 | 51.0 | 50.9 | 44.6 | 51.4 |
| Internal flow | 23.2 | 24.0 | 24.0 | 20.9 | 24.2 |
| Renewable freshwater resources | 3.5 | 3.6 | 3.6 | 3.1 | 3.6 |
| Regular freshwater resources 95.0% of the time | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |

*Source: Department of Environmental Protection*

[1] Bermuda is frost-free; precipitation consists of rainfall only. Precipitation = annual rainfall in m (from BWS), multiplied by land area of 53.6 sq. km.

*Map 13.1*

## WATER RESOURCES PROTECTION AREAS, 2021

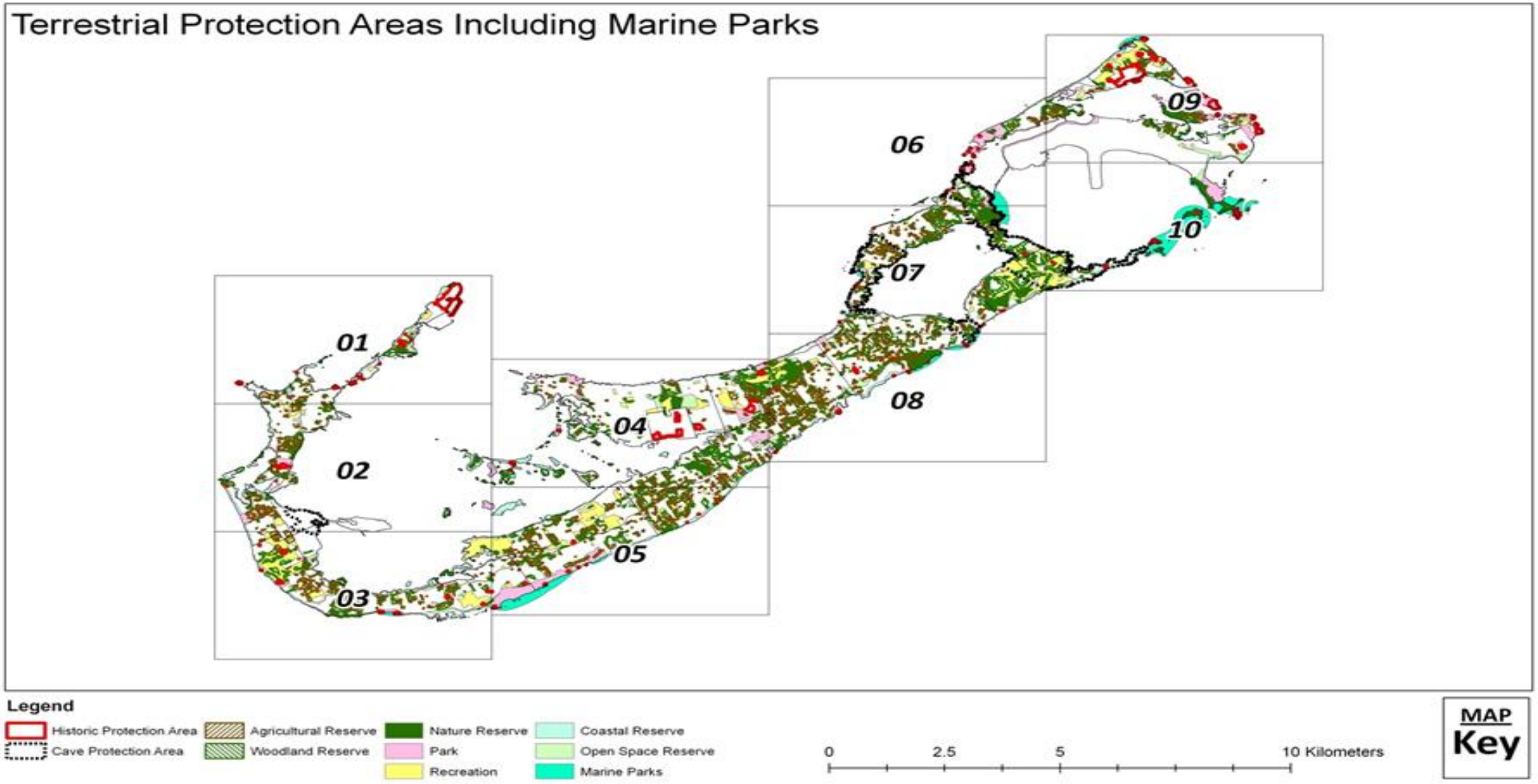


