# 2020 STATISTICS REPORT

## THINKING GREEN DIGEST

Department of the Environment, Sustainability, Climate Change and Heritage
HM Government of Gibraltar

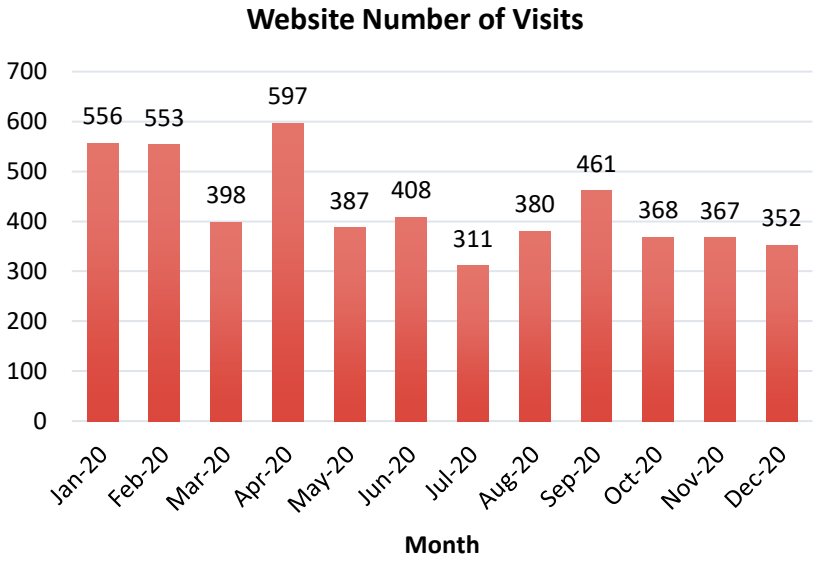
HM GOVERNMENT OF GIBRALTAR

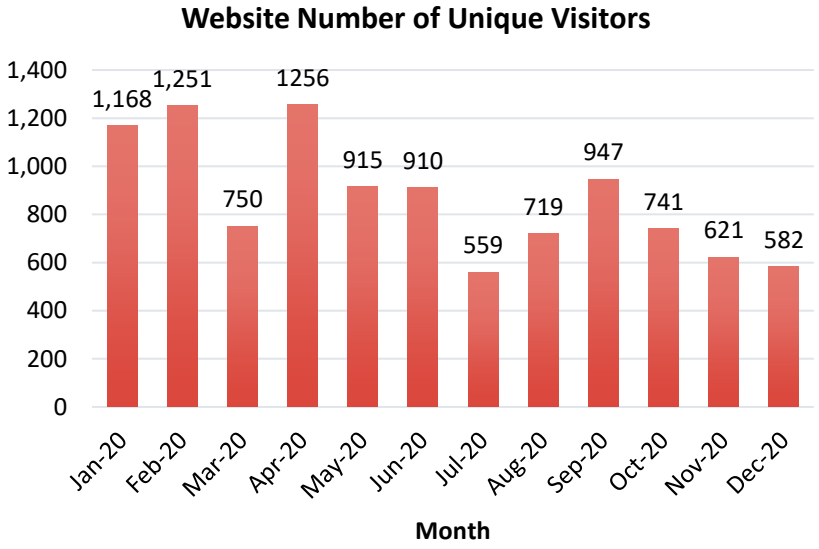
# Contents

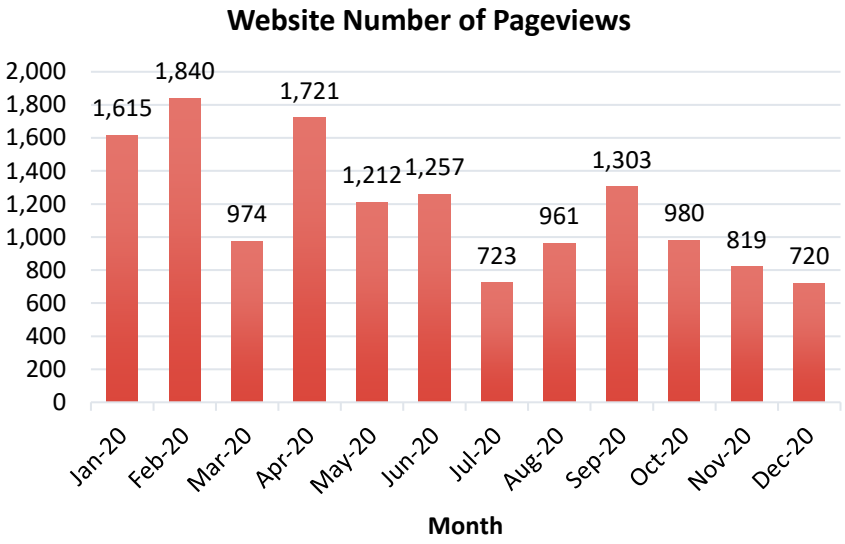
# Air Quality

In Gibraltar, a formalised air quality monitoring programme is in operation consisting of a variety of methodologies, and taking place at selected locations. Developed in accordance with European Union (EU) directive requirements, air quality in Gibraltar since 2008 has been monitored using passive sampling, active (semi-automatic) sampling, and automatic point monitoring. Deployed at sites throughout Gibraltar, these work to provide a comprehensive understanding of variations in air quality according to location (urban/suburban), time, and season.

With some results available in real time, these as well as historical records, can be accessed by the public at www.gibraltarairquality.gi. The table below provides a record of activity on Gibraltar's air quality website in 2020.






# Annual Automatic Data Summary Reports

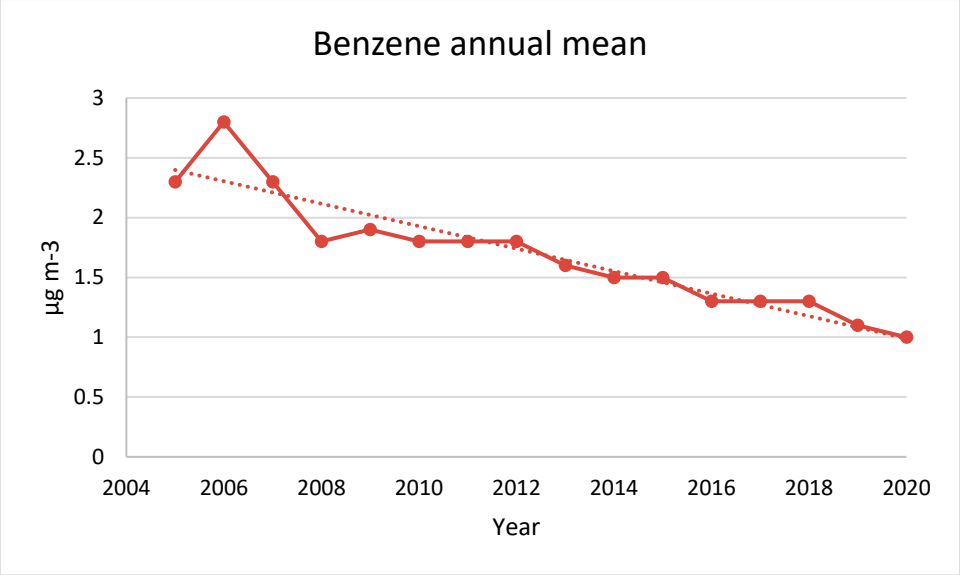
## Rosia Road: 1st January to 31st December 2020

At Rosia Road, concentrations for pollutants such as benzene, carbon monoxide (CO), nitrogen dioxide (NO2), and sulphur dioxide (SO2) are logged. Records for 2020 are as follows:

### Benzene

| POLLUTANT | BENZ |
|---|---|
| Maximum hourly mean | 22 µg $m^{-3}$ |
| Maximum running 8-hour mean | 8.5 µg $m^{-3}$ |
| Maximum running 24-hour mean | 8.5 µg $m^{-3}$ |
| Maximum daily mean | 4.5 µg $m^{-3}$ |
| Data capture | 94 % |

Rosia Road benzene results 2020.

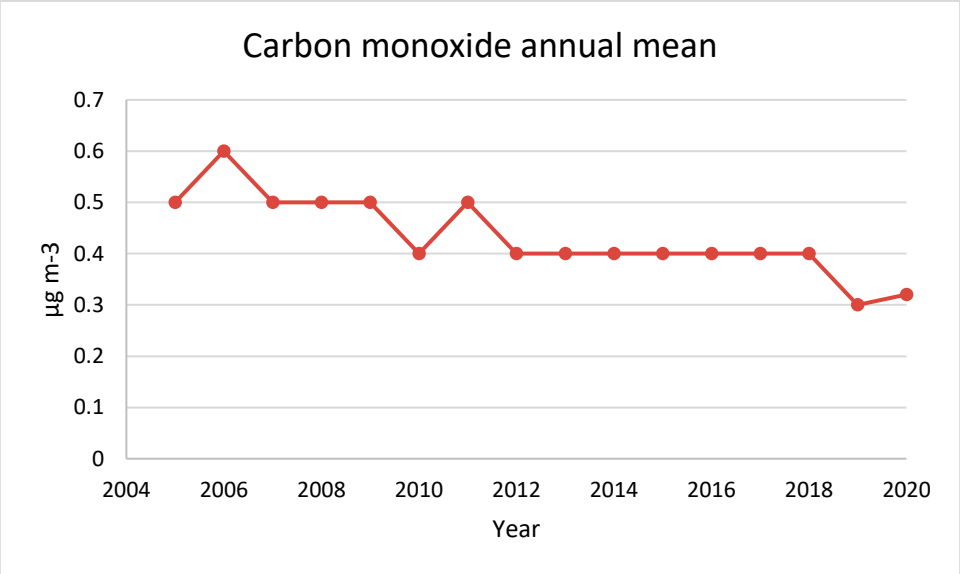



Rosia Road benzene annual mean.

## Carbon Monoxide

| POLLUTANT | CO |
|---|---|
| Maximum hourly mean | 3.3 µg $m^{-3}$ |
| Maximum running 8-hour mean | 1.6 µg $m^{-3}$ |
| Maximum running 24-hour mean | 0.94 µg $m^{-3}$ |
| Maximum daily mean | 0.85 µg $m^{-3}$ |
| Data capture | 50 % |

Rosia Road carbon monoxide monitored results 2020.

