ANNUAL ENVIRONMENTAL REPORT FOR THE ST HELENA AIRPORT 2019 - 2020

December, 2020

Photo: SHAL

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FOREWORD

St Helena Airport Limited has an established and embedded Environmental Management System (EMS) to ensure operations and activities at the airport are conducted in an environmentally responsible manner and to ensure St Helena Airport's environmental policy is achieved. The EMS translates commitments made in the Environmental Policy into actions delivered by our programmes and Standard Operating Procedures, managing the community's airport assets responsibly, leading on environmental stewardship and contributing to the island's social well-being and quality of life.

Gwyneth Howell

CEO & Accountable Manager

ACKNOWLEDGEMENTS

A document such as this always requires input from a number of people and I would like to thank the following: Gwyneth Howell, Gerald Yon, Marc Fowler, Jaie-Jaie Buckley and James Kellett of St Helena Airport, Nick Stevens (Biosecurity Officer), the Bottom Woods Met Office and Rebekah Sherwin of the Airport Met Office. James is also thanked for his insightful review and inputs to the draft document.

In addition, I would like to express my gratitude to Tavonga Chikwenhere for contract management.

Photographs are courtesy of Airport staff, What the Saints Did Next and B Walmsley.

LIST OF ACRONYMS

AAM	Accountable Airport Manager
ACI	Airports Council International
AD	Airport Directorate (SHG)
AER	Annual Environmental Report
AFF	Airport Fuel Facility
ANRD	Agriculture and Natural Resources Division
ASSI	Air Safety Support International
ATC	Air Traffic Control
CO_2	carbon dioxide
DVOR	Doppler VHF Omni-Directional Radar
EMD	Environmental Management Division (of SHG)
EMS	Environmental Management System
ENRPD	Environmental and Natural Resources and Planning Directorate
EO	Environmental Officer
FMC	Fuel Management Contractor
FTR	Fire Training Rig
HoCA	Head of Civil Aviation
HPLS	Horse Point Landfill Site
IATA	International Air Transport Association
ISO	International Standards Organisation
kg	kilogram
KPI	Key Performance Indicator
kWh	kilowatt hour
LEMP	Landscape and Ecological Mitigation Plan
m	metre
m^2	square metre
mg	milligram
NOTAM	Notice to Airmen
PBP	Prosperous Bay Plain
RFFS	Rescue and Fire Fighting Service
SHAL	St Helena Airport Ltd
SHG	St Helena Government
SHNT	St Helena National Trust
SOP	Standard Operating Procedure
STP	Sewage Treatment Plant
TSP	Total Suspended Particulates
UK	United Kingdom
WHMP	Wildlife Hazard Management Plan
WMP	Waste Management Plan
YFF	Young Fire Fighter

EXECUTIVE SUMMARY AND KEY PERFORMANCE INDICATORS

This is the fourth Annual Environmental Report (AER) for St Helena Airport Ltd. (SHAL) and it covers the period 1st July 2019 to 30th June 2020. The report's aim is to provide insights and feedback on the ongoing environmental management and monitoring programmes at the Airport and to assess progress from year to year. The airport has in place an annually updated, ISO 14000-based Environmental Management System (EMS) to manage and monitor environmental issues. One of the fundamental principles of the EMS is 'continual improvement', so the AER allows us to take stock of our environmental performance, together with other management, audit and reporting functions which are described in this report.

The scope of this report covers all activities under the operational control of the Airport i.e. the airfield, Terminal and Combined Buildings, Fire Training Rig and all navigational aids. It does not cover any of the bulk fuel facilities in Rupert's Valley or at the Airport, as these are under the control of the fuel management contractor (FMC).

A set of Key Performance Indicators (KPIs) has been developed for the AER and these are grouped under the following headings:

- Legal compliance;
- Environmental management structures and reporting;
- Employment, community and stakeholder engagement;
- Environmental monitoring and performance.

For each KPI, an assessment rating has been provided:

- 'Yes' in green means that the target or goal has been achieved.
- 'Partial' in orange means that there has been progress made towards achieving the goal, or that the KPI has been partially achieved.
- 'No' in red indicates where the KPI has not been achieved in the current reporting period.

The table below provides a brief comment, with reference to the section in the report where the matter is discussed more fully.

Of the 30 KPIs identified for the purposes of this AER, 25 (83%) have been achieved, two were only been partially met and three have not been fulfilled. This is an improved level of performance compared to last year. The three non-compliances relate to:

- Failure to meet all the IATA water quality standards for potable water delivered to the aircraft (see below);
- Water consumption is still high due to pipe leaks and Connect metering issues;
- There were two level 3 hydrocarbon spills on the apron.

The partial compliances relates to the fact although all other monitoring activities take place as required, monthly airport potable water quality testing by the Department of Public Health on St Helena has only taken place on two occasions over the past year. This is due to staff leave and staff shortages, but it does mean that SHAL cannot meet the required IATA water quality standards consistently. SHAL have therefore started the process to procure accurate chlorine measuring equipment so that it can ensure

sufficient levels of disinfectant in the water supplied to aircraft. The other partial compliance related to induction training (see table below).

KPI	Description	Assess-ment rating 2018-19	Assess-ment rating 2019-20	Comments
LEGAL COMPLIANCE				
Legal compliance with laws and regulations of St Helena	No non-compliance notices, stop orders or penalties have been issued in terms of environmental laws in force	Yes	Yes	Airport is compliant with all local laws and regulations
Compliance with international conventions, treaties, etc. relating to the environment	No incidents where St Helena fails to meet its international environmental obligations due to actions by the airport	Yes	Yes	Airport is compliant.
Compliance with all international aviation industry environmental laws and standards	No incidents of non-compliance with aviation industry environmental laws and requirements	No	No	It has not been possible to test for all the required IATA water quality parameters due to SHG staff unavailability. See s. 4.3.2 and 7.2.2
Compliance with all relevant UK laws and standards (as listed in the Legal Register of the EMS)	No incidents of non-compliance with UK laws and standards	Yes	Yes	Airport is compliant
The Legal Register is reviewed and updated as and when required	The Legal Register is up to date	Yes	Yes	Last updated in February 2020
ENVIRONMENTAL MANAGEMENT STRUCTURES AND REPORTING				
The Airport's Environmental Policy is posted in public areas	Policy is reviewed once per year	Yes	Yes	A framed poster of the Environmental Policy is posted in the Combined Building and the Terminal Building. The Policy has been updated in this period to include a commitment to reduce carbon use, and a separate Carbon Management Policy has been developed and publicised.
The Airport Risk Register is reviewed and	Environmental risks are updated quarterly	Yes	Yes	The Airport Risk Register, which includes environmental risks, is updated quarterly.

KPI	Description	Assess-ment rating 2018-19	Assess-ment rating 2019-20	Comments
updated on a quarterly basis				
The environmental management team, as specified in the EMS is in place	Appointment and employment of the following positions throughout the reporting period: • Environmental Officer • Assistant Environmental Officer • Environmental Consultant	Yes	Yes	See s. 4.1
Reporting commitments achieved (as per requirements of the EMS)	100% completion of the following: • Monthly EO reports • Annual update of EMS; • Annual audit; • AER.	Yes	Yes	Monthly reports were submitted every month. The EMS was updated in February 2020. The annual audit was conducted virtually in September-October 2020. The AER is contained in this document.
Monthly meetings held (as per EMS)	The EO attends all monthly airport meetings, and environmental issues are on the agenda	Yes	Yes	
Environmental monitoring systems are in place (as per the requirements of the EMS)	The following are monitored on a regular basis (as specified in the EMS): dust, water (potable water, effluent quality), waste quantities, resources use, seabirds, Wirebirds, pests, invasive species, climate, and biosecurity	Partial	Partial	All aspects are being monitored as per the EMS except water quality due to staff shortages in the Dept. of Public Health. See Chapter 7.
EMPLOYMENT, COMMUNITY AND STAKEHOLDER ENGAGEMENT				
Number of complaints received	No serious complaints received; Less than 3 minor complaints per month	Yes	Yes	No complaints have been received at all.
Employment of Saints	At least 50% of the permanent employees at the airport are Saints	Yes	Yes	85% of the permanent staff at the Airport are Saints. See s. 5.1
Environmental induction	All new employees, contractors and	Yes	Yes	See s. 5.1

KPI	Description	Assess-ment rating 2018-19	Assess-ment rating 2019-20	Comments
	concessionaires at the airport receive environmental induction, including the environmental Code of Conduct			
Environmental training	All new permanent airport employees receive training on the EMS and WHMP	Yes	Partial	Two new employees started work during the period but only one received Induction training on commencement of employment. The other staff member received training in October 2020.
Access to Post Box walks is provided	Access to the Gill Point and King and Queen Rocks Post Box walks is provided	Yes	Yes	Two organised walks to King and Queen Rocks were organised. See s. 5.3
ENVIRONMENTAL MONITORING AND PERFORMANCE				
Incident log is kept and is up to date	An incident log is kept and all incidents are addressed as soon as practically possible	Yes	Yes	See s. 4.3.1
Environmental database	All monitoring data are entered onto the environmental monitoring database and it is up to date	Yes	Yes	The database systems were checked during the annual audit. See Chapter 7.
Impact on landfill facilities	Adherence to the Waste Management Plan (WMP) to apply the waste mitigation hierarchy	Yes	Yes	As much waste as possible is re-used, recycled or minimised, but the scope for recycling on the island is limited due to economies of scale. Waste quantities and destinations are recorded each month. See s. 7.2.3
Safe disposal of hazardous waste	All hazardous waste must be handled, stored, transported and disposed of according to the procedures contained in the WMP	Yes	Yes	See s. 7.2.3
Minimise impact on Island water supplies	Airport to minimise use of island water supplies	No	No	Leaks in the pipeline have resulted in water losses. The water meters also break down on a regular basis for several months at a time and so it is not possible

KPI	Description	Assess-ment rating 2018-19	Assess-ment rating 2019-20	Comments
				to monitor water consumption on a regular basis. See s. 7.2.4
Incidents of dust emissions over prescribed limit	No exceedances over permitted limits recorded	Yes	Yes	Dust emissions are within prescribed limits. See s. 7.2.1
Incidents of effluent discharges over prescribed limit	No exceedances over limits stated in the EMS are recorded	No	Yes	Quarterly analyses indicate that effluent is within the limits set out in the EMS. See s. 7.2.2
Incidents of significant accidental spills (oil, diesel, chemicals)	No level 3 incidents or greater involving accidental spills	Yes	No	Two Level 3 hydrocarbon spills (each about 300 ml) occurred on the apron. Both were cleaned up as per the EMS SOPs. See s. 4.3.1
Erosion of natural water courses	No evidence of significant erosion caused by uncontrolled runoff from the airport and its facilities	Yes	Yes	
Incidents of illegal driving, plant collection, animal trapping	No level 3 incidents or greater occurred	Yes	Yes	
Rare and endangered species affected	No level 3 incidents or greater involving biodiversity issues	Yes	Yes	
No increase in pests and predators noted	Pest and predator monitoring and control programme in place	No	Yes	Rabbit and pigeon numbers have decreased significantly. See s. 7.2.6.
No increase in invasive plant species and/or species which attract birds	Monitoring and weed control programmes are in place.	No	Yes	Ongoing monitoring for invasive alien species, together with training from ANRD on how to remove and dispose of invasive plants has resulted in a considerable decrease. See s. 7.2.7
Biocontrol measures are in place	No contaminated products allowed onto the island. Monitoring programme in place.	Yes	Yes	No alien species have been found in the invertebrate traps set up around the airport buildings by the Biosecurity Officers. See s. 7.2.7

1 INTRODUCTION

This is the fourth Annual Environmental Report (AER) for the St Helena Airport covering the period 1st July 2019 to 30th June 2020.

The St Helena Airport is located on Prosperous Bay Plain (PBP) on the eastern side of St Helena Island, a UK Overseas Territory in the South Atlantic Ocean (Figure 1). The Central Basin Nature Reserve lies immediately adjacent to the airfield to the west which provides a natural habitat for many endemic invertebrates, plants and lichens, as well as St Helena's only endemic bird, the Wirebird. Thus it is necessary to ensure that the environment on and around the airport is managed and protected in such a way as to minimise the impact of airport activities on the environment, but also to ensure that the safety of employees, passengers and the general public is not compromised in any way by environmental factors within the control of the Airport.

An ISO 14001-compliant EMS has been developed for airport operations and one of its commitments is to produce an AER to provide feedback to the public on the environmental management and monitoring programmes in place at the airport.

The scope of this report covers all activities under the operational control of the Airport i.e. the airfield, Terminal and Combined Buildings, Fire Training Rig (FTR) and all navigational aids. It does not cover any of the bulk fuel facilities in Rupert's Valley or at the Airport, as these are under the control of the Fuel Management Contractor (FMC).

2 AIMS AND OBJECTIVES OF THE ANNUAL ENVIRONMENTAL REPORT

This AER presents an overview of the environmental performance of the airport relating to the following aspects:

- Airport activities for the year (Chapter 3);
- The environmental governance structures (Chapter 4);
- Employment and stakeholder engagement (Chapter 5);
- An overview of some of the environmental work undertaken during the year (Chapter 6);
- Our environmental monitoring activities (Chapter 7); and
- The targets and challenges for the 2020-21 year ahead (Chapter 8).

A summary of performance and progress against key performance indicators is presented in the Executive Summary.

Figure 1: Map of island showing the location of the airport, navigational aids and communications systems

3 SUMMARY OF AIRPORT ACTIVITIES DURING THE YEAR

3.1 Notable events and milestones

It's been a busy and challenging year, with COVID-19 obviously having a major impact in 2020 which in turn has affected aviation, access to the Island, tourism and consequently the economy. Nevertheless, the airport remained open, albeit with strict Covid-19 precautionary measures in place and life-saving medevac flights continued to be supported.

The year has produced some firsts for the airport, notably the first arrival of an Airbus A318 aircraft and the first flight from/to the UK (albeit via Ascension Island) (Plate 1). The aircraft took off from the UK (Stansted) via Ascension to repatriate people to/from the UK. Along with passengers, it brought 2 tons of much needed equipment, testing equipment and supplies in support of St Helena's COVID-19 preventative response (much of the equipment was for the refurbishing of Bradley's Camp for use as a quarantine camp). The Airbus crew took the opportunity to fly additional circuits to become familiar with the conditions of the airport, and these helped enormously when they returned to the Island in July 2020 with their Boeing 757.

In May we also saw the first take-off of a passenger service from Runway 02; this was due to an unusual change in wind direction that resulted in the Airlink aircraft taking off in a northerly (rather than the usual southerly) direction.

Weekly flights from Cape Town commenced on 3rd December 2019 and in the lead up to Christmas, three scheduled flights arrived in one week – two from Johannesburg and one from Cape Town.

We had a full apron on 15th September, 2019 with the departure of the Angolan Vice President and a private plane on the same day as the arrival of the Airlink scheduled service (Plate 2). As such, it took a certain amount of coordination between the flights to ensure the St Helena airspace was 'sterile' for the Airlink flight as well as allowing for sufficient safety margins for the two corporate jets.

Plate 1: The chartered Titan Airways Airbus A318 taking off (Photo: SHAL)

Plate 2: The airport was quite congested in September with 3 planes on the apron at once. This photo shows one plane waiting to leave, as the scheduled Airlink flight arrived (Photo: SHAL)

The Angolan Vice President and family visited St Helena in September 2019, mainly for a family holiday but also to make contact with British officials. This saw the arrival of an advanced party and then a

week later, the VP and his family. The aircraft was a Bombardier BD700 Global Express, a quite large and expensive aircraft.

Not to be outdone by the Angolan Vice President, Napoleon (aka Kenicke) came out to meet Sir Simon McDonald on his arrival at the airport on a short business visit on 11th January (Plate 3). Sir Simon was the most senior UK civil servant to visit the Island for some time.

At the end of July 2019, we hosted two Daher TBM930 aircraft on a polar circumnavigation of the world (Plate 4). One had two persons – a father and son; the other had three generations of a family, the grandfather and father taking it in turns to fly the aircraft. They stopped for the night on St Helena and did a spot of fishing before carrying on to the African continent. They were also interviewed by Saint FM in the Air Traffic Control tower.