**LEGEND**

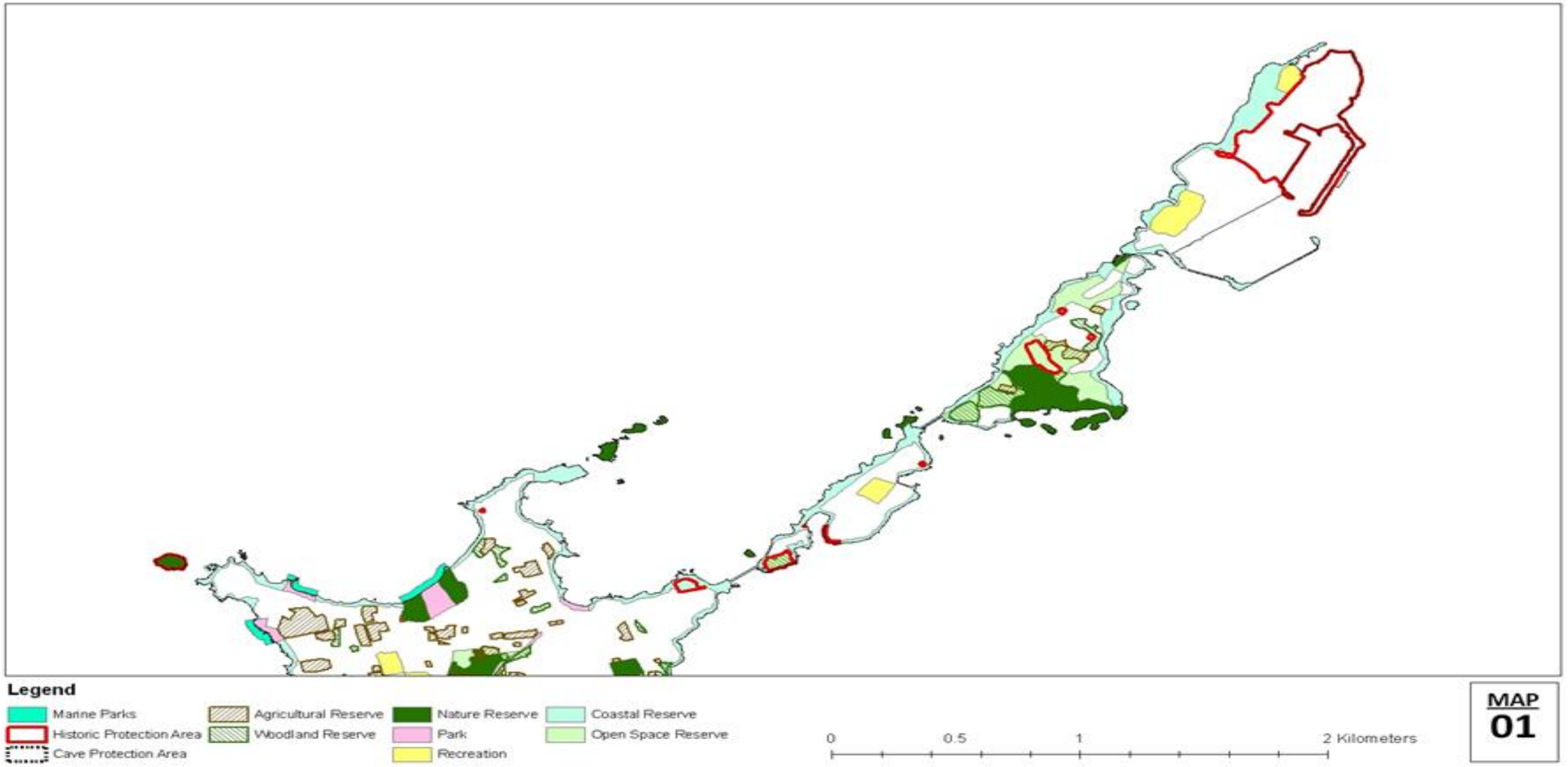
Water Resources Protection Area

*Source: Department of Planning*

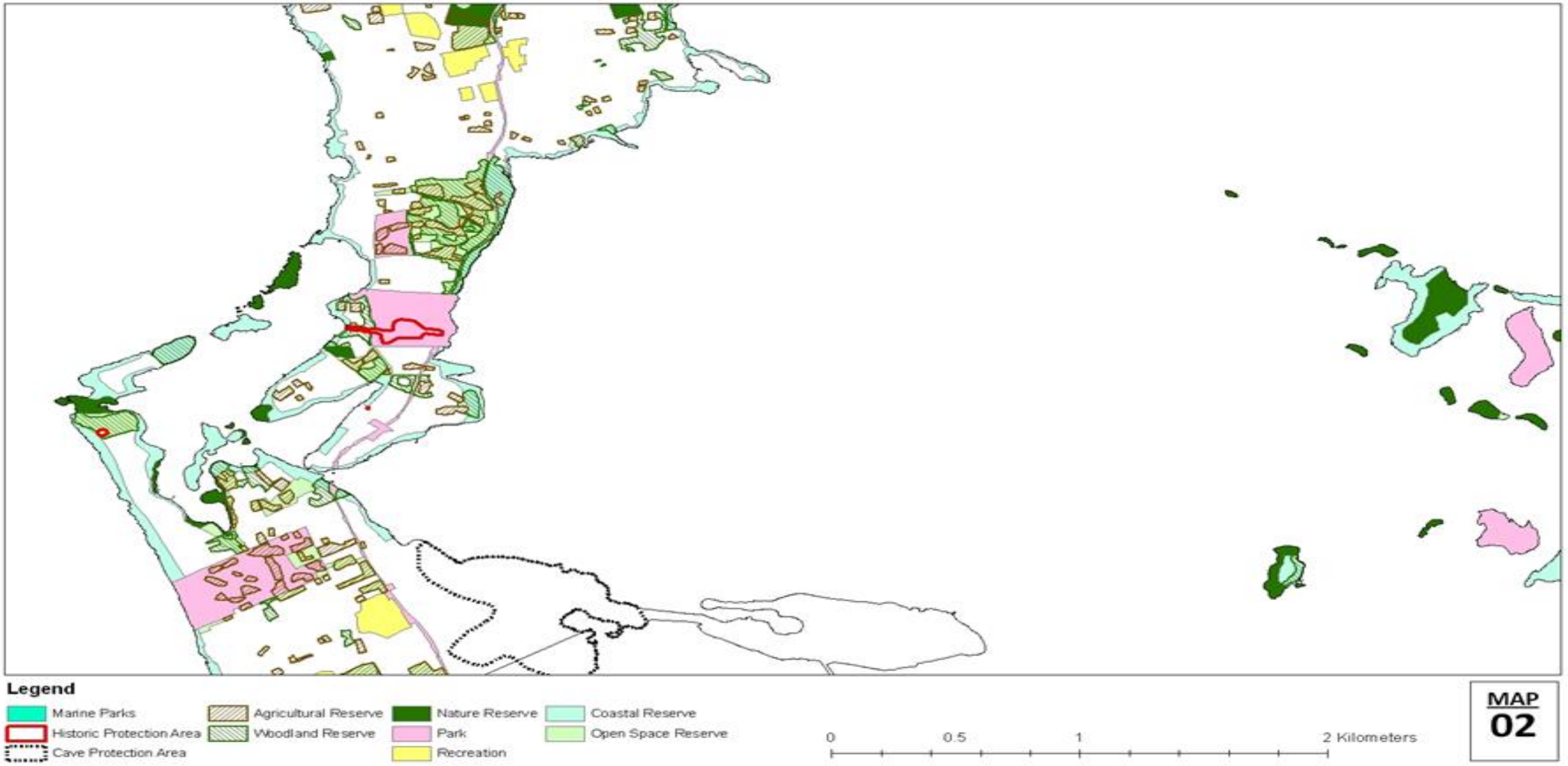
