

# **Alderney's West Coast and Burhou Islands**

## **Ramsar Site and Other Sites**

### **Annual Ramsar Review 2020**

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## Executive Summary

1. The 2020 *Alderney's West Coast and Burhou Islands Ramsar Site and Other Sites* annual Ramsar review is the 14th annual review since the site's inception. This review documents the work set out in the 2020 Ramsar Action Plan and comprises the fourth year of the 2017-2021 Five-Year Management Strategy.
2. The majority of the seabird, marine and terrestrial monitoring programme was successfully completed in 2020 despite the ongoing COVID-19 pandemic. Exceptions as a consequence of the pandemic included the gannet colony census (to be completed in 2021) and some aspects of the traditional bird ringing (notably the gannet chick ringing). The start of the around island seabird surveys were delayed too but otherwise delivered in time. The educational boat tours were also limited, particularly early in the year. Nevertheless, the remainder of the outreach and educational programme was unaffected and remained wide reaching; sharing Alderney's natural history to a wide audience both during and after lockdown. Collaboration between Channel Island Ramsar sites was also developed with the production of codes of conduct for each site as well as a common website prepared by Alderney on behalf of the islands.
3. In 2020, many of Alderney's seabirds had a poor year. Although numbers appeared little changed where they were surveyed, productivity was often low. On Burhou, the puffin population size appeared stable if not a little larger than in recent years. The boat-based surveys estimated that 167 breeding pairs were present (compared to 150 in 2019, and 140 in 2018). Productivity was also similar to previous years. Monitored throughout the breeding season using remote cameras to reduce disturbance, it was estimated to be 0.63 chicks per pair.
4. On Les Etacs the gannets did not have a productive year. Some pairs did not lay (10%) and overall productivity (0.46 chicks per pair) was the second lowest recorded since 2011 when records began. In fact, since 2013 mean productivity (0.54 chicks per pair) has been substantially lower than the mean found from the UK gannetries (0.69 chicks per pair) and reflects a downward trend, particularly notable over the last three years. Worryingly, productivity from Les Etacs has begun to match the values recorded from the French gannetry at Rouzic (located off the Brittany coast) where fewer than half of all gannet pairs have produced a chick each year since 2012 and the colony has begun to decline. Extensive research conducted at this colony indicates that poor feeding conditions in the English Channel are to blame and have been caused by a combination of overfishing the pelagic fish stock, changes in fishing policy reducing the availability of discards, and climate change altering the distribution of the gannet's natural prey (Atlantic mackerel). Given our birds occupy the same eco-region its likely they have been suffering under the same regime. Furthermore, other research on Rouzic's gannets indicates that competition for food with industrial scale over fishing and increased bycatch in their winter quarters have also led to a dramatic down turn in adult survival. Thus, with numerous factors now likely co-acting to negatively affect our gannet's productivity and survival, it's therefore crucial we remain vigilant, continue monitoring and conduct a census at the next opportunity to determine if our colonies have begun to decline too. This year, a census was scheduled but could not occur due to the restrictions imposed by the COVID-19 pandemic but will be prioritised for 2021 instead.
5. Ongoing investigations of the impact of marine plastic on the gannets continued in 2020 and were carried out by monitoring the rate of entanglements on Les Etacs throughout the nesting season. In total, 17 adults and 4 chicks were seen entangled in debris. All but one of these birds were unable to escape and eventually starved to death. Ongoing investigations of the gannet's movements in the non-breeding season (as part of the Track-a-Gannet project) also continued and led to the successful deployment of ten new geolocators, fitted to adult gannets nesting on Ortac. A single geolocator

deployed there in 2017 was also recovered. Its data showed that the bird wintered off west Africa. This may indicate that more of Alderney's adult gannets migrate there each winter than so far implied from ringing recoveries.

6. Thirty-six pairs of fulmar bred and their productivity (0.44 chicks per pair) was similar to previous years. Common terns established a new colony on Fort Houmet Herbé and did better than 2019, successfully raising more chicks to fledging. However, the ringed plovers had the worst season since detailed records began in 2017. Productivity was 0.16 chicks per pair. Each chick had just a 10% chance of survival. Excessive human disturbance was likely a key contributor to their poor success. Furthermore, round island boat based seabird surveys indicated a poor breeding seasons for gulls and shags too. Ringing operations were affected by the COVID-19 pandemic and only the storm petrel ringing on Burhou went ahead as normal. No cormorants, auks or gannet chicks were ringed and fewer lesser black-backed gulls were caught than in previous years.
7. The programme of rat control on Alderney's coastal islets continued in 2020 and was expanded to include the eastern side of Saye Bay and Fort Houmet Herbé which likely had a positive impact on the nesting success of the common terns.
8. The programme of marine works in 2020 was ambitious and included a) Phase II habitat mapping and species monitoring in Clonque Bay, b) ongoing assessments of the green ormer population, c) assessments of invasive species, d) grey seal surveys (including the maintenance of local ID records), and e) a range of intertidal surveys. Desk-based projects were undertaken too and included a review of marine mammal data as well as a review of both benthic and pelagic marine data. In addition, two masters' projects were undertaken to review all BRUV survey data to form recommendations for future survey design and deployment; and to evaluate intertidal survey methods.
9. The education and outreach programme remained wide reaching in 2020. 'PuffinCam' was particularly successful and was viewed over 600,000 times (an increase of 416% from 2019). It provided more referrals to 'Visit Alderney' than any other source. In addition, 'PuffinCam' and the AWT's work under Ramsar gained the attention of both local and national media. Educational boat tours were affected by the COVID-19 pandemic. However, 35 educational boat tours were run alongside a wider programme of public engagement including rockpooling events, beach cleans, a wetlands competition, an engagement marine tank and the publication of a new free educational leaflet for Alderney's Ramsar site.
10. Support for advisory and legislative activities included; a) drafting Alderney's submissions for the National Ramsar Implementation Report; b) the development of a new Ramsar code of conduct; c) the development of a website to encompass the wider collective of Ramsar sites across the Channel Islands; d) the implementation of the Puffin Friendly Zone off Burhou; and e) planning for signage for sensitive wildlife on beaches.
11. Recommendations for future work, based on the outcomes of the 2020 Ramsar programme are made throughout this document and are tabulated in Appendix C. Key aspects of the work to deliver in 2021 will include continued monitoring of seabirds, prioritising the census of gannet colonies, the implementation of a wider programme of marine surveys throughout the islands inshore waters, and developing the outreach effort by expanding online resources via a new 'GannetCam' and via the boat based educational programme.
12. The 2020 Ramsar report was developed and reviewed in consultation with the Alderney Ramsar Steering Group and States Veterinary Officers. Consultation comments with these groups have been included in Appendix D and dialogue with each will remain ongoing into the future.

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## List of Acronyms and Abbreviations

ABO – Alderney Bird Observatory  
AOB – Apparently Occupied Burrow  
AON – Apparently Occupied Nest  
AOS – Apparently Occupied Site  
ARSG – Alderney Ramsar Steering Group  
ARS – Alderney Ramsar Strategy  
AWT – Alderney Wildlife Trust  
BMLRD – British Marine Life Rescue Divers  
BRUV – Baited Remote Underwater Video  
BTO – British Trust for Ornithology  
CEO – Chief Executive Officer  
CIBRS – Channel Island Bird Ringing Scheme  
COVID-19 – the ongoing global pandemic caused by the contagious SARS-CoV-2 coronavirus  
EIA – Environmental Impact Assessment  
GBBG – Great Black-backed Gull  
GDPR – General Data Protection Regulation  
GMN – Groupe Mammlogique Normand  
GPS – Global Positioning System  
GSC – General Services Committee  
ICES – International Council for the Exploration of the Seas  
IEM – Inter Islands Environmental Meeting  
JNCC – Joint Nature Conservation Committee  
LBBG – Lesser Black-backed Gull  
PFZ – Puffin Friendly Zone  
PTZ – Pan Tilt Zoom  
RSPB – Royal Society for the Protection of Birds  
SoA – States of Alderney  
TAG – Track A Gannet  
ToR – Terms of Reference  
TWT – The Wildlife Trusts  
WeBS – Wetland Bird Survey

## 1. Introduction

This document reviews the work objectives carried out in 2020, as detailed in the 2020 Ramsar Action Plan (AWT, 2020b), reviewed by the Alderney Ramsar Steering Group (ARSG), Activity Organisations and States Vet, and approved by the States of Alderney (SoA) General Services Committee (GSC).

## 2. Background

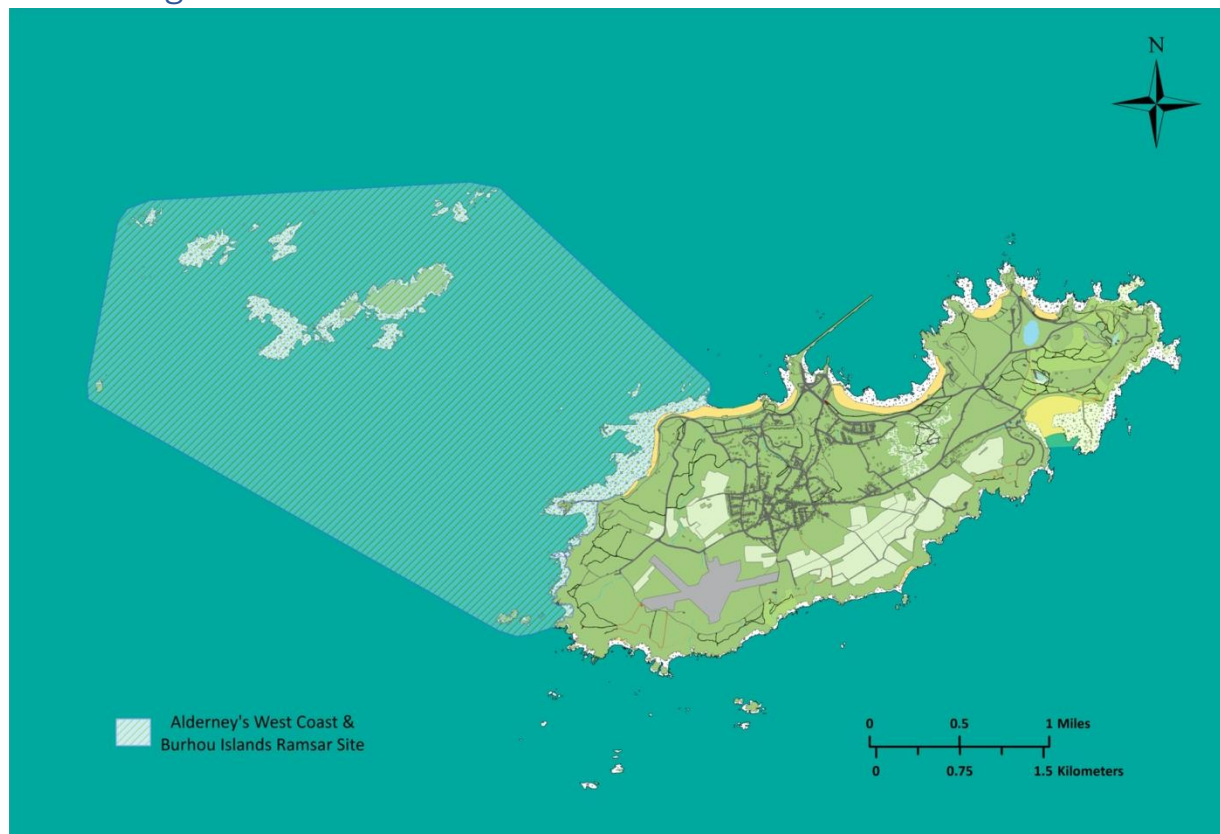


Figure 1 – Alderney West Coast and Burhou Islands Ramsar Site

On 25<sup>th</sup> August 2005, the Alderney West Coast and Burhou Islands Ramsar Site was designated and gained global recognition as a wetland of international importance under the Ramsar Convention. The site covers 1,500 hectares of land and sea and was the first site to gain Ramsar designation within the Bailiwick of Guernsey.

In 2006, on behalf of the States of Alderney (SoA), the General Services Committee (GSC) requested the support of the Alderney Wildlife Trust (AWT) in the preparation of a management strategy, as required under the commitments of the Ramsar Convention, and registered the AWT as the Alderney Ramsar administrators with the International Ramsar Secretariat in Geneva. The Alderney Ramsar site strategy outlines the need to monitor seabird and other marine life population trends, threats to these and to continue the management of the populations where necessary. The objectives of the strategy are assessed annually through various research projects and conservation management techniques.

Since 2007, the Ramsar site has been managed using Five-Year Management Strategies, with annual Action Plan and Review documents, prepared by the AWT on behalf of the SoA (all available online at (<https://www.alderneywildlife.org/reserves/ramsar>)).

All Ramsar reports are developed and reviewed in consultation with the Alderney Ramsar Steering Group (ARSG). The ARSG was established in 2006 to offer technical advice to the AWT and assess proposals

before their presentation to the SoA in the effort to create robust and vetted management strategies. The group is made from experts (included individuals who work for the RSPB, BTO and States of Jersey). The ARSG are involved in reviewing all five-year management strategies, annual action plans and annual review reports as well as meeting annually to discuss the work.

While the Ramsar site has a clearly defined boundary (Figure 1), the site's five-year and annual management plans and review documents may include specific habitats and species which may occur outside of this defined area. This has occurred to ensure that monitoring and conservation measures (often including projects and species which occur within the Ramsar site) are properly documented and reviewed. This ensures a wider view of species information (particularly important for those which are mobile and travel into the Ramsar Site) and conservation measures which protect species and habitats within the Ramsar site is taken. Locations are clearly detailed within the report to ensure it is clear if a work item has occurred inside or outside of the defined Ramsar site. In April 2019, the GSC approved the updating of the current 2017-2021 Ramsar Management Strategy's title to include 'and other sites. In 2020, the Alderney West Coast and Burhou Islands Ramsar site enters the fourth year of the 2017-2021 Management Strategy (AWT/SoA, 2016).

All activities within Alderney's Ramsar site should be fully risk assessed and covered by the activity organisation's insurance and States of Alderney issued licences where applicable.

In early 2020, the SoA CEO's office outlined a process to create a new Terms of Reference (ToR) for parties involved in the Ramsar site. Since this initial consultation, no further updates have been received and this report has been prepared under the existing requirements of the Ramsar strategy. It is expected that the SoA may revisit its plans for managing the Ramsar site as part of updating the site's strategic plan for 2022 onwards. Further information from the CEO's office regarding this process is pending at the time of preparing this report.

### 3. Objectives

The objectives of the 2020 Ramsar Action Plan (AWT, 2020b) are set to achieve the objectives of the 2017-2021 Ramsar Site Management Strategy (AWT, 2016) with consideration of recommendations made in the 2019 Ramsar Review (AWT, 2020a).

#### 3.1 Seabirds

- Installation and maintenance of seabird monitoring cameras and equipment on Burhou (March – August).
- Monitoring of the seabirds breeding on Alderney, Burhou and other islets including estimates of breeding population sizes and productivity. (Puffins: March – August; Gannets: February – November; Fulmar: May – September; Common Terns: May – August; Ringed Plover: April – July).
- Investigating the impact of anthropogenic materials on Northern Gannets including recording instances of entanglement and mortality, observation of materials returned to nest site and opportunistic seabird necropsies in collaboration with AAWS.
- Continuing the ‘Track a Gannet’ (TAG) project including; deployment of ring mounted geolocators on up to ten gannets nesting on Ortac and attempting to recover all nine geolocators that were deployed in 2017; presenting a synopsis of the data obtained from GPS GSM tracking devices, and reviewing the further use of GPS GSM data trackers.
- Obtaining counts of the seabird populations breeding on Coque Lihou and other south coast islets.
- Seabird ringing (ABO).
- Monthly Wetland Bird Surveys (WeBS).
- Reviewing contact with Groupe Ornithologique Nomand (GONm).

#### 3.2 Terrestrial

- Rodent control in collaboration with the SoA Public Works Department including maintenance of the bait stations on Burhou, Rousset, La Quoiré, Twin Sisters, Hanaine Bay islets, Houmet de Pies, and the East side of the Saye Bay and their adjacent shores where appropriate.
- Investigating bracken and invasive species on Burhou.

#### 3.3 Marine

- Requesting data from Capturing our Coast.
- Completion of Phase I habitat mapping subsequent Phase II species monitoring of Clonque Bay
- Green Ormer population assessment (April and October).
- Invasive species assessments at Clonque Bay and Hanaine Bay alongside Ormer population assessments (following TWT Shoresearch methods) (April and October).
- Marine mammal surveying.
- Baited Remote Underwater Video (BRUV).
- Supporting and leading marine based academic projects within the Ramsar site.
- Seasearch groups in conducting SCUBA diving and snorkelling marine ecological surveys.
- A desk-based review of marine mammal surveys (October – December).
- Supporting the local British Marine Life Rescue Divers group on Alderney (as required).
- Marine management activities and the community led Marine Management Forum.
- Liaising with the SoA to consider seawater testing.
- Remaining in contact with Agence de la Biodiversité.
- Reviewing baseline marine data to ensure work streams are relevant and up to date (winter).
- Developing baseline assessments and subsequent annual monitoring of possible climate change indicators.

### 3.4 Events

- Offering boat tours on Sula of Braye (March – September).
- Running educational tours for Year 6 students at St Anne’s School.
- Continuing community and public awareness for the Ramsar site year-round.

### 3.5 Advisory and Legislative

- Working with the Alderney Harbour Office to continue supporting the PFZ.
- Raising public awareness for the PFZ.
- Reviewing the use of signage within the Ramsar site.
- Maintaining communication links and collaborations with other Channel Island Ramsar Sites.

## 4. Review

### 4.1 Seabirds

#### 4.1.1 Remote Cameras

Each year, the 'LIVE: Teaching Through Nature' website hosts 'PuffinCam', three cameras streaming live online from the islet of Burhou throughout the puffin breeding season (March to August). The current camera array features two bullet cameras named 'Main Cam' and 'Close-up Cam', as well as a pan tilt zoom (PTZ) camera named 'Colony Cam'. 'Colony Cam' can be remotely operated and, since 2018, has been used to help monitor Alderney's puffin colony through the review of recorded video to measure productivity and population size.

In 2020, when not undertaking survey work, colony cam was positioned to best show off Alderney's natural history which gained attention both locally and nationally.

##### 4.1.1.1 Installation and Maintenance

On 17<sup>th</sup> March 2020, 'PuffinCam' was installed on Burhou by a team of six staff and volunteers. As in 2019, three cameras were installed along with solar panels, batteries, associated cables and transmitters to allow the recording of video and the continual live transmission of HD video online. Signs were placed on Burhou to inform visitors as to the cameras' presence and use in line with GDPR policy.

A single maintenance trip was made to Burhou on 11<sup>th</sup> July shortly after both 'Main Cam' and 'Close-up Cam' went offline. A team of two, an ecologist and an electrician, landed on the islet for less than one hour to repair two sections of cable that had been subject to rabbit gnawing. The maintenance was completed on recommendation by the ARSG and was approved by the SoA and Harbour Office. In 2020, the time spent on island by the AWT during the breeding season was considerably less than in previous years.

The cameras and associated hardware were removed from Burhou on 5<sup>th</sup> August after it was determined that 2020's puffin breeding season was over.

##### 4.1.1.2 Engagement

The views from 'PuffinCam' were streamed online from 18<sup>th</sup> March through to 4<sup>th</sup> August through the 'LIVE: Teaching Through Nature' website, the site itself having been updated prior to the 2020 season. A live feed was displayed at the Wildlife Information Centre on Victoria Street where 'Colony Cam' it could be controlled by visitors when AWT staff were not undertaking scheduled survey work.

The cameras were very successful in 2020, providing an online resource sharing an insight into life on a seabird colony whilst much of the world was in lockdown during the COVID-19 pandemic. The AWT, in collaboration with Visit Alderney worked to promote the video feeds throughout the season where they gained attention both locally and nationally as clips were shared on television and on social media. 'Colony Cam' was scheduled to undertake two daily tours of the seabird colony at 2pm and 4pm during which many accessed the resource. The camera automatically panned to observe seabird interactions on the land and on the water before panning towards the distant mainland Alderney and across the Ramsar site.

In 2020, 51,501 users accessed the content, an increase of 416% from the same period in 2019 (12,394 users). By the end of the 2020 season the cameras had racked up 606,050 views, an increase of 518% from the same period in 2019 (116,915).

In April and May 2020, Visit Alderney noted that 'PuffinCam' was providing more direct referrals to their website (visitalderney.com) than any other source. This was likely in part due to a Joint Working Group

effort (GSC policy) where Visit Alderney and the AWT integrated direct island marketing into the 'PuffinCam' website.

Recommendations:

- Camera placement should be reviewed, ensuring best placement away from bracken and from the reflection of the low spring sunlight on the water (see recommendations in 4.1.2.1).
- Investigation into preventive measures should be made to avoid rabbit gnawing of cables.
- Should financial investment be made available, cameras should be upgraded to remain competitive with similar online resources being used elsewhere, including the addition of a microphone.
- The installation of 'GannetCam' on mainland Alderney should be explored to help maintain and increase interest.

## 4.1.2 Seabird Monitoring

### 4.1.2.1 Atlantic Puffins

Alderney's Atlantic puffins *Fratercula arctica* (hereafter 'puffins') were first observed on 17<sup>th</sup> March when 123 birds were seen rafting during a trip to set up 'PuffinCam'. The first puffin was observed making landfall on Burhou was on 2<sup>nd</sup> April where monitoring began.

As puffins nest out of sight in burrows, observation of behavioural cues were used to deduce likely laying, hatching and fledging dates. The first indication that pufflings (puffin chicks) had begun to hatch occurred on 22<sup>nd</sup> May when an adult puffin was seen returning to its burrow carrying fish. As no fish returns were observed during the previous survey (17<sup>th</sup> May), hatching likely commenced between 18<sup>th</sup> May and 22<sup>nd</sup> May.

The approximate date when puffins began to lay eggs on Burhou was then deduced by subtracting the incubation period (38 – 41 days; Harris and Wanless, 2012) from the earliest date adult puffins were seen provisioning chicks where hatching must have begun. Using this method, the earliest puffin in the observed sample would have likely laid between 7<sup>th</sup> April and 14<sup>th</sup> April, shortly following the birds' initial landfall on 2<sup>nd</sup> April.

No pufflings were recorded fledging from their burrow by 'PuffinCam' in 2020. Food was last observed being brought back to the colony on 3<sup>rd</sup> August and the last adult seen was rafting on the sea near the colony on 8<sup>th</sup> August. It is therefore likely that the last chicks to fledge left within this period however some will have fledged several weeks prior.

