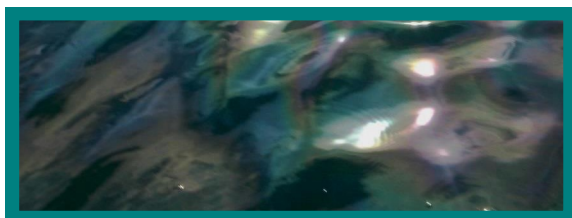


# Bermuda Biodiversity Action Plan

## Activity Report

### 2017



GOVERNMENT OF BERMUDA

Department of Environment and Natural Resources

## Bermuda Biodiversity Action Plan Objectives

**A:** To ensure effective **coordination**, improved **collaboration** and ongoing **communication** in support of efficient biodiversity conservation such that all key stakeholders are engaged throughout the implementation of this plan.

**B:** To ensure that biodiversity conservation is integrated into all **Government policies, programmes and plans** by 2007.

**C:** To improve and strengthen **environmental education and training** programmes for every age group by 35% over the next 5 years.

**D:** To increase **public awareness of biodiversity**, its inherent values and conservation activities throughout the community by 100% over the next 5 years.

**E:** To increase the active participation of the **community** and the **private sector** in **ecologically responsible behaviours** by 25 % by 2007.

**F:** To provide appropriate economic and other **incentives** to effectively encourage people to **protect and enhance biodiversity**.

**G:** To revise and develop laws that address all key identified gaps in existing **environmental legislation** for implementation by 2007.

**H:** To ensure that **enforcement** effectively deters infractions against legislation such that violations decline by 50% by 2007.

**I:** To strengthen the level of protection, where appropriate, through the re-designation of existing **protected areas**, and to increase the area of fully protected **nature reserves** and **marine protected areas** through land acquisition or marine designation by 25% and 10% respectively; and to ensure the effective management of the protected areas network by 2007.

**J:** To develop new and revise existing **management plans** for all key **species and habitats** and to ensure their implementation by 2007.

**K:** To increase **research and monitoring** by 25% by 2007, as demonstrated by outputs, so as to support the management of Bermuda's biodiversity.

**L:** To secure from both public and private sources the **financial commitment** and other investment necessary for full implementation of the BSAP as required.

# Bermuda Biodiversity Action Plan

## Summary of Actions Completed by Partners in 2017

Compiled by Alison Copeland,  
Biodiversity Officer

This report is a compilation of activities reported to the National Biodiversity Strategy and Action Plan (NBSAP) Coordinator by partners or appearing in the local news. The activities below are either directly called for in the Bermuda NBSAP or were carried out in the spirit of biodiversity conservation and met the goals of the NBSAP. The bracketed numbers and letters are references to specific lines in the 2003 Bermuda Biodiversity Action Plan. The complete plan can be viewed at [http://environment.bm/s/Biodiversity-Action-Plan\\_March2003.pdf](http://environment.bm/s/Biodiversity-Action-Plan_March2003.pdf)

In the first section activities are listed in chronological order to provide a snapshot of what was happening in Bermuda at various points in the year. Additional activities that were ongoing throughout the year or for which no time frame was reported are listed in the second section by contributor. A list of publications for the year appears as the last section. My thanks to Alison Green at the Natural History Library at BAMZ who compiled most of this list.

This document is a searchable PDF. The best way to search for specific information within the report is to search keywords in the Adobe search function. Key words have been **bolded** to aid skimming. Photos are the author's unless otherwise indicated.

Any corrections or comments on this report can be submitted to the Biodiversity Action Plan Coordinator at [environment@gov.bm](mailto:environment@gov.bm).

Literature Reference: Copeland, Alison. 2018. Bermuda Biodiversity Action Plan Activity Report for 2017. Government of Bermuda, Department of Environment and Natural Resources, Flatts, Bermuda. 41 pages.