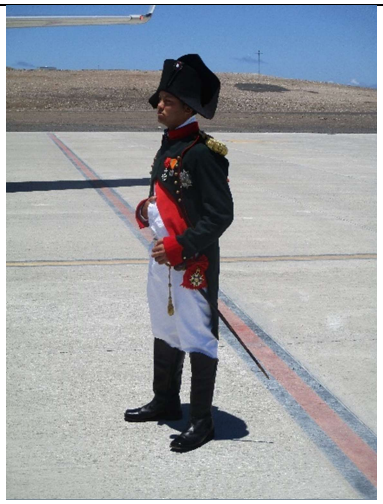

Plate 3: Napoleon ready to meet Sir Simon McDonald (Photo: SHAL)

Plate 4: One of the two Daher TBM 930s taking part in a polar circumnavigation of the world in July 2019 (Photo: SHAL)

A heart-warming story occurred in August 2019, when Buddy Brown, a spaniel, flew out on a scheduled Airlink flight at the beginning of his long journey to the UK. It involved a lot of paperwork including a pet passport (Plate 5), but he made it safe and sound.

Lastly, with the help of "What the Saints Did Next", the airport celebrated its fourth birthday by partaking in a photo shoot and doing a short "Clap for Carers" video (given that this was in the midst of the COVID-19 pandemic). It was four years since the Aerodrome Certificate was granted by ASSI and therefore we wanted to celebrate it in a different way (Plate 6).

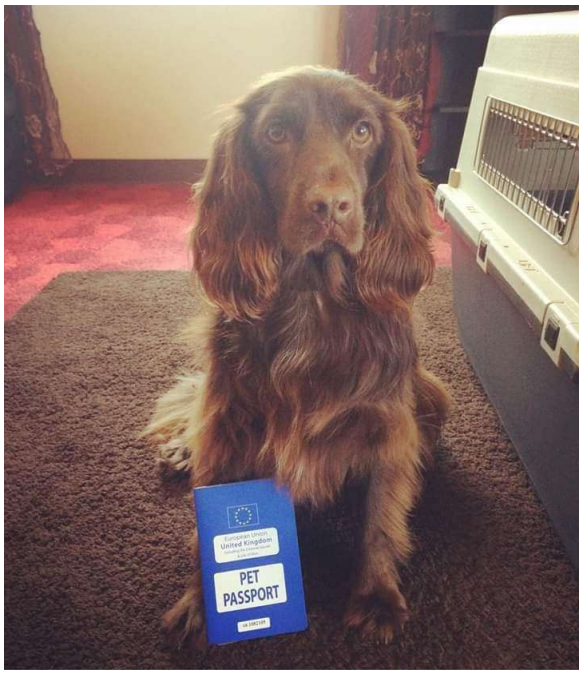

Plate 5: Buddy Brown proudly showing off his pet passport (Photo: SHAL)

Plate 6: Fourth birthday celebrations (Photo: What the Saints Did Next)

The final noteworthy event in 2020 was the making of the documentary "The World's Most Useful Airport", which featured many of the SHAL staff and highlighted all the systems that are in place to make sure that the airport experience is safe, professional and efficient.

3.2 Aircraft and passenger movements

A total of 110 fixed wing aircraft landed during the past year, which is almost half the number of aircraft compared to the previous reporting period (200). This total was made up as follows:

Commercial flights:	86
Charters:	3
Medevacs:	12 (8 from St Helena; 2 refuelled en route from Ascension)
Private flights:	7
Refuelling stops:	2 (military)

The reduction in flights was of course due to the Covid-19 pandemic when the South African Government banned all regional flights under Lockdown levels 5, 4 and 3. Lockdown level 5 commenced on 27th March 2020 and Level 3 was still in place at the end of the reporting period. The bulk of the flights involved Airlink's Embraer E190 jets, but the following aircraft were also hosted at the airport:

Three Dassault Falcon 20Fs;
Five Dassault Falcon 50EXs;
Two Beechcraft Super King Air 200s (to conduct calibration tests);
Six Lear Jet 35As;

One Bombardier Challenger 300;
Three Bombardier BD700 Global Expresses (Plate 7);
One Daher TBM930 (Plate 4);
Two Lockheed C130 Hercules military aircraft (Plate 8);
One Airbus A318 (Plate 1 and cover photo).

Plate 7: The Bombardier BD700 Global Express plane used by the Angolan Vice President

Plate 8: The SA Military's Lockheed C130

Of the 86 scheduled Airlink flights which arrived during the year, only two flights were delayed due to low cloud/mist and both were able to land the following day. A third flight had to turn back mid-flight due to a cracked windshield and it too arrived the next day. Ten of the scheduled flights originated in Cape Town, with weekly flights being available from early December 2019 to the end of February 2020. A total of 17 scheduled flights were cancelled due to the Covid-19 travel restrictions.

The maximum passenger capacity of the Airlink Embraer E190 is 97 and the airline experienced an average 63% occupancy level during the months it was operational in the reporting year. An inbound flight on 17th December 2019 achieved 100% capacity and the lowest number of inbound passengers on a flight occurred on 14th January 2020 (only 25).

A total of 3,780 passengers arrived at the airport during the reporting period, which is a 15% decrease from the previous year, but not unexpected due to Covid cancellations. A total of 3,765 departed, which is a 20% decrease compared to last year (Figures 2 and 3). Unsurprisingly, visitor numbers were highest during the summer, with the addition of the second Johannesburg flight and the Cape Town flights as mentioned above. The highest number of arriving passengers occurred in December with a total of 750 on 9 flights, while the largest number of departures occurred in January, with 797 people leaving on 10 flights. Both of these figures far exceed the previous best of 690 passengers recorded in December 2018.

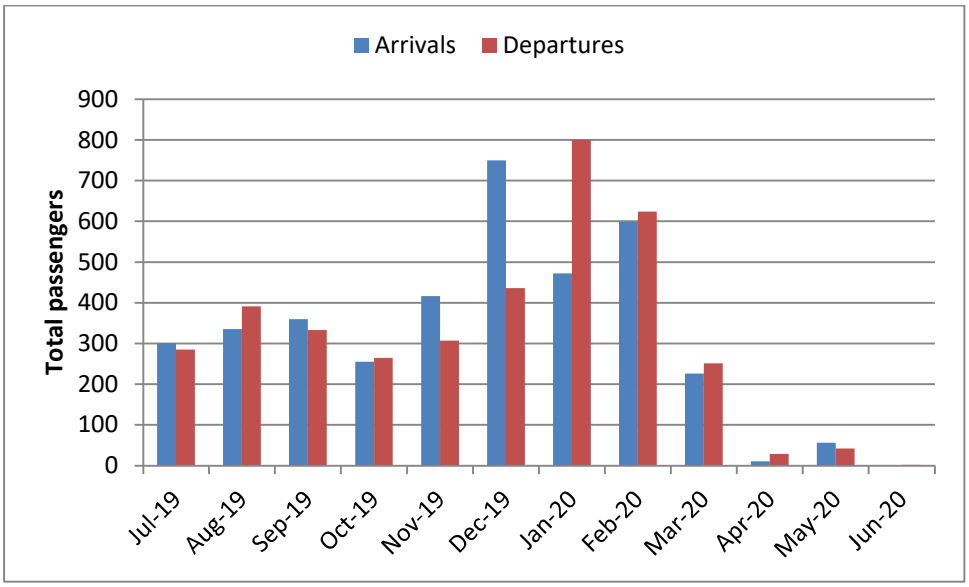

Figure 2: Number of arriving and departing passengers from July 2019 to June 2020

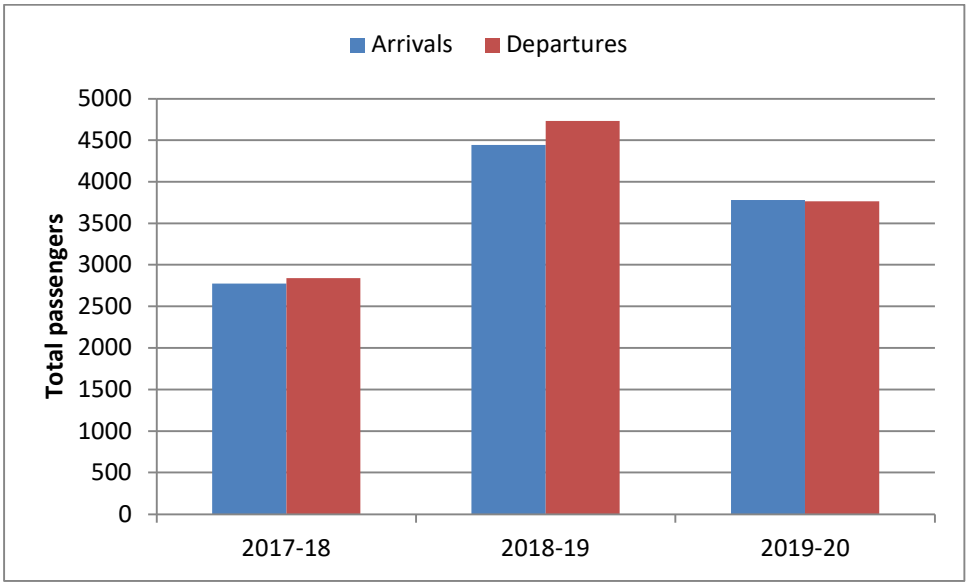

Figure 3: Annual passenger numbers from 2017 - 2020

A total of 34,063 tonnes of cargo was imported by air during the 12 month period – mostly food items such as vegetables, fresh fruit and dairy products. This represents a 9% increase on the previous year. 2,781 tonnes were exported, mostly comprising tuna, but this is significantly down (43%) on the previous reporting period (Figure 4). This can be explained by the impact of the Covid-19 restrictions for 3 months (April to June 2020), and also by lower premium fish export volumes.

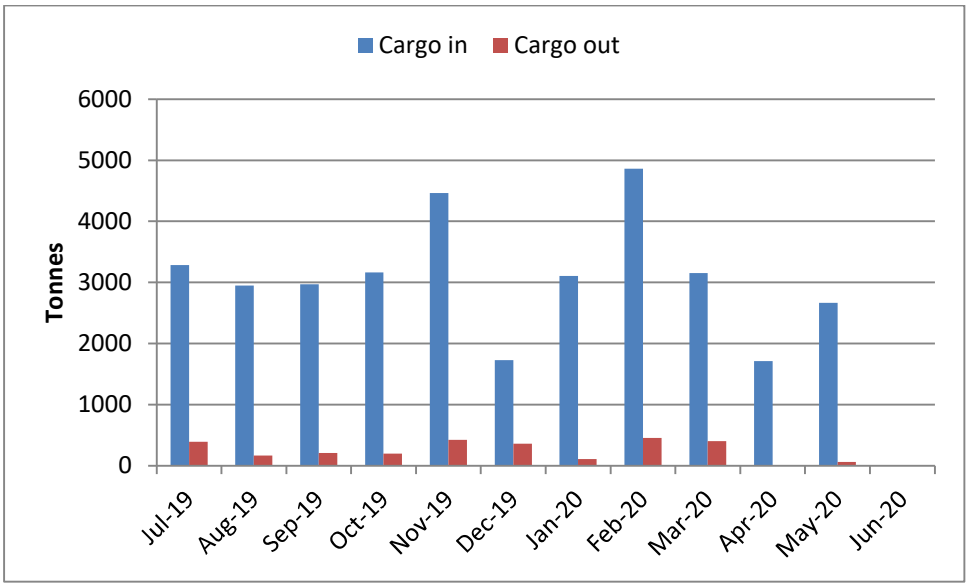

Figure 4: Monthly imports and exports of cargo

3.3 Certification

Throughout this period, the airport has successfully maintained its various operating permits:

- TAB Charters conducted its bi-annual calibration flights in July 2019 and January 2020 using a King Air Beechcraft 200 aircraft to ensure that all the navigational equipment is working optimally;
- Air Safety Support International (ASSI) issued an open-ended Aerodrome Certificate on 5 November 2018. This was confirmed by an ASSI audit conducted in January 2020. The Certificate remains in place unless otherwise amended;
- An open-ended Aeronautical Telecommunication Services Approval certificate was issued by ASSI on 5 October 2018. This also remains in place until cause for amendment.

4 ENVIRONMENTAL GOVERNANCE STRUCTURES

4.1 Environmental Management Team

An Environmental Officer (EO) has been appointed at the airport in order to ensure that airport operations comply with the EMS and the Wildlife Hazard Management Plan. The EO reports to the Rescue and Fire Fighting Services (RFFS) Manager, who stands in for the EO when he is away and all members of the RFFS team assist with site inspections and data collection. The environmental management team, as at the end of the reporting period, is shown in Table 1 and the reporting structure within the airport, as well as with relevant SHG agencies is provided in Figure 5.

Table 1: Environmental management team (as at 30th June 2020)

Name, position and location	Tasks
James Kellett Compliance Manager	Responsible for compliance with safety and quality standards and communication.
Bryony Walmsley Environmental Consultant	EMS and WHMP updates; environmental audits; preparation of the Annual Environmental Report; review of monthly environmental reports; ongoing environmental advice.
Marc Fowler RFFS Manager	Stands in for EO when required, attendance at meetings, manager of environmental team.
Jaie-Jaie Buckley (EO)	Environmental Officer. Preparation of monthly reports, site inspections, data collection and collation, implementation of the EMS and WHMP.
Craig Williams (RFFS team)	Site inspections, data collection.

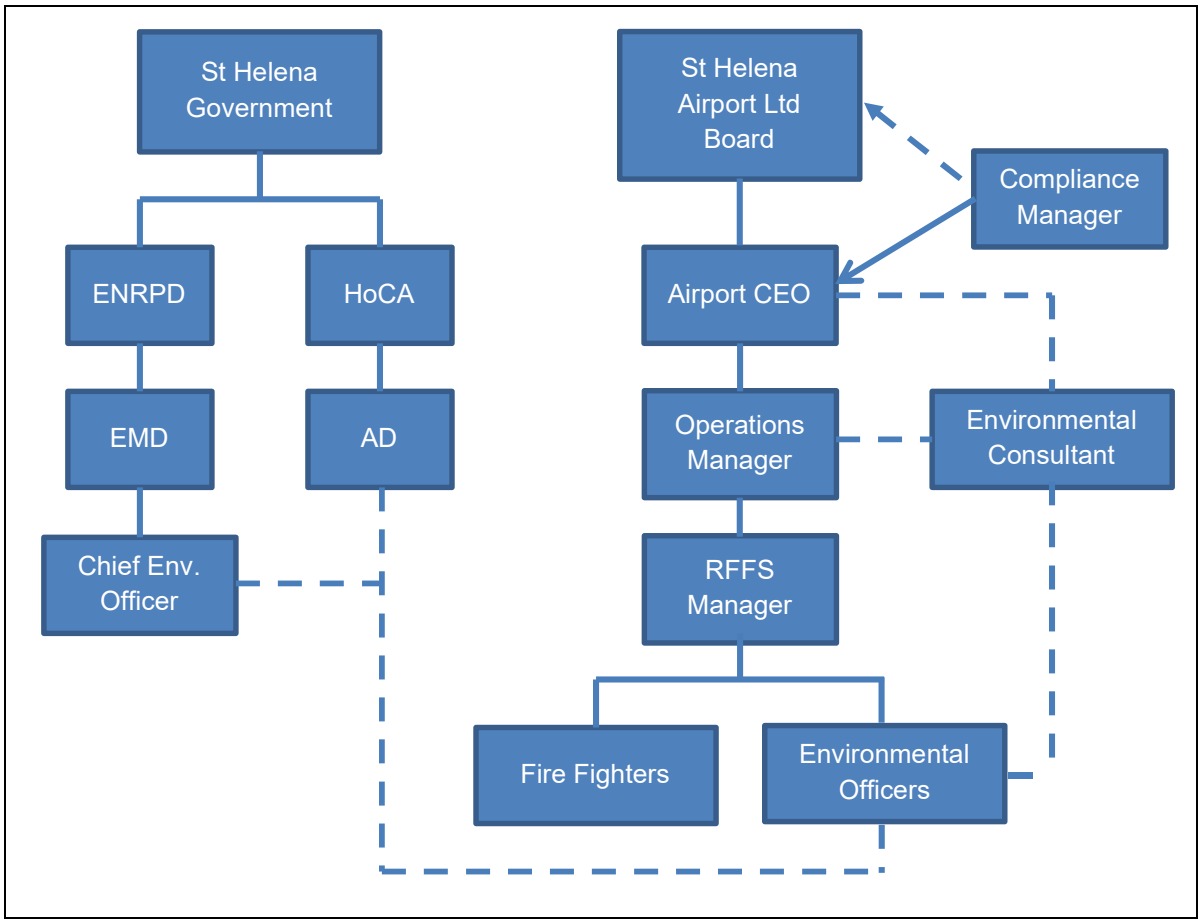

Figure 5: Environmental reporting structure

4.2 Environmental Management Plans

Environmental management at the airport is controlled by two key documents:

- The ISO 14001-compliant **Environmental Management System** (EMS) and its associated **Standard Operating Procedures** (SOPs) which are updated annually to ensure that the system is responsive to any changes; and
- The **Wildlife Hazard Management Plan** (WHMP), which aims to avoid or minimise the risk of wildlife-plane incidents. This document is also reviewed and updated annually.