Traditionally, the productivity of Burhou's puffins have been monitored by on island observers. Unfortunately, access to the islet was not possible during this year's breeding season due to the COVID-19 pandemic so productivity was estimated using the methodology developed in 2019 (AWT, 2020a), using remote observation by 'PuffinCam'.

Productivity surveys were completed by reviewing video footage recorded by the PTZ camera, 'Colony Cam'. The PTZ automatically positioned itself and recorded pre-scheduled surveys from 7<sup>th</sup> April to 4<sup>th</sup> August. Video footage was then analysed, noting burrow entry, fish returns, and other puffin activities, first to establish which sites are 'apparently occupied' in the early season, and then to establish successful hatching by the occurrence of food (fish) returns. In 2020, the survey area was divided into five fields of view from which video data was collected for one hour per field of view at least once every five days. Additional surveys were scheduled around periods of poor weather or if otherwise thought necessary. In total, 27 surveys were completed equating to roughly 135 hours of video. Further to this, roughly 25 hours of night-time recording was reviewed alongside an additional six hours of opportunistically recorded footage. Altogether, 166 hours of footage from the colony was reviewed in 2020. At times, the review of footage took significantly longer than the recorded survey time as some footage needed to be repeatedly paused and rewind, particularly during periods of intense activity, for example, when several puffins simultaneously returned with fish.

During the review of pre-recorded surveys, instances of kleptoparasitism (in this case Great Black-backed gulls stealing fish brought back to puffin burrows) and predation by a range of species were recorded.

Estimation of colony size is achieved through raft counts and an end of season apparently occupied burrow (AOB) survey. Early season raft counts are representative of the number of breeding pairs present in the colony. The counts of puffins rafting on the sea were carried out between 17<sup>th</sup> March and 8<sup>th</sup> August. Again, it was possible to use 'PuffinCam' to make remote observations until possible by boat from early June. The onshore end of season AOB count was completed on 5<sup>th</sup> August soon after the last pufflings are thought to have fledged. The aim is to count all the burrows likely used by checking each for signs of



occupation however there is some uncertainty in these figures as some evidence of occupation may have become obscure in the time before surveying.

Puffin interaction with other species were also noted including kleptoparasitism (the pirating of fish being returned to burrows for hatched pufflings), and predation.

#### 4.1.2.1.1 Puffin Productivity

Productivity was calculated by dividing the number of successful burrows by the number of apparently occupied burrows (AOBs) in the sample (Walsch *et al.*, 1995). By this methodology, breeding success was assumed if more than one food return was seen at an individual burrow. The estimate of productivity for the observed area was treated as a likely proxy for the colony as a whole.

In 2020, a sample of 38 AOBs were observed throughout the breeding season. Based on our observations, 24 of these likely fledged giving a productivity of 0.63. Note an additional 14 additional AOBs were observed within the survey area but were excluded in our analysis as they became obscured from view part way through the breeding season by encroaching bracken and their success could not be accurately determined.

Interestingly, an adult puffin from one AOB under observation was seen predated by a Great Black-backed Gull *Larus marinus* (GBBG), at 05.14 on 7<sup>th</sup> June. Yet despite the loss of its partner, the surviving parent continued to provision its chick (as multiple subsequent fish returns were seen) and it was assumed that the burrow successfully fledged a puffling. Six additional instances of predation were also recorded within the survey area which may have impacted the productivity of some burrows. Predation is discussed in section 4.1.2.1.3.

The productivity values for Alderney’s puffins, from 2005 to current, are shown in Table 1. Despite the difference in observation method adopted over the years, the figure calculated in 2020 was similar to those calculated in previous years and is in keeping with puffin colonies across the United Kingdom (JNCC, 2020).

Table 1 – Historic Puffin Productivity Estimates 2005 to present.

	Year									
	2005	2006	2007	2008	2010	2011	2014	2105	2019	2020
Puffin Productivity	0.64	0.61	0.63	0.65	0.66	0.66	0.36-0.60	0.71	0.60-0.88	0.63

#### 4.1.2.1.2 Kleptoparasitism and gull interactions

As in previous years, several instances of kleptoparasitism were seen in the surveyed area. These were carried out by Great Black-backed gulls (GBBGs) although the behaviour is previously noted for Lesser Black-backed Gulls *Larus fuscus* (LBBGs) and Herring Gulls *Larus argentatus* alike. The behaviour occurs once the puffin chicks have hatched and the adults begin returning to their burrows with fish. The gulls target incoming puffins as they approach the colony and usually pirate them as they make landfall. In 2020, a total of seven instances of kleptoparasitism were recorded during scheduled productivity surveys using ‘PuffinCam’.

Puffins were mostly able to avoid having fish stolen by taking to the air if a gull moved in the puffin’s direction or by flying straight into their burrows. Only a single instance of a puffin walking across the colony with fish in its beak was noted in 2020. Despite a single GBBG being persistently present for much of the season, our observations indicated that all AOBs whose occupants suffered kleptoparasitism still successfully fledged a puffling. Observations also indicate that kleptoparasitism may be an individualistic

specialism with only one or a few gulls pursuing it. Observations in 2020 supported the general consensus that kleptoparasitism only has relatively minor population level effects (Soanes *et al.*, 2010).

Nevertheless, although kleptoparasitism does not harm adults and did not likely affect the breeding success on Burhou, its impact on puffling growth rate and fledging weight was unknown. Puffins that fledge in poor condition have low survival rates (Harris, 2008) and those poorly fed due to excessive kleptoparasitism may be more likely to perish in the post-fledging period.

Burhou not only hosts small numbers of breeding GBBG (5-10 pairs c.f. Table 15) but also a large colony of LBBGs (+1,000 pairs c.f. Table 15), as well as a few pairs of nesting Herring gulls too. LBBGs and GBBGs were often seen loafing in the surveyed area and when present appeared to restrict puffin activity. The presence of gulls was invariably associated with a scarcity of puffins socialising on the land.

#### 4.1.2.1.3 Predation

Over 2020, at least seven puffins were predated from within the observed area of burrows on Burhou, a group of at least 38 AOBs. The predations were noted through 'PuffinCam' through recorded footage, or on one occasion, as sent in by a member of public who captured the scenes streamed online. As the view is not monitored 24/7 and is limited by its field of view, the record of predation is unlikely be exhaustive of those that occurred in the survey area, and nor can it be assumed that it is representative of the colony as a whole.

Birds of prey took the limelight where five kills were confirmed, the first being a puffin taken by a young common buzzard *Bueto bueto* just hours after puffins were first observed making landfall on 2<sup>nd</sup> April. The remains were scavenged by a LBBG. A young common buzzard, likely the same individual, was observed on the islet for six days from 21<sup>st</sup> April to 26<sup>th</sup> April during which time it was seen predated another puffin (22<sup>nd</sup> April) and a rabbit (23<sup>rd</sup> April). The buzzard was seen observing over the colony for much of this period so the number of puffins predated may have been greater than was seen.

Peregrine falcons *Falco peregrinus* breed on the islet as well as mainland Alderney and were seen predated puffin on camera on three occasions. These occurred on 10<sup>th</sup> April, 8<sup>th</sup> May, and 16<sup>th</sup> July.

A single puffin was predated by a GBBG on 7<sup>th</sup> June (discussed 4.1.2.1.1).

The closing of landfill sites in Guernsey in 2019 and decline in the local rabbit population due to myxomatosis may have reduced the amount of alternative food for gulls as well as birds of prey (AWT, 2020a). This could have placed greater predation pressure on the local puffin population.

#### 4.1.2.1.4 Puffin Population Assessment

The number of puffins in the population is estimated using data from two surveys; the on land apparently occupied burrow (AOB) survey and by counting puffins rafting on the water in the early season. Both surveys are required to inform estimates of both population size and habitat use.

The AOB survey indicated the number of burrow likely occupied on the colony as a whole however is likely not best measure of breeding population size as the survey relies on judgement in determining if a burrow has been occupied, a challenge as some burrows may have been unoccupied for some weeks at the time of surveying. Surveyors confirm previous occupation by the presence of indicators including pieces of hatched puffin eggshells, discarded fish, down or feathers, guano streaked by the entrance, or the presence of a strong smell of ammonia. The AOB survey is perhaps of most use in evaluating how the habitat is used and is changing over time by the number of burrows in different areas.

Early season raft counts taken through April and May best represent the breeding population size. During this time, puffins will be incubating eggs so each puffin rafting on the water represents a pair of breeding puffins in the colony. Confidence can be given to this count as it is unlikely for non-breeding puffins to be present around the colony at this time.

The number of AOBs is plotted against early season raft counts in Figure 3. Raft counts here better represents the seabird crash of 2013/14 and are hence most likely representative of the breeding population size. AOB surveys best inform habitat use.

#### 4.1.2.1.4.1 Apparently Occupied Burrow (AOB) Survey

To avoid disturbance, Burhou's annual AOB count was taken as soon as it could reasonably be established that the puffin breeding season was over i.e. when all pufflings are believed to have fledged. In 2020, it was thought this was likely shortly after the last food return was to the colony was seen on 3<sup>rd</sup> August.

The AOB survey was completed on 5<sup>th</sup> August by four members of AWT staff taking around three hours following the same methodology as in previous years (AWT, 2020a). Areas surveyed in previous years were revisited alongside any additional areas where puffins may be breeding as determined by boat-based observations, and from sightings made with 'PuffinCam'. In 2020, the survey area to the west of the islet was increased. An additional area to the south, surveyed in previous years but not in 2019, was surveyed after puffins were seen from the water. AOBs were found in both areas un-surveyed in 2019. 157 AOBs were counted across the islet in 2020 (Figure 2).

Some signs of occupation may have been missed as burrows were often very deep, being old rabbit burrows. Furthermore, dense sea campion *Silene maritima* at the west of the islet may have obscured some AOBs whilst others may have been hidden by bracken to the south east of the islet. Surveyors recorded the presence of storm petrels *Hydrobates pelagicus* in all areas surveyed which occupy the same burrow areas as puffins from April to October. Storm petrels were noted either by smell, or in one instance, by observing the bird within the burrow. This presented the opportunity to examine the nest contents, qualify the presence of a chick and examine the bird for a ring. These actions were undertaken by an appropriately licenced, qualified and experienced ringer. The adult petrel was handled appropriately and returned to its nest with no undue stress; ring recovery data pending (requested from CIBRS on 7<sup>th</sup> August 2020).

Comparing 2020 data to that from 2019 suggests habitat use by puffins on Burhou has changed however, as the accuracy of the numbers of AOBs is ambiguous, it is likely not to the extent observed. More AOBs were noted to the west of the islet as the survey area was increased, and fewer burrows were noted to the south east, perhaps overlooked during the survey. Prospecting puffins may occupy new burrows on the islet which may reflect some change in habitat use over time however not to the extent seen. Data reflects how AOBs are a good measure of habitat use but are perhaps inconclusive in determining population size.



Figure 2 – Puffin Apparently Occupied Burrow Survey Areas and Numbers of Burrows Occupied

#### 4.1.2.1.4.2 Raft Counts

Early season raft counts (end of April to May) were taken using ‘PuffinCam’ as no boat-based observations were possible during this time due to COVID-19 restrictions. Raft counts were taken to coincide with high water as fewer puffins would be obscured by vegetation and the land. Surveying at high tide minimised the bias of only taking numbers of rafting puffins from within one bay as the bay overlooked by ‘PuffinCam’ is the main area used by puffins to raft during peak tidal flow, itself corresponding with high tide. The area surveyed was hence thought to be representative of the colony’s population.

The highest early season raft count in 2020 was 167 seen on 20<sup>th</sup> May, representing 167 breeding pairs of puffins or 326 individuals. This is an increase from 150 in 2019 and 140 in 2018, suggesting the population is healthy and is recruiting breeding individuals. Figure 3 shows raft counts compared with AOBs since 2005 where early season raft counts are used as the best proxy for population size.

The maximum number of birds rafting on the water rose steadily throughout July as prospecting non breeders were likely present as well as a greater proportion of Burhou’s breeding population. This highest late season raft count was 207, recorded from the AWT’s vessel, ‘Sula of Braye’, during a tourist seabird boat trip after COVID-19 restrictions had been lifted. This represents an increase from 190 in 2019 and 203 in 2018.

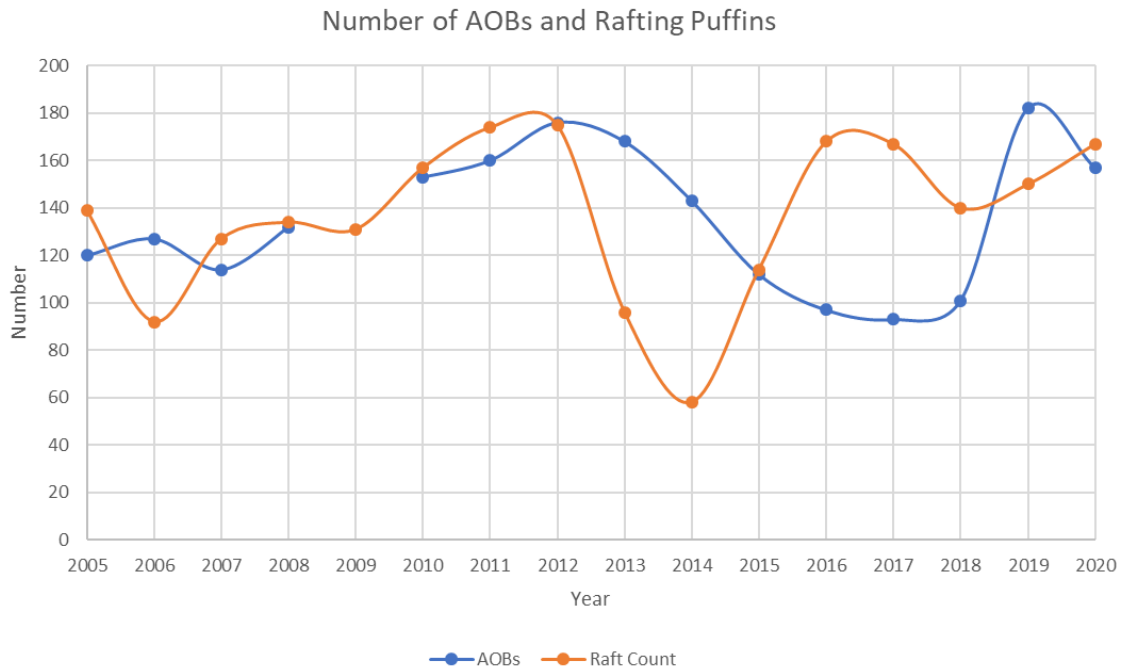


Figure 3 – Puffin Apparently Occupied Burrows and Highest Early Season Raft Counts 2005 – 2020

**Recommendations:**

- To continue the monitoring of puffins in 2021 including measuring productivity, raft counts and AOBs.
- On island productivity surveys should be completed alongside those using ‘PuffinCam’ resources to assess the difference between the two data streams, informing a refined methodology for ARS4.
- A review of the placement of the ‘PuffinCam’ resources should be made to allow the assessment of a greater number of burrows i.e. away from the dense bracken fringing the colony area, and to avoid glare off the water in the early season. This will facilitate the collection of a greater, less biased data set from the cameras.
- Investigation into if additional manpower can be trained and utilised to review video should be made. Increased video reviewing capacity will allow more timely data collection with tangible outputs, directly informing conservation decisions e.g. when Burhou should be opened to the public at the end of the season, and when ecologists should visit the colony to complete the annual AOB survey. Greater capacity will further allow the expansion of night-time recording for an area of burrows that are known to be active to gain fledging data.



#### 4.1.2.2 Northern Gannets

##### 4.1.2.2.1 Gannet Productivity

This year Alderney's Northern gannets *Morus bassanus* (hereafter 'gannets') began to return in late January when between 60-70 birds were seen over-flying Les Etacs on 25<sup>th</sup> January and around 200 birds had settled on the sea nearby. However, landfall did not occur immediately and, over the following week the number of gannets and their behaviour changed little. On 1<sup>st</sup> February a single gannet landed for a brief time on the 'Pyramid', one of the stacks that comprise Les Etacs (Figure 4), but no other birds joined it. Then, during the first week of February, the number of gannets rose noticeably and by 7<sup>th</sup> February thousands of birds were present. But even though hundreds of gannets overflew and circled each colony there was still no landfall. It was only on 13<sup>th</sup> February, during a hiatus in the weather following storm Ciara and, perhaps, once the numbers of birds had passed some level of critical mass, that landfall finally took place.

Initially, comprising just a few hundred birds on the evening of the 13<sup>th</sup>, the main event actually occurred the following day on 14<sup>th</sup> February. Then, in spectacular fashion, literally thousands of gannets swooped and circled the rocks, occasionally landing and then lifting en masse. Perhaps a little nervous to have solid ground beneath their feet again, the birds were initially anxious and flighty. However, by evening most had settled on their former nest sites and, thereafter, soon became a consistent fixture to mark the start of another season on the rocks.

Productivity was assessed following the methods outlined in Walsh *et al.*, (1995) and recommended by JNCC guidelines (<https://hub.jncc.gov.uk/assets/bf4516ad-ecde-4831-a2cb-d10d89128497>). A sample of occupied nests on Les Etacs were selected for observation from a vantage point at the western end of Alderney. These were then watched throughout the breeding season to assess their outcome and the overall breeding success (i.e. the number of chicks fledged). Observations were undertaken at regular intervals (usually every 7 days) and data recorded either in situ using a telescope or via photographs taken using a camera with a long telephoto lens. Overall productivity was calculated as the number of nests that successfully fledged a chick divided by the number nests under observation. This value was then used as a likely proxy for the productivity of the whole colony.

The outcome of each nest was determined from changes seen in the presence of eggs and chicks or inferred from changes in the 'sitting' behaviour of the breeding pairs. Outcome had to be sometimes inferred from 'sitting' behaviour because, in general, the contents of nests were not easy to see until the chicks had hatched and grown too large to be covered by their brooding parent. This was usually from about three weeks old. Prior to this, the parents typically obscured the nest contents by sitting on it, either to incubate the egg or brood the small chick. Only occasionally would a sitting parent reveal the content of its nest at this stage. This was usually if it adjusted the egg, fed its chick, moved to interact with its neighbours or changed places with its partner. As a consequence, the contents of many nests were not often seen, and the likely presence of an egg or young chick were only indicated by the sitting behaviour of the parents. Fortunately, observations from 45 nests where the eggs were seen showed that the sitting posture and its consistent occurrence during each observation period could reliably indicate the continued presence of an egg or small chick. This was primarily because the gannets typically stopped 'sitting' or sat less and preferred to stand over their empty nests following the loss of an egg or small chick.

Furthermore, we found observations at nests that successfully raised a chick to 3 weeks or older were invariably preceded by a period of consistent sitting behaviour that extended over the full incubation period and first 3 weeks after hatching. Thus, taking into account a mean incubation period of 44 days (just over 6 weeks), (Nelson 2002), it was possible to determine when a nest/breeding pair had likely laid an egg and hatched it or lost it at some point in between based on the consistency of their 'sitting' and nest attendance behaviour alone.

Using these criteria, with any additional observations of eggs and chicks, the outcome of each nest was allocated to one of five groups. These were 1) a non-layer – nests where no egg was seen and sitting behaviour was inconsistent or not recorded consecutively for more than 2 weeks; 2) a stage 1 loss (nests that likely laid an egg but lost it before hatching) – nests where an egg was seen but later disappeared before incubation was complete or consistent sitting behaviour was only recorded for 3-5 weeks in a row; 3) a stage 2 loss (nests that likely laid an egg but lost it close to hatching or a chick soon after) – nests where consistent sitting was recorded for 6 or more weeks in a row but no chick was seen (although an egg may have been seen during the incubation period); 4) a stage 3 loss (nests that lost a chick between hatching and fledging) – nests where consistent sitting was recorded for 6 or more weeks in a row and a chick was subsequently seen but later went missing before it was ready to fledge; 5) a success (nests that fledged a chick) – nests where consistent sitting was recorded for 6 or more weeks in a row and a chick was present until fully feathered in its juvenile plumage with no signs of down (typically at 11+ weeks of age, Nelson 2002).

All nests that were allocated to group 1 (non-layers) and groups 2-4 (nests that likely lost their egg or chick) were designated failed breeders. The numbers of failed and successful breeders were then used to calculate overall productivity, in line with JNCC guidelines.

This year a sample of 300 occupied nests were selected for observation on Les Etacs. These nests were not randomly selected but divided between five parts of the colony that could be seen clearly from the watch point, Figures 4 and 5. The sampled plots included 100 nests on the 'Pyramid' stack (that lay closest to the watch point), 50 nests from 'North Stack low', 50 nests from the high plateau of 'West Rock,' 50 nests from the gully of 'West Rock' and 50 nests from the far western end of 'West Rock', Figure 5.

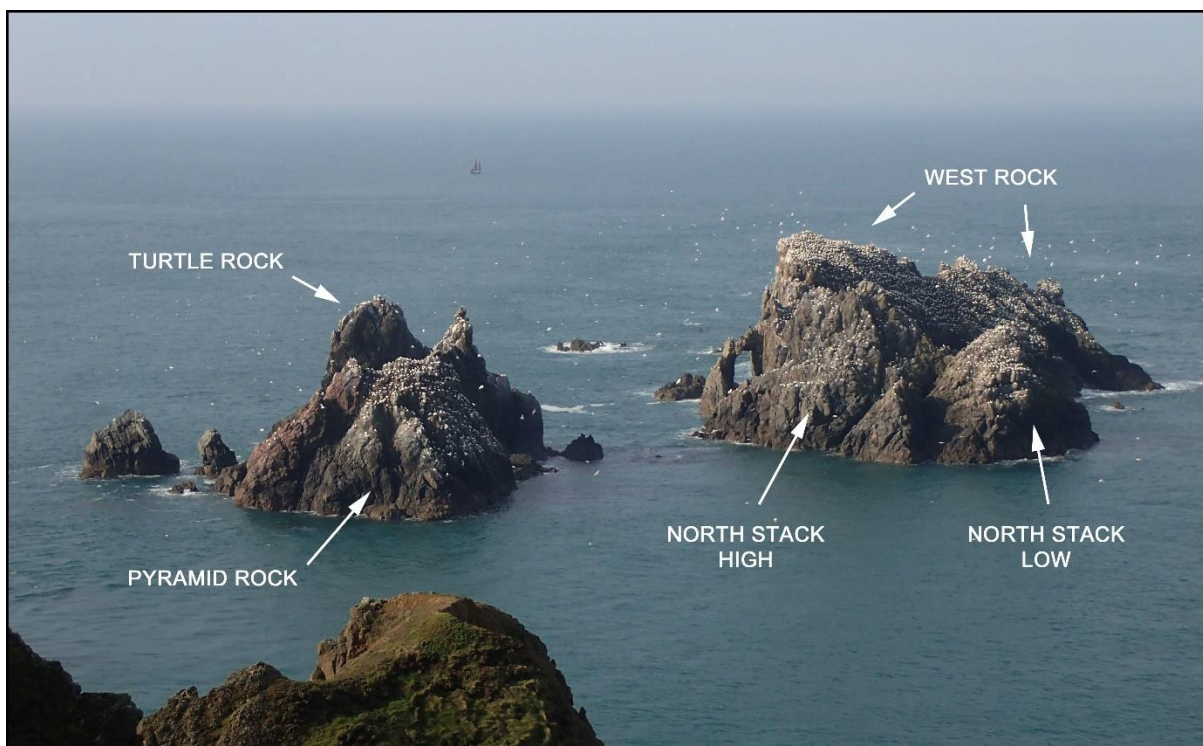


Figure 4 – The nomenclature used for the rocky outcrops that comprise the gannet colony on Les Etacs.