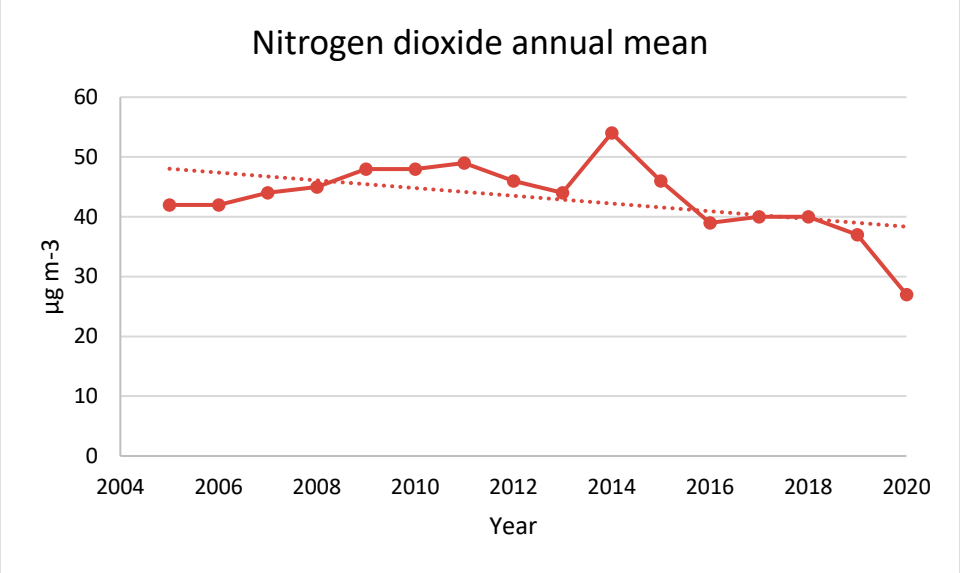



Rosia Road carbon monoxide annual mean.

## Nitrogen Dioxide

| POLLUTANT | $NO_2$ |
|---|---|
| Maximum hourly mean | 112 µg $m^{-3}$ |
| Maximum running 8-hour mean | 89 µg $m^{-3}$ |
| Maximum running 24-hour mean | 78 µg $m^{-3}$ |
| Maximum daily mean | 76 µg $m^{-3}$ |
| Data capture | 94 % |

Rosia Road nitrogen dioxide monitored results 2020.

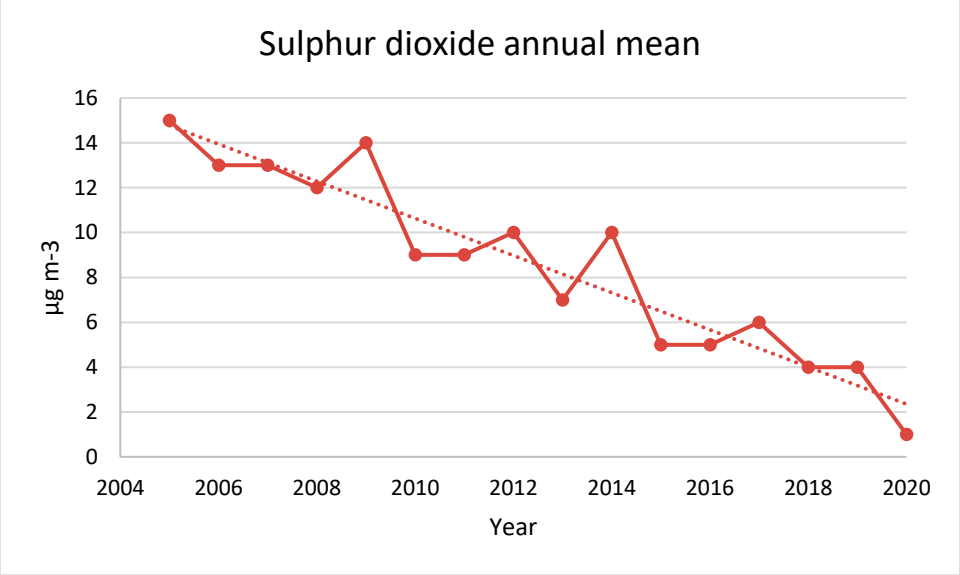



Rosia Road nitrogen dioxide annual mean.

## Sulphur Dioxide

| POLLUTANT | $SO_2$ |
|---|---|
| Maximum hourly mean | 79 µg $m^{-3}$ |
| Maximum running 8-hour mean | 37 µg $m^{-3}$ |
| Maximum running 24-hour mean | 16 µg $m^{-3}$ |
| Maximum daily mean | 15 µg $m^{-3}$ |
| Data capture | 79 % |

Rosia Road sulphur dioxide monitored results 2020.




Rosia Road sulphur dioxide annual mean.

## Exceedences

| Pollutant | Public Health (Air Quality Limit Values) Rules 2002, (Amendment) Rules 2003 and (Ozone) Rules 2004 | Exceedances |
|---|---|---|
| Carbon Monoxide | Running 8-hour mean > 10.0 mg $m^{-3}$ | 0 |
| Nitrogen Dioxide | Hourly mean > 200 µg $m^{-3}$ | 0 |
| Sulphur Dioxide | Annual mean > 20 µg $m^{-3}$ | 0 |

Rosia Road pollutant exceedances for 2020.

No threshold exceedances were detected for Rosia Road in 2020.

## South District Power Stations

The table below highlights the engine operating hours of South District power stations in 2020.

| Engine Hours | |
|---|---|
| | **Total 2020** |
| GMES South Temp. Gen. (Sets 21-30) | 12,560 |
| Portman Temp. Gen. (Sets 1-6) | 1,072 (Decommissioned 30/06/2020) |

South District Power Stations engine hours in 2020.

## Bleak House: 1st January to 31st December 2020

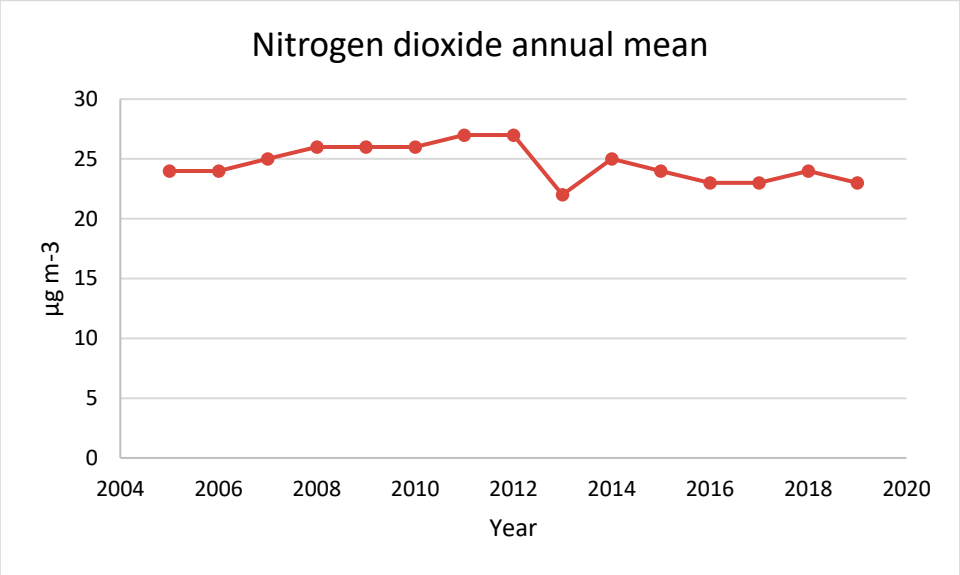
At Bleak House, nitrogen dioxide and ozone (O3) concentrations are monitored. Results for the suburban area in 2020 are as follows:

### Nitrogen Dioxide

| POLLUTANT | $NO_2$ |
|---|---|
| Maximum hourly mean | 94 µg $m^{-3}$ |

| | |
|---|---|
| Maximum running 8-hour mean | 76 µg $m^{-3}$ |
| Maximum running 24-hour mean | 67 µg $m^{-3}$ |
| Maximum daily mean | 56 µg $m^{-3}$ |
| Data capture | 96 % |

Bleak House nitrogen dioxide monitored results 2020.

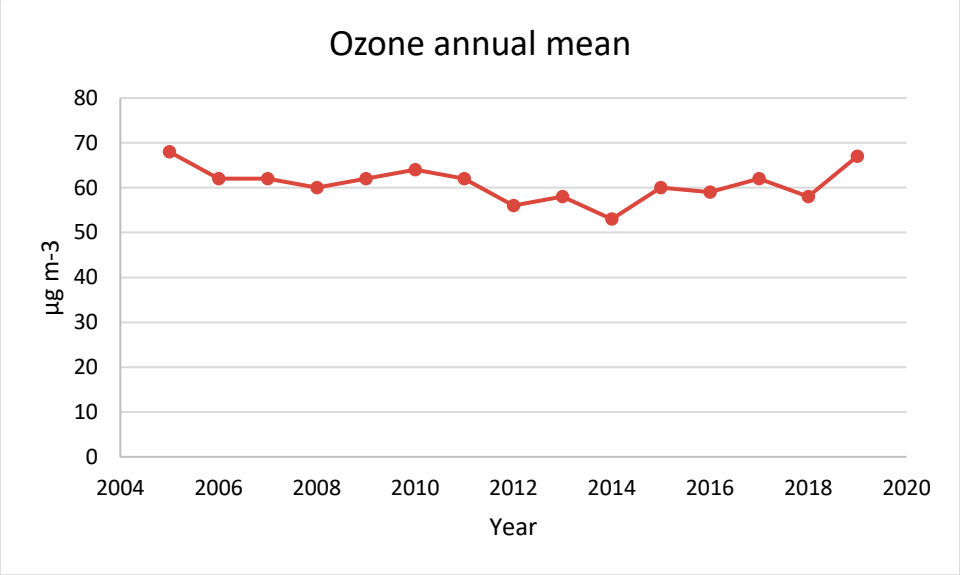



Bleak House nitrogen dioxide annual mean.

## Ozone

| POLLUTANT | $O_3$ |
|---|---|
| Maximum hourly mean | 148 µg $m^{-3}$ |
| Maximum running 8-hour mean | 140 µg $m^{-3}$ |
| Maximum running 24-hour mean | 128 µg $m^{-3}$ |
| Maximum daily mean | 122 µg $m^{-3}$ |
| Data capture | 96 % |

Bleak House ozone monitored results 2020.




Bleak House ozone annual mean.

## Exceedances

| Pollutant | Public Health (Air Quality Limit Values) Rules 2002, (Amendment) Rules 2003 and (Ozone) Rules 2004 | Exceedances |
|---|---|---|
| Nitrogen Dioxide | Hourly mean > 200 µg $m^{-3}$ | 0 |
| Ozone | Running 8-hour mean > 120 µg $m^{-3}$ | 2 |

Bleak House pollutant exceedances for 2020.

Data collected for 2020 shows that there were a total of 2 incidences of Ozone exceedance at Bleak House. Ozone is formed by the sunlight-initiated oxidation of volatile organic compounds (VOCs) in the presence of nitrogen oxides ($NO_x$). Not produced locally, this pollutant is created from ozone precursors that are predominantly of a transboundary nature.