These two documents form part of a suite of Manuals that had to be approved by the airport certifying body, ASSI, before the Aerodrome Licence could be issued. Both of the environmental documents were approved by ASSI during the first desktop audit in November 2015. Subsequent ASSI audits have not found any defects in environmental and wildlife hazard management at the airport. The SOPs contained in the EMS cover a wide range of environmental issues under the following headings:

- Storage of hazardous materials;
- Pest and predator control and monitoring;
- Waste management;
- Water use, management and monitoring;
- The management, maintenance and monitoring of rehabilitation areas;
- Environmental monitoring (air quality, noise, Wirebirds, energy) and reporting;
- Traffic management on and around the airfield
- Carbon Management.

In addition, the WHMP has a SOP on bird monitoring, recording and reporting.

During the year, a decision was made to take part in the Airport Carbon Accreditation Scheme, which was launched by the European airports' trade body, Airports Council International (ACI) at their Annual Congress in June 2009. The scheme is a global carbon management programme for airports that independently assesses and recognises airports' efforts to manage and reduce their CO_2 emissions at each airport. Although the ground-based component of CO_2 emissions accounts for only 5% of the air transport sector's total carbon emissions, it is still an important step in reducing global CO_2 emissions. Aircraft emissions, which are many times greater than airport emissions, are not included in the ACI programme.

The programme provides airports with a common framework for active carbon management with measurable goal-posts. Individual airport carbon footprints are independently verified in accordance with ISO 14064 (Greenhouse Gas Accounting) on the basis of supporting evidence. Claims regarding airports' carbon management processes are also independently verified by a group of 117 independent verifiers, based in thirty-six countries.

Typical sources of CO_2 emissions at St Helena Airport include:

- Use of electricity generated by fossil fuels for all lighting, cooling, heating, electrical tools, hand driers, office electronics, water pumping, STP, luggage and cargo scanners, luggage conveyors, café kitchen equipment, etc;
- Refrigeration units;
- Fossil-fuel powered vehicles e.g. all ground equipment, RFFS trucks, ambulance, cars used by airport personnel, visitors and passengers to access the airport, delivery trucks, refuse vehicles, etc.;
- Generators;
- Compressed gases;
- Fire extinguishers;
- Transport of aviation fuel to the airport.

ACI has identified four levels of certification:

1 Mapping (measuring the carbon footprint);
2 Reduction (developing a carbon management plan to reduce emissions);
3 Optimisation (working with third parties to reduce their emissions);
4 Neutrality (carbon neutrality for direct emissions).

During the year of reporting, SHAL began to collate information to achieve Level 1 'Mapping'. This is a long-term initiative and progress on achieving each Level of certification will be reported in subsequent Annual Environmental Reports. The Carbon Accreditation Plan is now included as one of the SOPs in the EMS.

4.3 Compliance Monitoring and Auditing

Both the EMS and WHMP require a comprehensive system of compliance monitoring and auditing to be in place at the airport. The system comprises:

- Daily checks by Security, Air Traffic Control (ATC), EO and RFFS members;
- Weekly and monthly inspections by the EO and RFFS members; and
- Annual environmental audits by the Airport's Environmental Consultant.

Six-monthly internal self-audits are also conducted by SHAL staff, overseen by the Compliance Manager. All incidents/observations are recorded on an Incident Control Log and Wildlife Observation Log and are reported in the monthly environmental report.

4.3.1 Site inspections

The EO and his team conduct daily, weekly and monthly site inspections as per the programme set out in the EMS. The areas inspected on a regular basis include:

- The airfield, runway and taxiways;
- Waste management and bird control at the Horse Point Landfill Site (HPLS) (netting integrity and presence of pigeons and mynah birds);
- Vehicle workshop;
- Temporary waste storage compounds;

- Stormwater drains, sumps and oily water separators;
- Pumps;
- Oil spill kits;
- Refuelling activities;
- Hazardous chemical store;
- Café and eating areas;
- Fire Training Rig;
- Navigational aids.

All incidents are rated in terms of severity according the scale set out in Table 2.

Table 2: Incident rating scale

Loss type	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
Harm to people (safety & health)	First Aid case;	Medical treatment; Exposure to minor health risk	Lost time injury; Reversible, moderate impact on health	Single fatality or loss of quality of life; Irreversible impact on health	Multiple fatalities; Impact on health ultimately fatal
Environ-mental impact	Possible risk to the environment	Reversible damage to the ecosystem	Moderate environmental harm or degradation of the ecosystem	Major environmental harm; Legal non-compliance	Irreversible, significant environmental harm; Loss of species; Ecological disaster
Impact on reputation	Slight impact; public awareness but no public concern	Limited impact; Local public concern	Considerable impact; Regional public concern	National impact; National public concern and outrage	International impact; Major public outrage

A total of 15 incidents was logged during the reporting period, which is one less than the previous year. One third were rated as having no or insignificant risk to the environment (Level 1) (Figure 6). Two minor incidents (Level 2), and two moderate incidents (Level 3) were recorded. The minor and moderate incidents were all related to hydrocarbon spills and leaks, with three spills occurring on the apron and two spills occurring at the generator compound (reported in more detail in s. 4.3.2). One minor spill occurred at the FTR but it was contained in the bund.

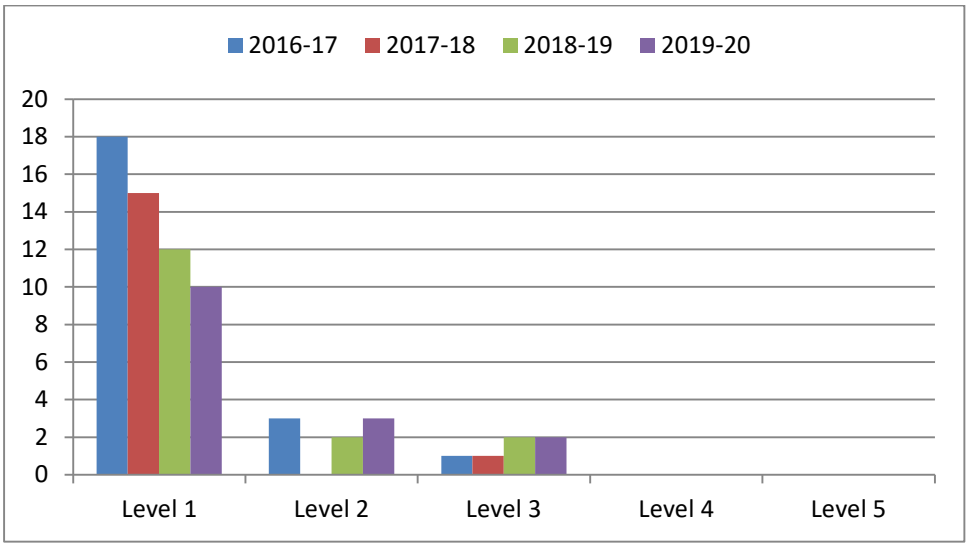

Figure 6: Incident ratings

Most of the incidents occurred on the airfield and runway (6), while 4 were reported from the apron, ramp and taxiway and two from the generator compound. One incident was associated with each of the Terminal Building, the FTR and the STP (Figure 7). It should be noted that the Airport Fuel Facility (AFF) is managed by the fuel management contractor and is not the environmental responsibility of the airport.

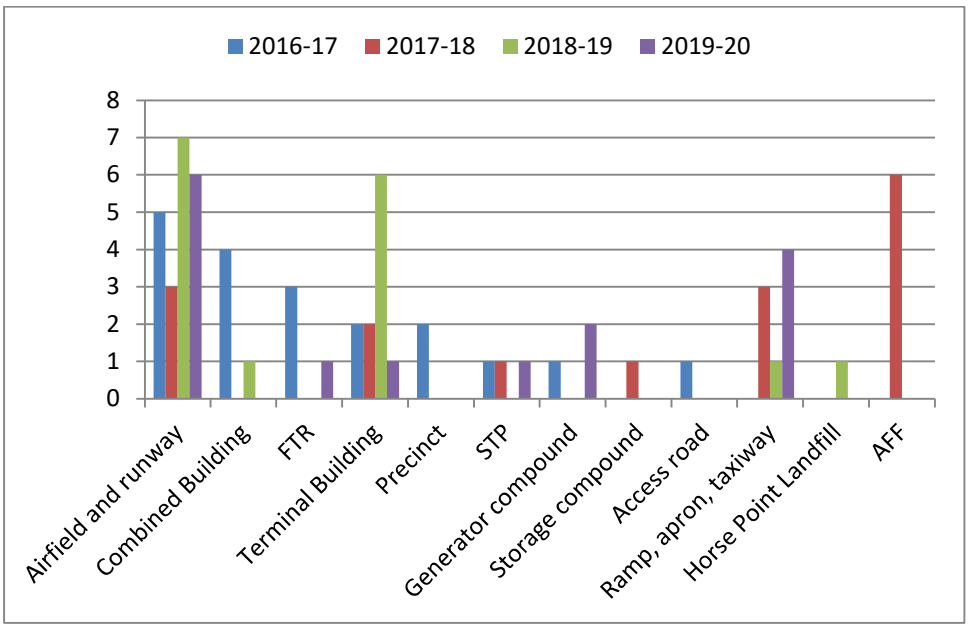

Figure 7: Number of incidents by area

Of the 15 incidents during the year, six concerned hydrocarbon spills, five involved pests and predators (cats and rabbits) and three involved other wildlife (birds and flying ants) (Figure 8). One waste management issue was reported.

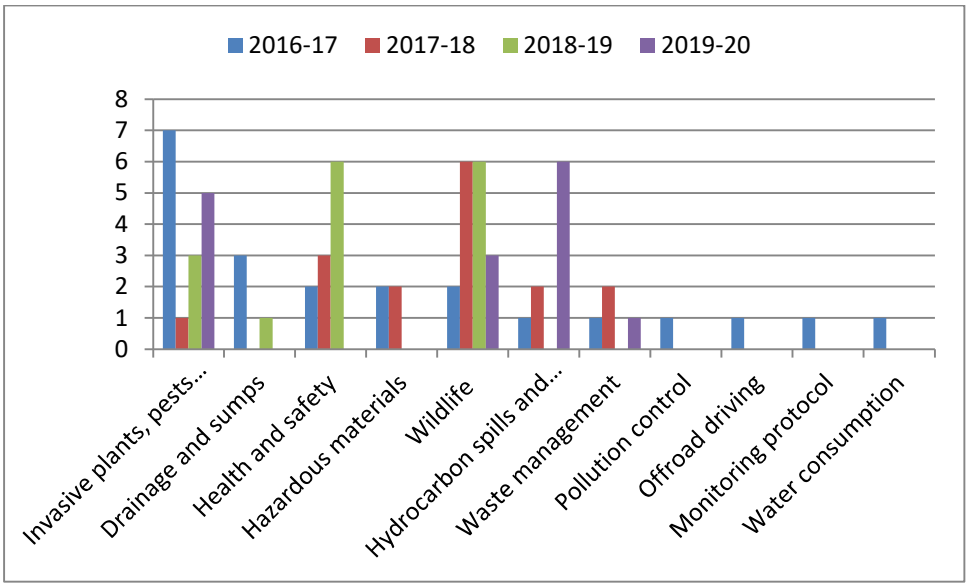

Figure 8: Incidents by type

4.3.2 Annual audits

The EMS specifies that an environmental audit of airport operations should take place on an annual basis. Due to travel restrictions caused by the Covid-19 pandemic, the annual audit was carried out virtually by the Airport's Environmental Consultant in September-October 2020. The delay in the audit was due to uncertainty surrounding the possible lifting of travel restrictions and whether flights would resume. Prior to the audit, the auditor sent lists of documents to be inspected, aspects of the airport operation to be photographed or videoed and issues to be discussed, as well as an audit programme. It can be seen from Figure 9 below that there were 3 major findings, five minor observations and four recommendations. This is similar to the previous year's audit findings, but with fewer recommendations.

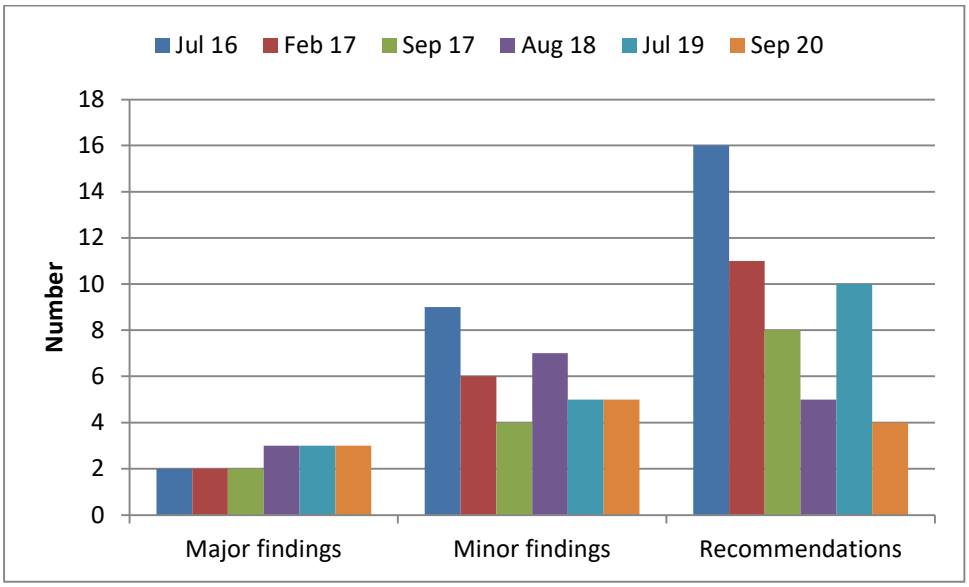

Figure 9: Audit findings

An important part of the auditing process is to make sure that the corrective actions identified to remedy the findings are actually implemented successfully. Table 3 below shows the status of the corrective actions following the last three audits.

Table 3: Status of close-out of audit findings

Audit date	No of major findings	Status as at next audit			No of minor findings	Status as at next audit		
		Closed out	In progress	Not adequately addressed		Closed out	In progress	Not adequately addressed
Feb 17	2	1	0	1	6	5	1	0
Sept 17	2	1	0	1	4	3	1	0
Aug 18	3	2	0	1	7	3	1	3
Jul 19	3	1	2	0	5	4	1	0

One of the major findings in the 2020 audit related to two spills during filling the back-up generators with diesel due to faulty gauges which are supposed to warn against overfilling. The generators come with built-in bunds to catch diesel spills, but due to corrosion or construction defects, the bunds failed to contain the diesel and it leaked into the stone chip fill around the generator containers. The spilt fuel and stone chips were cleaned up and disposed of at the Horse Point hazardous waste site as per the EMS protocols. Short- and long-term remedial measures have been put in place to ensure that this does not reoccur.

The second and third major findings were a repeat of the previous year and related to the quality of water being supplied to aircraft and the level of monitoring being performed. IATA has strict limits for potable water quality being supplied to aircraft, but due to the low amount of usage, it is difficult to maintain the correct level of disinfection (chlorine) throughout the whole supply system. Although the water contains sufficient chlorine on delivery to the airport's main storage tanks, the concentrations have reduced to lower than the required standard by the time the water reaches the airport taps. It has been difficult to monitor this situation because of intermittent monitoring being undertaken by SHG's Public Health Department and the lack of all the correct equipment at the Hospital Laboratory in spite of requests to upgrade. SHAL will procure its own chlorine monitor during the forthcoming year and adjust the chlorine dosage manually to ensure that the water meets IATA minimum standards.