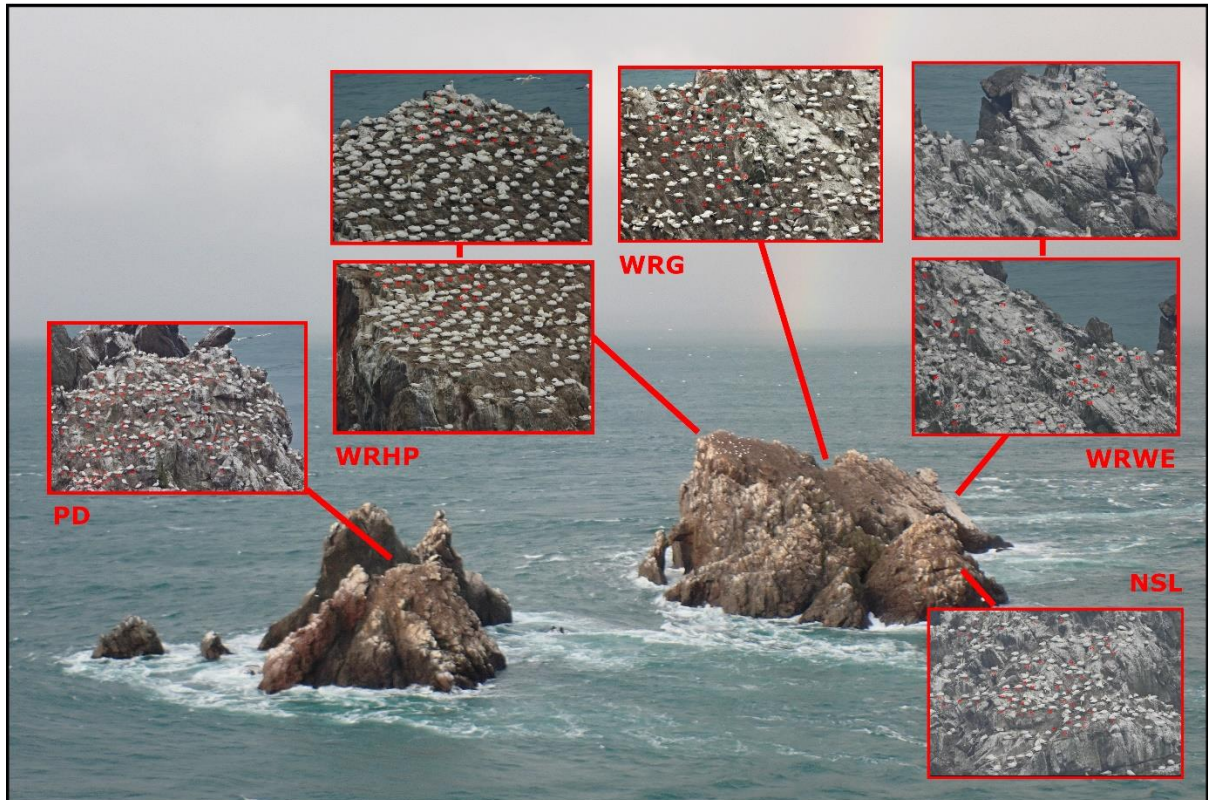


Figure 5 – The sample plots on Les Etacs from where gannet productivity was assessed in 2020. PD = Pyramid rock ( $n=100$ ), NSL = North Stack low ( $n=50$ ), WRWE = West rock west end ( $n=50$ ), WRG = West rock gully ( $n=50$ ), WRHP = West rock high plateau ( $n=50$ ).

Of the 300 nests under observation, 137 successfully fledged a chick. Mean productivity between the five sampled plots was 0.45, Table 2. Productivity varied between the sample plots. It was highest on the high plateau of West rock (0.54) and lowest in the gully on West rock (0.34), Table 2. Most losses occurred during ‘stage 3’ of the breeding cycle, around the time of hatching or soon after, Table 2. The proportion of non-layers were similar in each sampled plot (8-12%), with mean 10.3% Table 2.

One case of a replacement egg laid following the loss of the first egg was observed from a nest on Pyramid rock. In this case, the first egg was seen on 26<sup>th</sup> April but noted absent on 17<sup>th</sup> May. The nest then remained attended but empty until the week ending 20<sup>th</sup> June when the pair were recorded ‘sitting’ again and had likely re-laid. On 11<sup>th</sup> July confirmation of re-laying occurred when the replacement egg was seen. Then on 1<sup>st</sup> August a new hatched chick was also seen but this was unfortunately lost soon after and recorded absent on 8<sup>th</sup> August. Thereafter the parents attended the empty nest until week ending 26<sup>th</sup> September.

All the chicks from the nests under observation fledged between mid-August and early October, Figure 6. The broad time span over which fledging occurred indicated that laying dates were not notably synchronous. Corresponding laying and hatching dates would have been between early April to late May and mid-May to mid-July, respectively. Nonetheless, a peak in fledging was discernible between the 5<sup>th</sup> and 12<sup>th</sup> September when the largest proportions of chicks departed and went to sea, Figure 5. This was most obvious from the nests on the high plateau of the West rock, Figure 6. Interestingly an earlier but lower peak in fledging was also discernible between 22<sup>nd</sup> and 29<sup>th</sup> August, particularly from the Pyramid, Figure 6. By 19<sup>th</sup> September near 80% of the chicks under observation had gone, but the last chicks from the sampled plots did not depart until the first week in October, Figure 6.

Main colony departure occurred on 2<sup>nd</sup> October with the arrival of Storm Alex. This was 12 days earlier than in 2019 (October 14<sup>th</sup>) but a similar date to 2018 (October 4<sup>th</sup>). It was also before all the colony’s



chicks were ready to fledge. At least 41 chicks were left behind. However, these chicks were not abandoned and, although they were attended or guarded much less than normal, they were still regularly fed by their parents. Nevertheless, most of these late hatched chicks did not linger, and by 10<sup>th</sup> October just 13 of them were still present. Two weeks later, on 24<sup>th</sup> October only four chicks remained on West rock and by 31<sup>st</sup> October the last had finally gone.

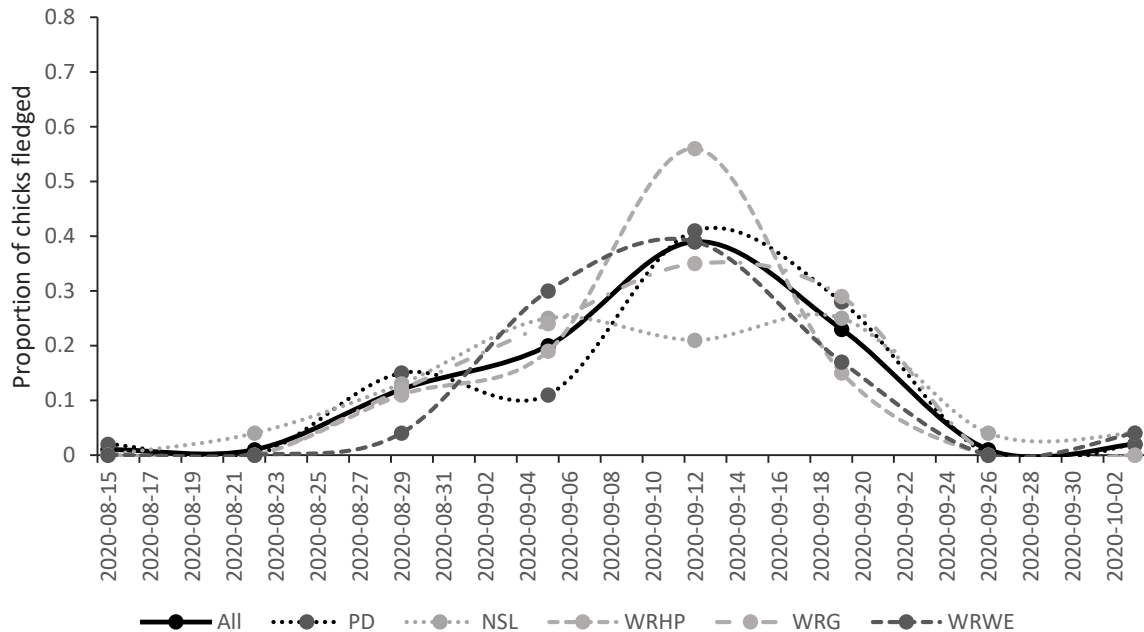


Figure 6 – The variation over time in the proportion of nests with fledged chicks, calculated weekly between 15<sup>th</sup> August and 3<sup>rd</sup> October. Points indicate the proportion of the sampled nests that fledged a chick. The lines linking the points indicate the rate of change and are illustrative only. Key: All = data combined from all the sampled plots on Les Etacs, PD = data from the Pyramid rock (n100), NSL = data from North Stack low (n50), WRHP = data from the high plateau of West Rock (n50), WRG = data from the gully of West Rock (n50), WRWE = data from the west end of West Rock (n50).

Overall, 2020 was not a productive year for the gannets on Les Etacs. The productivity (0.456) was the second lowest recorded since 2011 when records began, Figure 7. In 2011 productivity was 0.78 but since that year records have never been as high, Figure 7. Mean productivity between 2013-2020, was 0.54 (note no data were collected in 2012). This is substantially lower than the values typically shown by the more northern U.K gannetries. For example, the JNCC report that U.K. gannet productivity changed little between 1986-2018 and generally varied between 0.60 and 0.90, with mean 0.69, <https://jncc.gov.uk/our-work/northern-gannet-morus-bassanus/>). Productivity on Les Etacs has not approached the UK mean value since 2017 and, over the last three years has been notably lower, Figure 7.

The incidence of non-laying pairs on Les Etacs was also notable. Non-breeding pairs are not widely reported from U.K. gannetries and have been considered exceptional (WWT Consulting 2012). Yet here the proportion may vary between 10-15% each year. According to recent data, the proportion of non-layers was 11% in 2019 and 10.3% 2020. The presence of non-breeding pairs in our sample reduced our estimate of mean productivity but even if they were discounted the revised mean, 0.506, still remained well below that found at U.K. gannetries, Table 2. Interestingly, in recent years the productivity on Les Etacs has more closely resembled that recorded from the more southern gannetry located on Rouzic, 125 km to the south-west on the Sept Iles, near the Brittany coast, (Le Bot *et al.*, 2019).

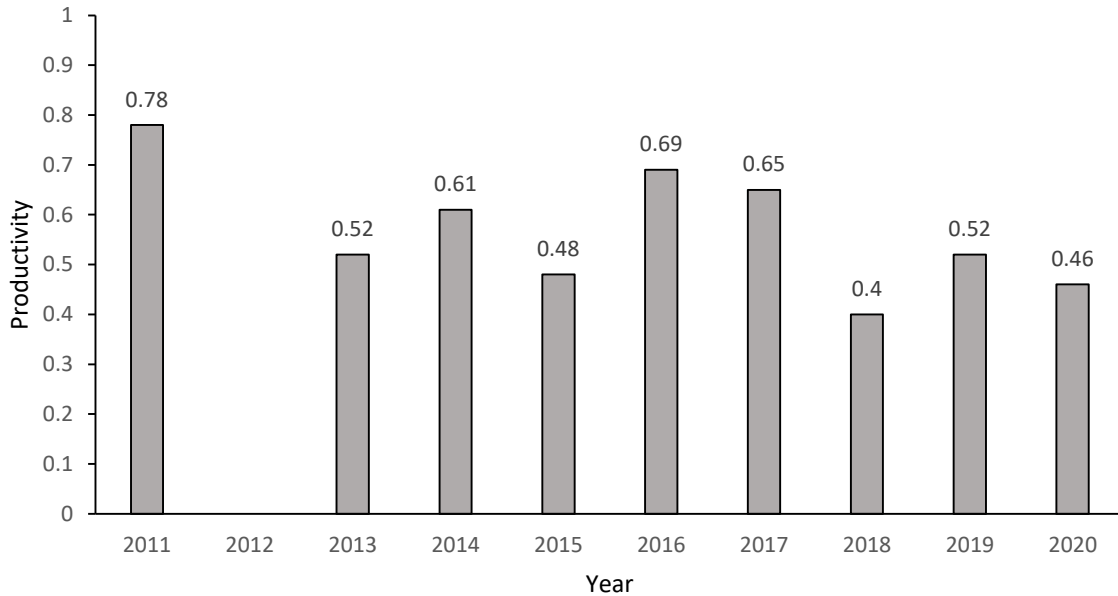


Figure 7 – Gannet productivity on Les Etacs 2011-2020. No data was collected in 2012.

At Rouzic productivity has not exceeded 50% since 2012, about 20% of breeding pairs do not lay each year and the population has begun to decline (Le Bot *et al.*, 2019). Research from the colony suggests the gannets poor breeding performance and recent population decline has been caused by a combination of reasons; 1) an over reliance on discards as an alternative prey when pelagic fish stocks are low (Grémillet *et al.*, 2008), 2) a drastic decline in the availability of discards caused by changes in fishing practices (Le Bot *et al.*, 2019) and 3) competition for food with industrial-scale fisheries and bycatch in their winter quarters (Grémillet *et al.*, 2020).

Nutritionally discards cannot fully compensate the loss of natural prey. At Rouzic discard consumption increased the gannets foraging times and reduced adult condition as well as breeding success (Grémillet *et al.*, 2008). But when the new EU common fisheries policy was imposed in 2014 (and phased in between 2015 and 2019), the new landing obligations drastically reduced the availability of discards and caused additional negative impacts on the gannets' productivity (Le Bot *et al.*, 2019).

Given the gannets on Les Etacs are now showing low breeding success similar to Rouzic but also occupy the same ecoregion (the English Channel), (Warwick-Evans *et al.*, 2016a) it seems likely that they (and probably the birds from Ortac too) are suffering under a similar regime and perhaps, like the birds from Rouzic, operating close to their energetic limits (Grémillet *et al.*, 2006).

Taking these findings into account it's seems likely that changes in the climate and fishing practices have reduced food availability and caused the recent downward trend in productivity on Les Etacs. The International Council for the Exploration of the Seas (ICES) recently admitted that mackerel (the gannets' main food source in the region) had been over harvested in the eastern Atlantic (ICES, 2018). Warmer sea surface temperatures as well as frequent stormy weather through the summer have likely made foraging for natural prey more difficult (Franci *et al.*, 2015, Hughes *et al.*, 2014, Lewis *et al.*, 2015, Pistorius *et al.*, 2015) whilst changes in fishing practices have reduced the availability of alternative food when the natural prey is scarce (Grémillet *et al.* 2008, Le Bot *et al.* 2019).

Furthermore, conditions this year may have been especially harsh. A prolonged spell of poor sea conditions but also a likely severe reduction in discard availability, brought about by the restrictions imposed on fishing activity during the COVID-19 pandemic, coincided with peak laying between mid-April and mid-May. This would have created difficult foraging conditions and likely contributed to the high

incidence of non-laying and egg loss recorded this year. A hiatus in laying and/or increase in egg loss at this time may also have caused the apparent 'dual peak' in the numbers of chicks fledging that was detectable later in the year during late August and mid-September, Figure 7.

Altogether these findings are of concern. Although reliance of fishery waste is an 'ecological trap' leading to reduced breeding success and fitness in the long-term (Grémillet *et al.*, 2008, Cohen *et al.*, 2014), it's drastic reduction will likely lead to negative conservation impacts in the short- medium term (Veiga *et al.*, 2016). But in combination with poor over-winter survival caused by increased competition with industrial-scale fisheries and bycatch in the birds' winter quarters (Grémillet *et al.*, 2020) the future for gannets breeding in the English Channel looks especially bleak. To ensure the resilience of our gannet colonies improvements in the marine environment across the eco region must be sought. The recent research based in our region (outlined above) underlines the need to reduce fishing pressure on seabird (and other marine top-predators) pelagic prey taking into account the co-acting impact of climate change (Essington *et al.*, 2015).

Table 2. Variation in gannet productivity between the sample plots under observation on Les Etacs in 2020, tabulated as percentage figures (c.f. Figure 5).

Site (sampled plots)	Outcomes							
	(n)	Non-layers (%)	Stage 1 (%)	Failures <sup>1</sup> (losses)			Successes (fledged)	
				Stage 2 (%)	Stage 3 (%)	All losses (%)	Of laid <sup>2</sup> (%)	Overall <sup>3</sup> (%)
The Pyramid	100	12	10	23	9	42	52.3	46
North Stack Low	50	10	10	24	8	42	53.3	48
West Rock – high plateau	50	8	10	20	8	38	58.7	54
West Rock - the gully	50	12	12	32	10	54	38.6	34
West Rock – west end	50	8	8	28	10	46	50.0	46
	mean	<b>10.3</b>	<b>10</b>	<b>25</b>	<b>9</b>	<b>44.4</b>	<b>50.6</b>	<b>45.6</b>

<sup>1</sup>Includes all apparently occupied nests (AON) that likely laid but failed to fledge a chick through the designated stages 1-3 of the breeding cycle (refer to text).

<sup>2</sup>Refers to the percentage of AONs that successfully fledged a chick omitting the likely non-layers from the calculation (productivity = number of AONs that likely laid an egg/number of AONs that fledged a chick).

<sup>3</sup>Refers to the percentage of AONs that successfully fledged a chick including the likely non-layers in the calculation (productivity = the number of AONs/number of AONs that fledged a chick, *this is the JNCC recommended measure of productivity*).

(n) sample size.

#### 4.1.2.2.2 Census

A census of both Les Etacs and Ortac was scheduled to occur this year. Counts of apparently occupied nests were to be made in late May or June when most nests would be occupied with birds incubating eggs or brooding small young. The work was to be undertaken with the aid of aerial photographs. Unfortunately, over flights using either a piloted light aircraft or a drone could not be organised due to the restrictions imposed in the initial outbreak of the COVID-19 pandemic. As a consequence, the census has now been re-scheduled for 2021 pending the outcome of the pandemic.

#### 4.1.2.2.3 Impact of Anthropogenic Material on Northern Gannets

Man-made materials collected from the surface of the sea, typically discarded nylon filament netting and synthetic rope but also other thread-like debris are routinely used by gannets as nest material (Votier *et al.*, 2012). This behaviour occurs at virtually all gannetries and presents an entanglement risk to both adults and chicks (Votier *et al.*, 2012, O’Hanlon *et al.*, 2019). Birds become entangled and as a result usually perish following a prolonged period of injury and eventual starvation. The extent of the problem is not well studied and requires quantification so its potential impact on the gannet population can be better understood (O’Hanlon *et al.*, 2017). On both Les Etacs and Ortac most nest pedestals comprise man-made debris but the extent of entanglement and the risk it poses to the gannets has not been studied and requires investigation.

Our investigation into this matter began in 2019 (see 2019 Ramsar Review, section 4.1.3) with some aspects repeated this year. These included; 1) observations of nest material collection by gannets and, 2) counts of the number of entanglements. These were undertaken again to determine if the amount of man-made debris seen being collected from the sea in 2019 were likely typical and to gather more data on the number of birds lost through entanglement.

The observations of nest material collection were carried out from a vantage point that overlooked Les Etacs at the western end of Alderney. Gannets were watched collecting nest material from the sea and carrying it back to their nests. The number of birds carrying material were counted and the contents of their bills noted as they approached the colony. The type of nest material was identified and grouped according to its natural or man-made properties, Table 3. This year ten counts lasting one hour were undertaken between 29<sup>th</sup> March and 14<sup>th</sup> May, Table 3.

Table 3 – Observations of material brought to nest sites by gannets on Les Etacs during 2019 and 2020.

Date	Watch		Natural		Man made		
	Start	End	Seaweed	Other	Netting	Rope	Other
29/03/2019	09:20	10:00	2	0	2	0	0
30/03/2019	08:00	09:00	59	0	1	0	0
31/03/2019	09:10	10:10	112	0	0	0	0
01/04/2019	08:15	09:15	263	1*	0	0	0
03/04/2019	09:15	10:15	136	0	0	0	0
08/04/2019	09:40	10:40	39	0	0	0	0
11/04/2019	09:25	10:25	131	0	0	0	0
12/04/2019	09:10	10:10	209	0	0	0	0
14/04/2019	09:15	10:15	55	0	0	0	0
15/04/2019	10:33	11:03	4	0	0	0	0
18/04/2019	09:25	10:25	194	0	0	0	0
30/04/2019	09:10	10:10	260	0	0	0	0
02/05/2019	08:55	09:55	148	0	1	0	0
10/05/2019	08:10	09:10	89	0	0	0	0
13/05/2019	08:05	09:05	99	0	0	0	0
14/05/2019	08:30	09:30	64	0	0	0	0
		<b>Totals</b>	<b>1864</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>
07/03/2020	10:20	11:20	178	0	0	0	0
19/03/2020	09:30	10:30	124	0	0	0	0
24/03/2020	09:26	10:26	119	1	1	0	0
26/03/2020	09:28	10:28	78	0	0	1	0
27/03/2020	09:10	10:10	43	0	0	0	0
01/04/2020	10:25	11:25	1	0	0	0	0
04/04/2020	10:05	11:05	78	0	1	0	0
10/04/2020	08:55	09:55	102	0	0	0	0
11/04/2020	09:25	10:25	154	0	0	0	0
12/04/2020	09:30	10:30	141	0	0	0	0
		<b>Totals</b>	<b>1018</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>0</b>

\* Cuttlefish bone.