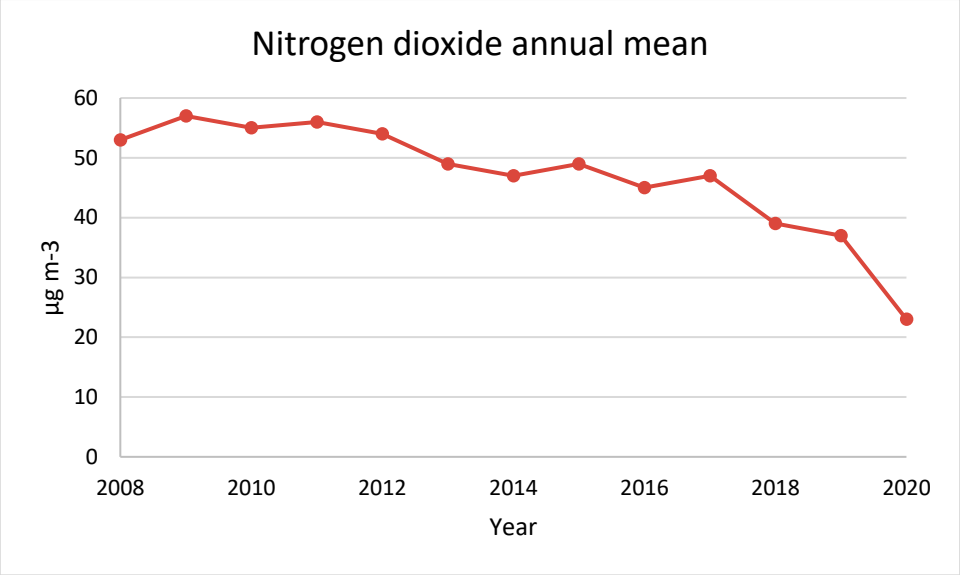
## Witham's Road: 1st January to 31st December 2020

As the third automatic monitoring station, Witham's Road is located in the South District and within range of the South District power stations. Positioned here intentionally to observe the effects of traffic and power station emissions on pollutant levels, nitrogen dioxide is recorded at this site and has been regulated since 2008.

### Nitrogen Dioxide

| POLLUTANT | $NO_2$ |
|---|---|
| Maximum hourly mean | 107 µg $m^{-3}$ |
| Maximum running 8-hour mean | 80 µg $m^{-3}$ |
| Maximum running 24-hour mean | 67 µg $m^{-3}$ |
| Maximum daily mean | 67 µg $m^{-3}$ |
| Data capture | 91 % |

Witham's Road nitrogen dioxide monitored results 2020.




Witham's Road nitrogen dioxide annual mean.

## Exceedances

| Pollutant | Public Health (Air Quality Limit Values) Rules 2002, (Amendment) Rules 2003 and (Ozone) Rules 2004 | Exceedances |
|---|---|---|
| Nitrogen Dioxide | Hourly mean > 200 µg $m^{-3}$ | 0 |

Witham's road pollutant exceedances for 2020.

In 2020, no threshold exceedances were recorded at Witham's road.

# Overview of Gibraltar's automatic air pollution measurement

To ensure the accuracy and reliability of all results documented by Gibraltar's air quality monitoring programme, substantial data capture is necessary. The table below provides an indication on Gibraltar's percentage of data capture, compared to that of the UK.

| 2020 | CO | NO2 | O3 | PM10 | PM25 | SO2 |
|---|---|---|---|---|---|---|
| Number of Stations | 7 | 160 | 75 | 93 | 82 | 29 |
| Number of stations < 85 % | 2 | 20 | 11 | 7 | 7 | 12 |
| Number of stations < 90% | 4 | 28 | 12 | 10 | 13 | 15 |
| Average data capture (%) (UK) | 86.9 | 92 | 91.7 | 94.5 | 93.4 | 81.7 |
| Average data capture (%) (Gib) | 85 | 90.7 | 81 | 79 | 79 | 98 |

Data capture 2020.

## Compliance with Air Quality Limit Values

To ensure compliance with air quality limit values, it is necessary to compare gathered data with relevant policy thresholds. Within this section, pollutants from the automatic monitoring framework (carbon monoxide, nitrogen dioxide, sulphur dioxide and ozone) are evaluated, with failures to meet standards highlighted in red, and compliant values highlighted in green.

| Air quality objective for CO (as maximum daily running 8hr mean) | Recorded levels (as maximum daily running 8hr mean) |
|---|---|
| 10 mg $m^{-3}$ | 1.6 mg $m^{-3}$ |

Automatic measurement for CO in 2020.

| Air Quality Objective for $NO_2$ | Recorded Annual Mean |
|---|---|
| 40 µg $m^{-3}$ | 27 µg $m^{-3}$ (Rosia Road) |
| | 23 µg $m^{-3}$ (Witham's Road) |
| | 19 µg $m^{-3}$ (Bleak House) |

Recorded annual mean for $NO_2$ in 2020.

| Air Quality Objective for $NO_2$ (1 hour mean) | Recorded exceedances |
|---|---|
| 200 µg $m^{-3}$ not to be exceeded more than 18 times per year | 0 (Rosia Road) |
| | 0 (Witham's Road) |
| | 0 (Bleak House) |

Exceedances recorded for one-hour mean for Nitrogen Dioxide in 2020.

| Air Quality Objective for $SO_2$ (Daily Mean) | Recorded exceedances |
|---|---|
| 125 µg $m^{-3}$ not to be exceeded more than 3 times per year | 0 |
| 350 µg $m^{-3}$ not to be exceeded more than 24 times per year | 0 |

Recorded daily and hourly exceedances for Sulphur dioxide in 2020.

| Air Quality Objective for Benzene (Annual Mean) | Recorded Annual Mean |
|---|---|
| 5 µg $m^{-3}$ | 1 µg $m^{-3}$ |

Recorded annual mean for Benzene in 2020.

| Air Quality Objective for Ozone (Maximum Daily 8 Hour Mean) | Maximum rolling 8-hr mean (µg m$^{-3}$) |
|---|---|
| 120 µg m$^{-3}$ not to be exceeded more than 25 days per calendar year, averaged over 3 years. | 140 µg m$^{-3}$<br>Target exceeded 2 times in 2020 |

Maximum rolling 8-hour mean for Ozone in 2020.

## Review of Gibraltar's non-automatic air pollution measurements

As part of Gibraltar's non-automatic monitoring programme, concentrations of particulates and heavy metals such as arsenic (As), cadmium (Cd), nickel (Ni), and lead (Pb) are measured. Assessed against limit values and objectives, the following series of data highlights compliant figures in green and non-compliant in red.

### Lead

| Air Quality Objective for Lead (measured as an annual mean) | Recorded Annual Mean |
|---|---|
| 0.5 µg m$^{-3}$ | 0.0043 µg m$^{-3}$ (Rosia Road)<br>0.004 µg m$^{-3}$ (Bleak House) |

Recorded annual mean for Lead in 2020.

### Particulate Matter ($PM_{10}$)

| Air Quality Objective for $PM_{10}$ (measured as an annual mean) | Recorded Annual Mean |
|---|---|
| 40 µg m$^{-3}$ | 22 µg m$^{-3}$ (Rosia Road)<br>20 µg m$^{-3}$ (Bleak House) |
| **Air Quality Objective for $PM_{10}$ (measured as a daily mean)** | **No. of exceedances of maximum daily mean** |
| 50 µg m$^{-3}$ not to be exceeded more than 35 times in a year | 1 (Rosia Road)<br>4 (Bleak House) |

$PM_{10}$ recorded annual mean and compliance in 2020.

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|
| **% Data Capture** | 90 | 73 | 82 | 94 | 93 | 81 | 86 | 75 | 33 |
| **Annual Mean $PM_{10}$ (40 µg m$^{-3}$)*** | 34 | 36 | 36 | 31 | 28 | 28 | 27 | 26 | 22 |
| **Max. 24-hour mean $PM_{10}$** | 83 | 88 | 155 | 41 | 41 | 102 | 39 | 36 | 30 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Days > 50 µg $m^{-3}$ (35 day limit)*** | 18 | 15 | 17 | 16 | 11 | 11 | 11 | 1 | 1 |

Breakdown of $PM_{10}$ statistics for Rosia Road.

### Particulate Matter ($PM_{2.5}$)

| Air Quality Objective for $PM_{2.5}$ (measured as an annual mean) | Recorded Annual Mean |
|---|---|
| 20µg $m^{-3}$ | 10 µg $m^{-3}$ |

$PM_{2.5}$ recorded annual mean for 2020.

### Arsenic, Cadmium, Nickel & Poly Aromatic Hydrocarbons (measured as Benzo(a)pyrene).

| Pollutant | Parameter | Target Value | Recorded Average |
|---|---|---|---|
| Arsenic | Annual average | 6 ng $m^{-3}$ | 1.3 ng $m^{-3}$ (Rosia Road) |
| | | | 1.2 ng $m^{-3}$ (Bleak House) |
| Cadmium | Annual average | 5 ng $m^{-3}$ | 1.6 ng $m^{-3}$ (Rosia Road) |
| | | | 1.5 ng $m^{-3}$ (Bleak House) |
| Nickel | Annual average | 20 ng $m^{-3}$ | 7.1 ng $m^{-3}$ (Rosia Road) |
| | | | 7.5 ng $m^{-3}$ (Bleak House) |
| BAP | Annual average | 1 ng $m^{-3}$ | 0.079 ng $m^{-3}$ (Rosia Road) |

4th Daughter Directive pollutant recordings for 2020.

## Diffusion Tube Networks

Integral to the non-automatic monitoring programme, a diffusion tube based method is used to assess monthly average concentrations of nitrogen dioxide and benzene at a number of sites across Gibraltar. Diffusion tube results are indicative only and not as reliable as the automatic monitoring network.

### Summary of Hydrocarbons

Below, average hydrocarbon concentrations for benzene are shown. With a pollutant threshold of 5 µg $m^{-3}$, the table highlights where compliance has been achieved, and also provides a comparison to the previous year's results to determine whether there are improvements being made.

| Site ID | Site Name | 2019 Benzene (µg m-3) | 2020 Benzene (µg m-3) | Difference |
|---|---|---|---|---|
| gib1 | Rosia Road | 1 | 0.8 | -0.2 |
| gib15 | Catalan Bay Road | 0.4 | 0.4 | 0 |
| gib16 | Laguna Estate | 0.7 | 0.5 | -0.2 |
| gib17 | Kings Lines Fuel Depot | 0.7 | 0.7 | 0 |

| | | | | |
|---|---|---|---|---|
| gib18 | Moorish Castle Estate | 0.7 | 0.6 | -0.1 |
| gib19 | North Mole | 0.8 | 0.8 | 0 |
| gib2 | Bleak House | 0.5 | 0.5 | 0 |
| gib20 | Sundial Roundabout | 1.1 | 0.9 | -0.2 |
| gib21 | Anchorage Rosia Road | 0.6 | 0.6 | 0 |
| gib3 | Jumpers | 1 | 0.8 | -0.2 |
| gib30 | Governors Meadow House | 0.6 | 0.6 | 0 |
| gib4 | Devils Tower Road | 0.6 | 0.5 | -0.1 |
| gib5 | Glacis Road | 1.3 | 1.0 | -0.3 |
| gib6 | Queensway | 1 | 0.8 | -0.2 |
| gib7 | Harbour Views | 0.7 | 0.6 | -0.1 |

Average hydrocarbon concentrations for Benzene 2020.