Of the five minor findings made during the 2020 audit, two have economic consequences, two were procedural findings and one was environmental in nature. These are summarised below:

- The Connect water meters which measure water consumption at the airport are unreliable and often non-functioning for weeks at a time;
- The emergency shower at the Airport Fuel facility (AFF) was accidentally switched on and gallons of water were lost overnight. Although the AFF does not fall under the responsibility of SHAL, this incident was recorded in the 2020 audit report in order to prompt an urgent corrective action and contingency plan from the FMC and Airport Directorate.
- Water quality data are not captured on a spreadsheet by the EO (but these data are being documented by the Environmental Consultant);
- The STP results showed a slight increase in nitrate concentrations and some of the trace metals;
- A valve on the waste fuel tank at the Fire Training Rig (FTR) failed and fuel leaked into the bund, but was contained.

Although it was difficult to conduct a virtual audit, the use of video conferencing, document scrutiny, photographs and videos gave the Auditor a good idea of the state of environmental management at the airport. A significant improvement was noted in the way the EOs manage and report the data, organise their time and engage with the subject. This was evident from a greater degree of confidence and awareness of issues. This has translated into a generally positive audit, with many of the significant and minor findings being more attributable to third parties than SHAL itself.

4.4 Meetings and Reporting

The EO attends the monthly airport meeting to raise any environmental issues arising and to ensure that environmental management actions are implemented where necessary. In addition, the EO prepares a monthly environmental report according to the format set out in the EMS. The report provides the latest information on environmental monitoring (see Chapter 7 of this AER for a summary of all monitoring data), an inspection report, a list of any incidents or complaints, corrective actions and follow up, any amendments to the risk register, any stakeholder engagement activities and any other environmental management issues of importance.

In addition to the monthly reports, the Airport's Environmental Consultant produces an audit report after each audit and the AER, (this document).

5 EMPLOYMENT AND STAKEHOLDER ENGAGEMENT

5.1 Employment and Employee Development

As at 30th June 2020, the airport had 27 full-time employees. In addition, there are 40 part-time agency staff, with 24 being present at the airport on flight days. Eighty-five percent of the permanent staff are Saints, which is extremely encouraging and reflects a high degree of commitment to skills development in the Saint community.

In terms of sub-contractors, Solomons has the contract to provide staff for passenger check-in services, security, ramp handling and cargo processing at the Airport. In addition to Solomons, there are six concessionaires at the airport: Rose and Crown provide catering services in the airside café and business lounge, as well as running the two duty-free shops and a retail shop, while Island Images provides the catering in the landside café in the Terminal Building. The Bank of St Helena, Tourism Office, Airlink and Siya Baggage Wrapping Services rent space in the arrivals area of the Terminal Building. Benji's Cleaners provide ad-hoc cleaning services.

There is a comprehensive programme of environmental training in place; all new permanent staff, concessionaires and sub-contractors are required to undertake the basic Environmental Induction and HIV Awareness training. Over the course of the year the EO conducted Environmental Induction training for 8 individuals comprising two from SHAL and six from a sub-contractor.

5.2 Complaints

No complaints were received from the public during the year under review.

5.3 Open Days and Stakeholder Engagement

On the commencement of construction of the airport in early 2012, access to King and Queen Rocks Post Box walk was curtailed. In spite of attempts to find a new route to this iconic landmark via Fisher's Valley and up the steep and treacherous northern slope, it was deemed too dangerous. After a period of consultation and consideration, SHAL agreed to allow guided walks to cross over the airport to gain access to the path up to the old Signal House. This year the protocol for permitting guided walks to King and Queen Rocks was finally put into practice, with two organised walks to King and Rocks in February and May. The weather in February was appalling with persistent thick fog and rain, but nevertheless the walk went ahead with 21 persons reaching the Post Box. In May, SHAL was able to open the airport to over 30 walkers allowing them to go up to King and Queen Rocks and the Signal House. We also then gave them the opportunity to walk to the northern end of the runway and (safely!) peer over the side to see Prosperous Bay more than 300 m below (Plates 9 and 10).

Plate 9: A group of walkers at the Security check point ready to tackle the King and Queen Rocks Post Box walk (Photo: SHAL)

Plate 10: The walkers were allowed to walk down to the end of runway 20 to look at the view of Prosperous Bay, Turk's Cap and The Barn (Photo: SHAL)

SHG has given SHAL two of its surplus fire trucks. SHAL is utilising them to assist with the Young Fire Fighter (YFF) Scheme which was launched in September 2020. This will see nine school-age children learning firefighting skills (airport and off-airport) which gains them credits towards their GCSE courses. The Fire Trucks will be maintained by SHAL and will be used to familiarise the YFF participants with fire appliances.

Plate 11: The two surplus SHG fire trucks which were donated to SHAL to use in the Young Fire Fighter Scheme
(Photo: SHAL)

The final community engagement activity to report is that all SHAL staff assisted at Bradley's Camp (SHG quarantine facility) in May and June to provide security on a rota basis, as well as assisting with the setting up of rooms for forthcoming arrivals.

In late 2019 and early 2020, SHAL were invited to provide comments and inputs on OneWeb's proposal to develop a satellite earth station park (Space Park) at Horse Point. As this location falls within the Airport's Obstacle Limitation Surface, the Airport's CEO and safety team analysed the situation and found that the Space Park satellites would not cause any obstruction to safe airport operations. Furthermore, it was confirmed that the radio frequency to be used by the Space Park would not interfere with airport communications in any way.

In addition, SHAL was also consulted as a potentially affected party regarding the following proposed projects in the area:

- The Bottom Woods Comprehensive Development Area (permission to fly drones);
- Expansion of the Bottom Woods Met Station;
- The Bottom Woods prison proposal;
- Wind turbines on Deadwood Plain.

The airport registered no objections to any of the above, but stipulated that ICAO-compliant lighting would be required on the wind turbines.

6 ENVIRONMENTAL MANAGEMENT ACTIVITIES

This chapter summarises some of the environmental work undertaken during the reporting period.

6.1 Studies Commissioned

No environmental studies were commissioned during the year under review.

6.2 Landscape and Ecological Mitigation Plan

In this section we report on the car park areas, road verges and other bare areas in front of the terminal buildings (airport precinct), which have been planted by the St Helena Landscape and Ecological Mitigation Plan (LEMP) team but are maintained jointly by LEMP staff and airport personnel. We also report on endemic and invasive species on the airfield.

Airport precinct

The precinct gardens are showing signs of recovery from the drought, rabbit predation and lack of active garden maintenance in previous years. The use of drip irrigation is a significant improvement. On advice from LEMP, some of the dead plant material was left in situ to provide a natural mulch and provide habitat for invertebrates (Plate 12). However, the gravel mulch still serves its purpose in some of the beds as it protects the moisture in the soil and still allows the natural regeneration of plants, such as the scrubwoods and St Helena ebonies shown in Plate 13.

Plate 12: Flowering scrubwoods in the precinct gardens. Note that the dead plants have been left to provide mulch and invertebrate habitat (Photo: SHAL)

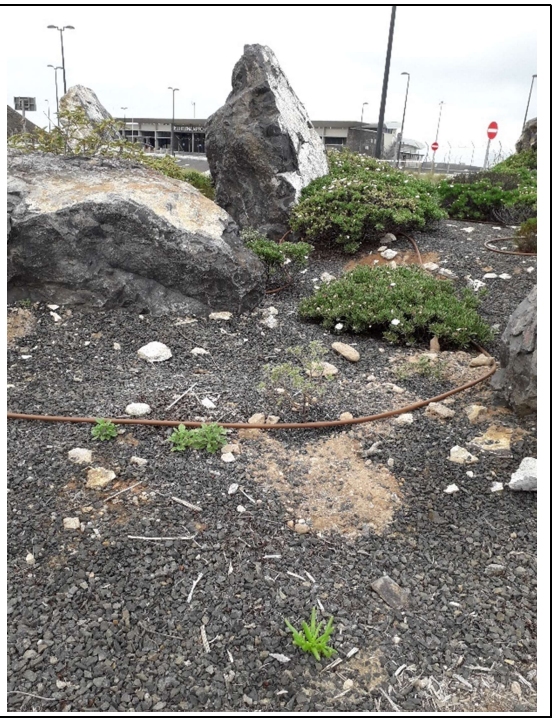

Plate 13: Regeneration of scrubwoods and St Helena ebony plants is evident in the foreground of the photograph. Note drip irrigation pipe (Photo: SHAL)

Airfield

No monitoring has been undertaken of the status of endemic plants on the airfield and the rate of re-establishment of native species such as babies toes (Plate 14).

Plate 14: Babies toes naturally regenerating on the clear and graded area next to the runway (Photo: SHAL)

7 ENVIRONMENTAL MONITORING

7.1 Monitoring Programme

The responsibility for all monitoring lies with the Environmental Officer (EO). The following environmental aspects were monitored on a regular basis during the reporting period (Table 4).

Table 4: Monitoring frequency

Environmental aspect	Monitoring frequency					Comment
	Daily	Weekly	Monthly	Quarterly	Ad hoc	
Air quality -TSP				X		
Potable water			(X)			Supposed to be monthly but a lack of available staff in both the Hospital laboratory and Department of Public Health meant that results have been intermittent.
FTR and OWS effluent					X	Samples are taken only when water is flowing
STP effluent			(X)			Supposed to be monthly but there were staff shortages in the Hospital laboratory so results have been intermittent.
Noise					X	Following complaints
Waste		X				
Resource use			X			
Seabirds – bird strike risk	X		X			
Wildlife	X	X	X			
Pests and predators	X	X	X			
Biosecurity and Invasive vegetation			X		X	
Climate	X					

7.2 Monitoring Results

7.2.1 Air quality

The Airport is monitoring total suspended particulates (TSP) (dust) at two locations downwind of the runway near the old localiser mound. These two sites were selected due to ease of access on existing tracks and they lie directly in the main area of dust deposition from the airfield. Dust bucket 2 is located about 150 m from the centreline of the runway and dust bucket 1 lies about 300 m away and at a slightly lower elevation.

It is evident when comparing Figures 10 and 11 below that more dust is collected in the bucket closest to the runway (bucket 2), as would be expected. The effects of the drought are also clear, with far more dust being collected in dust bucket 2 during 2019, even in the 'wet' winter months, compared to 2020. However, bucket 1, which is further away from the runway recorded higher dust fall in 2020 compared to 2019, which cannot be readily explained.

In spite of the increase in dust fall out in bucket 1, the figures shown are per quarter and are thus all well within the maximum allowed as per the EMS, which is 600 mg/m^2/day.

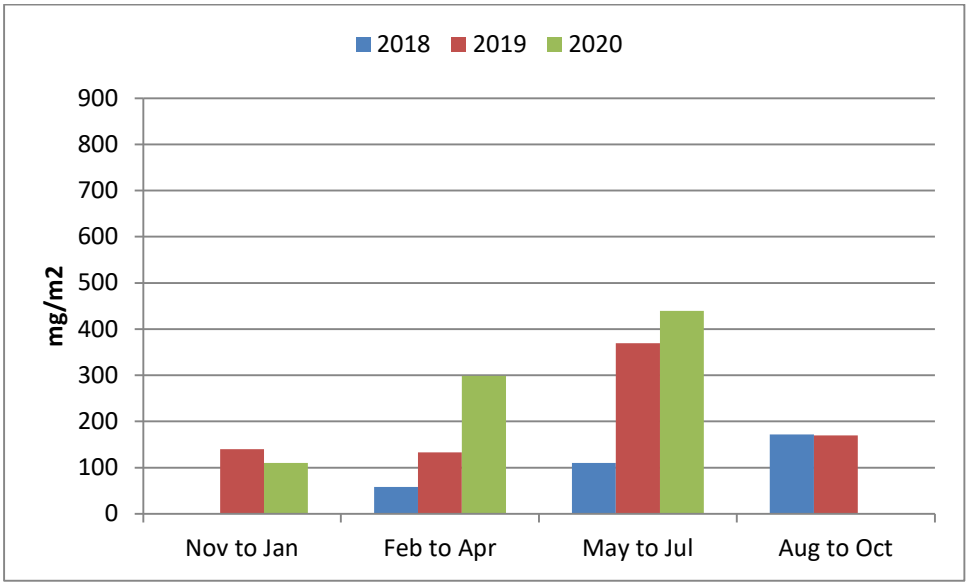

Figure 10: Quarterly average dust measurements for bucket 1

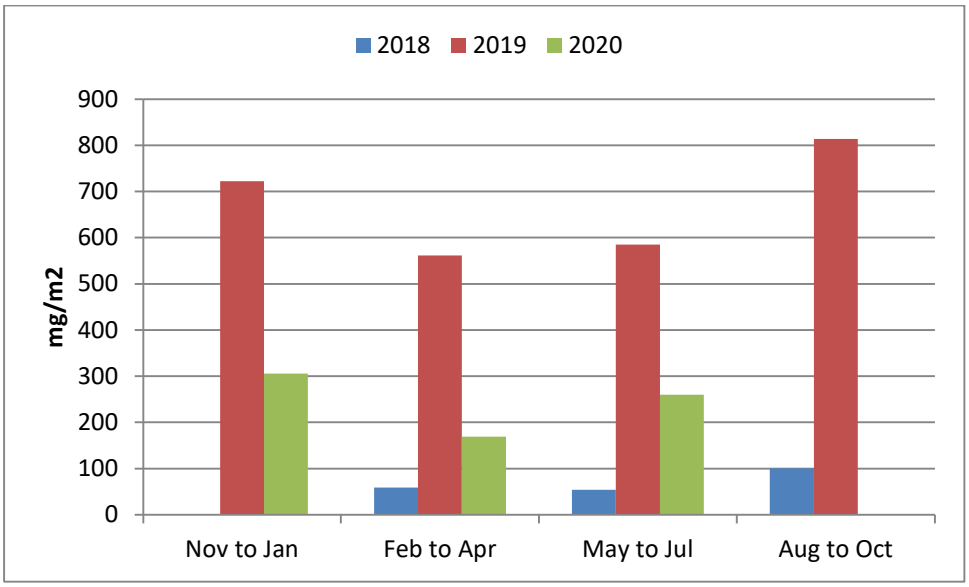

Figure 11: Quarterly average dust measurements for bucket 2

7.2.2 Water quality

The Airport obtains water from two locations for different purposes: Connect supplies treated water from the reservoir at Hutt's Gate via a new pipe to the airport; and groundwater from Borehole 5 is used for firefighting, irrigation of the precinct gardens, vehicle washing and regular testing of the firefighting equipment and pumps. The latter continues to be supplied by SHG because Borehole 5 has yet to be formally handed over to Connect.

The water supplied by Connect from Hutt's Gate Water Treatment Works is treated with chlorine prior to distribution. IATA has strict requirements in place for the quality of water supplied to aircraft and specifies the list of parameters that should be monitored on a regular basis. In order to ensure public health standards, the Department of Public Health monitors the quality of water at the taps in the public cafés in the Terminal Building, the staff kitchen in the Combined Building and the water supply point for aircraft. Monitoring is supposed to be on a monthly basis, but in the reporting period, only two sets of samples were collected by Public Health and analysed by the laboratory at the Hospital. The results show that the chlorine concentrations are too low and therefore the colony count was elevated. Connect adds the correct amount of chlorine at the water treatment plant at Hutt's Gate, but if the water is not used quickly, the chlorine disintegrates. Due to the low levels of potable water usage at the airport, water remains in the storage tank for some days before it is used. During this time, the chlorine concentrations reduce, thus affecting its disinfectant properties.

In addition to monitoring the quality of water provided to the Airport, samples are also taken to determine whether the effluent discharged from various sources at the Airport complies with the required standards. Water and effluent are discharged from: the Fire Training Rig (FTR) after passing through an oily water separator and a stilling basin (to let the foam subside); the apron area and car parks via oily water separators; and the Sewage Treatment Plant (STP) after partial treatment and chlorination. Water flow in the streams downstream of all of these sources was insufficient to take a sample, but there are no obvious signs of pollution downstream of any of these discharge points.

The quality of the treated effluent discharged from the STP has been a problem in the past due to the lower than expected number of passengers passing through the airport, which means that the STP is not operating at its optimum capacity. The settings on the plant have been adjusted from time to time to improve its efficiency, and it is clear from Figures 12 and 13, that there have been significant improvements in quality compared to the standards set out in the EMS. Samples of the STP effluent were collected by SHAL on a quarterly basis and analysed at the Hospital laboratory. The samples were analysed for the following parameters: nitrate plus nitrite, phosphate, electrical conductivity, pH, copper, iron and manganese in order to check the effluent against the EMS standards. At this point in time, the Hospital laboratory does not have the analytical capacity to monitor other key elements such as ammonia, chemical oxygen demand and biological oxygen demand, which would typically be monitored in STP effluent.