The results of the observations of nest material collection were similar to those found in 2019, Table 3. They indicated that in both years, seaweed was the predominate material used to construct nests. Very few man-made debris were seen brought back to the colony and it virtually all comprised either filament netting or synthetic rope, Table 3.

The small amount of man-made debris brought to the colony were a surprise given the large amount present in most nests today, Figure 8. Although the quantity of man-made debris available may have been greater in the past when the fishing industry was more prevalent, the amount present in the nests today must have accumulated slowly over many years. This could be the case as man-made debris comprising plastic-based products such as filament netting and synthetic rope do not decay like seaweed but persist year after year. In this way these materials could easily accumulate to comprise the main fabric of most nest pedestals and eventually shape much of the surface topography that exists today on both Les Etacs and Ortac – at least where the occupied rock face cannot be washed over by wave action in the winter when the birds are absent.



Figure 8 – The view from West rock, part of the gannetry on Les Etacs, showing the extent of plastic use in the birds’ nest pedestals.

This year 17 adults and 4 chicks were recorded entangled by man-made debris on Les Etacs. All but 1 of these birds were unable to escape and eventually starved to death. Data from both this year and 2019 indicates that adults may be particularly vulnerable in April or May, Figure 9. This could be the case, as gannets still searching to find a place to nest are likely to be especially motivated and most abundant at this time. Their persistent attempts either to usurp existing nesters or find a space between them may make these birds especially vulnerable to being caught up in the loose ends of netting and rope that hang around the edges of most nest pedestals.

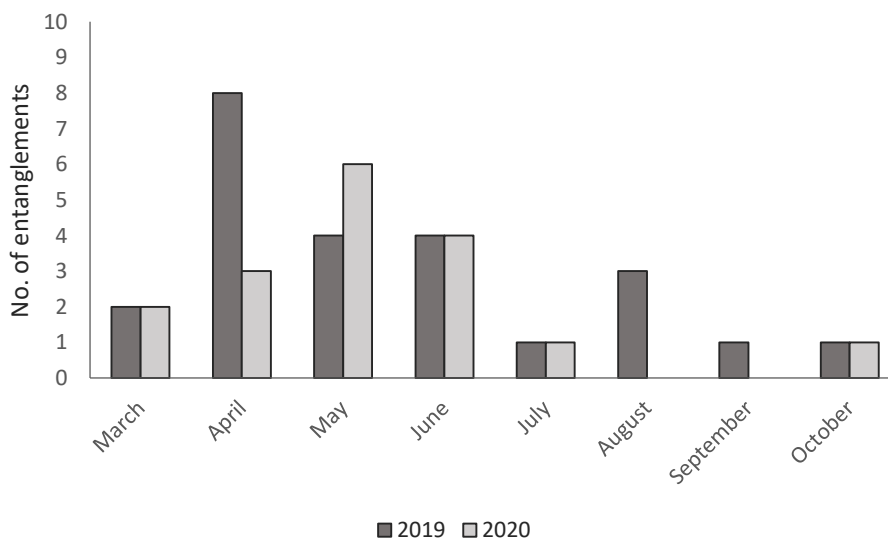


Figure 9 – The number of entanglements recorded each month on Les Etacs in 2019 (c26) and 2020 (c21).

Although the number of entanglements recorded each year was probably an underestimate, as not all the colony was visible from shore, the total number killed was likely too low a proportion (0.002%) to impact the population and reduce the colony size. Nevertheless, the welfare of the trapped birds remains a concern. The sight of an entangled gannet struggling to free itself or a dead corpse hanging in the wind is also unpleasant and sends a poignant message about our impact on the environment to the many tourists that visit the colony by boat each year.

#### 4.1.2.2.4 Track a Gannet (TAG) project

In basic terms the TAG project aims to gather data that will help us understand more clearly what parts of the sea are important to the gannets and knowing this information will leave us better placed to protect them in the future.

Two important parts of this research involve tracking where the birds go in search of food for their chicks in the summer and where they migrate to in winter. Finding this out tells us how far the birds typically travel to find food when they are nesting at the colony, how this distance may vary between individuals and if it is changing over time and perhaps in response to food availability (Le Bot *et al.*, 2019). It also helps us designate marine protected areas or other sites for special protection (Grecian *et al.*, 2012, Lascelles *et al.*, 2016) and is crucial to predicting the possible effects of at sea developments like windfarms (WWT Consulting 2012). Knowing where the birds go in winter helps us understand the species distribution but also look for the likely causes of any changes in their survival. All of which can help us explain but also potentially mitigate changes detected in the population that may occur in the future.

To get this information the AWT has used two types of tracking devices that can be attached to the birds without causing harm. These are GSM GPS tags, taped to the birds' tail feathers and, tiny geolocators, attached to a darvic colour ring placed around the bird's leg. Each device has its advantages and disadvantages but together they provide a more complete picture of the birds' movements throughout the year. The GPS tags transmit location data via the mobile phone network and can provide many fixes per day. However, they can only do so for a few weeks before they lose power and drop off. In contrast the tiny geolocators last longer, one year, but only obtain two fixes a day at best. They do not transmit data on the bird's location either. Instead they store it on-board to be downloaded later, hopefully when the bird is recaptured in the following year. Both devices are really useful. The GPS tags give us accurate data on the gannet's movements at a crucial time when the adults are foraging for their chicks whilst the geolocators tell us where our gannets go in winter, the routes they use and the timing of their travels.

These devices were used in addition to traditional ringing (undertaken by the ABO) as the chances of ringed birds being relocated are very slim and getting less (Wanless 2002). Ringed gannets are inevitably found dead too, usually washed up onshore somewhere along the western seaboard of Europe between their natal area and wintering grounds, with no clear indication how far the carcass drifted and whether its location was typical behaviour or not. Biases may also occur closer to human habitation where the chances of recovery are higher. Modern tracking devices such as GPS tags and geolocators provide a much more reliable method of specifying destinations, as well as routes and flight times.

So far, between 2011-2019 (excluding 2012 and 2018), 155 gannets have been GPS tagged, 111 birds from Les Etacs (23 in 2011, 27 in 2013, 28 in 2014 and 33 in 2015), and 44 birds from Ortac (10 in 2015, 12 in 2016, 14 in 2017 and 8 in 2019). Data from 90 of these tags has provided good indication of where the gannets nesting at Alderney's colonies forage during the breeding season (Warwick-Evans *et al.*, 2016) and may be sufficient to predict each colony's home range area (Soanes *et al.*, 2013). As



such no further GPS tagging was undertaken this year pending a review of our findings and any renewed demand for current tracking information. Instead, in 2020, the TAG project concentrated on its programme of research investigating the birds' migratory behaviour using geolocation.

The geolocation study was continued for the following reasons:

1. To deploy 10 geolocators on adult gannets with the aim of getting more data on their movements to improve our understanding of their migration. Current knowledge of the gannets' migratory behaviour from Alderney is based entirely on the ringing recoveries obtained from +50 years of ringing. These data give an indication of where our birds go (Veron & Lawlor, 2010). However, there are biases in these data that may misrepresent what the birds really do. These data need verifying, and this can best be done using geolocators.
2. To recover nine of 10 geolocators that were fitted in 2017 (c.f. Annual Ramsar Reviews 2017). The data these geolocators store will reveal the birds' migration patterns, as stated above, but we can only obtain these data by returning to the colony and re-catching the birds.
3. To colour-ring adults and obtain re-sightings. The operation to fit the new geolocators and recover the old ones provides an opportunity to colour-ring more adults as well as obtain re-sightings. Note that because the colour rings are marked with a bold 3 letter code that is more clearly visible than the numbers imprinted on conventional metal rings individuals wearing them can be identified from a far without the need to be re-caught. Obtaining these re-sightings is particularly valuable as the data helps provide more accurate estimates of adult survival. This is important because at present there is some uncertainty in our understanding of gannet demographics. According to existing life history information the British gannet population is predicted to decline 59% over the next 25 years (see JNCC website - <https://jncc.gov.uk/our-work/northern-gannet-morus-bassanus/>) yet in actual fact, it continues to grow. It is therefore likely that current estimates of survival are an underestimate and population modellers require better data.

On 7th July, three members of AWT staff returned to Ortac to carry out the three objectives outlined above. Staff included Justin Hart (lead ringer, see Appendix B for copies of SoA and BTO licence), Jack Bush (assistant) and Thomas Marceau (assistant). Sea state and weather were suitable (fair with light westerly wind, Beaufort 3, dry and mild, 16°C), permitting safe access and handling of the birds. After two hours 20 minutes on the rock (landing time 13:40, departure time 16:00), all ten new geolocators were successfully deployed and one old geocator (fitted in 2017) was recovered without incident. Five adults were also colour-ringed in addition to those fitted with geolocators. Two adult gannets wearing colour rings fitted in 2016 and 2017 were also re-sighted.

The loci on Ortac, where each geocator was deployed, were recorded using GPS and marked on a sketch map. Each bird's colour ring code and, if present, its conventional metal ring number were recorded, including the bird's breeding status (See Appendix A, Figures 18 and 19 and Tables 15 and 16).

The re-sightings will be added to data from a wider program of colour ringing undertaken at other UK ganneries. Its contribution to our understanding of adult survival will be reported elsewhere when more data has been got. CIBRS kindly provided the recovery data of the recaptured conventionally metal ringed birds and re-sighted colour rings. These include one bird more than 30 years old (see Appendix A, Table 7).

Data from the recovered geocator were successfully extracted and yielded some interesting information about the bird's movements. Its data differed markedly from the geocator recovered in 2019, Figure 10. For example, the gannet carrying geo BG151 (recovered in 2019) wintered in the

Straits of Gibraltar whereas the gannet carrying geo BG155 (recovered this year) wintered off west Africa. These two contrasting destinations illustrated well the variety of wintering strategies employed by adult gannets and fit well with what is currently understood about their wintering behaviour (Kubetski *et al.*, 2009).

The geolocation data recovered this year were particularly interesting as they indicated the bird did not immediately head south after the breeding season. Instead it headed into the North Sea moving anti-clockwise around the British Isles before heading south to spend the middle of winter off the west African coast. Its final destination was noteworthy as, so far, only one gannet ringed as a chick at the Channel Island colonies has been recovered as an adult off west Africa (Veron & Lawlor 2010). This is despite +50 years of chick ringing there and suggests the geolocators may reveal that more of Alderney's adult gannets winter off west Africa than previously thought. However, to be sure we need to recover more data - and this will be our focus next year.

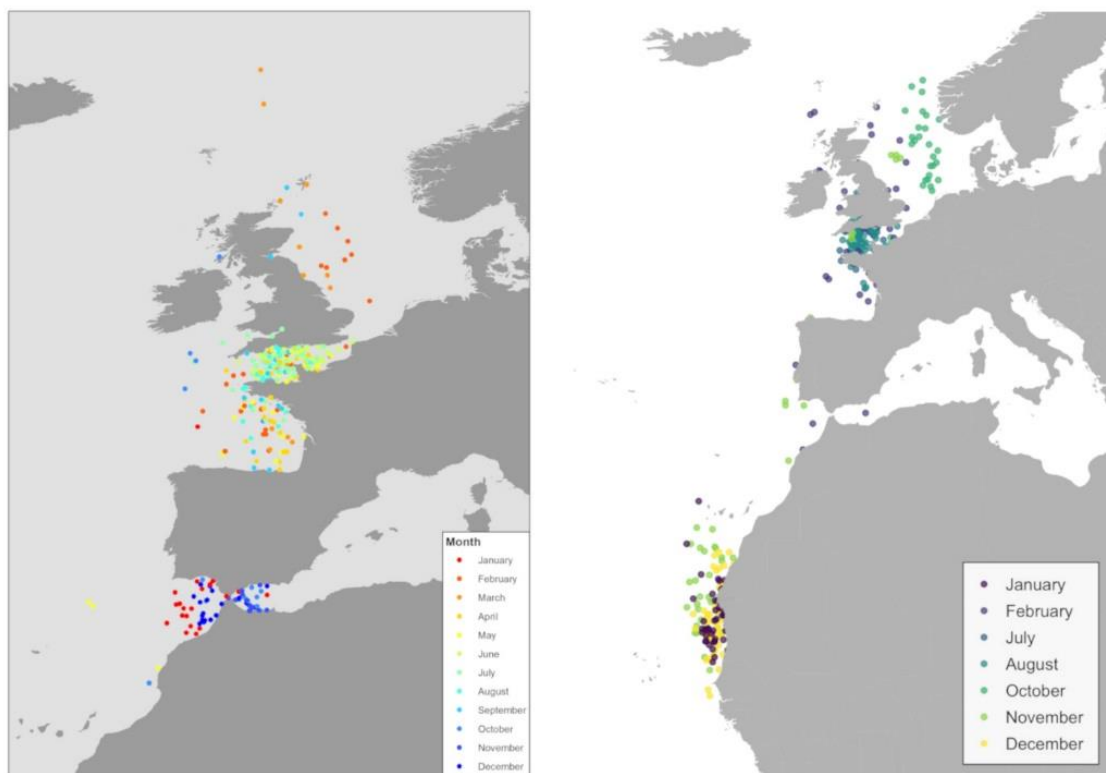


Figure 10 – Maps showing the location of points obtained from geolocators deployed on two adult gannets nesting on Ortac, BG151 (left), recovered in 2019 and BG155 (right) recovered in 2020. Data, shown by month, represents each bird's movements over one year between July 2017 and July 2018.

#### Recommendations

- Continue to monitor productivity on Les Etacs following JNCC guidelines. Ensure sufficient observations are made to identify non-layers so that any changes in the proportion of established pairs that choose not to breed can be overseen each year.
- Select a separate sample of nests on Les Etacs to monitor continually year on year to investigate a) if some apparently occupied nests/ breeding pairs are consistently successful or not at raising chicks; b) if breeding pairs consistently begin to nest at the same time of year and c) how often breeding pairs choose not to breed.

- Begin monitoring productivity on Ortac following JNCC guidelines. This will enable direct integration of these data with other obtained from chick ringing, adult colour ringing and the TAG project.
- Continue monitoring the rate of entanglements on Les Etacs (and Ortac, if feasible) to maintain oversight of the scale of the problem.
- Carry out a census of both colonies and investigate whether further counts can be undertaken annually or bi-annually in the future. This would provide us a better indication of any fluctuations in the population and how the levels of reported productivity may be impacting the numbers of birds present.
- Return to Ortac in 2021 to retrieve the geolocators deployed in 2017 and this year, colour ring more adults and collect more re-sightings. Present the results of any data retrieved from the geolocators, pending the successful recovery of their data. Compare the migratory behaviour revealed with what's been established from conventional ringing as well as the patterns of movement shown by geolocation studies of gannets from the U.K.
- Analyse all our existing tracks obtained from GPS tags to determine if these data can adequately define our gannet populations' home range. If possible, then investigate if the home range size has changed over time, particularly since the implementation of new EU fishing policy in 2014. Re-instate the GPS tagging program if evidence of change in foraging behaviour is detected and, particularly so, if coincident with changes in productivity.

#### 4.1.2.3 Northern Fulmars

Alderney's Northern fulmars *Fulmarus glacialis*, (hereafter 'fulmar') occupy inaccessible sites on the sea cliffs at the south and south-west sides of the main island, and on Coque Lihou. To establish the number of breeding pairs and their productivity, observations were taken from cliff top vantage points (between April and September) and two boat-based round island surveys (undertaken on 3<sup>rd</sup> and 10<sup>th</sup> June). Additional observations were also taken opportunistically during the AWT's round island boat tours (between August and September).

Most, if not all the breeding birds, occupied the sea cliffs between Hanaine Bay and the bottom of the Trois Vaux valley. Of the sites observed, breeding success could only be confirmed from this section of cliffs, so it was from here that productivity was assessed following a similar method used in previous years (AWT, 2019). Productivity was calculated by dividing the number of fledged chicks by the number of apparently occupied sites (AOS). Observations of regularly occupied sites or perch points in the cliffs were made at least every five days from 19<sup>th</sup> May using binoculars, a telescope, or a telephoto lens, distance dependent. Observations of each occupied perch point were made to record the presence of birds, their behaviour and, if used as a nest site, designate an AOS and record their contents and outcome.

72 'perch points' were observed on the west coast between Hanaine Bay and the Trois Vaux valley. Of these 'perch points', 36 were designated as AOS as they were persistently occupied by a bird or pairs showing nesting behaviour.

16 of the AOS fledged chicks giving a productivity of 0.44. Three chicks were lost before they developed their full plumage between 3<sup>rd</sup> July and 8<sup>th</sup> July and a further was lost on 17<sup>th</sup> July, assumed predated or a victim of a short period of foul weather. Final observations were made on 3<sup>rd</sup> September where the cliffs were vacant of all chicks; it is therefore assumed that the final chicks fledged between 28<sup>th</sup> August and 3<sup>rd</sup> September. Three fulmar were observed flying in the vicinity of the occupied cliffs on 5<sup>th</sup> September after which none were noted until the cliffs were reoccupied on 3<sup>rd</sup> December.

Although breeding success could only be confirmed for birds occupying the west coast, a further two AOS were observed in the S Cliffs as well as a single AOS on Coque Lihou. Unfortunately, the outcome of these nests was uncertain. If we assume the productivity of the AOS on the west coast is representative of all AOS noted, productivity for 2020 was 0.44. Whilst we accept that fulmar productivity can fluctuate year on year, productivity was similar to 2019 and an increase from 2017 and 2018 (Figure 11). From 2012 to 2020, the mean productivity for Alderney's fulmar is 0.45 and is in keeping with fulmar populations in the United Kingdom (JNCC,2020). Productivity decline from the mid-1990s has contributed to decline in fulmar numbers across the United Kingdom and we may expect further declines to come.

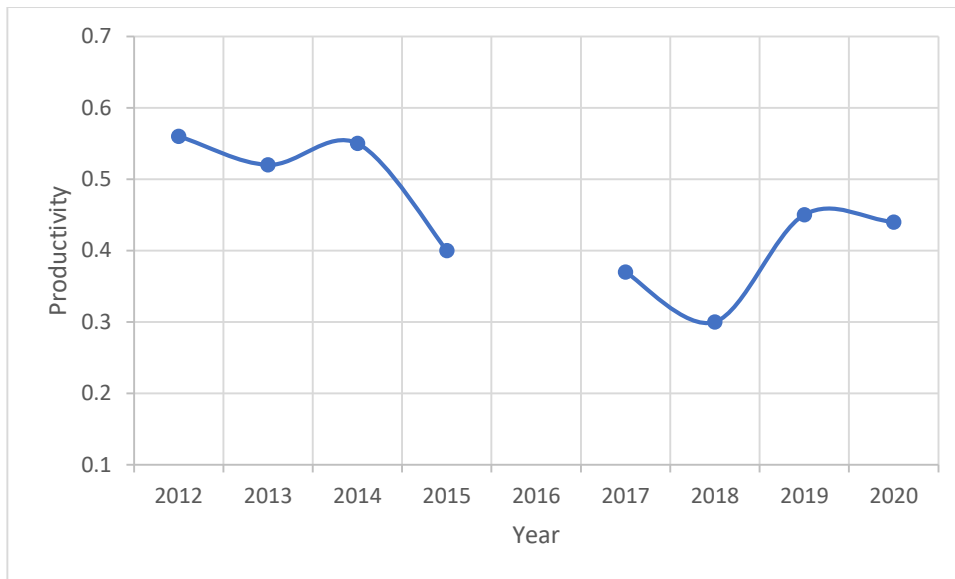


Figure 11 – Fulmar productivity since 2012. Data obtained in 2016 were not comparable and are not shown here.

Although breeding success in 2020 was very similar to 2019, the number of perch points observed in the cliffs between Hanaine Bay and the bottom of the Trois Vaux valley was much greater this year than last. In 2020, 72 ‘perch points’ were observed whilst only 51 were noted in 2019. The increase in use of the cliffs suggests a greater amount of prospecting by Alderney’s fulmars. Nevertheless, the number of fulmars breeding on Alderney (AOS) has remained stable since at least 2012 (Figure 12).

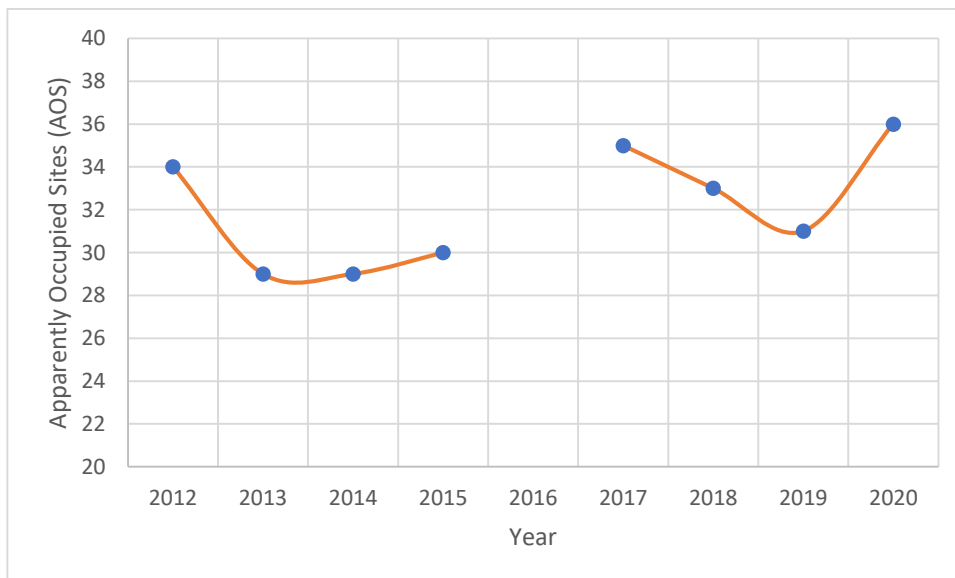


Figure 12 – Fulmar Apparently Occupied Sites (AOS) since 2012. Data obtained in 2016 were not comparable and are not shown here.

**Recommendations:**

- Continue monitoring in 2021.

#### 4.1.2.4 Common Terns

This year the fortunes of this ethereal species on Alderney took a turn for the better with the terns returning in greater numbers than last year and forming a new colony on Fort Houmet Herbé (a site used historically but not for many years, Sanders 2007). It followed a very poor year in 2019 when the previously well-established colony on Houmet de Pies (where 5-30 pairs had nested most years since at least 2000, Table 7) was abandoned and just one pair settled on the headland north of Fort Corblets (where they successfully fledged two chicks).