Compliance across all sites was achieved with readings measuring well below the 5 µg $m^{-3}$ threshold.

## Nitrogen Dioxide Network

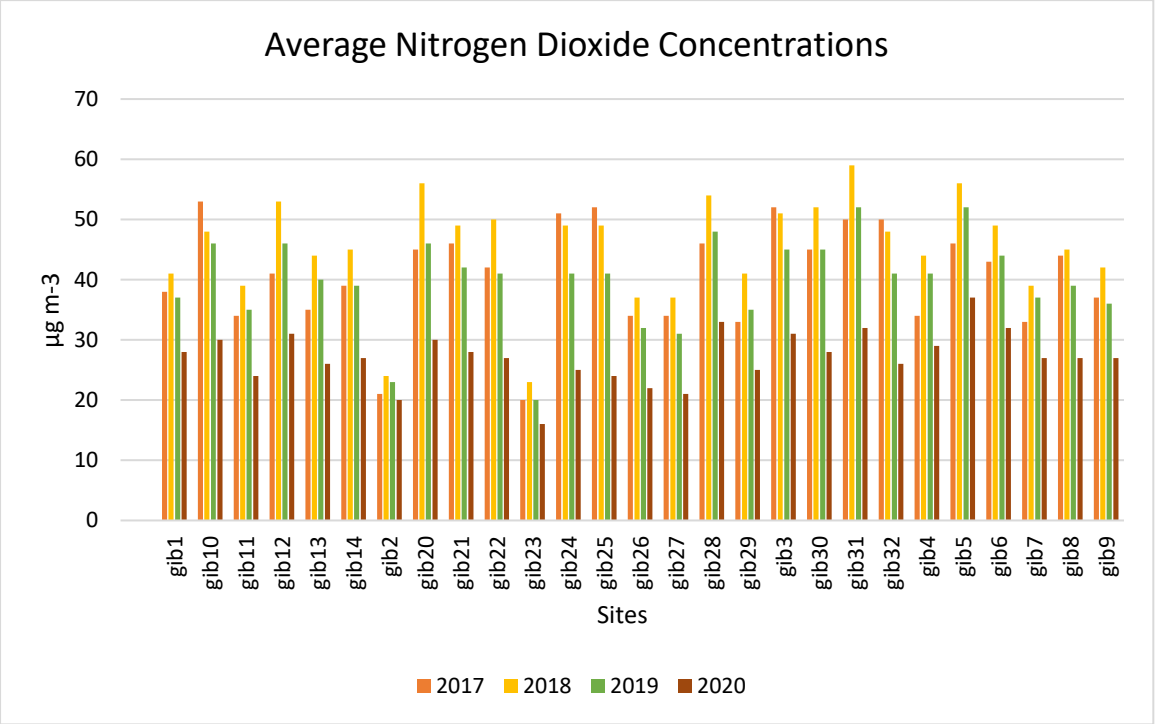
The following table shows diffusion tube readings of nitrogen dioxide at a variety of locations throughout Gibraltar. The target limit for this pollutant is 40 µg $m^{-3}$.

| Site ID | Site Name | 2019 $NO_2$ (µg m-3) | 2020 $NO_2$ (µg m-3) | Difference |
|---|---|---|---|---|
| **gib1** | Rosia Road | 37 | 28 | -9 |
| **gib10** | South Barracks Road | 46 | 30 | -16 |
| **gib11** | Main Street | 35 | 24 | -11 |
| **gib12** | Water Gardens | 46 | 31 | -15 |
| **gib13** | George Don House | 40 | 26 | -14 |
| **gib14** | Prince Edwards Road | 39 | 27 | -12 |
| **gib2** | Bleak House | 23 | 20 | -3 |
| **gib20** | Sundial Roundabout | 46 | 30 | -16 |
| **gib21** | Anchorage Rosia Road | 42 | 28 | -14 |
| **gib22** | Rosia Promenade | 41 | 27 | -14 |
| **gib23** | Lathbury Industrial Park | 20 | 16 | -4 |
| **gib24** | Upper Withams Entrance | 41 | 25 | -16 |
| **gib25** | Churchill House | 41 | 24 | -17 |
| **gib26** | Alameda Gardens Theatre | 32 | 22 | -10 |
| **gib27** | Alameda Gardens Access Road | 31 | 21 | -10 |
| **gib28** | Rock Hotel | 48 | 33 | -15 |
| **gib29** | Gardiners Road | 35 | 25 | -10 |
| **gib3** | Jumpers | 45 | 31 | -14 |
| **gib30** | Governors Meadow House | 45 | 28 | -17 |
| **gib31** | Dockyard Road | 52 | 32 | -20 |
| **gib32** | Woodford Cottage | 41 | 26 | -15 |
| **gib4** | Devils Tower Road | 41 | 29 | -12 |
| **gib5** | Glacis Road | 52 | 37 | -15 |

| | | | | |
|---|---|---|---|---|
| **gib6** | Queensway | 44 | 32 | -12 |
| **gib7** | Harbour Views | 37 | 27 | -10 |
| **gib8** | Red Sands Road | 39 | 27 | -12 |
| **gib9** | Lime Kiln Road | 36 | 27 | -9 |

Average nitrogen dioxide concentrations in 2020.

Compliance across all sites was achieved with readings measuring below the 40 µg $m^{-3}$ threshold in 2020.




Average nitrogen dioxide concentrations 2017-2020.

# Natural Resources
## Bathing Water

The Bathing Water Directive (2006/7/EC), adopted in 15th February 2006, was transposed into Gibraltar law by the Environment (Quality of Bathing Water) Regulations 2009. In accordance with the requirements of this legislation, regular monitoring is carried out at Gibraltar's six bathing areas - Camp Bay, Catalan Bay, Eastern Beach, Little Bay, Sandy Bay Western Beach – and more. The number of samples taken at respective sites in 2020 are as follows:

| Site Name | Number of samples taken |
|---|---|
| Camp Bay | 26 |
| Little Bay | 26 |
| Catalan Bay | 25 |
| Sandy Bay | 26 |
| Sandy Bay Outer Groyne | 18 |
| Eastern Beach | 25 |
| Eastern Beach Frontier Fence | 24 |
| Western Beach | 168 |
| GASA pier | 4 |
| Rosia Bay Beach | 21 |
| Rosia Bay Pier | 18 |

Number of samples taken as part of Environment (Quality of Bathing Water) Regulations 2009 monitoring.

Further to these legislative requirements, there is also a need to monitor for two microbiological indicators of faecal contamination: E Coli and intestinal enterococci. Classified into four categories being: "excellent", "good", "sufficient", or "poor", the analyses of these samples consider the results over the current bathing season and the preceding three years instead of a single year's result. In this way, classifications will be less susceptible to bad weather or one-off incidents, and provide results that are more reliable.

**Camp Bay No. of occasions of low water quality**

| Year | E.Coli >500 cfu/100ml | Intestinal enterococci >185 cfu/100ml |
|---|---|---|
| 2017 | 0 | 0 |
| 2018 | 0 | 0 |
| 2019 | 0 | 0 |
| 2020 | 0 | 0 |

Incidences of Low Water Quality at Camp Bay.

**Little Bay No. of occasions of low water quality**

| Year | E.Coli >500 cfu/100ml | Intestinal enterococci >185 cfu/100ml |
|---|---|---|
| 2017 | 0 | 0 |
| 2018 | 0 | 1 |
| 2019 | 0 | 1 |
| 2020 | 0 | 0 |

Incidences of Low Water Quality at Little Bay.

**Catalan Bay No. of occasions of low water quality**

| Year | E.Coli >500 cfu/100ml | Intestinal enterococci >185 cfu/100ml |
|---|---|---|
| 2017 | 1 | 1 |
| 2018 | 0 | 0 |
| 2019 | 0 | 1 |
| 2020 | 0 | 2 |

Incidences of Low Water Quality at Catalan Bay.

**Sandy Bay No. of occasions of low water quality**

| Year | E.Coli >500 cfu/100ml | Intestinal enterococci >185 cfu/100ml |
|---|---|---|
| 2017 | 0 | 0 |
| 2018 | 0 | 0 |
| 2019 | 1 | 1 |
| 2020 | 0 | 1 |

Incidences of Low Water Quality at Sandy Bay.

**Eastern Beach No. of occasions of low water quality**

| Year | E.Coli >500 cfu/100ml | Intestinal enterococci >185 cfu/100ml |
|---|---|---|
| 2017 | 0 | 0 |
| 2018 | 0 | 0 |
| 2019 | 0 | 0 |
| 2020 | 0 | 0 |

Incidences of Low Water Quality at Eastern Beach.

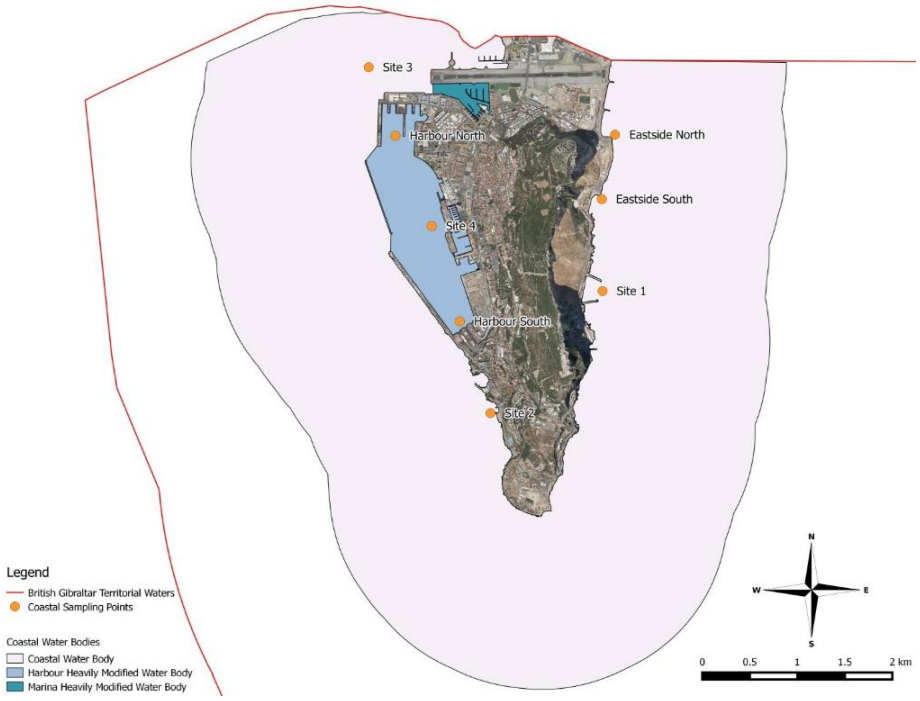
**Western Beach No. of occasions of low water quality**

| Year | E.Coli >500 cfu/100ml | Intestinal enterococci >185 cfu/100ml |
|---|---|---|
| **2017** | 43 | 36 |
| **2018** | 97 | 88 |
| **2019** | 44 | 59 |
| **2020** | 9 | 18 |

Incidences of Low Water Quality at Western Beach.