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## ABBREVIATIONS USED IN THIS REPORT

ACBDA – the 35<sup>th</sup> America’s Cup (Bermuda 2017)

BAMZ – Bermuda Aquarium, Museum and Zoo

BAS – Bermuda Audubon Society

BEST – Bermuda Environmental and Sustainability Taskforce

BIOS – Bermuda Institute of Ocean Science

BNT – Bermuda National Trust

BUEI – Bermuda Underwater Exploration Institute

BZS – Bermuda Zoological Society

DENR – Department of Environment and Natural Resources

IUCN – International Union for the Conservation of Nature

KBB – Keep Bermuda Beautiful

NOAA – National Oceanic and Atmospheric Administration (USA)

UKOT – United Kingdom Overseas Territories

## KEY ACTIVITIES 2017

In January the process of **updating the Bermuda Plan 2008** began, led by the Department of Planning. The public were invited to submit requests to rezone property or amend policies.

On the 27<sup>th</sup> of March a **fuel leak occurred at the Rubis site in Ferry Reach**. In October, Government provided an update saying that 25% of the original spill had been cleaned up and operations were ongoing.

The Bermuda Reef Ecosystem Assessment and Mapping Programme (BREAM) released a 72 page report entitled 'Baseline **Condition of the Coral Reefs and Fishes Across Three Depth Zones of the Forereef of Bermuda**'. The report, co-authored by Thaddeus and Jessie Murdoch, was compiled from data collected between 2004 and 2011 at over 180 sites.

The America's Cup Bermuda (ACBDA) organisation and partners captured as many turtles as possible from the area of the Great Sound to be used as the **America's Cup race course**. The turtles were temporarily housed at BAMZ for the duration of the racing in an effort to reduce the likelihood of a turtle strike by race boats

The **Ministry of the Environment was disbanded** as a standalone Ministry on July 20<sup>th</sup> following the appointment of the new Cabinet.

The Biodiversity Section of the DENR confirm a population of the large Bermuda land snail *Poecilozonities bermudensis* was present in the island's woodlands. This species had been thought extinct.

The **Bermuda Turtle Project** completed its **50<sup>th</sup> year** of work in Bermuda in August. During the two-week programme this year's participants caught 194 green turtles at 14 sites.

In August Minister Walton Brown announced that Government has capped the number of **recreational lobster divers** at 500 for the 2017/18 season. Declining commercial lobster catches and a lack of catch data from recreational divers has been a problem for the past several years

In September the **hatching of 7 Bermuda Skinks at Chester Zoo** was announced. The long-term goal is to develop captive breeding and husbandry methods so that captive bred skinks can be returned to the wild.

The latest update to the **IUCN Red List of Threatened Species** was published in September, including for the first time an assessment of the extinction risk faced by the endemic Bermuda **maidenhair fern**.

The **Land Title Registration Amendment Act 2017** amends the Land Title Registration Act 2011, and brings the Land Title Registry into effect. It passed the House of Assembly on November 24<sup>th</sup> and was approved by the senate on December 13<sup>th</sup>.

The **Bermuda National Parks Amendment Act 2017** passed the House of Assembly on November 24<sup>th</sup> and the Senate on December 14<sup>th</sup>. It enables the Department of Parks to charge fees for goods and services. Amendments to Schedule 3 made changes to the composition of the National Parks Commission. The Amendments to Schedule 1 included the listing of new protected areas and the re-classification of some existing areas.

## JANUARY 2017

On January 12<sup>th</sup> the Department of Environment and Natural Resources held a public town-hall meeting on the results of the **Glyphosate Monitoring Study**, which evaluated the exposure risks associated with road side spraying for weed control. [G2.4, K6.5, K5, E10, B].

- <http://www.royalgazette.com/news/article/20170103/dismay-that-weedkiller-ban-may-be-lifted>
- <http://bernews.com/2016/12/meeting-glyphosate-monitoring-study-draft-report/>
- <http://environment.bm/news-hot-topics//glyphosate-monitoring-study-meeting>
- <http://bernews.com/2017/01/greenrock-does-not-support-lifting-the-ban/>

On January 3<sup>rd</sup> the **Cayman Islands** Government became the ninth signatory to the **Hamilton Declaration** for the protection of the Sargasso Sea. [A3 wider Caribbean collaboration, A3.2, A3.3, A3.4, A3.5].