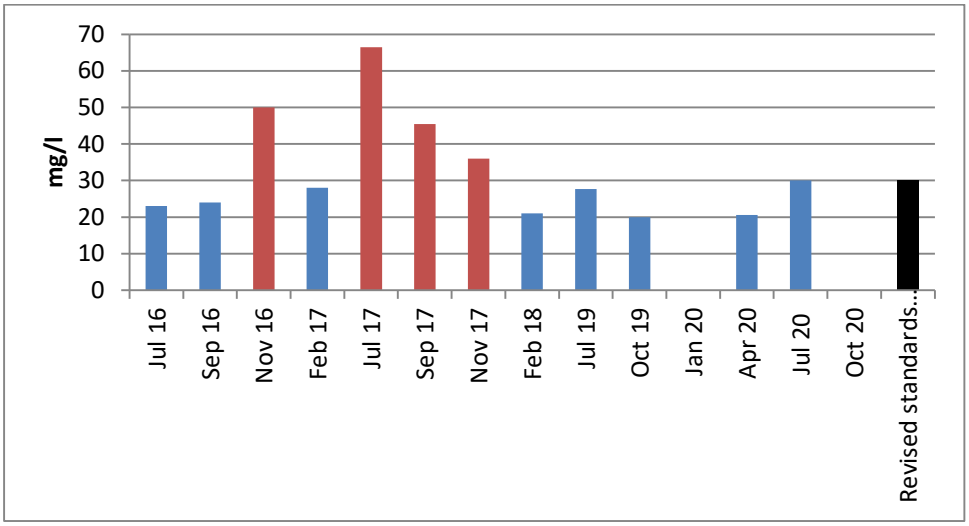

Figure 12: Nitrate plus nitrite concentrations in the STP effluent

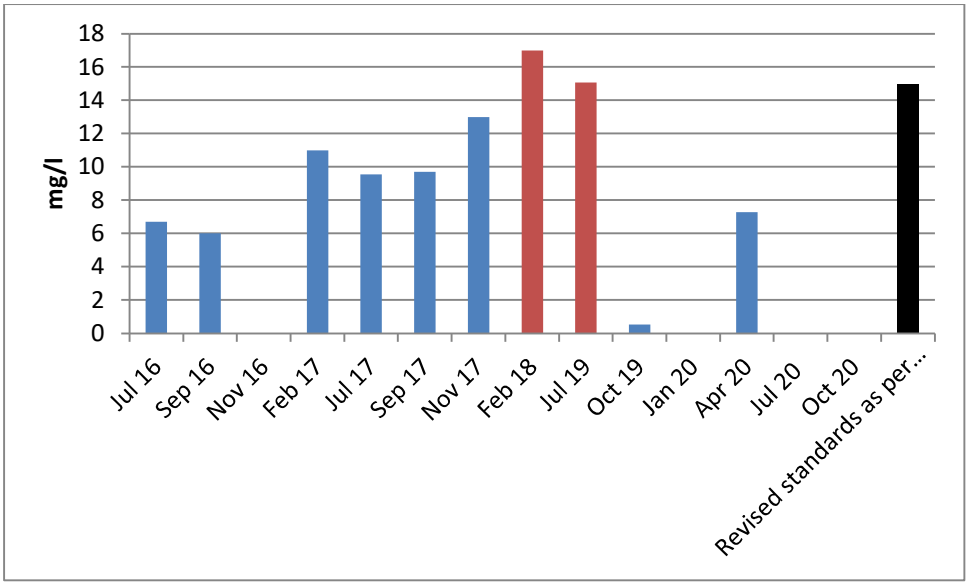

Figure 13: Orthophosphate concentrations in the STP effluent

7.2.3 Waste management

There is a comprehensive system of waste management in place at the Airport which has to comply with the Waste Management Plan contained in the EMS. All wastes are separated according to whether they are hazardous or not and by type, where relevant. The wastes are collected in colour-coded wheelie bins in special temporary waste storage areas, with one outside the Terminal Building and another by the Security Gate for all airside wastes (Plate 15). Hazardous wastes are taken to the hazardous waste cell at Horse Point Landfill Site (HPLS) by the EO (Plate 16), while non-hazardous wastes are collected by EMD on a weekly basis for disposal in the netted domestic cell at HPLS.

Plate 15: Different coloured wheelie bins for different kinds of waste in the temporary refuse room (Photo: B Walmsley)

Plate 16: The HPLS hazardous waste site (Photo: B Walmsley)

The amount of hazardous waste produced was significantly lower this year than the previous year at 333.5 kg compared to the 1,096 kg of waste generated in the last reporting period (Figures 14 and 15). The reduction was largely due to the Covid-19 flight restrictions from the end of March 2020. Most hazardous wastes emanate from the vehicle servicing workshop and comprise vehicle batteries, oily rags and various types of oil containers and filters. Other small quantities of hazardous wastes produced at the airport include fluorescent light fittings, batteries, medical waste and galley wastes from charter aircraft.

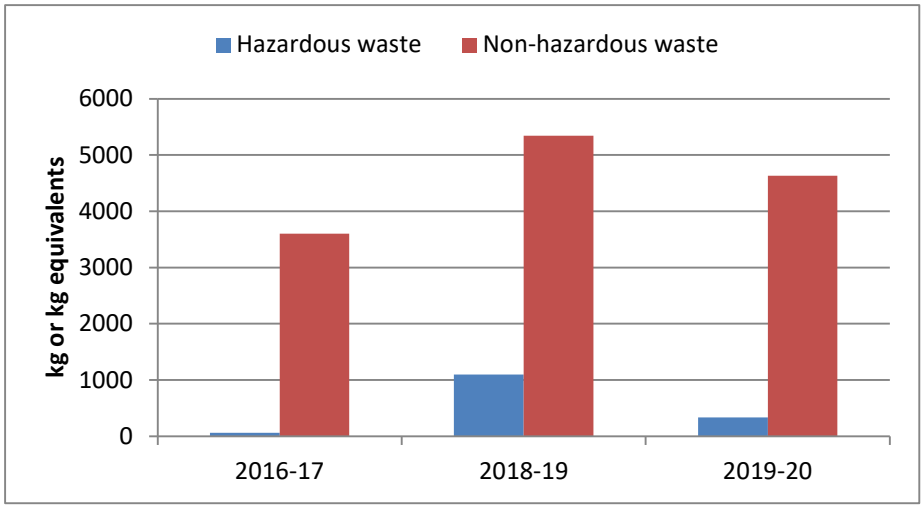

Figure 14: Annual waste production

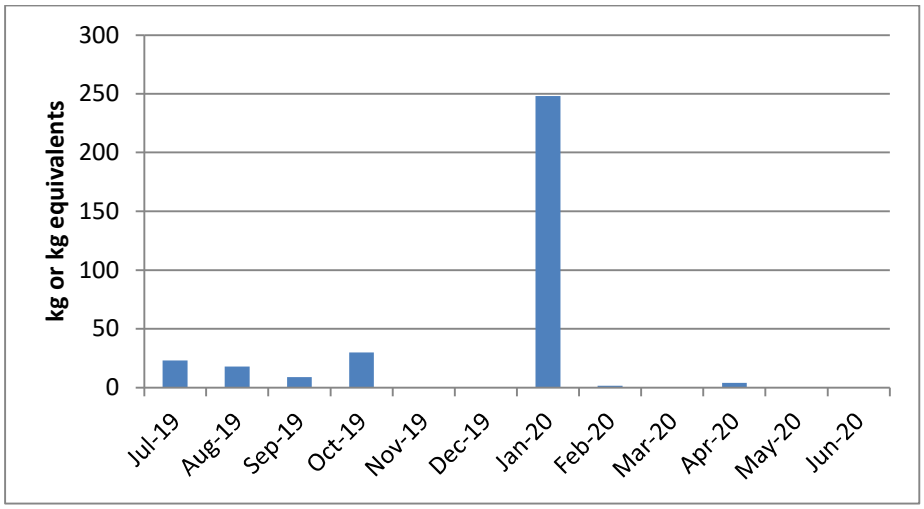

Figure 15: Hazardous waste production per month, 2019 - 20

As expected with the reduced number of flights, the amount of non-hazardous waste has decreased this year in spite of the introduction of the additional weekly flight from Cape Town for 2 months over the Christmas period (Figure 14). A total of 4,633.5 kg (or kg equivalents) of non-hazardous waste was produced (compared to 5,345 kg last year) which averages at 386 kg of non-hazardous waste per month (Figure 16). Most of this waste is general waste from the Combined and Terminal Buildings and invasive plants, with minor amounts of paper/cardboard packaging, tyres, paint cans (Figure 17).

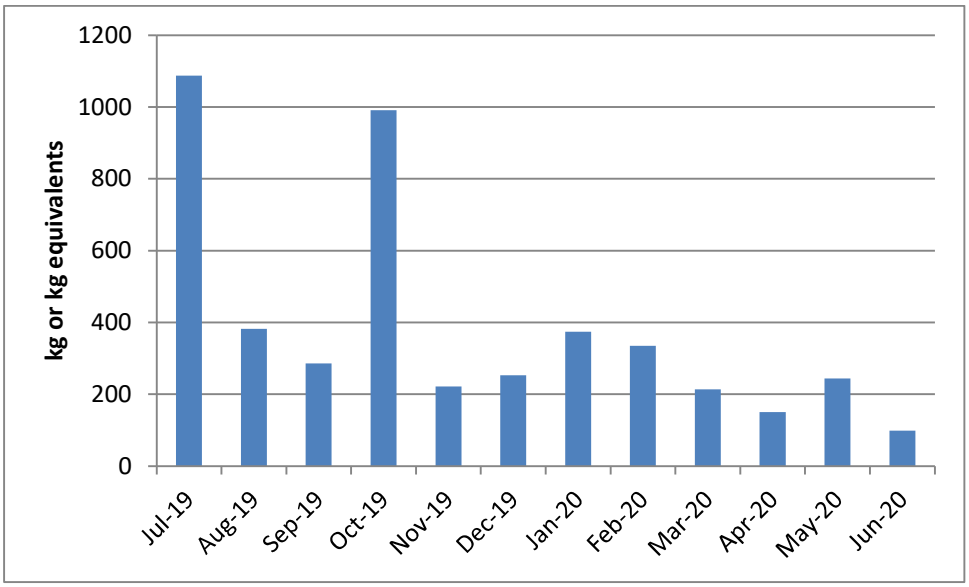

Figure 16: Non-hazardous waste produced per month, 2019 - 20

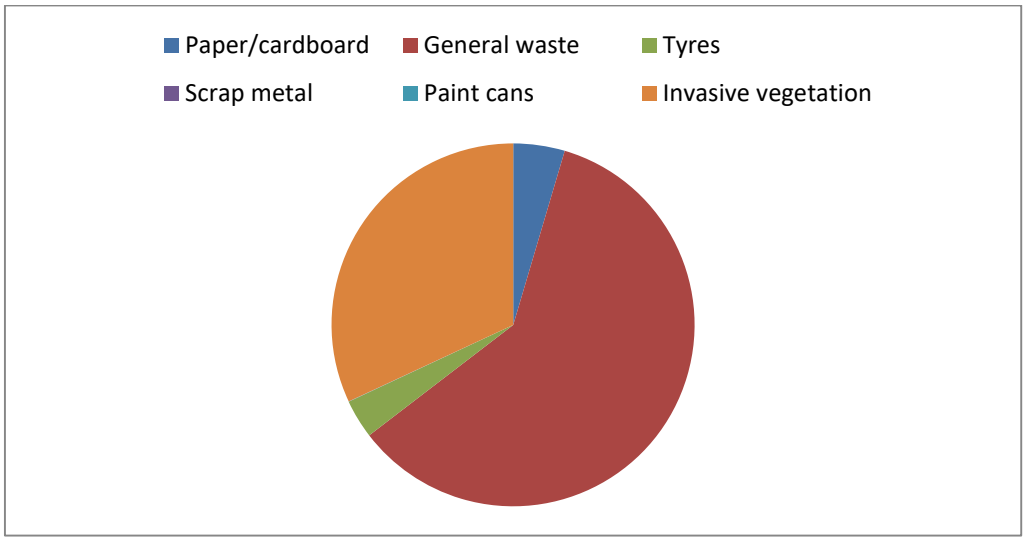

Figure 17: Breakdown of non-hazardous waste types (in kg or kg equivalents)

7.2.4 Resource Use

During the reporting period, the Airport was supplied with 682,000 litres of treated water by Connect, which is a significant increase over the previous year (Figure 18). It is likely that a large part of the increase can be explained by leaks in the supply pipes at various times (e.g. July 2019) and an incident at the AFF when the emergency shower was accidently switched on and left to run overnight (April 2020) (Figure 19). The high figures for May and June 2020 are also probably due to leaks or a malfunction of the meter given that the airport hosted few flights during that time due to Covid-19 restrictions.

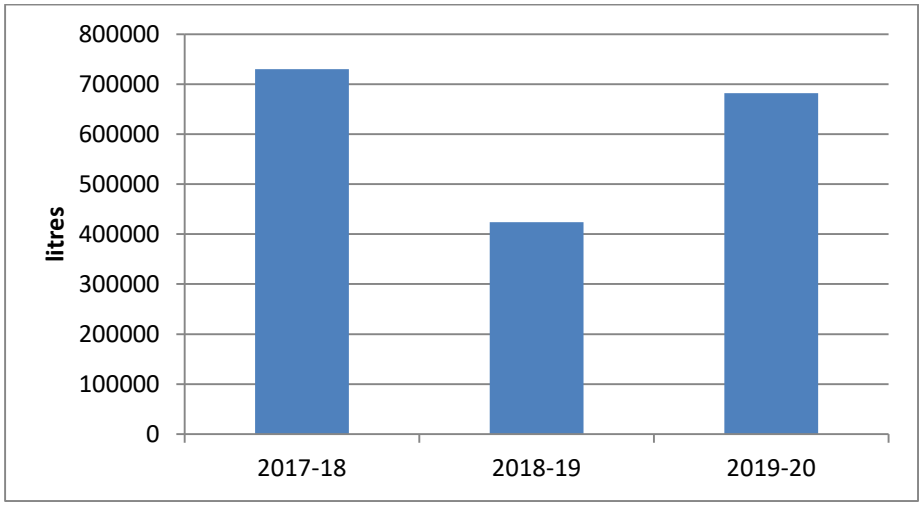

Figure 18: Annual water consumption figures

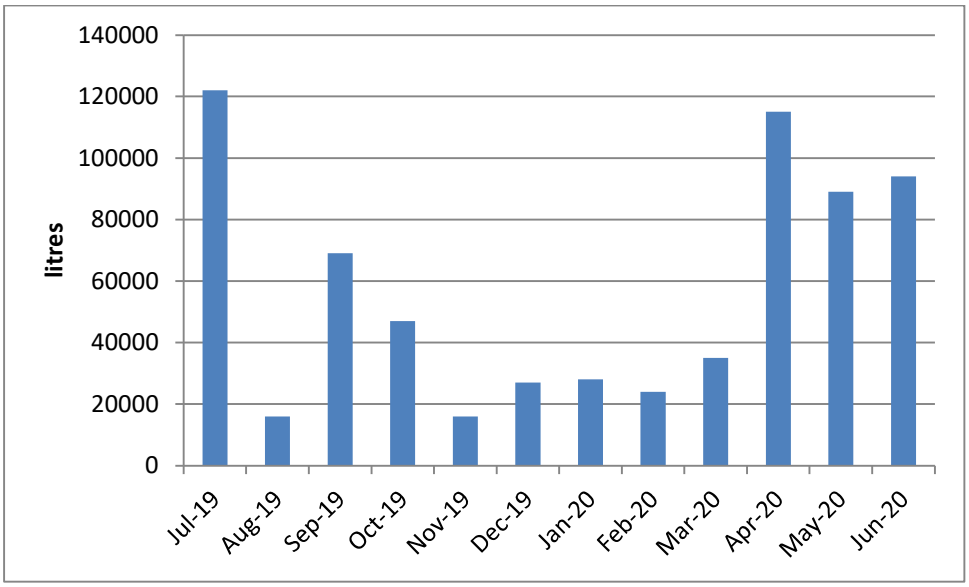

Figure 19: Monthly treated water consumption at the airport

A small amount of water from Borehole 5 continues to be used to test the firefighting equipment and pumps on a daily basis and during fire training exercises. It is also used to irrigate the plants in the precinct gardens.