# Coastal Water Monitoring

The Department of the Environment and Climate Change carries out coastal water sampling on a regular basis at locations detailed on the map provided. In line with the Water Framework Directive (WFD) 2000/60/EC, a large variety of chemical and physio-chemical parameters are monitored at different locations and frequencies throughout the year.




Coastal water sampling points.

| Chemical / physio-chemical parameters | Frequency |
|---|---|
| **General** | |
| Temperature | Monthly |
| Nutrient status - Total N, Total P, NO3, NO2, NH4, PO4 | Monthly |
| Salinity | Monthly |
| Total suspended solids | Monthly |
| Dissolved \|Oxygen (DO)* | Monthly |
| Transparency* | Monthly |
| Chlorophyll-a* | Monthly |
| pH* | Monthly |
| **Specific pollutants** | |
| **Pesticides** | |
| Alachlor | 4 times per year |
| Atrazine | 4 times per year |
| Chlorfenvinphos | 4 times per year |
| Chlorpyrifos | 4 times per year |
| Endosulfan (alpha-endosulfan) | 4 times per year |
| Hexachlorobutadiene | 4 times per year |
| Hexachlorocyclohexane | 4 times per year |
| (gamma-isomer, Lindane) | 4 times per year |
| Simazine | 4 times per year |
| Trifluralin | 4 times per year |

| | |
|---|---|
| **Metals** | |
| Cadmium and its compounds | 4 times per year |
| Lead and its compounds | 4 times per year |
| Mercury and its compounds | 4 times per year |
| Nickel and its compounds | 4 times per year |
| **Polyaromatic hydrocarbons** | |
| Anthracene | 4 times per year |
| Fluoranthene | 4 times per year |
| Naphthalene | 4 times per year |
| (Benzo(a)pyrene) | 4 times per year |
| (Benzo(b)fluoranthene) | 4 times per year |
| (Benzo(g,h,i)perylene) | 4 times per year |
| (Benzo(k)fluoranthene) | 4 times per year |
| (Indeno(1,2,3-cd)pyrene) | 4 times per year |
| **Chlorinated Hydrocarbons** | |
| 1,2-Dichloroethane | 4 times per year |
| Dichloromethane | 4 times per year |
| Hexachlorobenzene | 4 times per year |
| Pentachlorobenzene | 4 times per year |
| Trichlorobenzenes (1,2,4-Trichlorobenzene) | 4 times per year |
| Trichloromethane (Chloroform) | 4 times per year |
| **TBT** | |
| Tributyltin compounds (Tributyltin-cation) | 4 times per year |
| **Other hydrocarbons** | |
| C10-13-chloroalkanes | 4 times per year |
| Benzene | 4 times per year |
| **BDEs** | |
| Brominated diphenylethers | 4 times per year |
| **DEHP** | |
| Di(2-ethylhexyl)phthalate | 4 times per year |
| **Urons** | |
| Diuron | 4 times per year |
| Isoproturon | 4 times per year |
| **Phenols** | |
| Nonylphenols (4-(para)-nonylphenol) | 4 times per year |
| Octylphenols (para-tert-octylphenol) | 4 times per year |
| Pentachlorophenol | 4 times per year |
| **Other pollutants** | |
| Chromium | 4 times per year |
| Copper | 4 times per year |
| Zinc | 4 times per year |
| **Biological parameters** | |
| Phytoplankton - Abundance & composition (Abn. & Comp.) | 4 times per year |
| Benthic macroinvertebrates - Abundance, composition & biomass | Every 6 years |

## Coastal Monthly and Quarterly Data for 2020

| | | Site 1. Sandy Bay 08/01/20 | Site 2. Camp Bay 08/01/20 | Site 3. Runway 08/01/20 | Site 4. Mid Harbour 08/01/20 |
|---|---|---|---|---|---|
| ***Analyte*** | ***Units*** | | | | |
| Nitrogen as N | mg/l | <0.5 | <0.5 | <0.5 | <0.5 |
| Ammoniacal Nitrogen, Filtered as N | mg/l | <0.100 | <0.100 | <0.100 | <0.100 |
| Nitrite, Filtered as N | mg/l | <0.0200 | <0.0200 | <0.0200 | <0.0200 |
| Nitrogen : Total Oxidised, Filtered as N | mg/l | <0.00400 | <0.00400 | <0.00400 | <0.00400 |
| Orthophosphate, Filtered as P | mg/l | <0.100 | <0.100 | <0.100 | <0.100 |
| Phosphorus : Total | mg/l | <0.0100 | <0.0100 | <0.0100 | <0.0100 |
| Chlorophyll, Acetone Extract | ug/l | <0.0200 | <0.0200 | <0.0200 | <0.0200 |
| Solids, Suspended at 105 C | mg/l | <3.00 | <3.00 | <3.00 | <3.00 |
| Nitrate, Filtered as N | mg/l | <0.100 | <0.100 | <0.100 | <0.100 |

January 2020 Coastal Monitoring Results.

| | | Site 1. Sandy Bay 11/02/20 | Site 2. Camp Bay 11/02/20 | Site 3. Runway 11/02/20 | Site 4. Mid Harbour 11/02/20 |
|---|---|---|---|---|---|
| ***Analyte*** | ***Units*** | | | | |
| Cadmium | ug/l | <0.03 | <0.03 | <0.03 | <0.03 |
| Lead | ug/l | <0.04 | 0.08 | 0.12 | 0.25 |
| Nickel | ug/l | <0.3 | <0.3 | <0.3 | <0.3 |
| DDT : Sum of components | ug/l | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| HCH : Total Isomers (Alpha, Beta, Gamma, Delta, Epsilon) | ug/l | <0.013 | <0.013 | <0.013 | <0.013 |
| 4-Nonylphenol Branched | ug/l | <0.4 | <0.4 | <0.4 | <0.6 |
| 4-Nonylphenol Diethoxylate (Isomeric mix) | ug/l | <0.2 | <0.2 | <0.2 | <0.3 |
| 4-Nonylphenol Monoethoxylate (Isomeric mix) | ug/l | <0.2 | <0.2 | <0.2 | <0.3 |
| 4-Nonylphenol Triethoxylate (Isomeric mix) | ug/l | <0.4 | <0.4 | <0.4 | <0.6 |
| Nonylphenol ethoxylates (1-4 EO) | ug/l | <0.6 | <0.6 | <0.6 | <2 |
| Octylphenol ethoxylates (1-2 EO) | ug/l | <0.2 | <0.2 | <0.2 | <0.3 |
| p-tert-Octylphenol | ug/l | <0.1 | <0.1 | <0.1 | <0.2 |
| pTert-Octylphenol Diethoxylate | ug/l | <0.1 | <0.1 | <0.1 | <0.2 |

| | | | | | |
|---|---|---|---|---|---|
| pTert-Octylphenol Monoethoxylate | ug/l | <0.1 | <0.1 | <0.1 | <0.2 |
| Di-2-ethylhexyl phthalate :- {DEHP} | ug/l | <0.2 | <0.2 | <0.2 | <0.2 |
| Aldrin | ug/l | <0.001 | <0.001 | <0.001 | <0.001 |
| DDT -op | ug/l | <0.003 | <0.003 | <0.003 | <0.003 |
| DDT -pp | ug/l | <0.002 | <0.002 | <0.002 | <0.002 |
| Dieldrin | ug/l | <0.002 | <0.002 | <0.002 | <0.002 |
| Endosulfan A | ug/l | <0.003 | <0.003 | <0.003 | <0.003 |
| Endosulfan B | ug/l | <0.004 | <0.004 | <0.004 | <0.004 |
| Endrin | ug/l | <0.003 | <0.003 | <0.003 | <0.003 |
| HCH -alpha | ug/l | <0.003 | <0.003 | <0.003 | <0.003 |
| HCH -beta | ug/l | <0.003 | <0.003 | <0.003 | <0.003 |
| HCH -delta | ug/l | <0.001 | <0.001 | <0.001 | <0.001 |
| HCH -epsilon | ug/l | <0.003 | <0.003 | <0.003 | <0.003 |
| HCH -gamma :- {Lindane} | ug/l | <0.003 | <0.003 | <0.003 | <0.003 |
| Isodrin | ug/l | <0.001 | <0.001 | <0.001 | <0.001 |
| Pentachlorobenzene | ug/l | <0.001 | <0.001 | <0.001 | <0.001 |
| Trifluralin | ug/l | <0.002 | <0.002 | <0.002 | <0.002 |
| Atrazine | ug/l | - | - | - | - |
| Chlorpyrifos-ethyl | ug/l | - | - | - | - |
| Chlorpyrifos-methyl | ug/l | - | - | - | - |
| Dichlorvos | ug/l | - | - | - | - |
| Simazine | ug/l | - | - | - | - |
| Terbutryn | ug/l | - | - | - | - |
| Tributyl Tin as Cation | ug/l | <0.0005 | <0.0005 | <0.0005 | 0.0022 |
| Anthracene | ug/l | <0.01 | <0.01 | <0.01 | <0.01 |
| Aclonifen | ug/l | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Alachlor | ug/l | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Bifenox | ug/l | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Chlorfenvinphos | ug/l | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Quinoxyfen | ug/l | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Pentachlorophenol | ug/l | <0.02 | <0.02 | <0.02 | <0.02 |
| Cypermethrin | ug/l | <0.002 | <0.002 | <0.002 | <0.002 |
| Cypermethrin Identification | Text | Not Detected | Not Detected | Not detected | Not detected |
| Diuron | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |
| Isoproturon | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |
| 1,2,3-Trichlorobenzene | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |
| 1,2,4-Trichlorobenzene | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |
| 1,2-Dichloroethane | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |
| 1,3,5-Trichlorobenzene | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzene | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |
| Carbon tetrachloride :- {Tetrachloromethane} | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |

| | | | | | |
|---|---|---|---|---|---|
| Chloroform :- {Trichloromethane} | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |
| Dichloromethane :- {Methylene Dichloride} | ug/l | <0.5 | <0.5 | <0.5 | <0.5 |
| Naphthalene | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |
| Tetrachloroethylene :- {Perchloroethylene} | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |
| Trichloroethylene :- {Trichloroethene} | ug/l | <0.1 | <0.1 | <0.1 | <0.1 |

February 2020 Coastal Monitoring Results.