Common terns are not especially site faithful and are known to move breeding sites within and between years especially if a site suffers heavy predation or too much disturbance (Cramp & Simmons 1983). This was likely the case at Houmet de Pies which prior to 2018 had suffered high levels of predation; primarily by rats that could reach the islet at low tide and had established a small colony there. Nevertheless, the abandonment was a disappointment as a programme of rat control implemented by the SoA and AWT since 2018 had eliminated the problem. It was therefore, pleasing to see the birds return in good numbers again this year, albeit at a new site.

As Fort Houmet Herbé occupies a tidal islet and is accessible at low water measures to reduce predation and disturbance to ensure the birds the best chance of breeding success, were implemented as soon as possible. When it was clear the terns had settled to nest rat bait boxes were deployed within the fort and a sign was placed on the foreshore opposite the fort to warn people intending to explore the site of the birds' presence.

To monitor the terns without causing excessive disturbance observations were made periodically from the foreshore. The fort was also visited about once per month to check the bait boxes as well as search the colony for signs of rat presence, nest predation and breeding success. Disturbance was minimised by ensuring no longer than 20 minutes was spent carrying out these tasks.

The first terns to return began prospecting the fort around 18<sup>th</sup> May and almost immediately settled on the outer walls. By 27<sup>th</sup> May two pairs were sitting on nests and six adults were present. Numbers initially changed little but by 14<sup>th</sup> June at least 3 pairs were sitting and 12 adults were present. By 26<sup>th</sup> June three nests had hatched chicks, but two more pairs were sitting on eggs and at least 20 adults were overflying the site.

On 3<sup>rd</sup> July the bait boxes were checked and indicated that few rats were present. There were also clear signs that the terns were doing well with chicks present in their second week after hatching and no signs of predation, Figure 13.





Figure 13 – Two Common tern chicks on the outer walls of Fort Houmet Herbé.

Through July the number of nests rose and on 10<sup>th</sup> nine AON were visible. More than 30 adults were also present. Exact numbers were hard to establish, however, as not all the fort was visible from the foreshore and time spent at the fort checking the bait boxes was insufficient to carry out a thorough search of the site for nests and chicks. Nevertheless, at least three well feathered chicks close to fledging, one downy chick and a clutch of 3 eggs were seen. By 17<sup>th</sup> July the oldest chicks had fledged but 4 pairs were still sitting and 21 adults were counted present. On 26<sup>th</sup> July only one pair were still sitting on eggs but two chicks close to fledging and two small downy chicks were also seen. At least four pairs were still present at the end of the month.

Through August the number of birds that were present fell as the pairs with fledged chicks left the site. By 12<sup>th</sup> August just two pairs were active with chicks around 2-3 weeks old. On 18<sup>th</sup> August six adults were counted with three recently fledged chicks. On 24<sup>th</sup> August three adults were still present and one carrying food was seen pursued by a fledged juvenile but no chicks remained on the fort. By 1<sup>st</sup> September the terns had left.

Observations clearly indicated that most if not all the breeding pairs had successfully raised chicks to fledging but nesting had not been synchronous. Three or four pairs began the season in May and June but were joined by five or more pairs later in July. A maximum of nine AONs were seen at one time but one or two more nesting pairs were likely present in the inner and outer ramparts that could not be seen from the foreshore. The greater number of adults present than AONs, notably in July also suggested more birds had prospected the site and may return to breed next year.



#### 4.1.2.5 Ringed Plover

This year nine nesting attempts by Ringed plover *Charadrius hiaticula* were recorded around Alderney's northern coastline. These occurred on the beaches and rocky promontories traditionally used in previous years. They included four nesting attempts in Clonque Bay, three in Saye Bay and two on Platte Saline beach, Figure 14. Between 4 and 6 breeding pairs likely bred but the exact number was unclear as some pairs probably changed nesting sites between breeding attempts.

Overall, the plovers had their worst nesting season since detailed records began in 2017, Table 4. Just one chick was raised to fledge. Each clutch had a 35% probability of surviving to hatch and each chick just a 10% probability of surviving to fledge, Table 4. The reasons for the birds poor breeding performance were a combination of natural and man-made. Clutches of eggs were lost in stormy weather or because they were laid below the high-water mark and later washed over by the next spring tides. Chicks were lost to predation too but some also likely starved or chilled due to excessive disturbance from people.



Figure 14 – The location of Ringed Plover nesting attempts in 2020.

At each breeding site regular field observations were made to determine the number of breeding pairs present and the outcome of each nesting attempt. The observations from each site revealed the following chronicle of nesting activity:

##### Clonque Bay

Three pairs of Ringed plover attempted to nest in Clonque bay but all without success. Each pair occupied small nesting territories at the northern, central and southern ends of the bay, respectively Figure 14. The pair nesting in the centre of the bay laid earliest in mid-April and had young less than a week old on 9<sup>th</sup> May. However, these were all lost (likely predated) by 16<sup>th</sup> May and the site was abandoned thereafter. The pair nesting at the southern end of the bay (near Blue bridge) laid a clutch of 4 eggs in mid-June. But these were laid on shingle below the high-water mark and were over-washed and chilled by the spring tides in the following week, Figure 15. The site was then not used again. The pair nesting at the northern end of the beach attempted to nest twice but laid both clutches below the high-water mark and lost each to the tides. The first clutch was lost during a storm-enhanced tide on 23<sup>rd</sup> May, the second clutch on 22<sup>nd</sup> June during the same high tide that afflicted the southern pair's nest, Figure 15.





Figure 15 - A clutch of Ringed plover eggs (centre) chilled and abandoned after being washed over by the rising tide. Note the still damp rocks on the right and the dry rocks on the left.

#### Platte Saline

One pair of Ringed plover nested on the western side of Platte Saline beach. A second pair briefly occupied the eastern end of the beach in June too but did not nest. The nesting pair initially laid a clutch of 3 eggs in early May but this was destroyed by wind-blown sand during an easterly storm on May 12<sup>th</sup>. Following this loss, the pair did not abandon the site but re-laid later in the month nearer the centre of the beach, closer to the sand works. Here they successfully hatched 4 chicks about 19<sup>th</sup> June. In the following week all were caught and ringed by the Alderney Bird Observatory (ABO). However, by 27<sup>th</sup> June one chick had perished and by 1<sup>st</sup> July only two were still alive. At this time the size difference between the two surviving chicks was notable. One of the chicks was well feathered and at the correct stage of development for its age whilst the other was not. The under developed chick was still small and downy and had probably struggled to find enough food to grow. In fact, if they had not been regularly watched it would have been hard to conceive that both chicks were hatched at the same time. Unfortunately, by 8<sup>th</sup> July the smaller chick had succumbed and died but the last remaining chick survived to fledge in the third week of July. This was more than 30 days after hatching and around a week later than normal (Ferguson-Lees *et al.*, 2011). The chick was also the only one to successfully fledge on Alderney this year.

#### Saye Bay

Two pairs of Ringed plover nested in Saye Bay. Neither pair nested on the beach but chose to nest on the rocky promontories at either end of the bay instead. The pair nesting at the north-east end of the bay began to lay a clutch in late May but abandoned it before completion, probably due to disturbance or the loss of one of the parents. A hiatus in nesting activity at the site then followed until late June when a clutch of 4 eggs was laid. These all hatched in the third week of July but the chicks did not survive long. By the end of July just one chick remained and this was lost by 8<sup>th</sup> August.

The pair nesting at the south western end of the bay nested a little earlier and laid around mid-June. By 13<sup>th</sup> July they had three downy chicks less than a week old. By 19<sup>th</sup> July two remained alive and one of these chicks was poorly developed compared to its sibling. Nevertheless, both survived until the end of the month before perishing by August 8<sup>th</sup>. Interestingly, the female of this pair wore a ring on

her left leg. This was noteworthy as the majority of plover chicks ringed on Alderney between 2017 and 2019 were atypically ringed on the left leg. It was therefore possible that she was one of these chicks and had returned to her natal area to nest.

Observations at Platte Saline and Saye Bay indicated that when the Ringed plover chicks were foraging or being brooded by a parent they were sometimes interrupted by beach goers, notably dog walkers. During these periods of disturbance, the chicks were forced to run long stretches of the beach and/or take cover and, as a consequence, lost valuable foraging time. Too much disturbance of this kind can slow the development of beach nesting wader chicks but also increase the risk of chilling and starvation as well as the period of time during which they are most vulnerable to predation (Flemming *et al.*, 1988, DeRose-Wilson *et al.*, 2018, Walters *et al.*, 2020). Dog walkers who allow their dogs to roam free on beaches are the worst source of this disturbance (Gómez-Serrano 2020). It therefore seems very likely that the disturbance witnessed contributed to the unequal and slow development seen among the broods but also the eventual demise of all but one of the chicks due to starvation or excessive chilling. It was also notable that both broods hatched in Saye Bay were lost at a time of year when the beach was busiest with people, particularly during the festivities around 'Alderney week'.

Due to recent population declines Ringed plovers are a red-listed species in the UK and of conservation concern (<https://app.bto.org/birdfacts/results/bob4700.htm> are in line). The species naturally suffers low productivity due to the risky nature of its ground nesting behaviour (Cramp & Simmons 1983). However, the productivity we recorded this year is lower than typical for the species. Therefore, it would be beneficial to improve nest survival and productivity to help the regional population recover.

To achieve these aims two key issues must be resolved in Alderney. These are the protection of the existing population and the protection of its vital rates (i.e. productivity or its ability to nest successfully). The Ringed plover population can be protected by ensuring the beaches remain suitable habitat for the birds to nest whilst the birds nesting success can be improved by limiting human disturbance (accepting some losses may occur for other reasons).

#### Recommendations:

- Continue to maintain oversight by monitoring the population and its productivity.
- Safeguard nesting habitat by designating special protection to all, some or sections of the nesting beaches, closing these sites to people for the duration of the breeding season (1<sup>st</sup> April-10<sup>th</sup> August).
- Deploy clear signage so that beach goers are aware of the protection, use wardens at busy times to spread the word, encourage local participation and prevent inappropriate access.
- Set up a disturbance study to determine which beaches are most popular with people and when they are used most often. Use the results to better plan the location and timings of designations, signage and warden deployment.

Table 4 – Ringed plover productivity and nest survival probability 2017-2020.

Year	No. of pairs	No. of nests	No. eggs laid	No. chicks fledged	Productivity (No. of chicks fledged)			Survival*	
					Chicks per pair	Chicks per nest	Chicks per egg	Clutch	Chick
2020	6	9	28	1	0.17	0.11	0.04	35%	10%
2019	4	8	30	6	1.5	0.75	0.20	62%	28%
2018	4	9	33	6	1.5	0.66	0.18	30%	<i>nk</i>
2017	5	9	36	4	1.25	0.44	0.11	29%	<i>nk</i>

\* Probability that a clutch or individual chick would survive to hatch or fledge, respectively; based on Mayfield (1975). *nk* = not known

### 4.1.3 Round Island Seabird Surveys Including Coque Lihou and Other Islets/ Other Seabird Monitoring

Two round-island boat surveys were carried out on 3rd June and 10th June to estimate the breeding numbers of Cormorant, Shag, gulls, terns and auks nesting on Alderney's south coast cliffs and islets. During these surveys the number and location of nesting fulmars were also noted to inform the land-based surveys reported in Section 4.1.2.3. This was because a few fulmar nest sites cannot be seen from the cliff-tops and were only visible from boat. Additional counts of the auks were also made from the south cliffs of the mainland. These comprised counts of auks nesting on Coque Lihou, the Twin Sisters stacks and Les Etacs. Counts of the number of nesting Common terns were made from the mainland adjacent to their colony too.

No surveys of Burhou, Little Burhou and the outer islands of Renonquet and the Nannels were undertaken this year due to restrictions imposed during the outbreak of the COVID-19 pandemic. These restrictions also delayed the start date of the boat surveys and probably affected the counts. In particular, the number of apparently occupied nests (AONs) of gulls were likely under recorded as these would normally be counted in mid-May when most of the birds would be incubating eggs (Walsh *et al.*, 1995). Our counts in June may have missed some nests that had hatched chicks and were too hard to detect or nests that had failed and the birds had already left.

#### 4.1.3.1 Shag

Shags nest throughout the archipelago except along the northern coastline of the mainland. The highest count was obtained during the first boat trip when 86 apparently occupied nests (AON) were counted around Alderney's south coast cliffs and islets, Table 5. The highest concentrations of nests occurred around the south-western end of the mainland between Hanaine bay and Telegraph bay and on Coque Lihou, Table 5. This year's count (c.86) was substantially lower than the previous two years when 119 and 100 AONs were recorded in 2019 and 2018, respectively. Furthermore, the second boat survey also yielded a much lower count than the first and suggested widespread breeding failures may have occurred this year. Anecdotal sightings of few juveniles Shags around the coast later in the year provided circumstantial evidence that this may have been the case.

#### 4.1.3.2 Cormorant

Between 5-10 pairs normally nest in a small colony on Little Burhou each year. Cormorants nest early in the spring and an accurate count of the breeding population can usually be made in late April during an expedition to ring the chicks by the ABO. However, this year no ringing or count took place due the restrictions imposed by the COVID-19. No counts were made by boat-survey for the same reason and as a result there was no assessment of the numbers of breeding Cormorants.

#### 4.1.3.3 Great Black-backed Gull

This large gull breeds in small numbers throughout the archipelago. Seven AON were found around Alderney and the south coast islets, Table 5. No counts were made from Burhou although birds were regularly seen on the island during AWT boat tours of the island's south coast Puffin colony. They were also recorded by 'Puffin Cam', in some cases predated adult Puffins. Around Alderney, the AONs were well spaced but 2 pairs nested in close proximity on Houmet de Pies. Since 2005 the numbers of Great black-backed gulls reported breeding each year has varied markedly ranging from one in 2013 to 23 in 2010 and 2011. This year numbers of AON were lower than last year (c.11 AONs in 2019) but several pairs on the south coast went uncounted because there was no sign they were nesting although they were present at their usual breeding sites. Despite some probable breeding failure or abstinence a few pairs raised chicks with at least two young recorded on Houmet de Pies during the second boat survey.

#### 4.1.3.4 Lesser Black-backed Gull

Internationally important numbers and the majority of Alderney's Lesser black-backed gulls nest within the Ramsar site in a large colony on Burhou. Smaller numbers also nest around Alderneys coastline and offshore islets. The number nesting on Burhou were not counted this year but 26 AON were found around the coastline of Alderney and the southern islets, Table 5. The number of Lesser black-backed gulls nesting on Burhou was last counted in 2016 but has not been repeated since then to prevent disturbance to the nearby Puffin colony.

Between 2005 and 2016 the number of gulls nesting on Burhou was stable, for example in 2005 and 2016, 1103 AONs and 1051 AONs were counted, respectively, Table 5. However, during this period, the distribution of nesting birds on the island spread and the walkover surveys required to count the gull nests began to encroach on the Puffin breeding sites. As a consequence, counters risked damaging active puffin burrows and/or preventing the birds accessing their nests and a decision was made to postpone further gull counts. Nevertheless, further increases in the area of coverage by the gull colony since then suggests the numbers may have risen and a new census that mitigates the risk to the puffin colony should be considered in the future.

The numbers of Lesser black-backed gulls nesting around Alderney were lower than last year, Table 5. Evidence of poor productivity was also apparent with few chicks or sitting birds seen during the second boat survey. In contrast, on Burhou, the ABO recorded 'good numbers' of chicks from a sector of the main colony in which they undertook their gull ringing operation in July. However, without more empirical data gathered from the entire colony, it is difficult to draw any conclusions regarding overall productivity. Nonetheless, the birds nesting on mainland Alderney may follow a different foraging strategy than those that nest on Burhou. This difference in behaviour could account for any discrepancy between breeding performance at the two sites.

#### 4.1.3.5 Herring Gull

Nesting Herring gulls are widespread around the coast of mainland Alderney with smaller numbers also occupying the south coast islets and the Lesser black-backed gull colony on Burhou. Most are fairly widely dispersed around the island but higher concentrations of nests occur on the sea cliffs at Hanaine bay and in Godfreys bay, Table 5. A total of 71 AONs were counted around Alderney and the south islets, Table 5. This figure was less than last year and substantially lower than the previous counts of 285 and 315 AOS reported in 2000 and 2014, respectively, Table 7. Although the decline has been rapid over the last five years the drop in numbers reflects the on-going decline of this species' coastal populations (<https://jncc.gov.uk/our-work/herring-gull-larus-argentatus/>) and may reflect changes in refuse management locally and in France.

#### 4.1.3.6 Guillemot

This species nests primarily on Coque Lihou but some also nest among the gannets on Les Etacs and perhaps among Razorbills on the Twin Sister stacks. There is little historical data on the numbers of Guillemots or Razorbills that nest around Alderney. This is because they are hard to census. Most nests are hidden from view on the southern side of the islets and/or within deep crevices and overhangs. Accurate counts of their breeding numbers are too difficult to get. Nevertheless, it remains possible to estimate the general size of the colonies using counts of the number of birds that raft on the sea nearby, particularly early in the season before most birds have made landfall.

Furthermore, at Les Etacs, a small colony of Guillemots that nest on 'North Stack High' (see Figure 4, gannet section), can be observed from a vantage point on the mainland. Consequently, the numbers of birds here can be counted accurately in situ using a telescope or from photos taken through a long telephoto lens and monitored using JNCC guidelines (Walsh *et al.*, 1995).

The first Guillemots returned to the colonies early in the year. This year, small numbers were already on Les Etacs when the gannets made landfall on 13<sup>th</sup> February. Through March the numbers of birds steadily rose and reached a peak in mid-April, Table 6. Around Coque Lihou the peak number of birds rafting on the sea



(c.194) was seen on 16<sup>th</sup> April, Table 6. This was higher than the peak number counted in 2019 (c.134) but occurred at a similar date (17<sup>th</sup> April). Peak numbers on Les Etacs were also seen in April (98 on 16<sup>th</sup>) and were higher than 2019 (c.69) too.

On Les Etacs, the number of active nests were determined from late April to June. Active nest sites were allocated according to Gilbert *et al.*, (1998) and included those containing: a) birds with an egg, b) birds with a chick, c) birds that appeared to be incubating or d) any other pairs attending a site which appeared capable of supporting an egg. Following these criteria, we were able to deduce that there were between 20-25 active nest sites although the number of adults attending was sometimes much higher, Table 6. The best indication of the number of active nests occurred on 22<sup>nd</sup> May when most of the Guillemots had abandoned the stack following a period of NE gales and only 22 incubating birds remained, unwilling to leave their eggs.



Figure 16. A group of Guillemots nesting among gannets on Les Etacs. A chick can be seen centre right on the main ledge behind one of the sitting gannets. A dead Guillemot entangled by the neck can also be seen top centre left.

The number of active nests on Les Etacs was similar to the number estimated in 2019 (25-30 nests). In broad terms both colony size at Coque Lihou and the number nesting on Les Etacs were similar to last year. But these data should continue to be collected annually to better define the natural variability in colony attendance and help identify change if it occurs in the future.

Breeding success on Les Etacs was probably low as few chicks were seen, Table 6. Many of the birds nested in tight groups amongst the gannets and this made the chicks hard to detect, Figure 16. More frequent observations through the chick rearing period would help elucidate productivity there in the future. Predation may have had a significant impact as Crows, gulls and Ravens were often seen prospecting the site and predated Guillemot eggs were found on the adjacent mainland.

#### 4.1.3.7 Razorbill

The Razorbills were hard to census for the same reasons as the Guillemots and our counts could only give an indication of colony size. Most bred among rock crevices on the Twin Sister stacks but smaller numbers were found on Coque Lihou, and Les Etacs, Table 6. Eight were also seen rafting close to L'Etac de la Quoire during the boat survey on 3<sup>rd</sup> June. This was six more than seen there in 2019. The highest counts were made from shore on 25<sup>th</sup> March when 52 Razorbills were seen rafting around the Twin Sister stacks, Table 6. This was less than the peak count seen there in 2019, when 78 birds were present on 17<sup>th</sup> April. However, more counts will be required in the years ahead to determine if this difference marks a change in colony size. The rise in the number of Razorbills seen around L'Etac de la Quoire was encouraging and may indicate more use of the site following rat control in 2019.

#### Recommendations:

- Maintain the current programme of monitoring, including Burhou and the outer islands, and ensure round island boat surveys are scheduled between mid-May and mid-June.
- Carry out a census of the Lesser black-backed gulls nesting on Burhou in late May 2021 - to update the latest population figures collected in 2016, as per the schedule defined in ARS3.
- Improve monitoring of the Guillemots nesting on Les Etacs to attain an accurate assessment of their breeding numbers and productivity.
- Encourage ABO/ CIBRS ringers to supply accurate counts of the numbers of Cormorants nesting on Little Burhou and their productivity. If, no ringing trip occurs organise an alternative visit to gather these data in late April.
- Keep a close watching brief on the Common terns and where they choose to settle and nest each year. Be prepared to advise colleagues of any changes so that timely rat control can be introduced to new sites at short notice if need be (see section 4.2.1).

Table 5 – (section 1). The results of the boat-based round island breeding seabird surveys conducted in 2020 around Alderney and the south coast islets.

Species		Count*	Alderney and south coast islets (not including Les Etacs).						
			Alderney - mainland		Twin sisters		L'Etac de la Quoire		
			03/06/2020	10/06/2020	03/06/2020	10/06/2020	03/06/2020	10/06/2020	
Seabirds									
	Fulmar#	AOS	<i>tbc</i>	<i>tbc</i>	0	0	0	0	0
	Cormorant	IND	0	0	0	0	0	0	0
	Shag	AON	51	31	1	0	3	3	3
	Herring gull	AON	61	31	1	0	8	8	8
	Lesser black-backed gull	AON	16	6	7	0	1	1	1
	Great black-backed gull	AON	7	5	0	1	0	0	0
	Common Tern#	AON	3	2	0	0	0	0	0
	Guillemot#	IND	0	0	0	0	0	0	0
	Razorbill#	IND	1	0	39	25	8	3	3
	Puffin#	IND	0	0	0	0	0	0	0
Other species									
	Peregrine	AOS	1	1	0	0	0	0	0
	Grey seal#	IND	0	0	0	0	0	0	0

\* Counts represent either AOS - apparently occupied sites, AON - apparently occupied nests or IND - individuals.

# To obtain the complete estimate of the breeding population refer to the individual species account in the report.

*tbc* numbers to be confirmed once integrated with land-based counts – refer to species section in report.