# APPENDIX




*Source: Department of Planning*

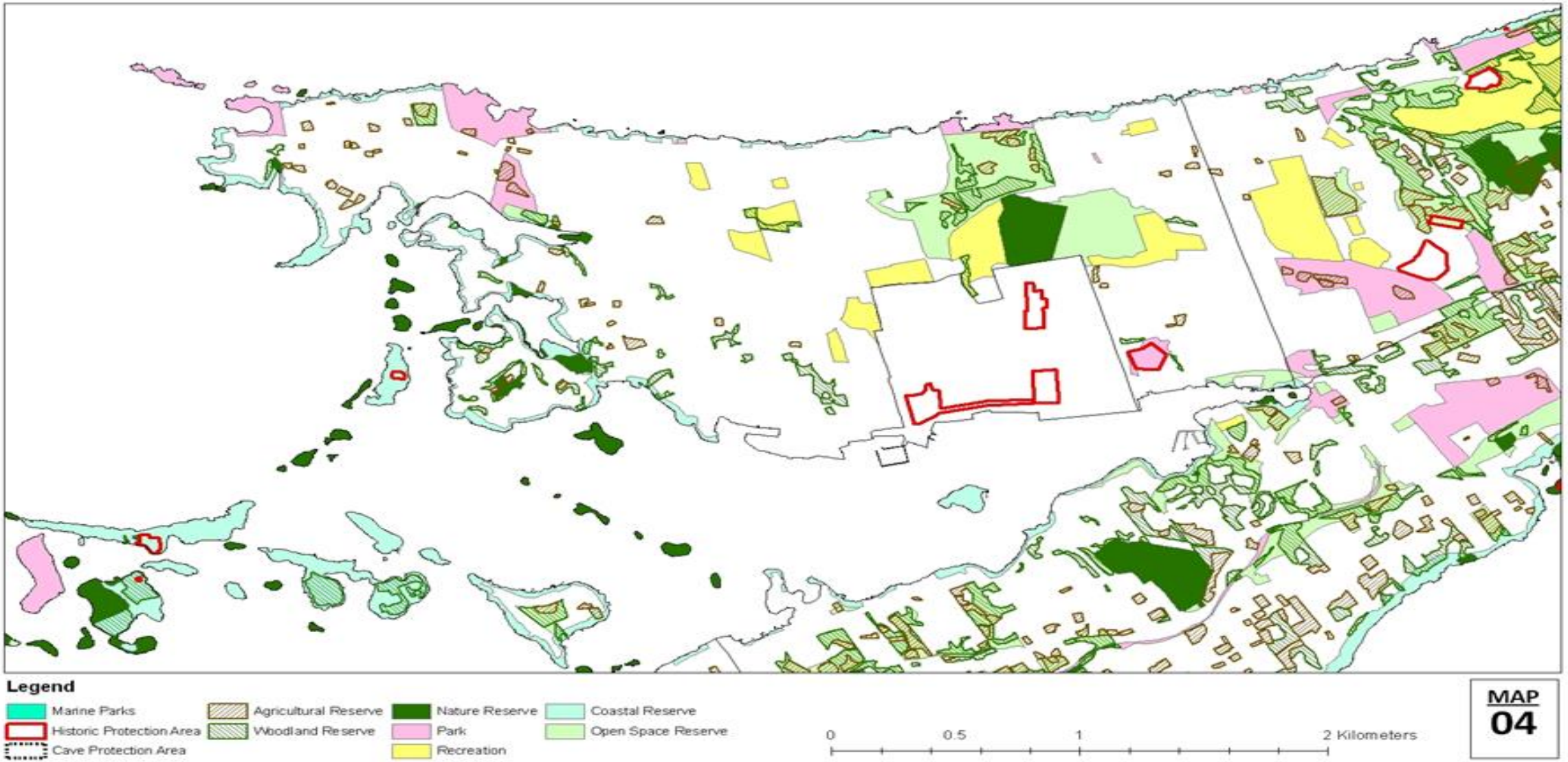



*Source: Department of Planning*



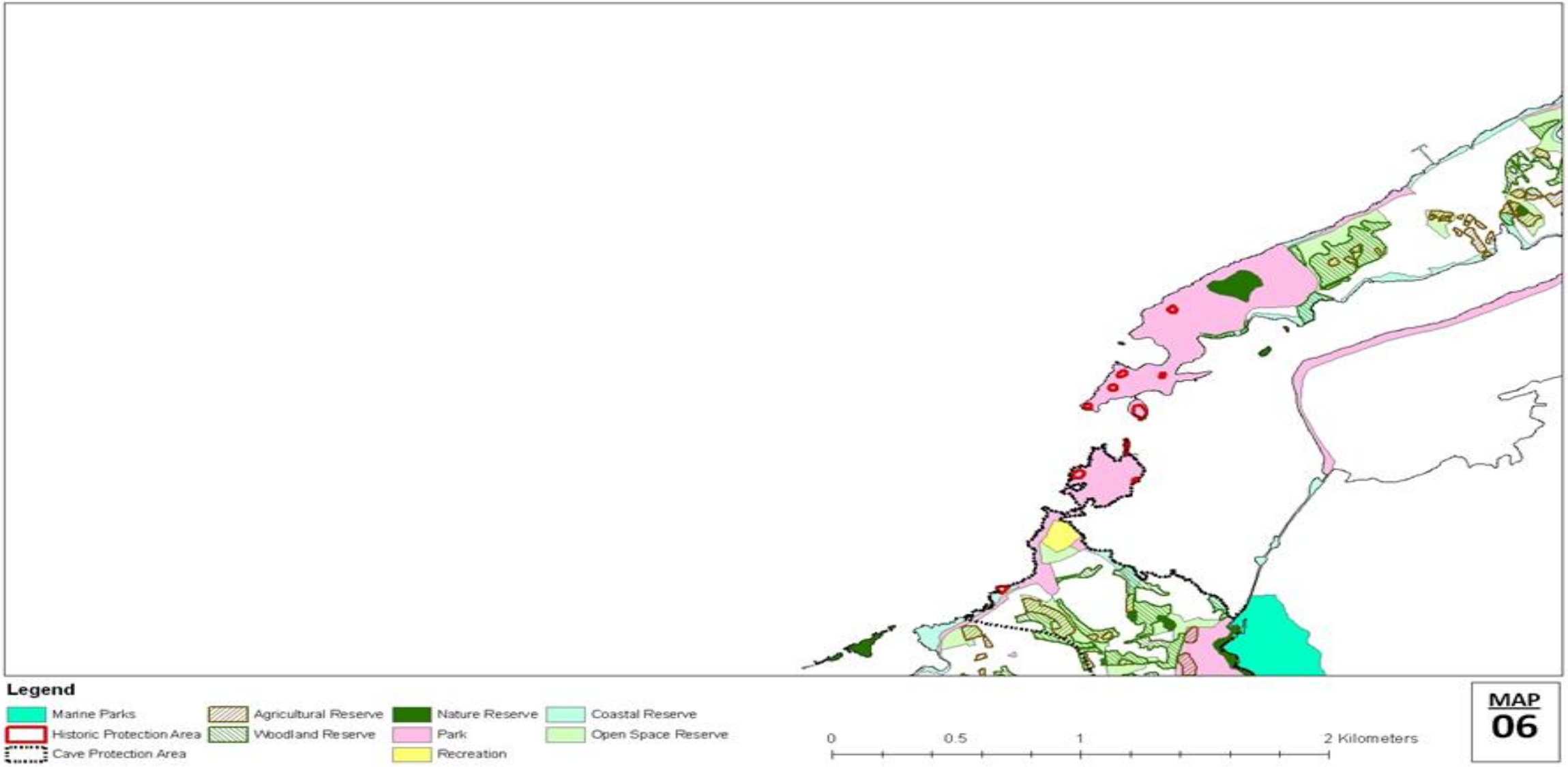