## Groundwater Monitoring

| | | **Site 1. Silent Pool 25/02/20** | **Site 2. Cemetery 25/02/20** | **Site 3. Frontier 25/02/20** | **Site 4. Four Corners 25/02/20** | **Site 5. Runway 25/02/20** |
|---|---|---|---|---|---|---|
| ***Analyte*** | ***Units*** | | | | | |
| Alkalinity to pH 4.5 as CaCO3 | mg/l | 172 | 170 | 225 | 273 | 345 |
| Ammoniacal Nitrogen as N | mg/l | <0.300 | <0.0300 | <0.0300 | <0.0300 | <0.0300 |
| Chloride | mg/l | 1760 | 27.3 | 84.5 | 40.9 | 447 |
| Nitrite as N | mg/l | <0.00400 | <0.00400 | <0.00400 | <0.00400 | <0.00400 |
| Nitrogen : Total Oxidised as N | mg/l | 5.6 | 8.34 | 6.71 | <0.200 | 5.85 |
| Carbon, Organic : Total as C :- {TOC} | mg/l | 0.8 | 0.9 | 1 | 1.9 | 0.9 |
| Solids, Suspended at 105 C | mg/l | - | 4.63 | 18.9 | 3.83 | 6.48 |
| Arsenic | mg/l | <1 | 3.45 | 2.72 | 7.55 | 5.95 |
| Cadmium | mg/l | <0.1 | <0.1 | 0.378 | <0.1 | <0.1 |
| Lead | mg/l | <2 | <2 | 3.35 | <2 | 2.9 |
| Zinc | mg/l | 30.6 | 35.8 | 351 | 98.3 | 75 |
| Calcium | mg/l | 134 | 72.2 | 77.1 | 76.5 | 146 |
| Magnesium | mg/l | 125 | 6.61 | 22.9 | 21.9 | 45.8 |
| Potassium | mg/l | 35.4 | 7.28 | 7.54 | 5.06 | 17.4 |
| Sodium | mg/l | 954 | 21 | 59.2 | 40.7 | 234 |
| Sulphate as SO4 | mg/l | 261 | 28.4 | 48.2 | 45.2 | 59.6 |
| Mercury | mg/l | - | <0.01 | <0.01 | <0.01 | <0.01 |
| Bicarbonate as HCO3 | mg/l | - | 207 | 275 | 333 | 421 |
| Nitrate as N | mg/l | - | <8.34 | <6.71 | <0.200 | <5.85 |
| Hydrocarbons Screen >C5 - C44 | mg/l | - | - | - | - | - |
| 1,2,3-Trichlorobenzene | mg/l | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| 1,2,4-Trichlorobenzene | mg/l | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1,3,5-Trichlorobenzene | mg/l | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| 2,3,5,6-Tetrachloroaniline | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| 2,3,5,6-Tetrachlorothioanisole | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Aldrin | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Chlorothalonil | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Chlorpropham | mg/l | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| DDE -op | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| DDE -pp | mg/l | <0.001 | <0.001 | <0.001 | 0.0041 | 0.0301 |
| DDT -op | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | 0.00404 |
| DDT -pp | mg/l | <0.002 | <0.002 | <0.002 | 0.0092 | 0.0353 |
| Dichlobenil :- {2,6-Dichlorobenzonitrile } | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Dieldrin | mg/l | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| Endosulfan A | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| Endosulfan B | mg/l | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 |
| Endrin | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| HCH -alpha | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| HCH -beta | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| HCH -delta | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| HCH -epsilon | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| HCH -gamma :- {Lindane} | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| Heptachlor | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Hexachlorobenzene | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Hexachlorobutadiene | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| Isodrin | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Methoxychlor | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Pendimethalin | mg/l | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Pentachlorobenzene | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Propachlor | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| TDE - op | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | 0.00138 |
| TDE - pp | mg/l | <0.002 | <0.002 | <0.002 | 0.00205 | 0.00964 |
| Tecnazene | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Tri-allate | mg/l | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 |
| Trifluralin | mg/l | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| Vinclozolin | mg/l | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| cis-Chlordane | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| cis-Heptachlor epoxide | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| trans-Chlordane | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| trans-Heptachlor epoxide | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| Atrazine | mg/l | <0.003 | <0.004 | <0.003 | <0.003 | <0.003 |
| Atrazine-desethyl | mg/l | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| Atrazine-desisopropyl | mg/l | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Azinphos-ethyl | mg/l | <0.006 | <0.007 | <0.006 | <0.006 | <0.006 |
| Azinphos-methyl | mg/l | <0.003 | <0.004 | <0.003 | <0.003 | <0.003 |
| Bendiocarb | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Bupirimate | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Carbophenothion | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Chlorfenvinphos | mg/l | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Chlorpyrifos-ethyl | mg/l | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| Chlorpyrifos-methyl | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Coumaphos | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Cyanazine | mg/l | <0.006 | <0.007 | <0.006 | <0.006 | <0.006 |
| Desmetryn | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Diazinon | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Dichlorvos | mg/l | <0.004 | <0.005 | <0.004 | <0.004 | <0.004 |
| Dimethoate | mg/l | <0.006 | <0.007 | <0.006 | <0.006 | <0.006 |
| Ethion | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Ethofumesate | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Fenchlorphos | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Fenitrothion | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Fenpropimorph | mg/l | <0.007 | <0.009 | <0.007 | <0.007 | <0.007 |
| Fenthion | mg/l | <0.008 | <0.01 | <0.008 | <0.008 | <0.008 |
| Fonofos | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Iodofenphos | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Iprodione | mg/l | <0.008 | <0.01 | <0.008 | <0.008 | <0.008 |
| Irgarol 1051 | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Malathion | mg/l | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| Metalaxyl | mg/l | <0.008 | <0.01 | <0.008 | <0.008 | <0.008 |
| Metazachlor | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Mevinphos | mg/l | <0.008 | <0.01 | <0.008 | <0.008 | <0.008 |
| Napropamide | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Parathion-ethyl | mg/l | <0.004 | <0.005 | <0.004 | <0.004 | <0.004 |
| Parathion-methyl | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Phorate | mg/l | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| Pirimicarb | mg/l | <0.004 | <0.005 | <0.004 | <0.004 | <0.004 |
| Pirimiphos-ethyl | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Pirimiphos-methyl | mg/l | <0.003 | <0.004 | <0.003 | <0.003 | <0.003 |
| Prochloraz | mg/l | <0.007 | <0.009 | <0.007 | <0.007 | <0.007 |
| Prometryn | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Propazine | mg/l | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| Propetamphos | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Propyzamide | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Simazine | mg/l | <0.003 | <0.004 | <0.003 | <0.003 | <0.003 |
| Terbutryn | mg/l | <0.004 | <0.005 | <0.004 | <0.004 | <0.004 |
| Triazophos | mg/l | <0.005 | <0.006 | <0.005 | <0.005 | <0.005 |
| Trietazine | mg/l | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| Bifenthrin | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cyfluthrin | mg/l | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Cypermethrin | mg/l | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| Cypermethrin Identification | mg/l | Not detected. | Not detected. | Not detected. | Not detected. | Not detected. |
| Deltamethrin | mg/l | - | - | - | - | - |
| Flumethrin | mg/l | - | - | - | - | - |
| Lambda-cyhalothrin | mg/l | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| cis-Permethrin | mg/l | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| trans-Permethrin | mg/l | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| 1,2-Dichloroethane | mg/l | - | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzene | mg/l | - | <0.1 | <0.1 | <0.1 | <0.1 |
| Bromodichloromethane | mg/l | - | <0.1 | <0.1 | <0.1 | <0.1 |
| Bromoform :- {Tribromomethane} | mg/l | - | <0.1 | <0.1 | <0.1 | <0.1 |
| Chloroform :- {Trichloromethane} | mg/l | - | <0.1 | <0.1 | <0.1 | <0.1 |

# Habitats
# Birds

## Nesting Birds of Prey

As part of their work, the Gibraltar Ornithological and Natural History Society (GONHS) conducts bird of prey surveys on an annual basis during the breeding season. Records are kept on the nesting of Peregrines (*Falco peregrinus)*, Common Kestrel (*Falco tinnunculus)*, and Lesser Kestrel (*Falco naumanni*). These records are shown in the following section.

## Lesser and Common Kestrel

| Year | Lesser Kestrel | Common Kestrel |
|---|---|---|
| 2010 | 16 | 11 |
| 2011 | 18 | 9 |
| 2012 | 13 | 8 |
| 2013 | 5 | 5 |
| 2014 | 4 | 6 |
| 2015 | 4 | 7 |
| 2016 | 1 | 7 |
| 2017 | 1 | 8 |
| 2018 | 0 | 5 |
| 2019 | 0 | 5 |
| 2020 | 0 | 6 |

Breeding Pairs of Lesser Kestrel & Common Kestrel in Gibraltar.

## Yellow-legged Gulls

| | Chicks | Eggs |
|---|---|---|
| January | 0 | 0 |
| February | 0 | 0 |
| March | 0 | 0 |
| April | 0 | 0 |
| May | 68 | 32 |
| June | 82 | 3 |
| July | 0 | 0 |
| August (counts) | 0 | 0 |
| September (counts) | 0 | 0 |
| October | 0 | 0 |
| November | 0 | 0 |
| December | 0 | 0 |
| Total | 150 | 35 |

Yellow-legged Gull chicks and eggs destroyed in 2020.

| | Adults | 1st/yr | 2nd/yr | 3rd/yr | Juveniles | Total |
|---|---|---|---|---|---|---|
| Jan | 182 | 2 | 9 | 1 | 0 | 194 |
| Feb | 361 | 24 | 21 | 27 | 0 | 433 |
| Mar | 137 | 2 | 17 | 16 | 0 | 172 |
| Apr | 0 | 0 | 0 | 0 | 0 | 0 |
| May | 233 | 11 | 22 | 14 | 0 | 280 |
| Jun | 279 | 6 | 2 | 8 | 55 | 350 |
| Jul | 145 | 0 | 1 | 1 | 116 | 263 |
| Aug (counts) | 0 | 0 | 0 | 0 | 0 | 0 |
| Sept (counts) | 0 | 0 | 0 | 0 | 0 | 0 |
| Oct | 57 | 0 | 1 | 3 | 0 | 61 |
| Nov | 109 | 25 | 10 | 4 | 0 | 148 |
| Dec | 44 | 2 | 1 | 1 | 0 | 48 |
| Total | 1547 | 72 | 84 | 75 | 171 | 1949 |

Yellow-legged Gulls culled in 2020.