*nc* No count undertaken (caused by weather, tidal conditions and COVID-19 restrictions).



Table 5 (section 2) – The results of the boat-based round island breeding seabird surveys conducted in 2020 around Alderney and the south coast islets.

Species		Count*	Alderney and south coast islets (not including Les Etacs).					
			Coque Linhou		Rousset		Totals	
			03/06/2020	10/06/2020	03/06/2020	10/06/2020	03/06/2020	10/06/2020
Seabirds								
	Fulmar#	AOS	0	1	0	0	<i>tbc</i>	<i>tbc</i>
	Cormorant	IND	0	0	0	0	0	0
	Shag	AON	31	13	0	0	<b>86</b>	47
	Herring gull	AON	1	0	2	0	<b>71</b>	39
	Lesser black-backed gull	AON	2	3	0	0	<b>26</b>	10
	Great black-backed gull	AON	0	0	0	0	<b>7</b>	6
	Common Tern#	AON	0	0	0	0	<b>3</b>	2
	Guillemot#	IND	86	20	0	0	<b>86</b>	20
	Razorbill#	IND	18	4	0	0	<b>66</b>	32
	Puffin#	IND	0	0	0	0	0	0
Other species								
	Peregrine	AOS	0	0	0	0	1	1
	Grey seal#	IND	0	0	0	0	0	0

\* Counts represent either AOS - apparently occupied sites, AON - apparently occupied nests or IND - individuals.

# To obtain the final estimate of the breeding population refer to the individual species account in the report.

*tbc* numbers to be confirmed once integrated with land-based counts – refer to species section in report.

*nc* No count undertaken on dates shown (due to tidal conditions).

Table 6 – The land based counts (observed from mainland cliff tops) of Guillemots (GU) and Razorbill (RZ) in 2020. Peak numbers recorded in **bold**.

Site	Date	Guillemot (GU)	Razorbill (RZ)	Notes
Coque Linhou	04/04/2020	128	6	All rafting on the sea
	16/04/2020	<b>194</b>	8	Most rafting, but 44 GU on the rocks
	22/04/2020	109	<b>13</b>	Most rafting but 21 GU on the rocks
	25/04/2020	93	7	Most rafting but 44 GU on the rocks
Twin Sisters	24/03/2020	0	<b>52</b>	Rafting
	25/03/2020	<b>11</b>	<b>52</b>	Rafting
	26/03/2020	0	37	Rafting
	01/04/2020	1	49	Rafting
	04/04/2020	0	15	Rafting
	16/04/2020	1	44	Rafting
	22/04/2020	0	12	Rafting
	25/04/2020	1	28	Most rafting but 4 RZ on the rocks
Les Etacs	07/03/2020	66	6	Inc. 3 pairs of Razorbill
(North Stack High)	14/03/2020	85	2	Raven flushed 22 GU off ledge
	24/03/2020	78	2	
	01/04/2020	89	2	22 GU at sea level, 2 RZ on sea
	04/04/2020	36	4	
	10/04/2020	56	5	2 pairs of GU seen mating
	16/04/2020	<b>98</b>	3	12 GU at sea level
	22/04/2020	66	0	
	25/04/2020	80	0	Est. 20-25 GU with eggs.
	02/05/2020	63	1	Est. 20 GU with eggs, 20 GU at sea level
	04/05/2020	72	1	
	09/05/2020	66	3	Est. 25 GU with eggs
	11/05/2020	22	0	Post NE gale, only GU with eggs remain
	16/05/2020	58	3	
	23/05/2020	48	0	
	30/05/2020	39	3	
	13/06/2020	62	1	2 GU chicks seen - near ready to fledge
	20/06/2020	50	1	Some chicks and adults absent - fledged
	27/06/2020	14	0	All chicks fledged.
	04/07/2020	7	0	Breeding ledges abandoned.
11/07/2020	5	0		
12/07/2020	0	0		

Table 7 – Historical counts of the seabirds nesting around Alderney and on Burhou between 1999-2020

Location	Species	Method	Seabird 2000			Burhou Project		Ramsar ARS1					Ramsar ARS2					Ramsar ARS3					
			1999	2000	2002	2003	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Alderney	Fulmar	AOS	50	-	-	-	-	-	26	20 <sup>(2)</sup>	38	34	16 <sup>(2)</sup>	34	29	29	32	13	35	43	35	30	
Burhou	Storm Petrel	Ind. <sup>(7)</sup> Rung <sup>(8)</sup>	-	-	-	-	-	-	-	2,800	-	-	-	-	-	3000	-	-	-	-	-		
			-	204	-	300	465	317	-	171	-	-	-	-	-	433	483	-	-	-	324	513	
Les Etacs	Gannet	AON	3450	-	-	-	4862	-	-	-	-	5765	-	-	-	5909	-	-	-	-	-		
Ortac			2500	-	-	-	2547	-	-	-	-	2120	-	-	-	2777	-	-	-	-	-		
Coque Lihou	Shag	AON	-	-	-	-	-	-	-	-	-	-	-	77	66	-	-	-	-	19	31		
Little Burhou			-	-	-	-	-	-	-	-	-	-	-	35	36	43	-	-	-	-	-		
Burhou			47	-	-	-	-	-	19	21	19	24	23	20	21	14	16	-	-	-	-	-	
Alderney			160	-	-	-	-	-	-	-	-	-	-	-	18 <sup>(2)</sup>	51	13	-	-	-	-	90	55
Little Burhou	Cormorant	AON																	7				
Alderney	Ringed Plover	AOS	-	-	-	-	-	-	-	1	3	5	3	2	2	6	7	1	5	4	4	4-6	
Burhou	Herring Gull	AON	125 <sup>(4)</sup>	-	-	-	202	110	148	164	52 <sup>(2)</sup>	85	73	5	18	32	182 <sup>(9)</sup>	55 <sup>(9)</sup>	-	-	-	-	
		Chicks	-	-	-	16	-	3	-	1	8	17	6	4	12	(18) <sup>(5)</sup>	-	-	-	-	1	2	
Alderney		AON	285 <sup>(4)</sup>	-	-	-	-	-	-	-	-	-	-	-	-	315 <sup>(6)</sup>	-	-	-	-	81	71	
Burhou	Lesser Black-backed Gull	AON	313 <sup>(4)</sup>	-	-	-	1103	936	994	1001	640 <sup>(2)</sup>	1074	1236	991 <sup>(4)</sup>	-	1392	1176 <sup>(9)</sup>	1051 <sup>(9)</sup>	-	-	-	-	
		Chicks	232	-	-	308	386	140	-	3	281	335	11	202	28	276	-	-	-	-	-	164	
Alderney		AON	70 <sup>(4)</sup>	-	-	-	-	-	-	-	-	-	-	-	-	315 <sup>(6)</sup>	-	-	-	-	34	26	
Burhou	Great Black-backed Gull	AON	27 <sup>(4)</sup>	-	-	-	18	18	16	17	-	23	23	4	1	6	13 <sup>(9)</sup>	-	-	-	-	-	
		Chicks	-	-	-	-	-	-	-	0	5	0	1	4	1	2 <sup>(5)</sup>	-	-	-	-	-	2	-
Alderney		AON	21 <sup>(4)</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	7	
Houmet des Pies	Common Tern	AON	20 <sup>(4)</sup>	-	-	-	15	-	11	-	-	-	-	5	14	25	-	-	4	21	-	-	
		ind.	-	-	-	-	-	-	64	-	-	-	-	24	43	28	-	53	48	40	-	-	
Alderney		ind.												5	14	25	32	-	4	20-30	2	10	
																						36	
Burhou	Puffin	AOB	210 <sup>(3)</sup>	180 <sup>(3)</sup>	-	-	-	127	114	132	-	153	160	176	168	143	112	97	93	101	186	157	
		Raft	-	-	-	-	-	92	127	134	131	157	174	175	96	58	114	168	167	140	150	167	
Coque Lihou	Guillemot	Raft																			134	194	
Twin sister		Raft																				1	11
Les Etacs		AOS																			25-30	22	
Coque Lihou	Razorbill	Raft																				19	13
Twin sister		Raft																				73	52
Quoire		Raft																				2	8
Les Etacs		AOS																				2	3

(1) Counted in 1988; (2) partial colony count only; (3) individuals on land; (4) AOS not AON; (5) inc. Little Burhou; (6) All gull spp.; (7) PVA calc. via ringing; (8) inc. re-traps; (9) whole Colony count; \*estimated number.

#### 4.1.4 WeBS

The Wetland Bird Survey (WeBS) is the British Trust for Ornithology's (BTO) scheme to monitor non-breeding wetland birds in the UK. The main aim of WeBS is to identify population sizes, determine trends in numbers and distribution, and identify important sites for wetland birds. WeBS core counts are carried out on prioritised dates each month at designated sites throughout the UK. Ideally core counts are undertaken at high tide when most wetland birds are least dispersed and easiest to count. The value of these counts lies in consistency, wide distribution and the many years over which they have been undertaken. This means any changes detected in these data represent real national trends and not just local changes or differences between sites.

In the Ramsar site, WeBS were carried out in Clonque Bay and Platte Saline throughout 2020. All these data were submitted to WeBS online.

Recommendations:

- Continue completing monthly WeBS in 2020.

#### 4.1.5 Seabird Ringing

The programme of traditional ringing under Ramsar is undertaken by the ‘Alderney Bird Observatory’ (ABO). The following data has been extracted from two blog posts made available online by the ABO. The original posts can be found online at <https://alderneybirdobservatory.org/14475-2/> (seabird and shorebird return for 2020), and <https://alderneybirdobservatory.org/alderney-bird-observatory-seabird-and-shorebird-ringing-return-for-2020/> (ringing return for 2020 part 2: shorebirds and terns). Accessed December 2020.

No further data has been provided. License information/ details have been requested from the ABO but have not been provided.

##### 4.1.5.1 Cormorants

Cormorants were not ringed in 2020 as a consequence of the COVID-19 pandemic.

##### 4.1.5.2 Auks

Auks were not ringed in 2020 as a consequence of the COVID-19 pandemic.

##### 4.1.5.3 Gull Chicks

###### 4.1.5.3.1 Lesser Black-backed Gulls

Table 8 – LBBG chick ringing data. N/A = Not Applicable.

<b>Species</b>	Lesser Black-backed Gull
<b>Date</b>	18 <sup>th</sup> July
<b>Location</b>	Burhou
<b>Number of people involved in ringing</b>	5
<b>Time on island</b>	2 days
<b>Time spent ringing</b>	
<b>Capture method</b>	By hand
<b>Number of nets (if applicable)</b>	N/A
<b>Length of nets (if applicable)</b>	N/A
<b>Net locations (if applicable)</b>	N/A
<b>Number of birds caught/ ringed</b>	47
<b>Number of controls</b>	N/A
<b>Number of retraps</b>	N/A
<b>Number of casualties</b>	
<b>Additional information</b>	<p>“In one small area of the colony where we have previously processed a maximum of 20 chicks in a good year, we found 47 birds.</p> <p>There was, however, evidence of a marked increase in casualties with eight deceased chicks in the same area where in previous years we have recorded a maximum of three. There were fewer addled eggs located this year, only four. Overall, more birds were closer to free flying indicating that the dates for this research work should not be extended (if this is to be considered an average year). It was too hot during the day and scheduled work in the Gull colony was delayed until late afternoon rather than risk exposing chicks to the sun.”</p>

#### 4.1.5.3.2 Great Black-backed Gulls

Table 9 – GBBG chick ringing data. N/A = Not Applicable.

<b>Species</b>	Great Black-backed Gull
<b>Date</b>	18 <sup>th</sup> July
<b>Location</b>	Burhou
<b>Number of people involved in ringing</b>	5
<b>Time on island</b>	2 days
<b>Time spent ringing</b>	
<b>Capture method</b>	By hand
<b>Number of nets (if applicable)</b>	N/A
<b>Length of nets (if applicable)</b>	N/A
<b>Net locations (if applicable)</b>	N/A
<b>Number of birds caught/ ringed</b>	0
<b>Number of controls</b>	N/A
<b>Number of retraps</b>	N/A
<b>Number of casualties</b>	N/A
<b>Additional information</b>	

#### 4.1.5.3.3 Herring Gulls

Table 10 – Herring gull chick ringing data. N/A = Not Applicable.

<b>Species</b>	Herring Gull
<b>Date</b>	18 <sup>th</sup> July 2020
<b>Location</b>	Burhou
<b>Number of people involved in ringing</b>	5
<b>Time on island</b>	2 days
<b>Time spent ringing</b>	N/A
<b>Capture method</b>	By hand
<b>Number of nets (if applicable)</b>	N/A
<b>Length of nets (if applicable)</b>	N/A
<b>Net locations (if applicable)</b>	N/A
<b>Number of birds caught/ ringed</b>	2
<b>Number of controls</b>	N/A
<b>Number of retraps</b>	N/A
<b>Number of casualties</b>	N/A
<b>Additional information</b>	Opportunistic

#### 4.1.5.4 Northern Gannets

Gannets were not ringed in 2020 as a consequence of the COVID-19 pandemic.

#### 4.1.5.5 Storm Petrels

Table 11 – Storm petrel ringing data. N/A = Not Applicable.

<b>Species</b>	Storm Petrel
<b>Date</b>	17 <sup>th</sup> July 2020
<b>Location</b>	Burhou
<b>Number of people involved in ringing</b>	5
<b>Time on island</b>	2 days
<b>Time spent ringing</b>	5 hours 45 minutes
<b>Capture method</b>	Mist netting
<b>Number of nets (if applicable)</b>	2
<b>Length of nets (if applicable)</b>	18 m

<b>Net locations (if applicable)</b>	NE Burhou
<b>Number of birds caught/ ringed</b>	254
<b>Number of controls</b>	2
<b>Number of retraps</b>	29
<b>Number of casualties</b>	
<b>Additional information</b>	

#### Controls

- Originally ringed 26/06/2019 – Portland Bill, Dorset, UK
- Originally ringed 06/07/2019 – Gwennap Head, Cornwall, UK

Table 12 – Storm Petrel ringing data. N/A = Not Applicable.

<b>Species</b>	Storm Petrel
<b>Date</b>	18 <sup>th</sup> July 2020
<b>Location</b>	Burhou
<b>Number of people involved in ringing</b>	5
<b>Time on island</b>	2 days
<b>Time spent ringing</b>	5 hours
<b>Capture method</b>	Mist netting
<b>Number of nets (if applicable)</b>	2
<b>Length of nets (if applicable)</b>	18 m
<b>Net locations (if applicable)</b>	NW Burhou
<b>Number of birds caught/ ringed</b>	259
<b>Number of controls</b>	2
<b>Number of retraps</b>	29
<b>Number of casualties</b>	
<b>Additional information</b>	

#### Controls

- Originally ringed 01/08/2019 – Skokholm Island, Pembrokeshire, UK
- Originally ringed 05/06/2018 – Le Conque, Finistère (oldest bird ringed)

#### 4.1.5.6 Shag

Table 13 – Shag ringing data. N/A = Not Applicable.

<b>Species</b>	Shag
<b>Date</b>	18 <sup>th</sup> July 2020
<b>Location</b>	Burhou
<b>Number of people involved in ringing</b>	5
<b>Time on island</b>	2 days
<b>Time spent ringing</b>	5 hours
<b>Capture method</b>	By hand
<b>Number of nets (if applicable)</b>	N/A
<b>Length of nets (if applicable)</b>	N/A
<b>Net locations (if applicable)</b>	N/A
<b>Number of birds caught/ ringed</b>	2
<b>Number of controls</b>	N/A
<b>Number of retraps</b>	N/A
<b>Number of casualties</b>	N/A
<b>Additional information</b>	Opportunistic

#### 4.1.5.7 Ringed Plover

Table 14 – Ringed Plover ringing data. N/A = Not Applicable.

<b>Species</b>	Ringed Plover
<b>Date</b>	22 <sup>nd</sup> June 2020
<b>Location</b>	Platte Saline, Alderney
<b>Number of people involved in ringing</b>	1
<b>Time on island</b>	N/A
<b>Time spent ringing</b>	
<b>Capture method</b>	By hand
<b>Number of nets (if applicable)</b>	N/A
<b>Length of nets (if applicable)</b>	N/A
<b>Net locations (if applicable)</b>	N/A
<b>Number of birds caught/ ringed</b>	2
<b>Number of controls</b>	N/A
<b>Number of retraps</b>	N/A
<b>Number of casualties</b>	N/A
<b>Additional information</b>	“Our field observations noted successful breeding of this species at three other sites. Excitingly, images taken in the field showed that one breeding bird (ring on left leg) was ringed as a chick here in 2019. Our ringing efforts provided the first evidence confirming the retention of individuals hatched on Alderney.”

#### Recommendations:

- “Having considered disturbance of the colonies the ABO recommends the combined approach of a single Petrel / Gull visit as preferable. Indeed, a three–night effort would be ideal in terms of gathering data on these two target species. The benefits of less disturbance in a single visit were clear.”
- With regards to Storm Petrel ringing... “An extra night would greatly improve the chances of a good annual data return”



## 4.2 Terrestrial

### 4.2.1 Rat control

Alderney has two species of rats, the Black rat, introduced to the island via boats, and the Brown rat, native to the island. Rats are adaptable, smart and prolific breeders. They are omnivorous too and readily exploit new food sources. On islands they are notorious for damaging ecosystems as they can become voracious predators of native fauna particularly if their populations are left to grow unchecked. This is especially the case where native animals have not evolved suitable defensive behaviour and the rats have few predators. On Alderney the population of rats is bolstered by our presence and has spread to all corners of the island including the near shore islets where they are known to predate our native wildlife.

During the AWT's regular monitoring of the seabirds that nest on the islets around Alderney's coast, evidence of rats predated eggs and chicks have been found. In 2017, 21 eggs and 15 dead chicks were discovered in three rat caches at the colony of Common terns on Houmet de Pies. In response to this, the following year, in 2018, the AWT, with advice from RSPB, ecological consultants and SoA (Jamie Leband, Foreman of Agriculture and Countryside Team), implemented a program of rat control on Houmet de Pies. This work proved successful and saw a small number of Common tern chicks fledge from the islet for the first time in 3 years (see 2018 Ramsar report).

Building on this success, a wider program of control was introduced with the aim of eradicating rats from a selection of other islets (at least temporarily during the seabird breeding season) and reducing their numbers on the near shore to limit further immigration. The selection of other islets included the Hanaine Bay Stack (where Puffins formerly nested until 2016), the Twin Sisters (where most of Alderney's Razorbills nest) and L'Etac de la Quoire (where a variety of seabirds nest, including a few Razorbills).

In 2018 bait boxes were deployed and since then the program of control has been on-going. This is because the mainland rat population is too large to eradicate and the threat of re-infestation near constant.

The rats are baited using standard bait boxes and blocks of wax bait. At each site between 2 to 4 bait boxes are deployed depending on the site's size and scale of infestation. An additional two bait boxes are also deployed on the near shore to suppress the mainland population and reduce immigration. The wax blocks contain bromadiolone and are highly attractive to rats, killing them effectively. Administered in a wax block and deployed in rat sized bait boxes reduces the risk to non-target species. Each box is inspected monthly and re-baited as necessary except during the breeding season when there is a 3-month hiatus on the islets to prevent disturbance to the nesting birds.

This year the program of control was maintained well but also expanded to include the rocky promontory on the east side of Saye bay and Fort Houmet Herbé. This was in direct response to the Common terns prospecting the Saye bay site in 2019 and colonising Fort Houmet Herbé this year (see section 4.1.2.4).

Along the shoreline adjacent to the islets evidence from the amount of bait taken indicated that rat presence was near constant throughout the year, Fig 1. However, on the islets, rats were successfully eradicated over the summer, at least from Houmet de Pies and Fort Houmet Herbé. At these sites there was little sign of fresh take on the bait after the breeding season and any rats that may have become established over the winter were likely eradicated before the nesting season begun or soon after. Unfortunately, it was not feasible to check the bait boxes on the other islets this autumn and they will likely need rebaiting prior to next season. However, the increase in the number of Razorbills

around L'Etac de la Quoire provided possible indirect evidence that the control there has had a positive impact (see section 4.1.6.7).

It is hoped, that reducing rat predation will help maintain the island's biodiversity by improving the breeding success of vulnerable seabirds such as the auks and Common terns ensuring their continued presence for generations to come.



*Figure 17 – Rat bait blocks showing evidence of rat consumption at an onshore site adjacent to L'Etac de la Quoire.*

**Recommendations:**

- Maintain the current program of rat control, liaising with SoA as necessary to seek advice and maintain stocks of bait.
- Keep a close watching brief on the Common terns and where they choose to settle and nest each year. Be prepared to introduce rat control to new sites at short notice if need be.
- As soon as possible check the islets off the south coast and rebait as necessary.
- Continue to monitor seabird use of the islets.

#### 4.2.2 Burhou terrestrial survey works

Terrestrial Phase I mapping of Burhou was last completed in 2014. Continual monitoring and subsequent review are required to allow appropriate habitat management to be recommended, especially considering the sensitivity of Burhou's breeding populations and habitats.

##### Recommendation:

1. Phase I mapping of Burhou is recommended for 2021 to establish baseline data for Bracken and other species potentially changing the habitat on Burhou. Baseline data to be maintained to include invasives such as sour fig (*Carpobrotus edulis*). It is recommended that mapping is completed alongside other works.

### 4.3 Marine

All marine works within Alderney's Ramsar Site also support the AWT's Living Seas Programme. As such, the majority of survey works are completed across Alderney in addition to the below, with the data being added to the public record.

#### 4.3.1 Requesting data from Capturing our Coast

A 'CoCoast 2' citizen science project was originally proposed in early 2019, which was subject to funding. Since then, no public information or formal contact has not been possible with the Co-Coast organisers has occurred, despite repeated contact/data requests from the AWT. To date, the AWT has trained 15 volunteers with the original Co-Coast citizen science project, from 2015 – 2018. This feeds into the overall project, which originally trained approximately 2,500 volunteers across the British Isles who sampled 240,000 data points in 1,800 locations.

Recommendations:

- Request previous data when contact is made available.
- Review contact should the project start in 2021.

#### 4.3.2 Phase II habitat mapping and species monitoring of Clonque Bay

In 2020, Digimap Ltd aerial photography of Alderney from 2019 was made available. The new images are of greater definition and, being more recent than those previously accessed, correspond more accurately to the current substrate, topography and biological community of the sites surveyed. Utilising the new maps and ground truthing survey work, phase I habitat mapping started in 2019 was completed in 2020.