*Source: Department of Planning*


*Source: Department of Planning*

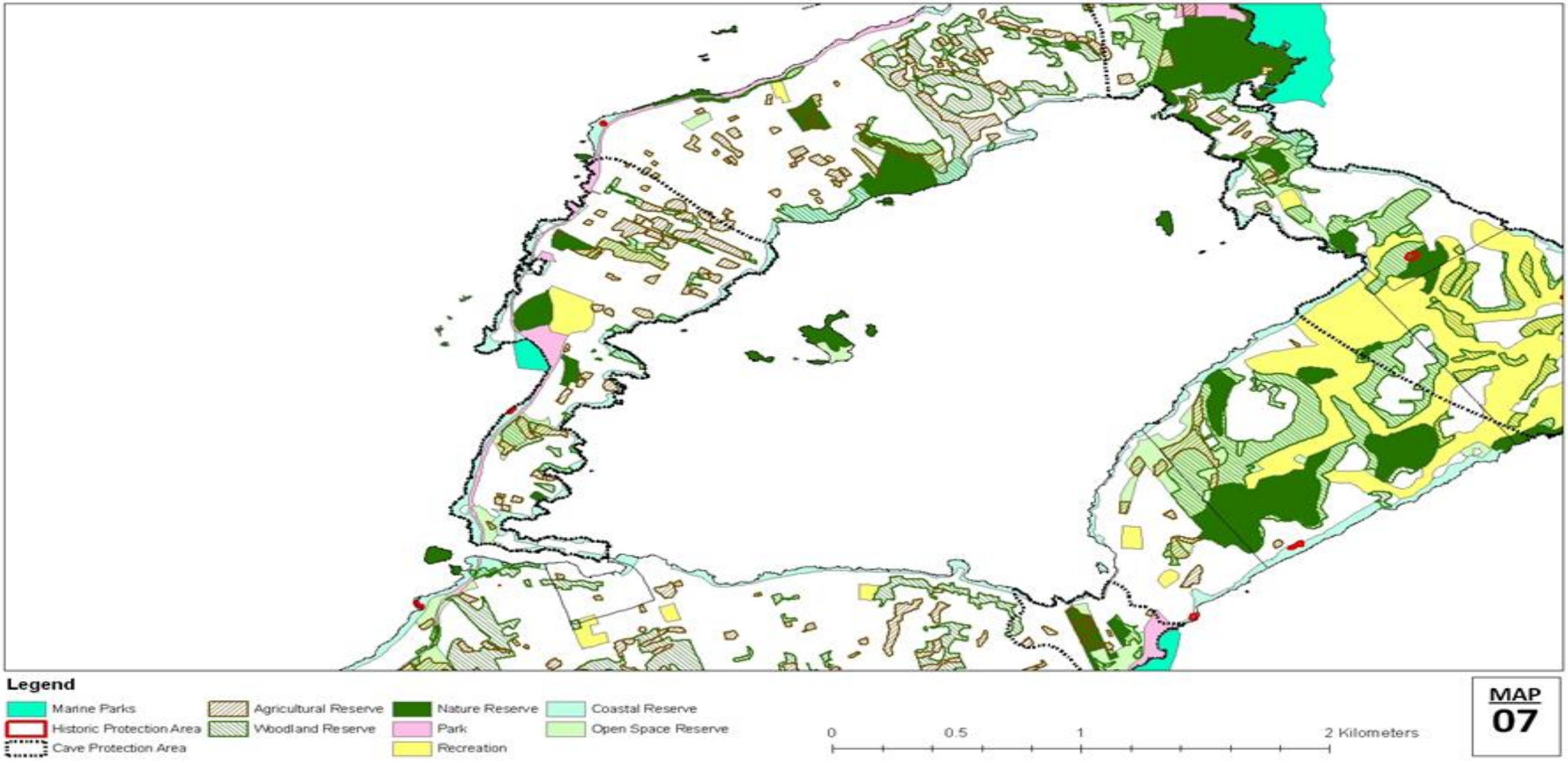



*Source: Department of Planning*

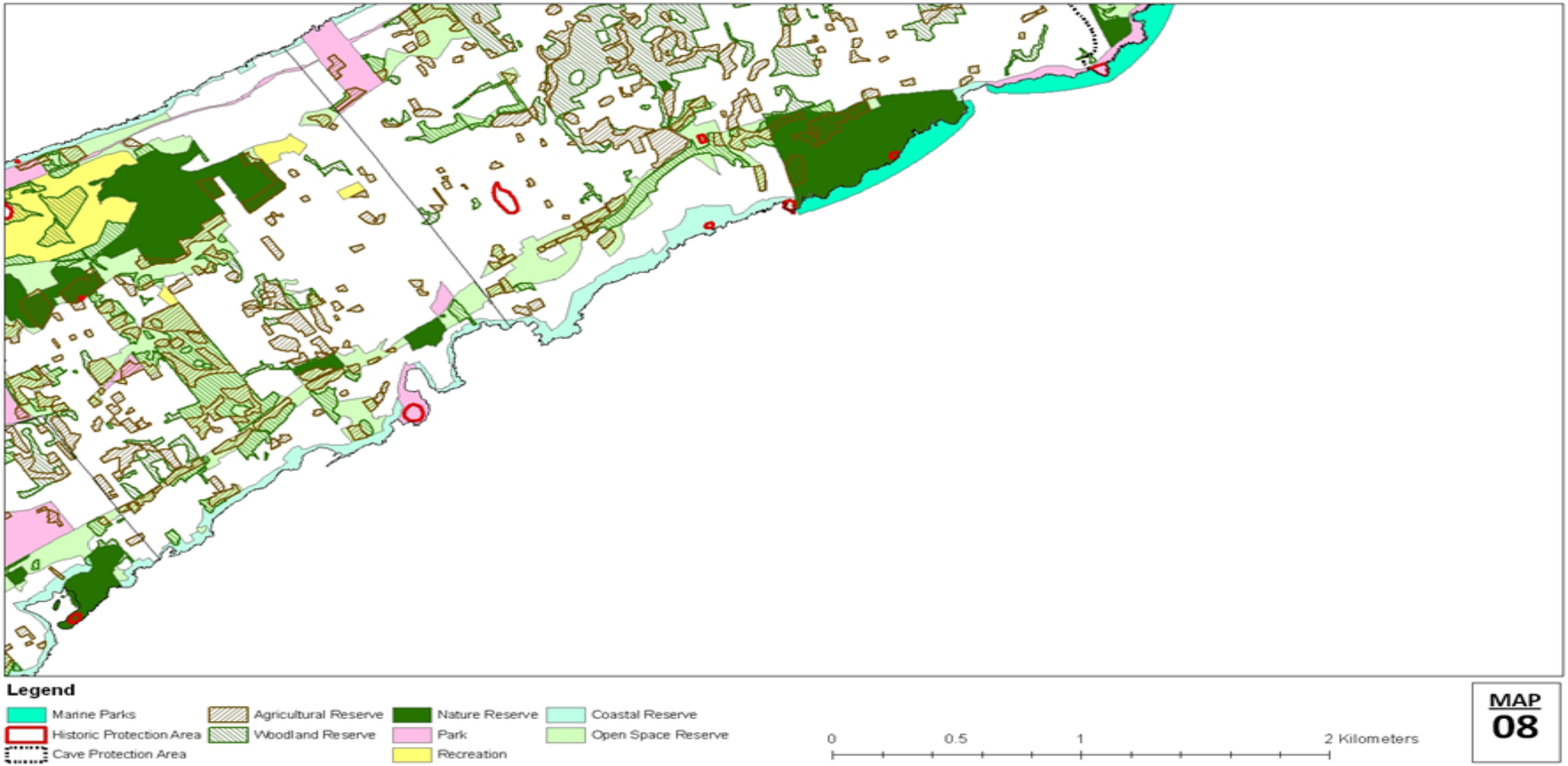