### Peregrine Falcon (young fledged by site)

| Year | North Face | Catalan Bay | Sandy Bay | Brian Navarro way | Med Steps | Camp Bay | Europa Point | Apes Den | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2010 | 0 | 0 | 3 | 2 | 0 | 2 | 0 | | 7 |
| 2011 | 2 | 3 | 3 | 0 | | 3 | 3 | | 14 |
| 2012 | 0 | 3 | 2 | 0 | | 1 | 2 | 0 | 8 |
| 2013 | 4 | 3 | 3 | 0 | 3 | 0 | 0 | | 13 |
| 2014 | 3 | 1 | 2 | | 0 | | 0 | | 6 |
| 2015 | 2 | 2 | 0 | 3 | | 3 | 0 | 0 | 10 |
| 2016 | 3 | 3 | 3 | 0 | | 3 | 0 | 0 | 14 |
| 2017 | 0 | 3 | 3 | 0 | 3 | 0 | 3 | 0 | 12 |
| 2018 | 0 | 3 | 3 | 2 | 0 | | 3 | 2 | 13 |
| 2019 | 2 | 2 | 0 | 2 | 3 | | 3 | 0 | 12 |
| 2020 | 3 | 0 | 0 | 3 | 0 | | 3 | 4 | 13 |

***Blank entries denote no pairs present at this site***

Locations and Breeding Success of Peregrines in Gibraltar.

## Mammals

### Barbary Macaques

| Year | Population | Deaths | Births | Infant Deaths |
|---|---|---|---|---|
| 2013 | 209 | 40 | 33 | 6 |
| 2014 | 196 | 27 (30 exported) | 26 | 7 |
| 2015 | 158 | 7 | 39 | 3 |
| 2016 | 184 | 8 | 38 | 7 |
| 2017 | 198 | 28 | 27 | 8 |
| 2018 | 245 | 10 | 23 | 9 |
| 2019 | 247 | 10 | 25 | 15 |
| 2020 | 273 | 12 | 34 | 4 |

Barbary Macaque demographics.

| | |
|---|---|
| Rock Gun | 22 |
| Middle Hill | 23 |
| Cable Car | 28 |
| Prince Philips Arch | 22 |
| Ohara`s Battery | 7 |
| Eastside | 7 |
| Anglian Way | 50 |
| Apes Den | 40 |
| Anglian Way 2 | 41 |
| Farringdons/Moorish Castle | 7 |

Barbary Macaque population and distribution data.

# Waste

## Hazardous Waste

Hazardous waste materials are stored under strict license conditions, and then processed for trans-frontier shipment where they can be adequately disposed of. Typically consisting of waste oils and asbestos containing products, the table below shows a breakdown of total exported hazardous wastes in 2020.

| Waste Code | Description of Waste | Total Exported (tonnes) |
|---|---|---|
| 13 04 03* | Bilge oils from other navigation | 7748 |
| 18 01 03* | Waste whose collection and disposal is subject to special requirements to prevent infection | 4.1 |
| 18 01 08* | Cytotoxic and Cytostatic medicines | 0.2 |
| 17 06 05* | Construction materials containing asbestos | 6.08 |
| 08 01 11* | Waste paint and varnish containing organic solvents or other dangerous substances | 1.02 |
| 16 03 05* | Organic wastes containing dangerous substances | 0.5 |
| 20 01 23* | Discarded equipment containing chlorofluorocarbons | 52 |
| 08 01 11* | Waste paint and varnish containing organic solvents or other dangerous substances | 8.88 |
| 20 01 35* | Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components | 0.1 |
| 20 01 21* | Fluorescent tubes and other mercury containing waste | 1.9 |
| 20 01 36 | Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35 | 1.6 |
| 16 05 04* | Gases in pressure containers (Including Halons) containing dangerous substances | 0.19 |
| 16 01 07* | Oil Filters | 8.99 |
| 15 02 02* | Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances. | 6.18 |

| | | |
|---|---|---|
| 15 01 10* | Packaging containing residues of or contaminated by dangerous substances | 1 |
| 08 01 11* | Waste Paint and varnish containing organic solvents or other dangerous substances | 1.87 |
| 14 06 03* | Other solvents and solvent mixtures | 2.02 |
| 18 01 03* | Wastes whose collection and disposal is subject to special requirements in order to prevent infection | 13.2 |
| 18 01 09 | Medicines other than those mentioned in 180108 | 0.5 |
| 13 07 03* | Other fuels (including mixtures) | 0.58 |
| 17 06 05* | Construction materials containing asbestos | 6.66 |
| 10 01 04* | Oil fly ash and boiler dust | 15.99 |
| 13 05 02* | Sludge from oil/water separators | 19.25 |
| 15 02 02* | Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances | 20.31 |
| 13 05 02* | Sludge from oil/water separators | 12.86 |
| 19 01 13* | Fly ash containing dangerous substances | 2.04 |
| 19 01 11* | Bottom ash and slag containing dangerous substances | 20.93 |
| 19 08 11* | Sludge containing dangerous substances from biological treatment of industrial waste water | 25 |
| 16 01 07* | Oil Filters | 13 |
| 15 02 02* | Absorbents | 10.2 |
| 12 01 13* | Packaging containing residues of or contaminated by dangerous substances | 1351.54 |
| 20 03 01<br>20 03 99 | Mixed municipal waste Municipal wastes not otherwise specified | 30863.77 |
| 18 01 08* | Cytotoxic and Cytostatic medicines | 1.9 |
| 17 05 03* | Soils and stones containing dangerous substances | 53.55 |
| 18 01 03* | Waste whose collection and disposal is subject to special requirements to prevent infection | 55.06 |
| 18 01 08* | Cytotoxic and Cytostatic medicines | 1.64 |
| 17 06 05* | Construction materials containing asbestos | 25.96 |
| 08 01 11* | Waste paint and varnish containing organic solvents or other dangerous substances | 8.47 |
| 16 03 05* | Organic wastes containing dangerous substances | 1.16 |
| 15 01 10* | Packaging containing residues of or contaminated by dangerous substances | 2.37 |
| 06 02 04* | Sodium and potassium hydroxide | 2.27 |
| 13 07 03* | Other fuels (including Mixtures) | 559.484 |
| 17 06 03* | Other insulation materials consisting of or containing dangerous substances | 2.95 |
| 16 10 01* | Aqueous liquid wastes containing dangerous substances | 2.23 |
| 16 05 06* | Laboratory chemicals consisting of or containing dangerous substances including mixtures of laboratory chemicals | 0.12 |

| | | |
|---|---|---|
| 16 01 07* | Oil Filters | 0.95 |
| 15 02 02* | Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances | 5.1 |
| 15 01 10* | Packaging containing residues of or contaminated by dangerous substances | 2.04 |
| 08 01 11* | Waste paint and varnish containing organic solvents or other dangerous substances | 14.06 |
| 20 01 21* | Fluorescent tubes and other mercury containing waste | 1.8 |
| 20 01 36 | Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35 | 2.4 |
| 12 01 16* | Waste blasting material containing dangerous substances | 54.2 |
| 13 07 03* | Other fuels (including Mixtures) | 0.39 |
| 14 06 03* | Other solvents and solvent mixtures | 1.3 |
| 16 05 04 * | Gases in pressure containers (Including Halons) containing dangerous substances | 0.15 |
| 18 01 03* | Wastes whose collection and disposal is subject to special requirements in order to prevent infection | 31.7 |
| 18 01 09 | Medicines other than those mentioned in 180108 | 0.3 |
| 19 01 11* | Bottom ash and slag containing dangerous substances | 3.36 |
| 15 02 02* | Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances | 3.18 |
| 13 05 02* | Sludge from oil/water separators | 4.69 |
| 17 06 05* | Construction Materials containing dangerous substances | 3.21 |
| 10 01 04* | Oil fly ash and boiler dust | 8.25 |
| 13 07 03* | Other Fuels (Including Mixtures) | 9897.22 |
| 13 07 03* | Other Fuels (Including Mixtures) | 10850 |
| 17 06 05* | Construction Materials containing dangerous substances | 64.92 |
| 17 05 03* | Soils and stones containing dangerous substances | 883.5 |
| 13 04 03* | Bilge oils from other navigation | 3757.4 |
| 20 01 35* | Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components | 253.14 |
| 20 01 23* | Discarded equipment containing chlorofluorocarbons | 60.34 |
| 16 06 01* | Lead Batteries | 121.26 |
| 20 03 03<br>20 03 99 | Mixed municipal waste. Municipal wastes not otherwise specified | 7684.82 |
| 16 01 07* | Oil Filters | 0.41 |
| 15 02 02* | Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances | 3.32 |
| 16 07 08* | Wastes containing oil | 3.55 |

| | | |
|---|---|---|
| 13 04 03* | Bilge oils from other navigation | 1555 |

Trans-frontier shipments of hazardous waste in 2020.

## Municipal Waste

| Month | Refuse (Kgs) | Bulky Items (Kgs) | Mattresses (Kgs) |
|---|---|---|---|
| January | 1778840 | 1,080,980 | 7560 |
| February | 1,276,780 | 1,075,820 | 8260 |
| March | 1,646,780 | 1,058,840 | 8120 |
| April | 1,324,460 | 406,640 | 2660 |
| May | 1,239,080 | 732,980 | 6240 |
| June | 1,457,740 | 1,304,240 | 10,660 |
| July | 1,316,920 | 1,458,860 | 8640 |
| August | 1,332,440 | 1,087,960 | 9140 |
| September | 1,328,640 | 1,103,360 | 9860 |
| October | 1,448,760 | 1,155,900 | 6900 |
| November | 1,367,460 | 920,160 | 11,840 |
| December | 1,539,080 | 967,940 | 7480 |
| Total | 17,056,980 | 12,353,680 | 97,360 |

Municipal waste in Gibraltar in 2020.