In addition, as per the schedule for survey works set out in ARS3, Phase II survey work was undertaken by the AWT in 2020 at Clonque Bay. The aim of the intertidal Phase II monitoring survey was to provide a quantitative record of intertidal species' biological diversity and composition within four important habitat biotypes previously identified from Phase I works completed in 2019.

The intertidal Phase II species monitoring survey identified a range of intertidal substrates, macroalgae and faunal species within the selected marine habitat biotypes. The biological diversity and composition results were comparable to survey work completed in 2015 and provided a further quantitative baseline records of macroalgae and faunal species found within Clonque Bay's important marine habitat biotypes. In general, the recorded macroalgae and faunal species were regarded as common intertidal rocky shore species, found throughout Alderney, the Channel Islands and the British Isles.

Initially, a number of important marine habitat biotopes within the Clonque Bay survey area, from the 2015 intertidal habitat biotope survey (AWT, 2015). Marine habitat biotopes were selected based on their rarity and importance both at the local level (Alderney) and national level (British Isles). This included:

1. *LR.HLR.MusB.Cht. Description: Chthamalus spp. on exposed upper eulittoral rock.*  
This habitat biotope was selected as it was one of the most abundant habitat recorded during the 2014 habitat biotope survey.
2. *LR.HLR.MusB.Sem.LitX. Description: Barnacles and Littorina littorea on unstable eulittoral mixed substrata.*  
The habitat biotope is regarded as rare across the British Isles and has a moderate importance status due to it being recognised as a UK Biodiversity Action Plan habitat.



3. *LR.MLR.BF.FvesB. Description: Fucus vesiculosus and barnacle mosaics on moderately exposed mid eulittoral rock.*

This habitat biotope was selected as it was one of the most abundant habitat recorded during the 2014 habitat biotope survey.

4. *LR.HLR.FT.FserTX. Description: Fucus serratus with sponges, ascidians and red seaweeds on tide-swept lower eulittoral mixed substrata.*

This habitat biotope was selected as it is regarded as uncommon across the British Isles and has a moderate importance status due to it being recognised as a UK Biodiversity Action Plan habitat. Notably, the original *LR.HLR.FT.Fser.TX* habitat biotope selected for the Phase II survey had changed considerably. As such, a new area of this habitat was selected for study, in addition to assessing the original.

Within each marine habitat biotope, a 0.5m<sup>2</sup> quadrat (square frame) was placed five times within the original 2015 quadrat locations (from previous GPS information). Ecological and physical information was recorded within each quadrat, including: substrate type and percentage cover (following a generalised version of the Wentworth 1922 classification); macroalgae species type and percentage cover (including cryptic species beneath other dense, dominating macro algae fronds); faunal species type and abundance count (including species beneath dense, dominating macro algae fronds); barnacle and sponge species type and density percentage cover (including species beneath dense, dominating macro algae fronds).

Additionally, distribution assessments of *Bifucaria* spp. and *Cystoseira tamariscifolia* in rockpools were made as well as the study of infralittoral cave overhangs. A full report of Phase II works completed in Alderney's Ramsar site in 2020 is to be made available to the ARSG and others to be published online January 2020.

Recommendations:

- In 2021, as per ARS3, Phase I habitat mapping should be completed in Alderney's Ramsar for Burhou.
- The development of monitoring of key environmental indicator species and invasive species should continue.
- A full list of recommendations for future monitoring will be included in the Phase II report. Recommendations will be applicable for both Alderney's Ramsar Site, and Alderney's wider intertidal community to be taken on by AWT's Living Seas Programme.

#### 4.3.3 Green Ormer Population Assessment

In 2020, 38 green ormers *Haliotis tuberculata*, (hereafter 'ormer') were found during four surveys where 34 ormers were tagged. Ormer length and width, GPS location, habitat and substrate type were noted along with the tag number if fitted. Those of less than 40mm length were thought to be too small so were not tagged. Three surveys utilised volunteer citizen scientists to help locate the ormers whilst the fourth survey was undertaken by a team of AWT staff.

A single ormer that had previously been tagged was re-found in 2020 during other intertidal survey works on Clonque Bay. The ormer, tag number 397, was re found having originally being tagged in 2018 within 50m of where it was originally tagged. The ormer was tagged on 10<sup>th</sup> October 2018 measuring 40mm x 30mm. When re-found on 10<sup>th</sup> April 2020, some one year and six months later, the ormer measured 74mm x 41mm, having grown a total of 34 mm in length and 11mm in width.

Recommendations:

- Continue to tag ormers in 2021. As with any wildlife tagging, the greater number of tags that can be deployed, the greater the useful data return.
- Share ormer tag information with other Channel Island bodies which collate/ tag ormers on Guernsey and Jersey in 2021. This will help review ormer movement/ distribution patterns across the Channel Islands.

#### 4.3.4 Invasive Species Assessment

Invasive species assessments were continued in 2020 alongside green ormer population assessments (see section 4.3.3), public marine outreach events such as rockpooling, and other intertidal survey work such as TWT's new recording program, *Shoresearch* and the AWT's crab survey programme.

Invasive species recorded within Alderney's Ramsar Site, specifically Clonque Bay, include Harpoon weed (*Asparagopsis armata*) and Wireweed (*Sargassum muticum*).

Recommendations:

- Continue invasive species assessments in 2021.

#### 4.3.5 Marine Mammal Surveying

The AWT collects marine mammal data from dedicated survey work and from casual public sightings to develop our understanding of local populations. Records of marine mammals include both cetaceans and pinnipeds. In April 2020, a report on records of marine mammal species across Alderney from 1980 to 2018 was submitted to the ARSG.

##### 4.3.5.1 Grey Seal surveying

Alderney's Ramsar site is home to a colony of grey seals *Halichoerus grypus*, occupying the rocky islets north of Burhou. The surveying of grey seals within the Channel Islands and along the adjacent French coast is coordinated by Marie Francou of Groupe Mammalogique Normand (GMN) and undertaken by various bodies locally to each respective colony. In the case of Alderney, the AWT undertake this survey work. Surveys are undertaken by each party at the same time i.e. to coincide with low water on the largest spring tides and the findings are collated to inform local population trends. A report for 2020 works is expected early 2021.

Unfortunately, in 2020, much of the regional survey work is likely to have not been completed due to the COVID-19 pandemic and poor weather during some of the survey windows. Nonetheless, the AWT undertook two grey seal surveys in 2020. On 22<sup>nd</sup> July, during the post moult season, the first survey was completed where 21 grey seals were seen. On 16<sup>th</sup> September, a second survey was completed, this time during the very start of the pupping season. Here 45 individuals were recorded including several heavily pregnant females. The unusually high number of seals in this location could reflect similar observations of displacement in Cornwall as a result of changes in site use by people during the COVID-19 lockdown although this is uncertain. Unfortunately, it was not possible to establish breeding success and subsequent surveys could not be completed due to poor weather.

Interestingly, one grey seal pup, a juvenile born in 2020, halted out of the water on Platte Saline beach on mainland Alderney on 28<sup>th</sup> November. Although it is possible that this seal was born in Alderney's waters, this cannot be confirmed. The seal returned to the water on its own accord however, from observations, the young seal may have had a case of seal pox, assumed from a "small area of abrasion" under the chin.



#### 4.3.5.2 Grey Seal ID

During surveys of grey seals, high resolution photographs are taken of individuals present at the colony using a telephoto lens. Images are then collated to identify individuals based on their fur patterns and other distinguishing features. The ID catalogues helps to identify individual and population trends in more depth. In 2020, photos for ID were taken on both seal surveys by staff, volunteers and members of the public.

#### 4.3.5.3 Cetaceans

In 2020, the most commonly recorded cetacean in Alderney's Ramsar site was the bottlenose dolphin *Tursiops truncatus*, closely followed by the common dolphin *Delphinus capensis*. Several pods of 15+ dolphins were seen around the SW tip of mainland Alderney, with many becoming more social, entering Braye harbour in the summer months. Opportunistically, photos of dorsal fins taken during other boat-based surveys and public engagement boat trips were taken and submitted online to be catalogued by regional coordinators.

Recommendations:

- Continue surveys of grey seals locally, with the continued sharing of data regionally (GMN).
- Expand a schedule of boat based grey seal surveys during the breeding/ pupping season (i.e. autumn/ early winter).
- Continuing support for grey seal photographic ID catalogues.
- Support other research and academic groups which aim to conduct marine mammal research within the Ramsar site and Alderney's territorial waters.

#### 4.3.6 BRUV Surveys

The team deploy Baited Remote Underwater Video (BRUV) surveying equipment to help us understand our underwater environment. In 2020, a masters student reviewed the AWT's BRUV data, making recommendations for improvement to survey design and future deployments (see section 4.3.7). Due to COVID-19 restrictions before June, and pending the review of Alderney's BRUV data, no surveys were completed in 2020.

Recommendations:

- Continue deploying BRUV equipment implementing recommendations from the MSc project.

#### 4.3.7 Desk based marine academic projects

Due to restrictions brought about by the COVID-19 pandemic, neither York university student were able to complete their masters projects as planned. However, staff and volunteers were able to supply and collect data for both students to undertake meaningful alternative projects using Alderney's data and to inform practices in Alderney's marine environment, including the Ramsar site. Copies of either dissertation project can be made available on request with permission from the author.

##### 4.3.7.1 BRUV

A review of 2018 and 2019 BRUV survey data from across Alderney. Recommendations were made for future deployment which will be implemented in 2021.

##### 4.3.7.2 Intertidal survey methods

An evaluation of intertidal research methods across Alderney. Recommendations were made for future survey work which will be implemented from 2021.

Recommendations:

- Continue to offer research opportunities to students in 2021.

#### 4.3.8 Seasearch

No Seasearch surveys were completed in Alderney's Ramsar site in 2020 as a consequence of the COVID-19 pandemic.

Recommendations:

- Continue Seasearch surveying in 2021, submitting data to Seasarch.
- Facilitate the training of AWT staff and volunteers to undertake survey work.

#### 4.3.9 Marine Mammal Desk Based Review

In 2020, a desk based review of marine mammals was completed in April 2020 and submitted to the ARSG.

This marine mammal desk-based review aimed to examine primary sources of marine mammal records within Alderney's territorial waters. Records were assessed in terms of type of marine mammal species presence (Cetacean and Pinniped), abundance, record type, species type and location within Alderney's Ramsar Site (the Alderney West Coast and Burhou Islands Ramsar Site).

From a range of primary sources, the review identified a total number of 155 records of marine mammal species within Alderney's territorial waters, from 1980 – 2018.

A total number of eight Cetacean (whale and dolphin) species were recorded within Alderney's territorial waters, primarily bottlenose dolphin and common dolphin species. Records indicate that cetaceans were observed throughout Alderney's territorial waters, through surveys and unknown records.

A total number of two Pinniped (seal) species were recorded within Alderney's territorial waters, which included grey and common seal species. Records of seals were largely recorded through survey, public sightings and strandings. In general, records showed that sightings of seals were primarily inside of the Ramsar Site.

A number of recommendations were then provided to increase recording effort of marine mammals within Alderney's territorial waters and throughout the Channel Islands.

#### 4.3.10 Support Local Marine Life Rescue Divers

Support for local marine life rescue divers is ongoing however no assistance was required in 2020.

Recommendations:

- Continue support for local marine life rescue divers.

#### 4.3.11 Marine Management Forum

No issues arose that required the support of Alderney's Marine Management Forum in 2020 although the support is ongoing.

Recommendations:

- Continue support for Alderney's Marine Management Forum.

#### 4.3.12 Seawater testing

It is not clear if seawater testing has been carried out in 2020.

Recommendations:

- Continue pursuing the testing of seawater in Alderney's Ramsar site.

#### 4.3.13 Review contact with Agence de la Biodiversité

Contact with Agence de la Biodiversité was reviewed in 2020. Usually contact would be reviewed at the annual Inter Islands Environmental Meeting (IEM) however the conference was held remotely in 2020.

Recommendations:

- Continue to remain in contact with Agence de la Biodiversité in 2021.

#### 4.3.14 Baseline Marine Data Review

##### 4.3.14.1 Benthic Review

A desk-based review of Alderney's benthic environment was completed in 2020 and submitted in November 2020, updating the previous assessment completed in 2018. The review re-examines and described the benthic marine environment of Alderney's Ramsar Site.

Data sources identified the Ramsar site to compose of shallow water depths with a mixture of rich substrate and coarse sediments, supporting a number of marine benthic habitats and communities. The marine habitat biotypes identified are associated with the high exposure of the site and are also recognised as important marine habitats within Europe (EU Annex I habitat biotypes).

A number of recommendations are proposed to increase the current knowledge of the benthic environment within Alderney's Ramsar site.

Recommendations:

- Update of the benthic environment desk-based review every three years, linking future management strategy works and the Alderney Living Seas Marine Evidence Portal.
- Support new research within the site where benthic data is limited using appropriate benthic field surveys including: scuba/ snorkel surveys within selected locations, recommended by Seasearch and AWT; undertake benthic field survey if feasible including snorkel or drop down camera surveys within selected locations; undertake BRUV surveys within selected locations; support other research and academic groups and; link to other marine, seabird, terrestrial and educational topics within the Ramsar management strategy, where applicable.
- Engage with marine stakeholders to achieve the above recommendations.

##### 4.3.14.2 Pelagic review

A desk-based review of Alderney's pelagic environment was completed in 2020 and submitted in December 2020, primarily updating plankton and fish following the 2018 review.

Information was provided by SAHFOS showing that key phytoplankton (diatoms and dinoflagellates), zooplankton (small copepods and large copepods) and decapod species' annual abundance fluctuated from 1958 to 2018. Monthly phytoplankton and zooplankton species abundances generally increased during the spring and summer.

A total of 22 fish species have been recorded within the Ramsar Site, with several considered of international conservation importance.

A number of recommendations are made to increase knowledge of the pelagic environment within the Ramsar site.

Recommendations:

- Update of the pelagic environment desk-based review ever four years.
- Where data is limited, field surveys should be completed including: in-depth epi-benthic/ BRUV surveys within the Ramsar site assessing fish presence due to the lack of current information; considering the use of inshore plankton surveys (potentially proposed by TWTs from 2021); supporting research and academic groups which aim to conduct pelagic research and; link to other marine, seabird, terrestrial and educational topics within the Ramsar management strategy, where applicable.
- Engage with relevant pelagic stakeholders or groups to achieve the above recommendations.

## 4.4 Events

### 4.4.1 Boat tours

The AWT operate an MCA Category 2 coded vessel named 'Sula of Braye' (hereafter 'Sula') to enable the Ramsar management strategy including marine research, access to offshore islets, and educational boat tours are enabled.

Unfortunately, due to COVID-19 pandemic, educational boat tours within Alderney's Ramsar site were only possible from the end of June. Meanwhile, only a single work trip was taken before the pandemic lockdown started, a trip to Burhou to set up 'PuffinCam'. Nonetheless, a total of 40 individual trips were taken in 2020, of which 35 were educational boat tours. Due to poor weather, no trips were taken from September and Sula was withdrawn from service for the season pending winter refit. Winter 2020 will see engine and mechanical refit to increase capacity for all work streams involving the vessel in 2021.

Recommendations:

- The program of boat tours will be expanded in 2021 as Sula will be relaunched for the season as a more capable craft.

### 4.4.2 Free educational boat tours for Year 6 students at St Anne's School.

The AWT obtained funding for educational boat tours for all Year 6 students at St Anne's School. 32 students and teachers attended in 2019 however, due to the COVID-19 pandemic, this work objective was not achieved in 2020.

Recommendations:

- Continue offering trips in 2021. Funds obtained.

### 4.4.3 Community engagement and public awareness

Despite the COVID-19 pandemic, Ramsar community and public engagement events held in 2020 included: Ormer and invasive species hunts; beach cleans; rockpooling (including night time rockpooling); a wetlands art competition, and educational boat tours within the Ramsar site (including special trips during Alderney week, marine week).

A marine tank was set up from July with weekly sessions to educate the public about the species found within Alderney's marine environment.

The public was educated about Alderney's Ramsar site through the publication of a leaflet available for free through the Wildlife Information Centre, on board Sula of Braye, and at other relevant events.

Recommendations:

- Continue events and public engagement in 2021.

## 4.5 Advisory and Legislative

### 4.5.1 Review and Update 5-Year Ramsar Strategy

This work objective has been postponed pending the confirmation of a new system of environmental research led by the SoA Chief Executives Office. The draft proposal was approved by GSC 12<sup>th</sup> November 2019 however no further updates have been received.

Recommendations:

This work objective should be completed in 2021, pending advice from the CEO's office.

### 4.5.2 Puffin Friendly Zone (PFZ)

Following decline in Alderney's puffin population, in part likely due to human disturbance, the AWT, in collaboration with the SoA, the Alderney marine Management Forum, Alderney Harbour Office and local fishermen, designated a 'Puffin Friendly Zone' (PFZ) in 2018. The zone is in place during the puffin breeding season during which puffins are at greatest risk of disturbance from passing visiting or passing vessels. Disturbance can have impact on breeding success.

A meeting between the AWT and Alderney Harbour Office (new Harbour Master attending) was organised in February 2020 to discuss the PFZ where plans begun to help protect the area through increasing the available information i.e. by detailing the sensitive area on navigational charts. Due to restrictions in place because of the COVID-19 pandemic, this work stream did not continue and nor did the usual schedule of advertising the PFZ as much of the world was in lockdown. Nonetheless, continued support is given to the Harbour Office and stakeholders in the conservation of the area.

In 2020, posters detailing the PFZ were maintained on Burhou as well as at the harbour, the harbour information point at the Braye Beach Hotel, supermarkets, the town hall, pubs, restaurants and shops. The PFZ was further included in the 2020 tourism brochure for Alderney, produced by Visit Alderney.

Likely in part due to COVID-19 travel restrictions into the Bailiwick of Guernsey, there were no instances where the PFZ was entered by vessels in 2020.

Recommendations:

- Continue the publicity of the PFZ in 2020
- Should information on navigational charts be added, investigation should also be given to other sensitive features within Alderney's Ramsar site including seals and other breeding birds.

### 4.5.3 Breeding wader signage

An in-depth review of beach use and causes of breeding failure for waders on our beaches is scheduled for 2021. It is hoped that this will inform any future policy decisions made on the basis of disturbance to breeding birds.

Ground height signs for breeding waders were placed at suitable beaches for the 2020 season, the public being reminded of the sensitivity of ground nesting birds by social media. It is thought that the effectiveness of the current signs may be limited due to their proximity to the ground, being easily overlooked.

Recommendations:

- Application should be made for the appropriate planning permission to allow signage to be installed at any location as soon as it becomes sensitive to disturbance.



#### 4.5.4 Communication with other Channel Island Ramsar Sites.

Communication has been maintained with Ramsar sites across the Channel Islands despite COVID-19 restrictions. In 2020, the annual IEM was successfully held virtually for the first time.

A Channel Islands Ramsar website has been created during 2020 with the responsibility for the site being taken on by Alderney. The website aims to promote awareness for the site, publishing a code of conduct for practices and relevant information for the sites as a whole and individually. The Channel Island Ramsar website will go live early 2021 pending final review.

#### Recommendations:

- Continue to communicate and collaborate with Ramsar sites across the Channel Islands.
- Continue to support the Channel Island Ramsar website, to go live early 2021.

## 5. Acknowledgements

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7. Appendices  
Appendix A – Track A Gannet



Figure 18 – Annotated photo showing loci of geolocators 1-8 deployed on Ortac in 2020. Refer to Table 15 for GPS location.

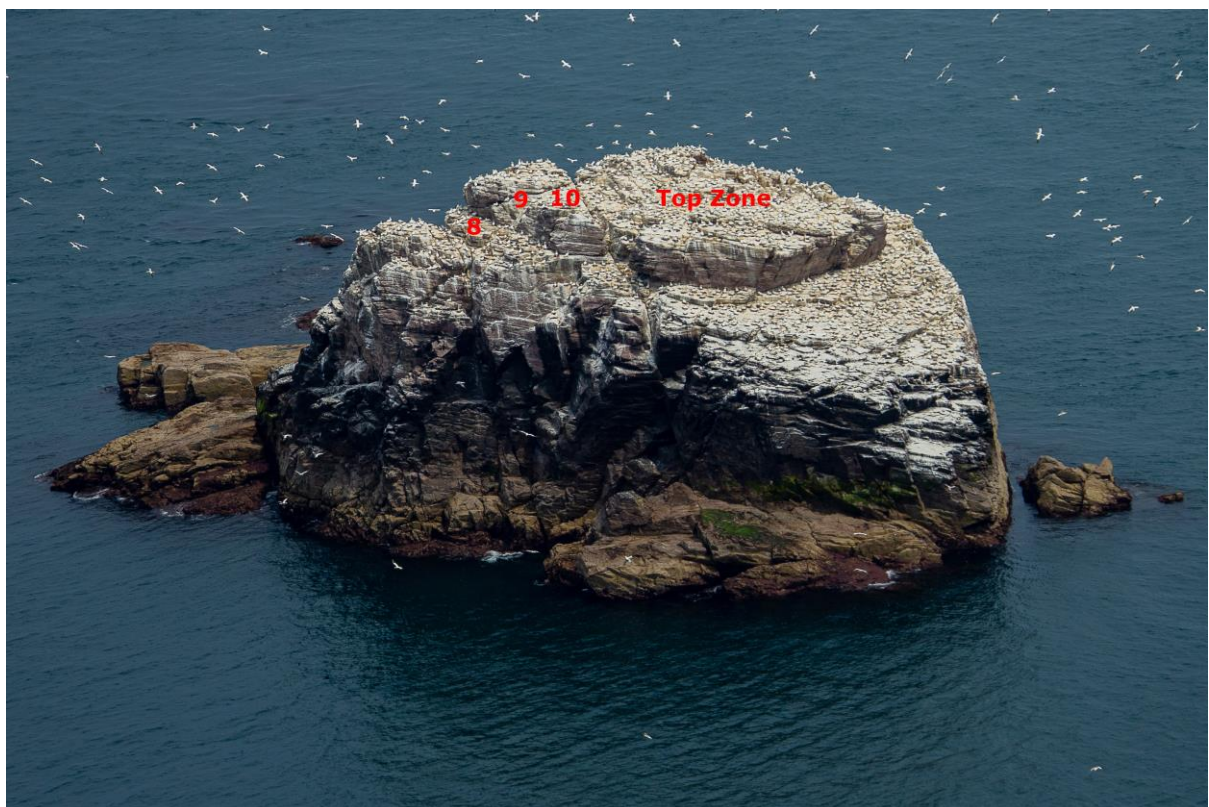


Figure 19 – Annotated photo showing loci of geolocators 8-10 deployed on Ortac in 2020. Refer to Table 15 for GPS location.