The total energy use during the year was 47,268 KWh compared to 45,430 KWh in 2017-18, which is about a 4% increase, possibly due to the increased number of flights and passengers during the summer period up to the end of March and the repatriation flights in May (Figure 20).

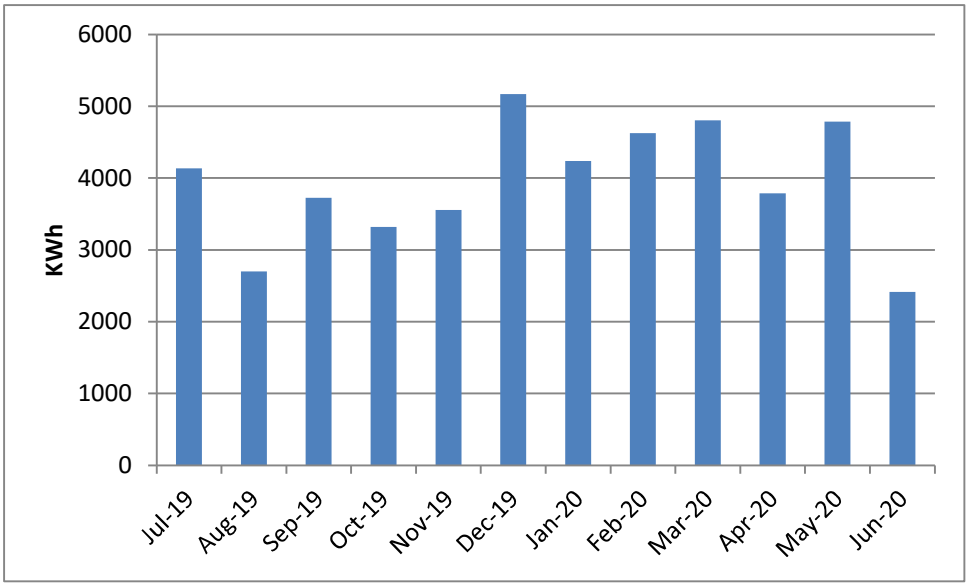

Figure 20: Monthly energy consumption

7.2.5 Birdstrike risk monitoring

The birdlife in the northern airspace, which is largely over the sea, is dominated by fairy terns, occurring mostly in pairs or singly. Fairy terns nest extensively in Lower Fisher's Valley and the sightings in the northern airspace indicate the movement of these birds between their cliffside nests to their feeding grounds out at sea. Although these birds breed all year on St Helena, there appears to be a peak in activity between January and March (Figure 21). The number of fairy terns observed in the 2019-20 period appears to be much lower than in previous years, when more than 50 birds were observed in the northern airspace most months. This year, monthly totals have not exceeded 30 birds. Very few mynahs were observed in this northern sector during the course of the year and no pigeons were recorded (Figure 21).

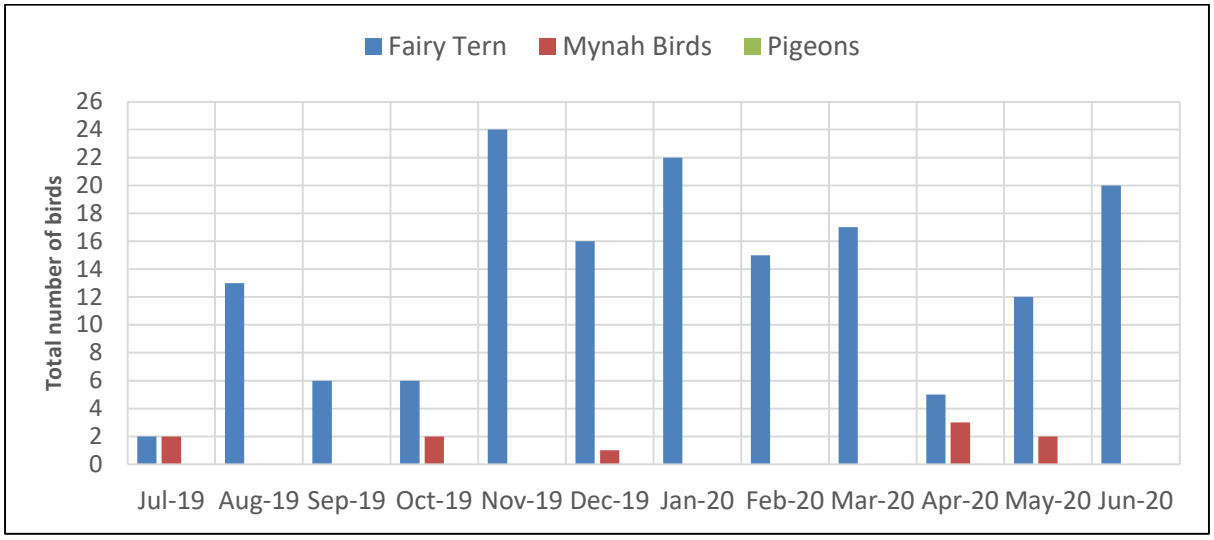

Figure 21: Seabird monitoring in northern runway (20) airspace

The southern end of the runway has a higher diversity of birds, with red billed tropic birds, fairy terns, mynahs and masked boobies being frequently seen in the airspace (Figures 22 and 23). The red billed tropicbirds (Plate 17) nest near the top of Great Stone Top and disperse from here out to sea which explains the high number of sightings of this species (34% of the total) (Figure 22).

It is interesting to note that the composition of the birds observed in the southern airspace has changed significantly since last year. In the 2018-19 reporting period, there was a huge increase in the number of masked boobies and they made up 26% of all species. This was a worrying trend as these birds are large and heavy and pose a higher risk to aircraft than the other seabirds commonly observed around the airport. It was also thought that these birds might start to breed on the ridges below runway 02 as they have already re-colonised the areas near Lot and Lot's Wife (Plate 18). However, this year, numbers have decreased and masked boobies now only make up 5% of the total (Figures 22 and 23).

Plate 17: Red-billed tropic birds (Photo: B Walmsley)

Plate 18: Masked boobies nesting on the ridges near Lot's Wife (Photo: B Walmsley)

Although the total number of Fairy terns in the southern airspace has decreased this year they have increased as a percentage (from 20% to 35%) of the total bird population observed in this area (Figure 22). Mynah birds have also increased as a percentage of the population, from 7% to 26% over the last two years, but the total number of birds observed in any month is less than 10 (Figure 23). This year, no Brown boobies nor pigeons have been observed, as in previous years (Figure 23).

There have been no reports from pilots about any bird activity.

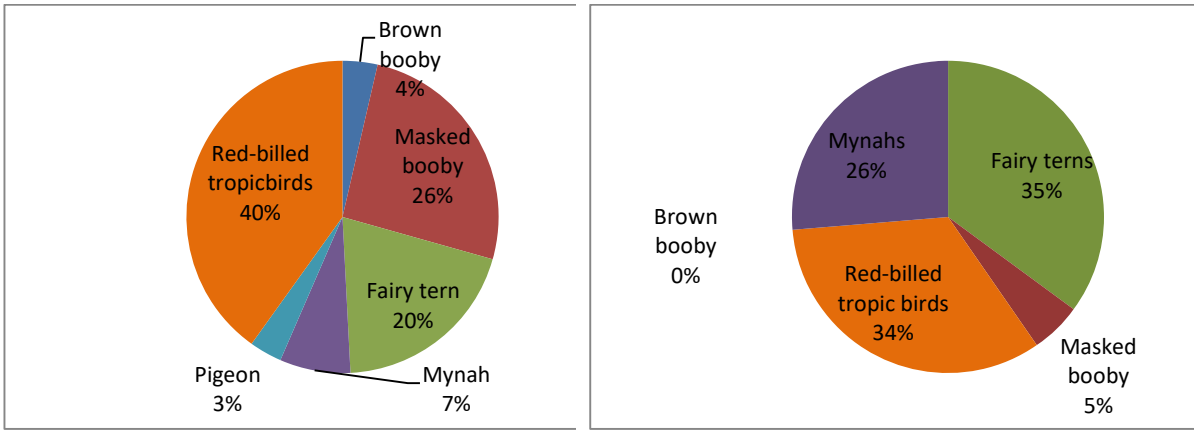

Figure 22: Comparison of seabird composition observed in the southern airspace between 2018-19 (left) and 2019 – 20 (right)

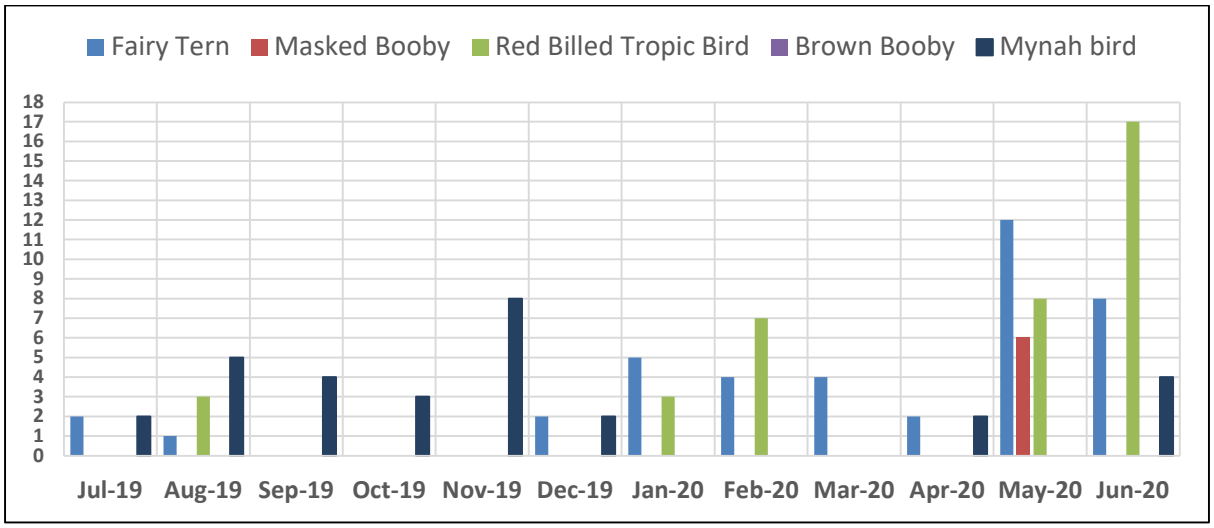

Figure 23: Birds occurring in the southern airspace

7.2.6 Wildlife monitoring

In addition to seabird monitoring in aircraft approach and take-off zones, it is important to control wildlife within the airfield area to prevent collisions during landing, take-off and taxiing. For this reason, the environmental team, security personnel and ATC officers keep daily logs of all species of potential risk to aircraft, such as fairy terns, pigeons, mynahs, partridges, rabbits, cats and dogs.

While the fairy terns and partridges are considered to be a low risk to aircraft due to their small size and flight habits, both pigeons and to a lesser extent, mynahs pose a higher risk to aircraft due to their flocking habits. Both these species associate themselves with human activities and scavenge on food scraps. It is for this reason that these species are closely monitored and waste management has to be exemplary to prevent them taking up residence at the airport.

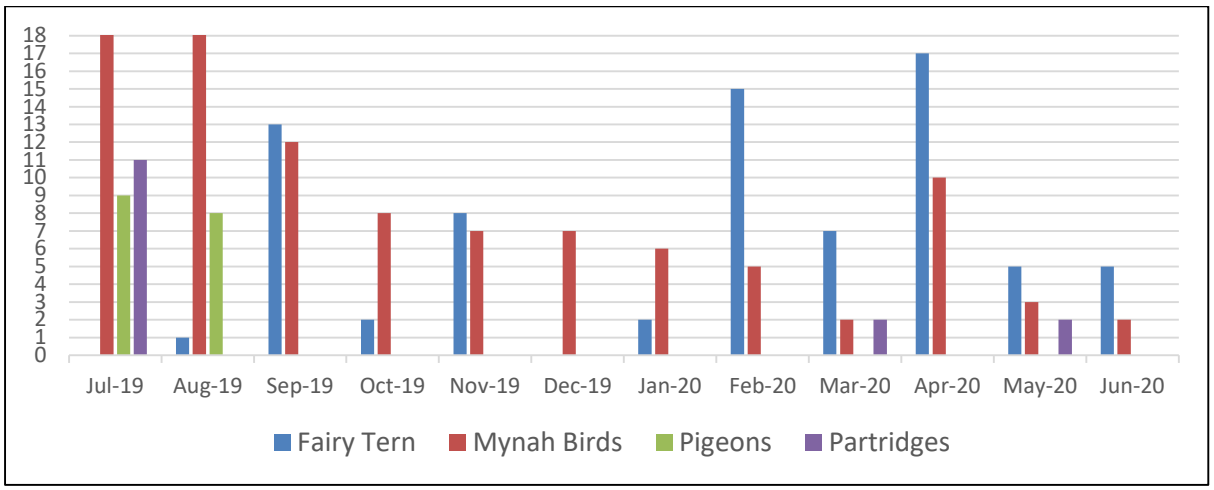

Figure 24: Birds (excluding the Wirebird) seen on the airfield, 2019 - 2020

In addition to aircraft safety issues, mynah birds prey on Wirebird chicks and eggs, while rabbits pose a serious threat to plants, especially new plantings, which are additional reasons why these species need to be monitored and controlled.

The birds are monitored visually every day, while the presence of cats, rabbits and dogs is observed via closed circuit television cameras located around the airport buildings and on daily patrols by security personnel.

It had been found in previous years that pigeons flocked to the airfield to feast on the saltbush berries, but the low number of pigeons observed on the airfield this year is due to the proactive removal of saltbush before the berries set. No pigeons have been observed in the critical flight and taxiing safety area since August 2019 (Figure 24).

Mynah birds are frequent visitors to the airfield, attracted by seasonal food sources e.g. the saltbush berries, but this year numbers are much lower than in previous years, also possibly due to the removal of the saltbush and the legacy of the drought (Figure 24).

Fairy terns are often observed flying over the runway area and have been recorded in most months, as shown in Figure 24. These birds tend to occur in pairs and due to their size and flying habits pose a low risk to aircraft, nevertheless, a Notice to Airmen is in place.

Last year, the third most commonly observed bird on the airfield was the Peaceful dove. This bird had not been seen previously at the airport and it is not clear what attracted it in quite large numbers in May and June 2019. However, in 2019-20, this bird has not been observed at all.

Chukar partridges are being observed more regularly on the airfield and in July 2019, a flock of these birds was observed on the taxiway walking towards the runway. This was reported to the CEO and Accountable Manager. However, since then pairs of Chukar partridges have only been seen in March and May 2020 (Figure 24).

The Wirebird does not pose a threat to aircraft at all due to its very small size, non-gregarious nature and flying habits. It is St Helena's only endemic bird and the national bird of the Island. It is classified as Vulnerable on the Red List and therefore it is monitored all across the Island within its distribution range. It was previously listed as Critically Endangered but various conservation programmes on the Island including the control of rodents and cats, has resulted in an increase in the total population over the past 10 years.

Wirebird numbers on the airfield seem to fluctuate hugely, probably in response to the availability of prey and water. After the large numbers observed during July 2019 and again in January and March 2020, numbers have decreased to under 10 observed per month (Figure 25).