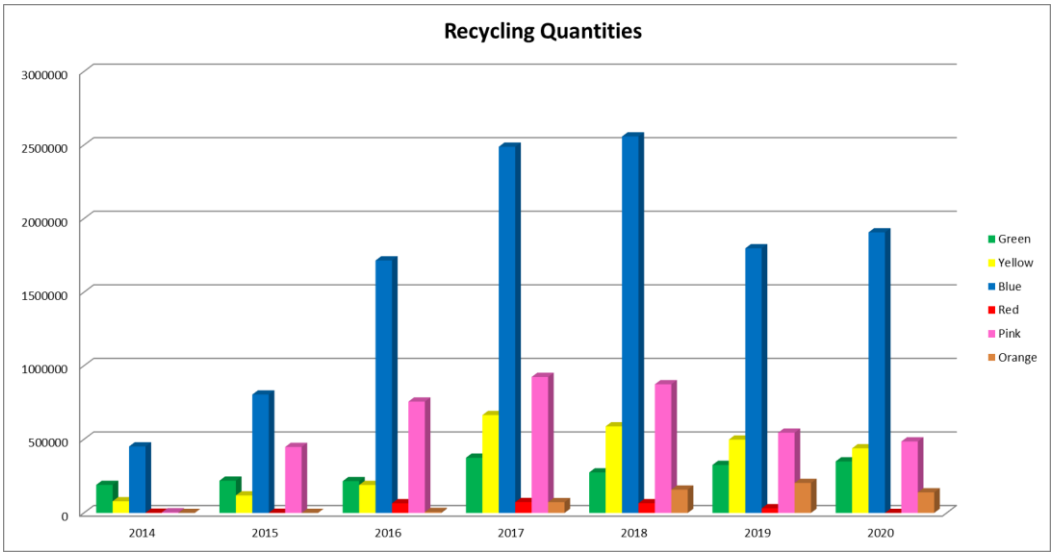
## Recycling

The following data shows rates for recycling in Gibraltar during 2020.

| Key | |
|---|---|
| **Bin Colour** | **Items discarded** |
| Green | Glass |
| Yellow | Plastic, cans and tetrabrik |
| Blue | Paper and cardboard |
| Red | Batteries |
| Pink | Waste Electrical and Electronic Equipment (WEEE) |
| Orange | Waste cooking oil |

| Year 2020 | Green Bin | Yellow Bin | Blue Bin | Red Bin | Pink Bin | Orange Bin | Total |
|---|---|---|---|---|---|---|---|
| Kgs | 350,000 | 439,040 | 1,906,782 | 0 | 485,882 | 140,000 | 3,321,704 |

Recycling quantities for 2020.




Recycling quantities (2014-2020).

## WEEE

Due to the mixed and often hazardous nature of WEEE, regulations are in place to ensure that all categories of this waste are responsibly handled, treated and disposed of where necessary. The table below highlights which categories are encompassed under this umbrella of enforcement, and details how much is being treated and recovered to create a new life cycle.

| ***Year:*** ***2020*** | **Imported** | | **Collected** | | **Sent for treatment** | | **Recovery** |
|---|---|---|---|---|---|---|---|
| **Categories** | **Quantity (No.)** | **Weight (tonnes)** | **Quantity (No.)** | **Weight (tonnes)** | **Quantity (No.)** | **Weight (tonnes)** | **%** |
| Large Household appliances | 2587 | 56.246 | 1954 | 70.27 | 10380 | 404.766 | 124.9333 |
| Small Household appliances | 17760.02 | 34.858 | 80 | 0.5235 | 2350 | 7.731 | 1.501807 |
| IT and Telecoms Equipment | 51781 | 97.255 | 1639 | 9.703 | 8251 | 57.092 | 9.976865 |
| Consumer Equipment | 2663 | 11.796 | 207 | 5.18 | 993 | 10.92 | 43.91319 |
| Lighting equipment | 256 | 256 | 2630 | 2.56 | 720 | 3.615 | 1 |
| Electrical and electronic tools | 584 | 13.648 | 13 | 0.305 | 0 | 0 | 2.23476 |
| Toys, Leisure & Sports Equipment | 1 | 17.822 | 11 | 0.04 | 2 | 0.04 | 0.224442 |
| Medical devices | 161 | 23.056 | 0 | 0 | 120 | 0.178 | 0 |
| Monitoring & Control Instruments | 33 | 0.271 | 0 | 0 | 0 | 0 | 0 |
| Automatic dispensers | 48 | 1.492 | 0 | 0 | 12 | 1.54 | 0 |
| **TOTAL** | 75874.02 | 512.444 | 6534 | 88.5815 | 22828 | 485.882 | |

WEEE movements and recovery in Gibraltar in 2020.

## Incineration Waste

Data below shows types and weights of incinerated waste dealt with locally, and exported.

| **Type of Waste** | |
|---|---|
| Clinical Waste Incinerated (Kgs) | 430590 |
| Clinical waste Exported (Kgs) | 91177.5 |
| Cytotoxic Waste Exported (Kgs) | 2535 |
| Animal Incinerations (Number) | 312 |
| Human Cremations (Number) | 76 |
| Other wastes Incinerated (Kgs) | 1325 |
| **Exported** | |
| Fly Ash Exported (Kgs) | 3924 |
| Furnace Ash Exported (Kgs) | 27112 |

| | | **Year 2020** | |
|---|---|---|---|
| **Month** | **No. of Containers** | **Total Litres** | **Total Kgs** |
| January | 5725 | 337705 | 42545 |
| February | 0 | 0 | 0 |
| March | 5391 | 321448 | 40273 |
| April | 5176 | 308263 | 38667 |
| May | 5305 | 314740 | 39594.5 |
| June | 5540 | 327717 | 41264 |
| July | 5686 | 335715 | 42247 |
| August | 5953 | 352345 | 44330.5 |
| September | 6222 | 366680 | 46186.5 |
| October | 6753 | 398970 | 50193 |
| November | 7578 | 452952 | 56706 |
| December | 6867 | 407328 | 51196 |
| **Annual Total** | 66196 | 3923863 | 493202.5 |

Total amount of clinical waste collected in 2020.

# Energy

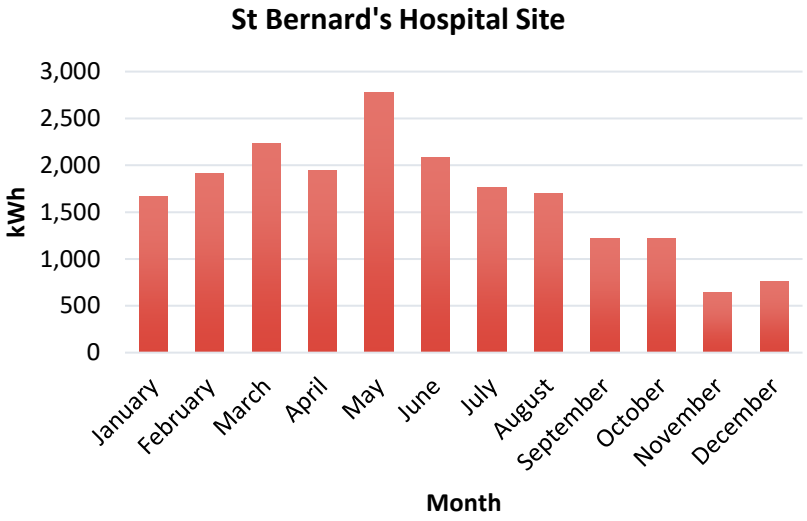
## Lighting

Data below lists the total energy consumption from street, flood and traffic lighting in 2020.

| | Year 2020 |
|---|---|
| | **Kilowatt Hours (kWh)** |
| Street lighting | 1,165,367 |
| Flood lighting | 56,955 |
| Traffic lighting | 49,697 |

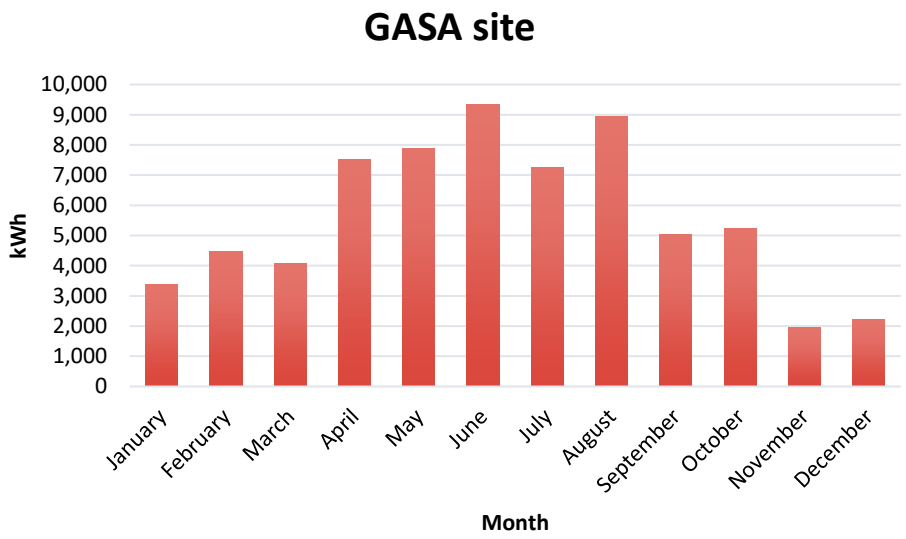
## Solar Energy

In line with EU targets for sourcing 20% of energy by 2020, H.M. Government of Gibraltar currently has a variety of solar energy projects in place with plans to increase this further. A breakdown of energy produced at existing sites is shown below.



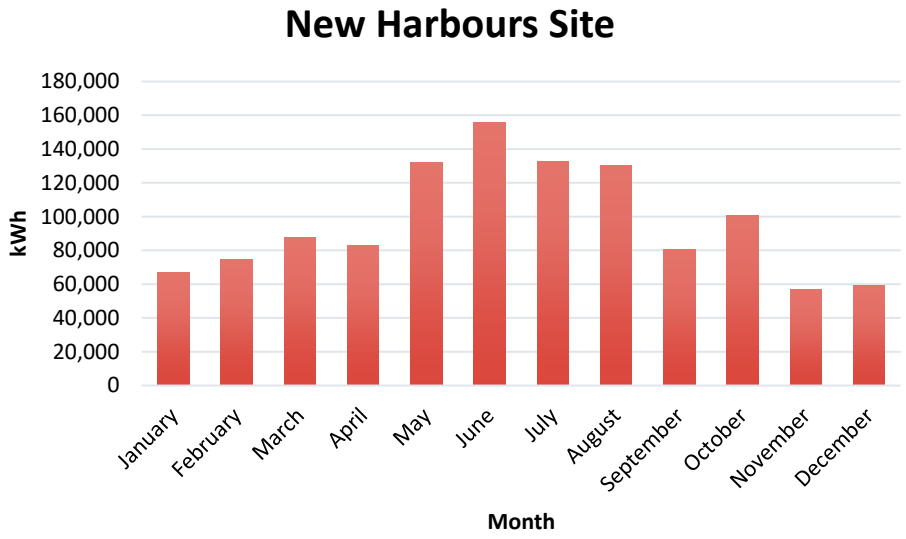

Solar energy produced at St Bernard's Hospital

At St Bernard's Hospital, an installed capacity of 26 kW (peak) is in place. In 2020, a total of 19,915 kWh was generated.




Solar energy produced at GASA.

At GASA, an installed capacity of 87.7 kW (peak) is in place. In 2020, a total of 67,298 kWh was generated.




Solar energy produced at New Harbours.

At New Harbours, an installed capacity of 800 kW (peak) is in place. In 2020, a total of 1,160,304 kWh was generated.