Table 15 – Geolocators (geos) deployed and new colour rings fitted in 2020 on Ortac.

Type	Geo fitted	Colour ringed	Geos	Darvic colour ring			CIBRS ring		Deployment position							
				Colour	Lettering	Code	Tarsus	Ring No.	Tarsus	Deployment	Deploy time	Latitude	Longitude	Map loci	Age	Status
N	Y	Y	BU530	Red	White	A101	RHS			2020-07-07	12:45	49.71906	-2.17642	Orta c 1	Ad	SY2
N	Y	Y	BU531	Red	White	A102	RHS			2020-07-07	12:55	49.92334	-2.29063	Orta c 2	Ad	SE
N	Y	Y	BU532	Red	White	A103	RHS			2020-07-07	13:00	49.7233	-2.29066	Orta c 3	Ad	SE
N	Y	Y	BU533	Red	White	A104	RHS			2020-07-07	13:10	49.7232	-2.29081	Orta c 4	Ad	SY?
N	Y	Y	BU534	Red	White	A105	RHS			2020-07-07	13:15	49.72321	-2.29077	Orta c 5	Ad	SY2
N	Y	Y	BN614	Red	White	A106	RHS			2020-07-07	13:20	49.72318	-2.2908	Orta c 6	Ad	SY4
N	Y	Y	BN615	Red	White	A111	RHS			2020-07-07	13:35	49.72319	-2.29084	Orta c 7	Ad	S?
N	Y	Y	BN616	Red	White	A108	RHS			2020-07-07	13:25	49.72318	-2.29082	Orta c 8	Ad	SY1
R	Y	Y	BN617	Red	White	A109	RHS	F13188	LHS	2020-07-07	13:40	49.72314	-2.29081	Orta c 9	Ad	SY4
N	Y	Y	BN618	Red	White	A110	RHS			2020-07-07	13:50	49.72314	-2.2908	Orta c 10	Ad	SE
R	N	Y		Red	White	A148	LHS	F37107	RHS					Top zone	Ad	SY4
N	N	Y		Red	White	A117	RHS							Top zone	Ad	nk
N	N	Y		Red	White	A118	RHS							Top zone	Ad	nk
R	N	Y		Red	White	A119	RHS	F37692	LHS					Top zone	Ad	nk
R	N	Y		Red	White	A120	RHS	F33894	LHS					Top zone	Ad	nk

Key. N= new bird, R = Retrap, Y = Yes, Ad = adult, RHS = right hand side, LHS = left hand side, SY(1) = Sitting at nest with young (estimated age of chick in weeks), SE = sitting at nest with egg, nk = not known \* Refers to annotated photo for location of deployment site Figures 18 and 19.



Table 16 – Gannets that were recaptured/ re-sighted on Ortac in 2020 wearing colour rings and/ or old geolocators (geos).

Type	Geo	Darvic colour ring			CIBRS ring		Recover location						Age	Status		
		Colour ring	Geos	Colour	Lettering	Code	Tarsus	Ring No.	Tarsus	Recovery	Recovery time	Latitude			Longitude	*Map loci
R	Y	Y	BG851	Red	White	A151	RHS	F40953	LHS	2020-07-07	14:05	49.72329	-2.29074	Top zone	Ad	nk
R	N	Y		Red	White	A086	RHS	F39420	LHS					The Bowl	Ad	SY2

Key. N= new bird, R = Retrap, Y = Yes, Ad = adult, RHS = right hand side, LHS = left hand side, SY(1) = Sitting at nest with young (estimated age of chick in weeks), SE = sitting at nest with egg, nk = not known \*Refers to annotated photo for location of deployment site Figures 18 and 19.

Table 17 – Recovery data for adult gannets recaptured with a CIBRS ring and/or re-sighted with a colour ring on Ortac in 2019 and 2020. Data supplied by the CIBRS.

Site	Recapture date	Darvic	Colour code	CIBRS		Tag type			Controls	Colour ring- ing date	Site	Age	Ringer	History					Elapsed YMD	Elapsed days (D)
				Ring no.	Geo	GSM	Notes	Ring date						Site	Age	Ringer	Ring date	Site		
Ortac	2019-07-06	A151	LBM:RBRW	F40953	Y		Not recovered	1	2017-07-13	Ortac	Ad	AIB	2017-07-13	Ortac	Ad	JDH	1Y 11M 23D	723		
Ortac	2019-07-06	A157	LBM:RBRW	F25968				2	2017-07-13	Ortac	Ad	AIB	2004-06-19	Ortac	Pullus	JH	15Y 0M 17D	5495		
Ortac	2019-07-06	A154	LBM:RBRW	F40954	Y		Not recovered	1	2017-07-13	Ortac	Ad	AIB	2017-07-13	Ortac	Ad	JDH	1Y 11M 23D	723		
Ortac	2019-07-06	A051	LBM:RBRW	F39427				1	2016-06-25	Ortac	Ad	PA	2016-06-25	Ortac	Ad	PA	3Y 0M 11D	1106		
Ortac	2019-07-06	A155	LBM:RBRW	F40957	Y		Geo recovered	1	2017-07-13	Ortac	Ad	AIB	2017-07-13	Ortac	Ad	JDH	1Y 11M 23D	723		
Ortac	2019-07-06	A061	LBM:RBRW	F15436				2	2016-06-25	Ortac	Ad	PA?	1992-06-12	Ortac	Pullus	PV	27Y 0M 24D	9885		
Ortac	2019-07-06	A059	LBM:RBRW	F28730				2	2016-06-25	Ortac	Ad	PA?	2003-06-14	Ortac	Pullus	JH	16Y 0M 22D	5866		
Ortac	2019-07-06	A098	LBM:RBRW	F40073				1	2016-06-25	Ortac	Ad	PA	2016-06-25	Ortac	Ad	PA	3Y 0M 11D	1106		
Ortac	2019-07-06			F19956				1					1997-06-15	Ortac	Pullus	PA	22Y 0M 21D	8056		
Ortac	2019-07-06			F38147				1					2016-06-22	Ortac	Pullus	PV	10Y 0M 14D	3666		
Ortac	2019-07-06			F34439				1					2006-06-24	Ortac	Pullus	JH	13Y 0M 12D	4760		
Ortac	2019-07-06			F32108				1					2005-06-20	Les Etacs	Pullus	JH	14Y 0M 16D	5129		
Ortac	2019-07-06			F37677			206	1					2016-06-22	Ortac	Pullus	PV	10Y 0M 14D	3666		
Ortac	2019-07-06			F25664			213	1					2004-06-19	Ortac	Pullus	JH	15Y 0M 17D	5495		
Ortac	2019-07-06			F31343			214	1					2005-06-23	Ortac	Pullus	JH	14Y 0M 13D	5126		
Ortac	2019-07-06			F37681			247	1					2016-06-22	Ortac	Pullus	PV	10Y 0M 14D	3666		
Ortac	2019-07-06			F34405			255	1					2006-06-24	Ortac	Pullus	JH	13Y 0M 12D	4760		
Ortac	2019-07-06			F23677/ F23564			283	1					1999-06-13	Ortac	Pullus	PA	20Y 0M 23D	7328		
Ortac	2019-07-06			F3452-			285	1												
Ortac	2019-07-06			F28991			751	1					2003-06-14	Ortac	Pullus	JH	16Y 0M 22D	5866		
Ortac	2020-07-07	A086	LBM:RBRW	F39420	N	N		1	2016-06-25	Ortac	5 +cy	Visiting	2016-06-25	Ortac	Ad	Visiting	4Y 0M 12D	1473		
Ortac	2020-07-07	A151	LBM:RBRW	F40953	Y	N	Geo recovered	2	2017-07-13	Ortac	4 +cy	JDH	2017-07-13	Ortac	Ad	JDH	2Y 11M 24D	1090		
Ortac	2020-07-07	A109	LBM:RBRW	F13188	Y	N	Geo fitted	1	2020-07-07	Ortac	5 +cy	JDH	1990-06-17	Ortac	Pullus	PV	30Y 0M 20D 11Y 11M	10978		
Ortac	2020-07-07	A148	LBRW:RBM	F37107	N	N		1	2020-07-07	Ortac	5 +cy	JDH	2008-07-14	Ortac	Pullus	PV	23D	4376		
Ortac	2020-07-07	A119	LBM:RBRW	F37692	N	N		1	2020-07-07	Ortac	5 +cy	JDH	2009-06-22	Ortac	Pullus	PV	11Y 0M 15D	4033		
Ortac	2020-07-07	A120	LBM:RBRW	F33894	N	N		1	2020-07-07	Ortac	5 +cy	JDH	2006-06-11	Ortac	Pullus	JH	14Y 0M 26D	5140		

Key. Colour ring code examples, LBM = Left leg, below tarsus, conventional metal ring; RBRW = right leg, below tarsus, colour ring - red with white alpha-numeric code.

## Appendix B – Licenses

Details of all relevant SoA issued licences for works under Ramsar were requested from the activity organisations however only those pertaining to Justin Hart, AWT, were provided.

*Figure 20 - SoA issued ringing license for Justin Hart, AWT.*

This section has been removed prior to publishing to comply with AWT GDPR policy.

*Figure 20 - BTO issued bird ringing permit for Justin Hart, AWT.*

This section has been removed prior to publishing to comply with AWT GDPR policy.

## Appendix C – Recommendations for future work

Section Number	Objective Title	Recommendations
4.1 Seabirds		
4.1.1	Remote Cameras	<ul style="list-style-type: none"> <li>• Camera placement should be reviewed, ensuring best placement away from bracken and from the reflection of the low spring sunlight</li> <li>• Investigation into preventative measures to be made to avoid rabbit gnawing of cables</li> <li>• Should financial investment be made available, cameras should be upgraded to remain competitive with similar online resources used elsewhere, including the addition of a microphone.</li> <li>• The installation of 'GannetCam' on mainland Alderney should be explored to help maintain and increase interest.</li> </ul>
4.1.2	Seabird Monitoring	<p><b>Atlantic Puffins</b></p> <ul style="list-style-type: none"> <li>• Continue the monitoring of puffins in 2021 including measuring productivity, raft counts and AOBs.</li> <li>• On island productivity surveys should be completed alongside those using 'PuffinCam' resources to assess the difference between the two data streams, informing a refined methodology for ARS4.</li> <li>• A review of the placement of 'PuffinCam' resources should be made to allow the assessment of a greater number of burrows i.e. away from dense bracken fringing the colony, and to glare off the water in the early season. This will facilitate the collection of a greater, less biased data set from the cameras.</li> <li>• Investigation into if additional man power can be trained and utilised to review video should be made. Increased video reviewing capacity will allow more timely data collection with tangible outputs, directly informing conservation decisions e.g. when Burhou should be opened to the public at the end of the season, and when ecologist should visit the colony to complete the annual AOB survey. Greater capacity will further allow the expansion of night time recording for an area of burrows that are known to be active to gain fledging data.</li> </ul> <p><b>Northern Gannets</b></p> <ul style="list-style-type: none"> <li>• Continue to monitor productivity on Les Etacs following JNCC guidelines. Ensure sufficient observations are made to identify non-layers so that any changes in the proportion of established pairs that choose not to breed can be overseen each year.</li> <li>• Select a separate sample of nests on Les Etacs to monitor continually year on year to investigate a) if some apparently occupied nests/ breeding pairs are consistently successful or not at raising chicks; b) if breeding pairs consistently begin to nest at the same time of year and c) how often breeding pairs choose not to breed.</li> <li>• Begin monitoring on Ortac following JNCC guidelines. This will enable direct integration of these data with other obtained from chick ringing, adult colour ringing and the TAG project.</li> </ul>

		<ul style="list-style-type: none"> <li>• Continue monitoring the rate of entanglements on Les Etacs (and Ortac, if feasible) to maintain oversight of the scale of the problem.</li> <li>• Carry out a census of both colonies and investigate whether further counts can be undertaken annually or bi-annually in the future. This would provide a better indication of any fluctuations in the population and how the levels of reported productivity may be impacting the numbers of birds present.</li> <li>• Return to Ortac in 2021 to retrieve the geolocators deployed in 2017 and this year, colour ring more adults and obtain more re-sightings. Present the data of any data retrieved from the geolocators, pending the successful recovery of their data. Compare the migratory behaviour revealed with what's been established from conventional ringing as well as the patterns of movement shown by geolocation studies of gannets in the UK.</li> <li>• Analyse all our existing tracks from GPS tags to determine if these data can adequately define our gannet populations' home range. If possible, then investigate if the home range size has changed over time, particularly since the implementation of new EU fishing policy in 2014. Re-instate the GPS tagging program if evidence of change in foraging behaviour is detected and, particularly so, if coincident with changes in productivity.</li> </ul> <p><b>Northern Fulmar</b></p> <ul style="list-style-type: none"> <li>• Continue monitoring in 2021.</li> </ul> <p><b>Common Terns</b></p> <ul style="list-style-type: none"> <li>• Keep a close watching brief on the Common Terns and where they choose to settle and nest each year. Be prepared to advise colleagues of any changes so that timely rat control can be introduced to new sites at short notice if need be.</li> </ul> <p><b>Ringed Plover</b></p> <ul style="list-style-type: none"> <li>• Continue to maintain oversight by monitoring the population and its productivity</li> <li>• Safeguard nesting habitat by designating special protection to all, some or sections of the nesting beaches, closing these sites to people for the duration of the breeding season (1<sup>st</sup> April – 10<sup>th</sup> August).</li> <li>• Deploy clear signage so that beach goers are aware of the protection, use wardens at busy times to spread the word, encourage location participation and prevent inappropriate access.</li> <li>• Set up a disturbance study to determine which beaches are most popular with people and when they are used most often. Use the results to better plan the location and timings of designations, signage and warden deployment.</li> </ul>
4.1.3	Other Seabird Monitoring	<ul style="list-style-type: none"> <li>• Maintain the current programme of monitoring, including Burhou and other islands, and ensure round island boat surveys are scheduled between mid-May and mid-June.</li> </ul>

		<ul style="list-style-type: none"> <li>• Carry out a census of the Lesser black-backed gulls on Burhou in late May 2021 – to update the latest population figures collected in 2016, as per the schedule defined in ARS3.</li> <li>• Improve monitoring of Guillemots nesting on Les Etacs and attain an accurate estimate of their breeding numbers and productivity.</li> <li>• Encourage ABO/ CIBRS ringers to supply accurate counts of the number of Cormorants nesting on Little Burhou and their productivity. If no trip occurs, organise an alternative visit to gather these data in late April.</li> </ul>
4.1.4	WeBS	<ul style="list-style-type: none"> <li>• Continue completing monthly WeBS in 2021.</li> </ul>
4.1.5	Seabird Ringing	<ul style="list-style-type: none"> <li>• “Having considered disturbance of the colonies the ABO recommends the combined approach of a single Petrel/ Gull visit as preferable. Indeed, a three-night effort would be ideal in terms of gathering data on these two target species. The benefits of less disturbance in a single visit were clear.”</li> <li>• With regards to Storm Petrel ringing... “An extra night would greatly improve the chances of a good annual data return”</li> </ul>
4.2 Terrestrial		
4.2.1	Rat Control	<ul style="list-style-type: none"> <li>• Maintain the current programme of rat control, liaising with SoA as necessary to seek advice and maintain stocks of bait.</li> <li>• Keep a close watching brief on Common terns and where they choose to settle and nest each year. Be prepared to introduce rat control to new sites at short notice if need be.</li> <li>• As soon as possible check the islets off the south coast and rebait if necessary</li> <li>• Continue to monitor seabird use of the islets</li> </ul>
4.2.2	Burhou Terrestrial Phase I	<ul style="list-style-type: none"> <li>• Phase I mapping of Burhou is recommended for 2021 to establish a baseline for Bracken and other species potentially changing the habitat on Burhou. Baseline data should be maintained to include invasive species such as sour fig (<i>Carpobrotus edulis</i>). It is recommended that mapping is completed alongside other works.</li> </ul>
4.3 Marine		
4.3.1	Requesting data from Capturing our Coast	<ul style="list-style-type: none"> <li>• Review contact should the project start in 2021</li> <li>• Request previous data when contact is made available</li> </ul>
4.3.2	Phase II habitat mapping	<ul style="list-style-type: none"> <li>• In 2021, as per ARS3, Phase I habitat mapping should be completed on Burhou.</li> <li>• The development of monitoring of key environmental indicator species and invasive species should continue.</li> <li>• A full list of recommendations for future monitoring should be included in the Phase II report. Recommendations will be applicable for both Alderney’s Ramsar site, and Alderney’s wider intertidal community to be taken on by AWT’s Living Seas Programme.</li> </ul>
4.3.3	Green Ormer Population Assessment	<ul style="list-style-type: none"> <li>• Continue to tag ormers in 2021. As with any wildlife tagging, the greater number of tags that can be deployed, the greater the useful data return.</li> </ul>

4.3.4	Invasive Species Assessment	<ul style="list-style-type: none"> <li>Continue invasive species assessment in 2021.</li> </ul>
4.3.5	Marine Mammal Surveying	<ul style="list-style-type: none"> <li>Continue surveys of grey seals locally, with the continued sharing of data regionally (GMN).</li> <li>Expand a schedule of boat based grey seal surveys during the breeding season (i.e. autumn/ early winter).</li> <li>Continue support for grey seal photographic ID catalogues.</li> <li>Support other research and academic groups which aim to conduct marine mammal research within the Ramsar site and Alderney's territorial waters.</li> </ul>
4.3.6	BRUV Surveys	<ul style="list-style-type: none"> <li>Continue deploying BRUV equipment implementing new survey design.</li> </ul>
4.3.7	Academic Projects	<ul style="list-style-type: none"> <li>Continue to support academic opportunities in 2021.</li> </ul>
4.3.8	Seasearch	<ul style="list-style-type: none"> <li>Continue Seasearch surveys in 2021, submitting data to Seasearch.</li> <li>Facilitate the training of AWT staff and volunteers to undertake survey work.</li> </ul>
4.3.10	Marine Life Rescue Divers	<ul style="list-style-type: none"> <li>Continue support for local marine life rescue divers.</li> </ul>
4.3.11	Marine Management Forum	<ul style="list-style-type: none"> <li>Continue support for Alderney's Marine Management Forum.</li> </ul>
4.3.12	Seawater Testing	<ul style="list-style-type: none"> <li>Continue pursuing the testing of seawater in Alderney's Ramsar Site.</li> </ul>
4.3.13	Review contact with Agence de la Biodiversite	<ul style="list-style-type: none"> <li>Continue to remain in contact with Agence de la Biodiversite in 2021.</li> </ul>
4.3.14	Baseline Marine Data Review	<p><b>Benthic Review</b></p> <ul style="list-style-type: none"> <li>Update the benthic environment desk based review every three years, linking future management strategy works and the Alderney Living Seas Evidence Portal.</li> <li>Support new research within the site where benthic data is limited using appropriate benthic field surveys including: scuba/ snorkel surveys within selected locations, recommended by Seasearch and AWT; undertake benthic field survey if feasible including snorkel or drop down camera surveys within selected locations; undertake BRUV surveys within selected locations; support each other research and academic groups and; link to other marine, seabird, terrestrial and educational topics within the Ramsar management strategy, where applicable.</li> <li>Engage with marine stakeholders to achieve the above recommendations.</li> </ul>



		<p><b>Pelagic review</b></p> <ul style="list-style-type: none"> <li>• Update the pelagic environment desk-based review every four years.</li> <li>• Where data is limited, field surveys should be completed including: in-depth epi-benthic/ BRUV surveys within the Ramsar site assessing fish presence due to the lack of current information; considering the use of inshore plankton surveys (proposed by TWTs from 2021); supporting research and academic groups which aim to conduct pelagic research and; link to other marine, seabird, terrestrial and educational topics within the Ramsar management strategy where applicable.</li> <li>• Engage with relevant stakeholders or groups to achieve the above recommendations.</li> </ul>
4.4 Events		
4.4.1	Boat Tours	<ul style="list-style-type: none"> <li>• The program of boat tours will be expanded in 2021 as Sula will be launched for the season as a more capable craft.</li> </ul>
4.4.2	Free educational boat tours for Year 6 students at St Anne's School	<ul style="list-style-type: none"> <li>• Continue offering trips in 2021. Funds obtained.</li> </ul>
4.4.3	Community engagement and public awareness.	<ul style="list-style-type: none"> <li>• Continue events and public engagement in 2021.</li> </ul>
4.5 Advisory and Legislative		
4.5.1	Review and Update of 5-Year Ramsar Strategy	<ul style="list-style-type: none"> <li>• Complete this work objective pending advice from the CEO's office.</li> </ul>
4.5.2	Puffin Friendly Zone	<ul style="list-style-type: none"> <li>• Continue the publicity of the PFZ in 2021</li> <li>• Should information on navigational charts be added, investigation should be given to other sensitive features within Alderney's Ramsar site including seals and other breeding birds.</li> </ul>
4.5.3	Breeding wader signage	<ul style="list-style-type: none"> <li>• Application should be made for the appropriate planning permission to allow signage to be installed at any location as soon as it becomes sensitive to disturbance.</li> </ul>
4.5.4	Communication with other Channel Island Ramsar Sites	<ul style="list-style-type: none"> <li>• Continue to communicate and collaborate with Ramsar sites across the Channel Islands.</li> <li>• Continue to support the Channel Island Ramsar website, to go live early 2021.</li> </ul>

## Appendix D – Consultation Comments

### From the Alderney Ramsar Steering Group

A draft of this document was sent for review by members of Alderney's Ramsar Steering Group (ARSG). Comments were received from members of the group (and an additional member of the RSPB team), including Charles Michel, Paul Buckley, Mark Bolton, Francis Binney and Paul Chambers.

This section has been removed prior to publishing to comply with AWT GDPR policy.

### From the Channel Island Bird Ringing Scheme (CIBRS)

A letter was received from the CIBRS after they received a copy of this review. This letter did not respond directly to the review rather it challenged aspects of the programme approved by GSC. This correspondence was copied to Sue Price (SoA) and David Chamberlain (States Veterinary Officer).

Conversation with David Chamberlain and Grace Hodgkinson (Deputy States Veterinary Officer) with regards to the scientific programme are ongoing, with feedback being integrated into the proposals for the 2021 Ramsar Action Plan and the development of the 2022-2027 Alderney Ramsar management Strategy.