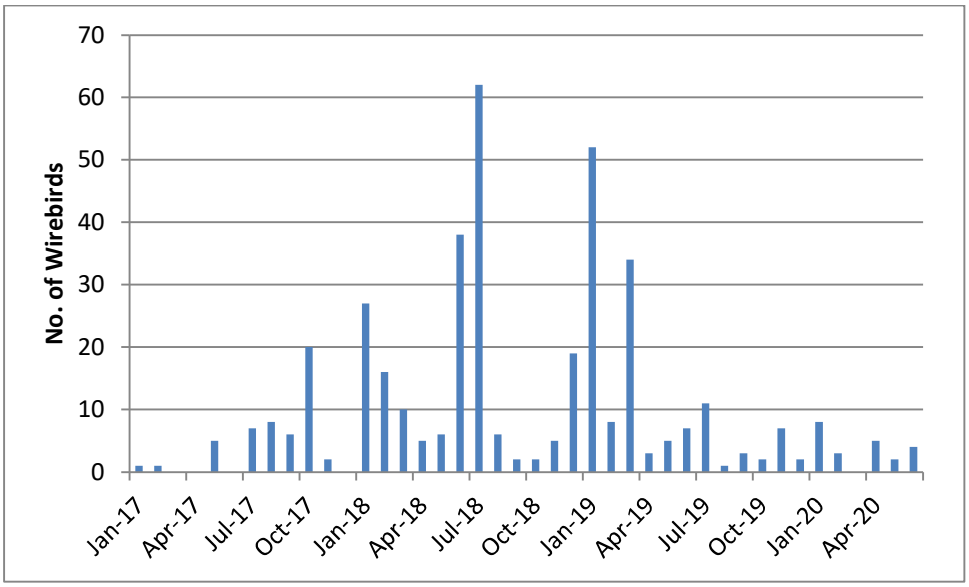

Figure 25: Wirebird observations on the airfield

Plate 19: Wirebird nest in the clear and graded area of the airfield (Photo: SHAL)

Plate 20: One of the two Wirebird chicks rescued from a stormwater drain near the car park (Photo: SHAL)

Two Wirebird nests were found on the airfield in the clear and graded areas alongside the runway (Plate 19) and two chicks were rescued from a stormwater drain near the airport car park (Plate 20), so there is evidence of active breeding taking place in and around the airport. All nests are reported to the head of the Wirebird programme at the St Helena National Trust.

Rabbits, cats and dogs could pose a threat to aircraft during landing and take-off on the runway. Rabbits also pose a threat to plant regeneration, especially endemic plants which occur within the airfield security fence, while cats are one of the main predators of ground-nesting Wirebird eggs and chicks. For these reasons, these animals are monitored on a monthly basis. A total of 13 rabbits, 2 cats and

no dogs were observed during the reporting period (Figure 22). The number of these pests and predators is down from last year.

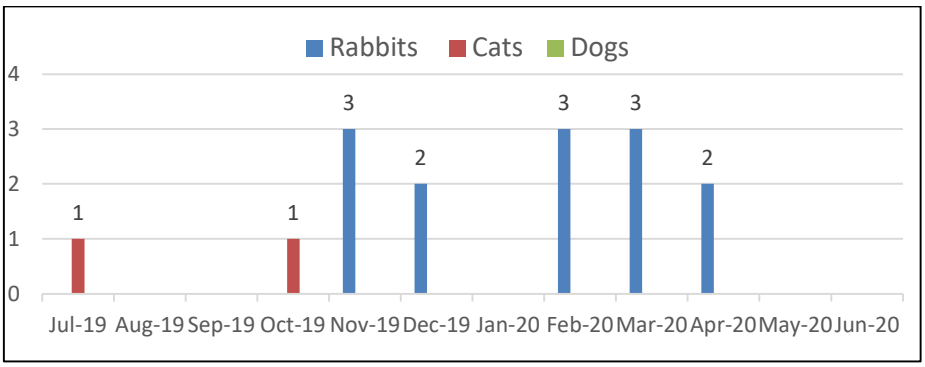

Figure 26: Animals observed on the airfield

7.2.7 Biosecurity

In this section, biosecurity is discussed in terms of invertebrate monitoring and invasive vegetation monitoring.

Invertebrates

Five invertebrate monitoring sites were set up in January 2017 to monitor for the presence of alien and invasive invertebrates outside key points around the airport: Stores Building, the passenger and cargo sections of the Terminal Building and near the workshop and stores within the Combined Building. Each site comprises an invertebrate refuge consisting of a covered box, which holds a sticky board (Plate 21). The monitoring sites are checked on a monthly basis by SHG's biosecurity team, when all the sticky traps are carefully collected for analysis.

Plate 21: One of the invertebrate traps located near the Stores Building (Photo: B Walmsley)

Most specimens were caught in the Combined Building Stores invertebrate trap (32%), with the fewest captured in the Terminal Building cargo trap (Figure 27).

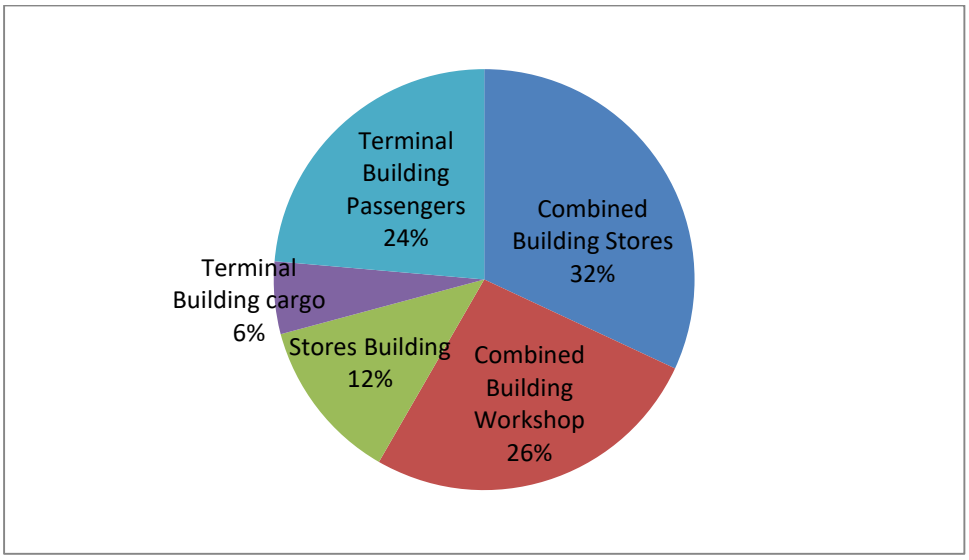

Figure 27: Biosecurity monitoring per airport area, July 2019 to June 2020

In 2017-18, 114 individuals were caught in these traps, but the following year this increased to 354 individuals. In the current year, the number has dropped to 89 – possibly due to the drought, representing 17 different species.

Last year spiders and spiderlings accounted for 33% of the species caught, whereas this year this group of invertebrates makes up the majority of those trapped at 42% (Figure 28). The percentage of Silverfish has risen from 7% last year to 27% this year, while the rest of the species account for the remaining 31% as shown in Figure 28. Species present last year but not caught this year include: scorpions, ladybirds, ground beetles, snails, ants, flies and springtails. None of the species caught are new or classed as invasive aliens.

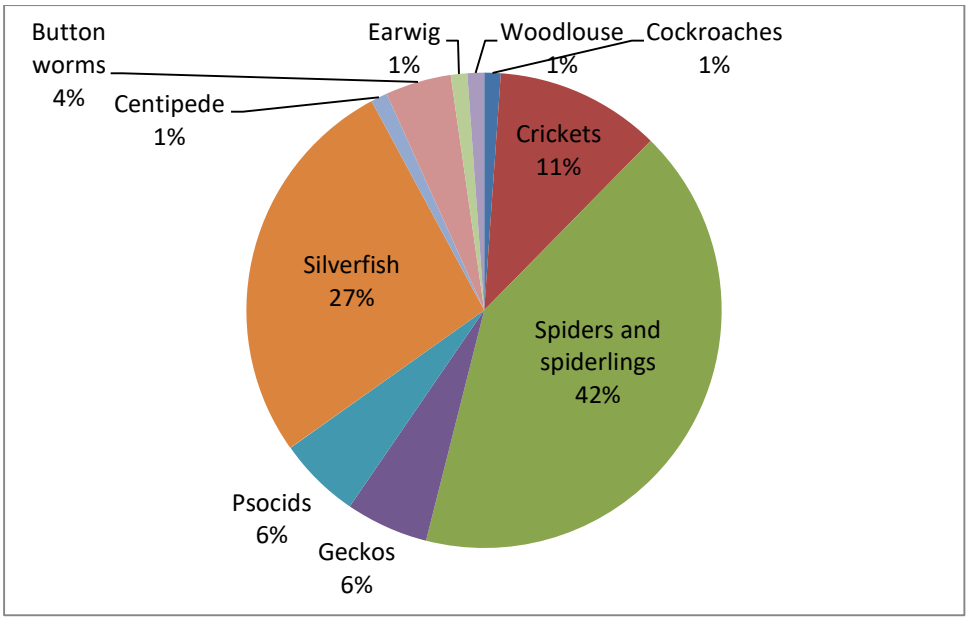

Figure 28: Composition of species caught, July 2019 to June 2020

Invasive vegetation

Namibian Ice Plants (*Galenia* spp.) continue to germinate on the airfield but not as prolifically as in previous years. The Environmental Officers received training from ANRD on how to identify and safely remove these plants before they start to seed (Plate 29). This is an ongoing programme.

Plate 29: Digging up Namibian Ice Plant seedlings as per guidance from ANRD (Photo: SHAL)

Plate 30: Removal of wild mango and other woody species from the engineered fill in Dry Gut (Photo: SHAL)

In addition to the regular removal of the Namibian Ice Plant, the Environmental Officers carried out clearance of wild mango (*Schinus terebinthifolius*), wild tobacco (*Nicotiana glauca*) and other woody plants from the slopes of the Dry Gut fill (Plate 30). It is important to remove these plants before they get too big as their root systems could cause preferential flow of water and subsequent piping, which could affect the engineering integrity of the structure.

7.2.8 Weather

Although the island of St Helena is situated in the sub-tropics, the climate is mild with distinctive southern hemisphere summer and winter seasons. The climate is dictated by a strong orographic effect caused by the sudden uplift of warm moist air as it rises over the island. This causes a steep rainfall gradient between the wetter, higher central Peaks area, which can experience over 1,000 mm of rain per year, and the drier periphery of the Island, which experiences between 100-200 mm per year. The nearby Bottom Woods Meteorological Station (Met Station) lies in the intermediate zone between these two extremes, while the airport lies in the arid coastal zone.

The following data have been sourced from the Met Station and Airport's own Met Office. The former is located approximately 2.5 km north-west of the airport at a slightly higher elevation. Although records have been kept by the Met Station since 1977, the data presented below relating to temperature, rainfall and sunshine hours cover the period 2001-20. The airport has been collecting rainfall and wind data since 2016 (wind) and 2017 (rainfall).

Wind

The Island lies in the south-east trade wind belt and with no other land for thousands of kilometres, the south-easterly winds are constant and strong from year to year, averaging around 16.1 knots at the northern end of the runway (runway 20), 24.9 knots at the runway mid-point and 10.6 knots at the southern end (runway 02) (Figure 29). Monthly average wind speed does, however, vary slightly with the seasons, with the winter months of June to October being noticeably windier than the summer months (Figure 29).

There are very few calm days, but very strong gusts of between 30 and 70 knots are common (Figure 30), with the highest sustained gust over 10 minutes recorded to date being 86 knots. The strongest winds tend to occur in late winter (August-September). The average maximum gust speeds are 31.9 knots on Runway 02, 68.7 knots (Mid-point) and 57.9 knots on Runway 20 (Figure 30).

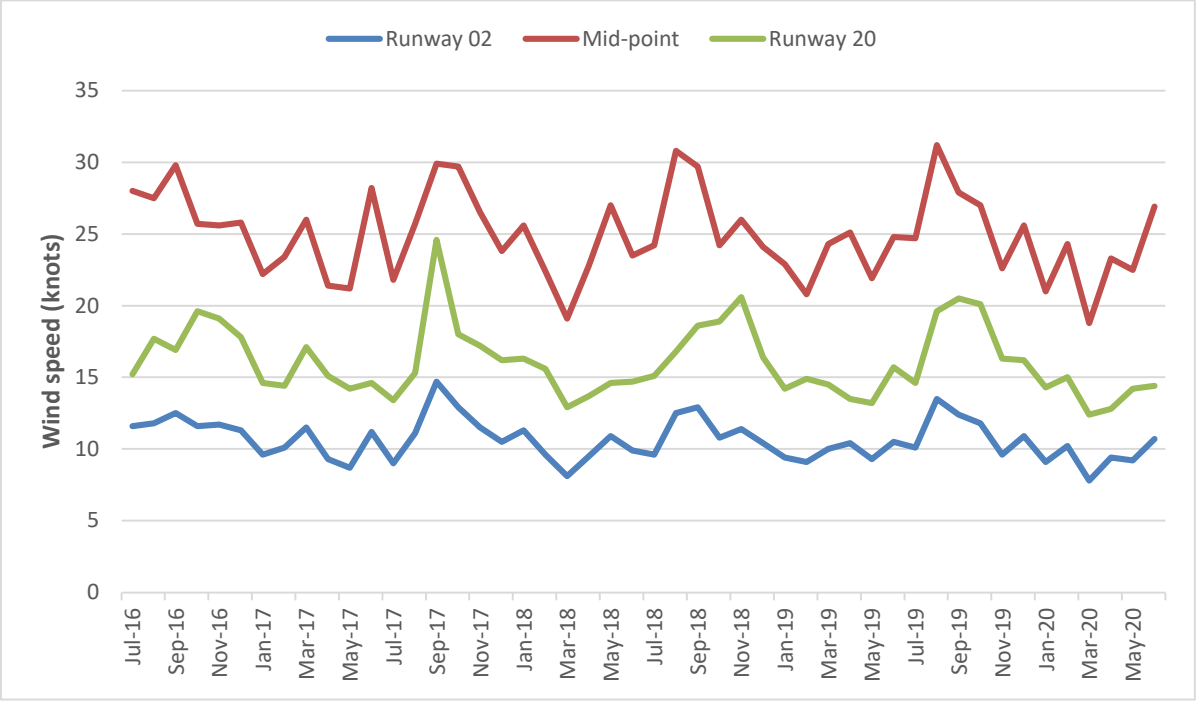

Figure 29: Monthly average 10-minute wind speed at monitoring points along the runway

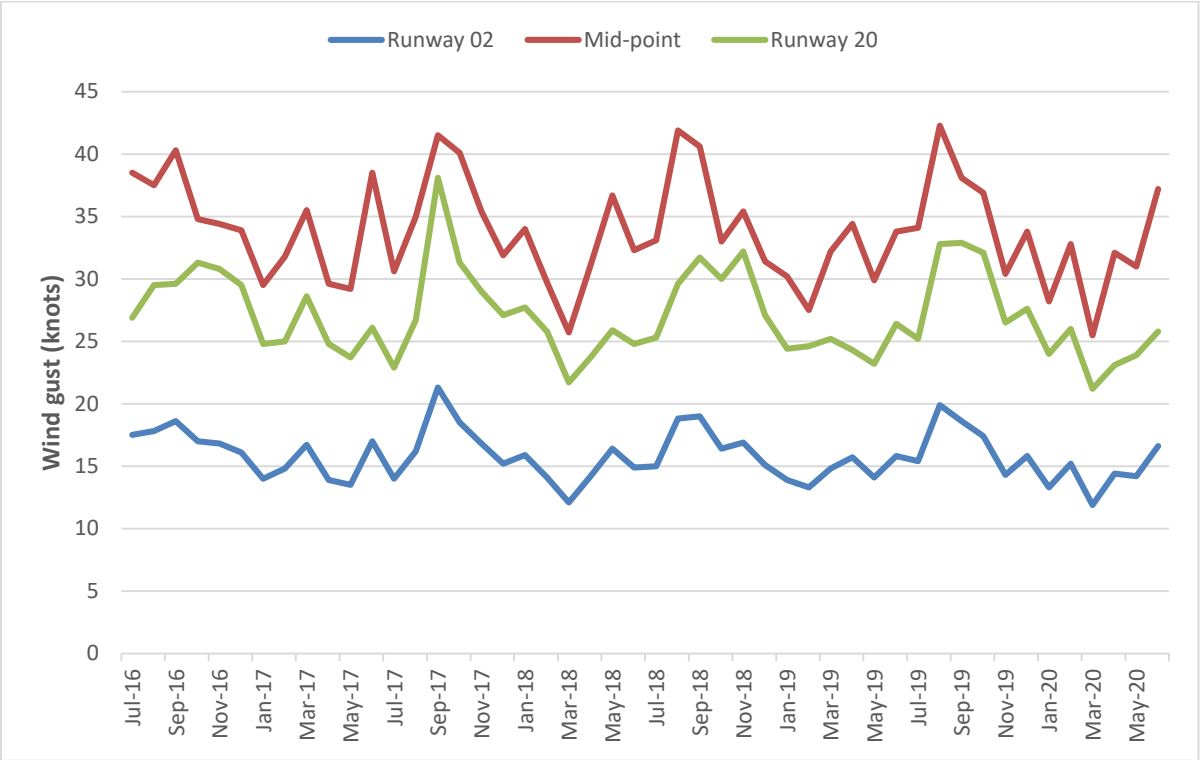

Figure 30: Monthly average 10-minute gust at monitoring points along the runway

Rainfall

The average annual rainfall at the Bottom Woods Met Station for the period 2001-20 is 514.6 mm, ranging from over 730 mm in 2008 to a low of 286 mm in 2019. By contrast, the average annual rainfall at the airport precinct over the 3-year period of record is about half of the Bottom Woods total at 263 mm (Figure 31). The rainfall in 2020 has exceeded 2019 in most months.