*Source: Department of Planning*



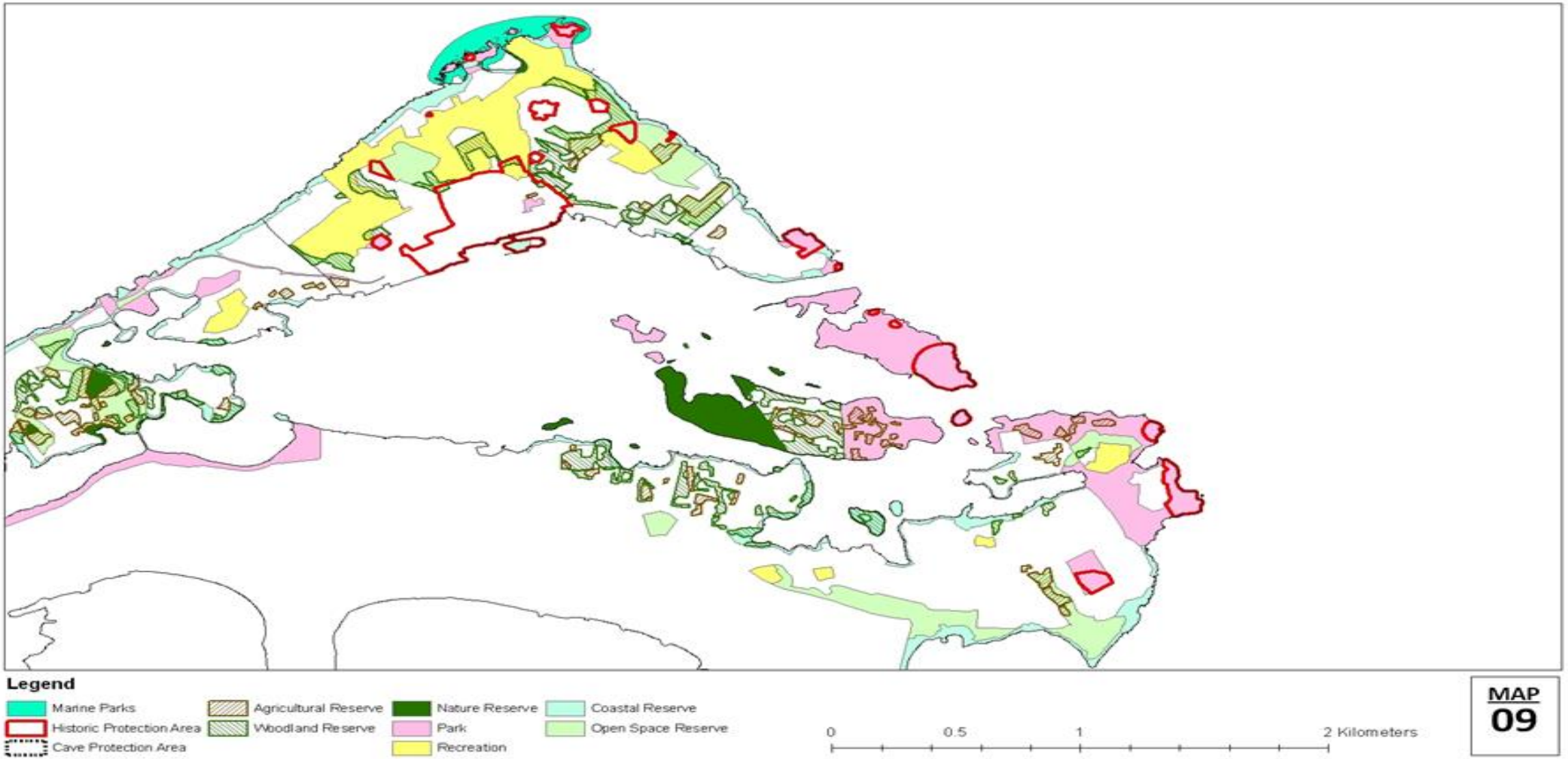

*Source: Department of Planning*



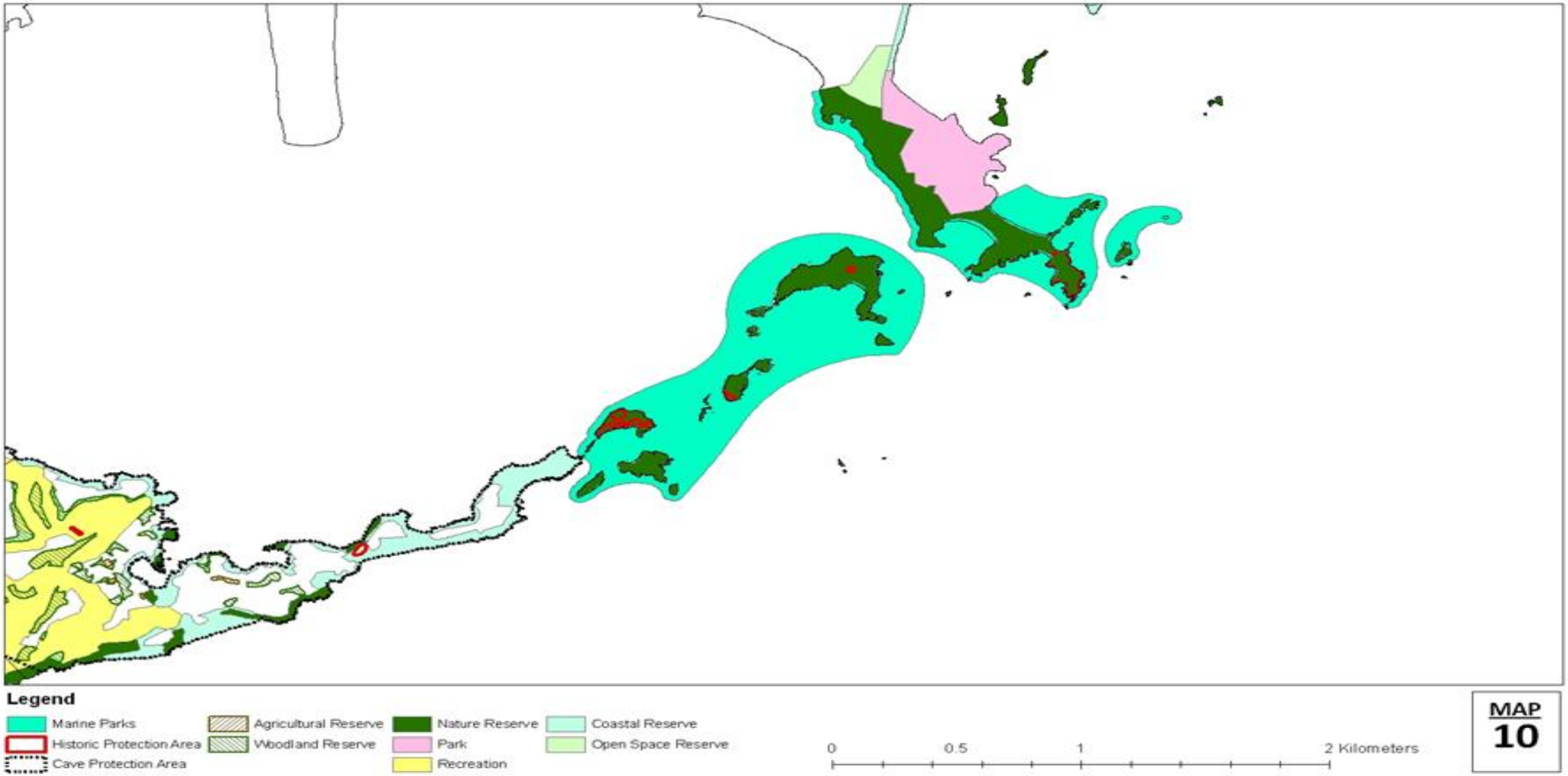

*Source: Department of Planning*




*Source: Department of Planning*




*Source: Department of Planning*




*Source: Department of Planning*

GOVERNMENT OF BERMUDA

**Department of Statistics**