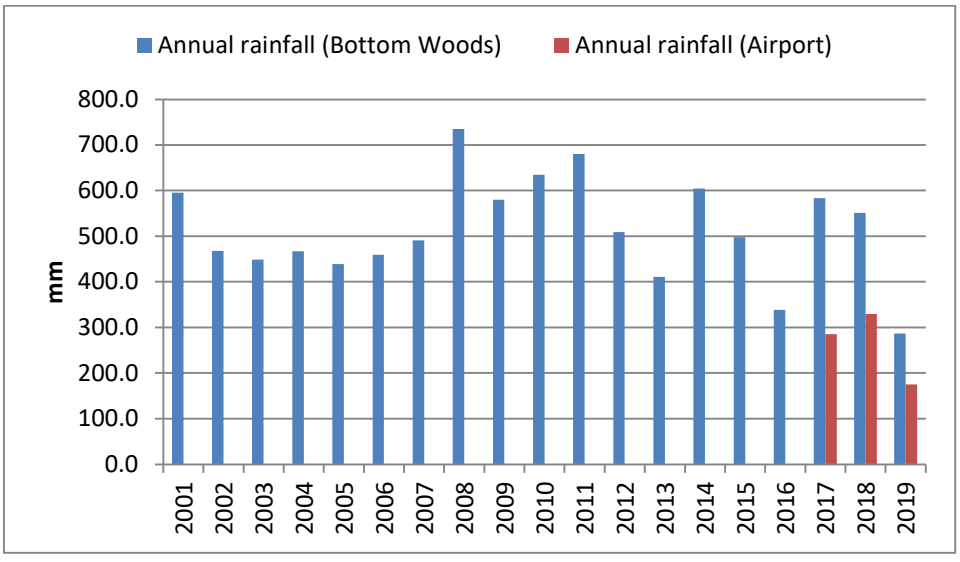

Figure 31: Annual rainfall at the Airport precinct and Bottom Woods Met Station

Normally, the monthly rainfall pattern shows a distinct difference between the drier spring and summer months (October to January) and the wetter autumn and winter months, but in the 2019-2020 period, this was not the case. The usually low-rainfall summer months (January to March 2020) were very wet and higher than average rainfall continued into the autumn (Figure 32). The airport also experienced higher than average rainfall in January, but the monthly totals here decreased as summer transitioned into autumn (Figure 32). The total rainfall at Bottom Woods Met Station for the reporting period was 453.4 mm, which is 52% higher than the amount of 216.0 mm recorded at the Airport.

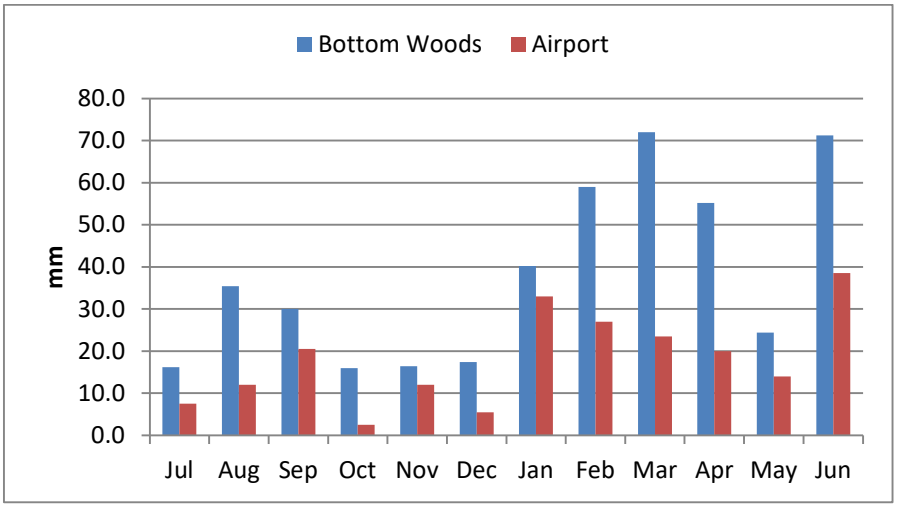

Figure 32: Mean monthly rainfall at Bottom Woods Met Station and the Airport precinct

Temperature

The mean annual temperature at the Bottom Woods Met Station is 18°C for the period 2001-20, and usually ranges between 17.5 and 18.5°C, but 2019 was much hotter and drier than previous years with an average temperature of 19.2°C (Figure 33). From the limited data set it is not clear if this is an aberration or the beginning of an upward trend in mean average temperature. Given that a much lower than average period occurred between 2012 and 2014, the latest results could be an indication of much greater variability associated with climate change.

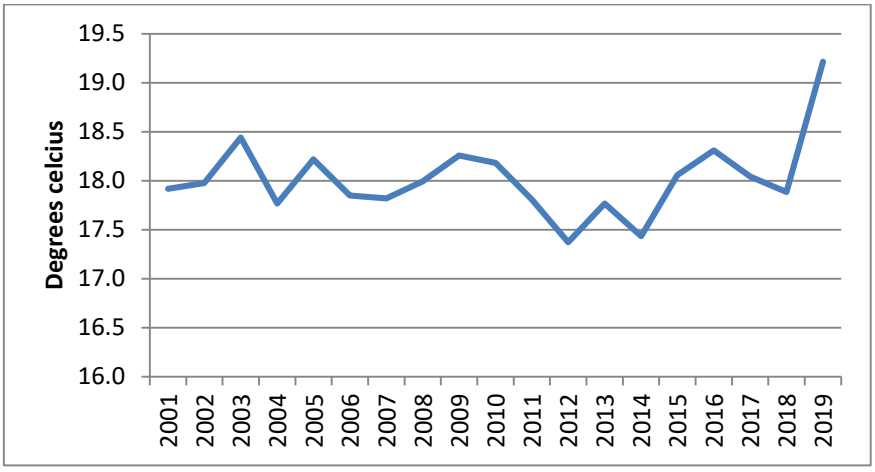

Figure 33: Mean annual temperature at the Bottom Woods Met Station

As expected in the tropics, the average temperatures show only a slight seasonal variation (Figure 34). The mean monthly average temperature peaks in summer at around 20 - 21°C, with an annual daily

mean of 18.7°C, while the mean daily temperature during the winter months lies between 16 - 17°C. During the year under review, the highest recorded temperature at Bottom Woods was 26.8°C in March 2020 and the lowest temperature was 13.3°C in September 2019.

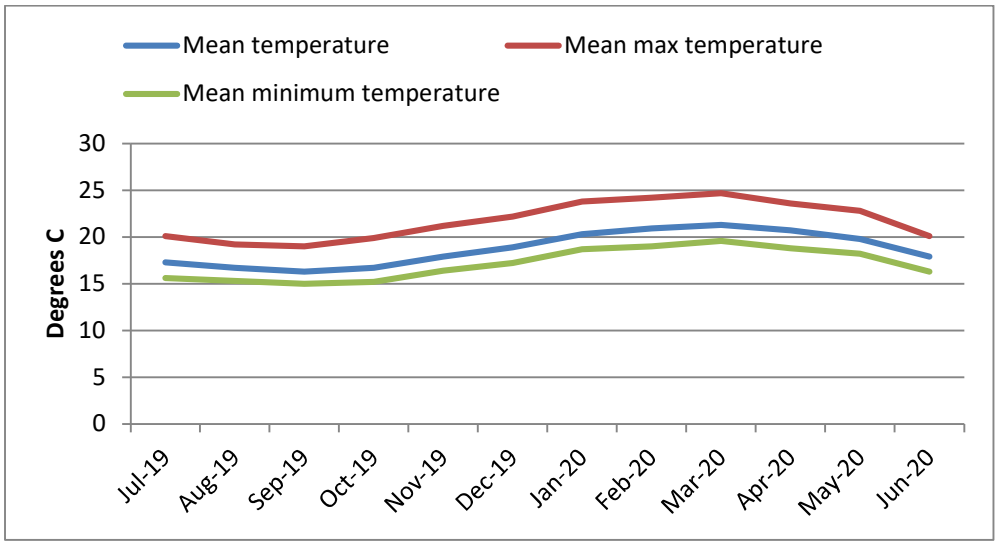

Figure 34: Average monthly temperatures at Bottom Woods Met Station

Sunshine and cloud

For its location in the sub-tropics, St Helena experiences a considerable amount of cloud, reducing the amount of sunshine to around 32-36% of the theoretical maximum, with an average 1,421 hours of sunshine per year (Figure 35). The total for 2019 was the second highest amount of sunshine since 2001 and reflects the fact that the year was much hotter and drier than normal.

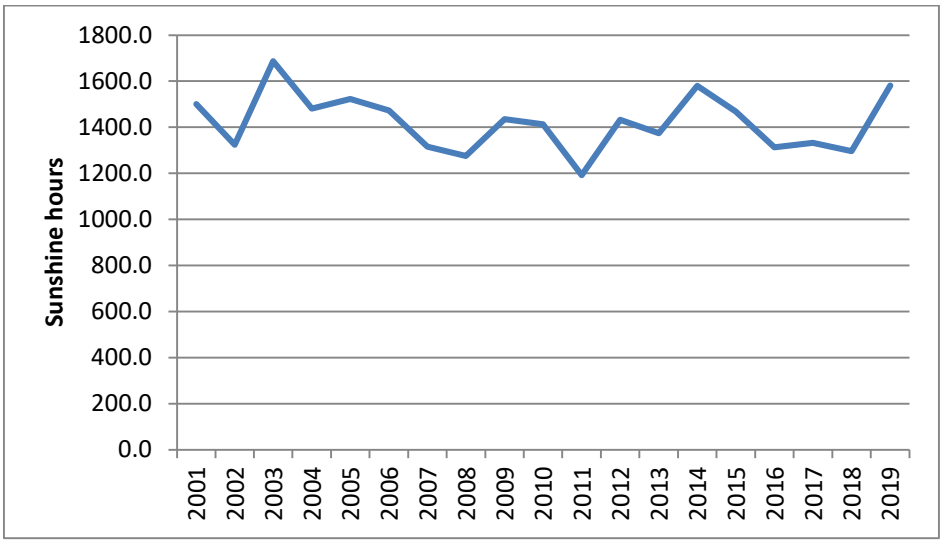

Figure 35: Annual total hours of sunshine at Bottom Woods Met Station

The seasonal variation in the amount of sunshine is evident in Figure 36 which shows that most sunshine occurs in the summer months and early autumn. The corollary of this is the amount of fog and mist experienced at Bottom Woods, which is normally highest during winter with up to 6 days of fog per

month, but in the reporting period, there was a lot of mist and fog in January, February and April, corresponding to the higher than average rainfall in this period as shown in Figures 37 and 32.

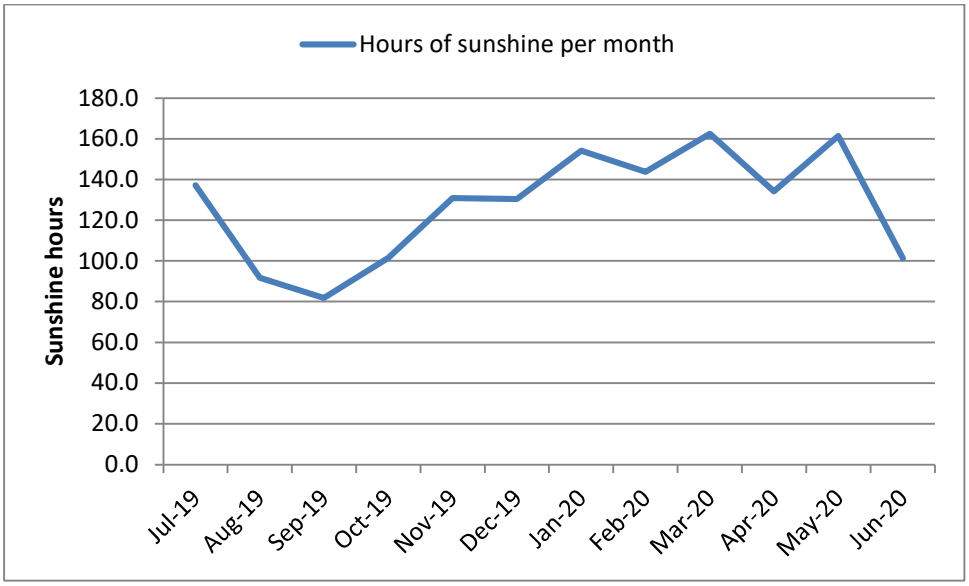

Figure 36: Average hours of sunshine per month at the Bottom Woods Met Station

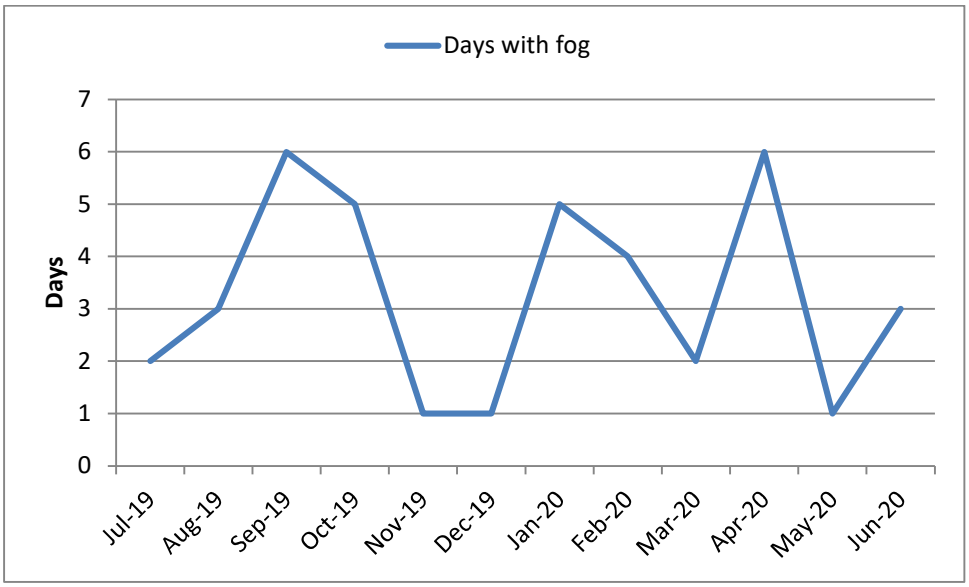

Figure 37: Average number of fog days per month at the Bottom Woods Met Station

8 CONCLUSIONS

The 2019-20 year has been one of stark contrasts: the airport was a hive of activity during the first 8-9 months of the reporting period and then almost deserted during the remaining 3-4 months as a result of flight restrictions imposed due to the Covid-19 pandemic; however, there were occasional bursts of activity during this period with the arrival of the three repatriation flights. Where 2018-19 was extremely dry, this year has been wet. The patterns of bird movements have also been significantly different this year compared to last; some of the birdstrike risk concerns raised in the 2018-19 AER relating to the significant increase in number of masked boobies (and to a lesser extent, Peaceful doves) have been allayed, with monitoring showing a great reduction in the number of both species. This underlines the importance of monitoring trends and putting into place proactive measures to respond to the ever-changing environment.

An important initiative launched this year is the Carbon Accreditation Programme and the Airport has made progress towards achieving Level 1 certification.

Airport staff responsible for environmental management have demonstrated a high level of commitment and enthusiasm for managing the environment at the Airport in a proactive and positive manner.

Targets for 2020 - 21

- Regular scheduled flights to resume as soon as health and safety considerations allow;
- Annual audit in August 2021;
- EMS update in February/March 2021;
- WHMP update in February/March 2021;
- Level 1 certification of the Carbon Accreditation Plan, with progress towards achieving Level 2;
- Quarterly risk assessment reviews;
- Proactive environmental management to prevent incidents from occurring;
- Regular water quality monitoring and analysis will be resumed;
- Improved compliance with the EMS and with the key performance indicators listed in the Executive Summary of this AER.