- <http://www.royalgazette.com/environment/article/20170106/cayman-islands-backs-sargasso-project>
- <https://www.gov.bm/articles/cayman-islands-ninth-signatory-hamilton-declaration>

On January 20<sup>th</sup> the **documentary film Terra** was shown at St. Theresa's Church Hall as the start of a series of films and discussion about the environment presented by the Catholic Church of Bermuda's Peace and Social Ministry. [D2, E6 religious collaboration].

<http://www.royalgazette.com/news/article/20170109/church-to-prompt-debate-on-environment>

The Royal Gazette reported on January 25<sup>th</sup> that **humpback whales** had been spotted off the South Shore. <http://www.royalgazette.com/news/article/20170125/spotted-humpback-whales-off-south-shore> [D2.2 news].

During **Corange Science Week at the Bermuda College**, this year's Corange Scientist **Tarik Smith** gave a public lecture on January 25<sup>th</sup> on 'Water Engineering: Facing the Challenges of Water Management'. The talk explored climate change, pollution and population growth as factors affection the availability of clean water worldwide. [C3.2 curricula college, A2.4 lecture, D9 event].

- A video of the presentation can be seen here: <http://bernews.com/2017/01/video-facing-challenges-of-water-management/>
- <http://www.royalgazette.com/news/article/20170125/water-management-worldwide-challenge>

In mid-January the Bermuda Environmental and Sustainability Taskforce (BEST) made a public appeal for donations to keep the organisation operating. At the end of the month, **BEST** announced that it would be **collaborating with Greenrock** to streamline expenses and advance the aims of both organisations. An actual merger of the organisations was not announced. [A3.4, L].

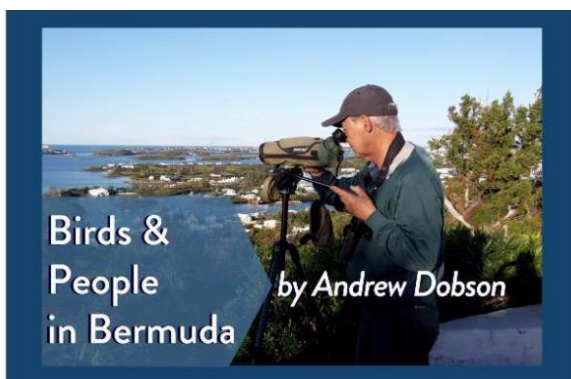
- <http://www.royalgazette.com/environment/article/20170127/cash-hit-best-future-in-doubt>
- <http://www.royalgazette.com/news/article/20170131/best-to-join-forces-with-greenrock>



On January 23<sup>rd</sup> **improvement works** began at the entrance to **Horseshoe Bay beach**, and vehicle access to the roadway and parking area were prohibited, while both were redesigned. The works resulted in new parking and visitor drop-off areas, a wooden boardwalk for pedestrians, new drains and lights. Planting was carried out to improve the number of native and endemic plants in the park; however a number of Darrell's Fleabanes on the roadside were destroyed during the work. [I]. <https://www.gov.bm/articles/improvement-works-underway-horseshoe-bay-beach>

In January construction began on a **modern cattle shed** at Green Land Dairy on Store Hill to shade the 120 dairy cows that live at the farm. The shade will allow the calves to be born throughout the year, not just in winter, ensuring a more **stable milk supply** for the Island. [E5.7 sustainable agriculture]. <http://www.royalgazette.com/news/article/20170127/modern-cattle-shed-could-boost-milk-supply>

On January 26<sup>th</sup> Bermuda Audubon society president Andrew Dobson gave a public lecture at the BUEI titled **'Birds and People in Bermuda'**. The sold out lecture was repeated on February 9<sup>th</sup>. [A2.4 lecture, K3.5 community data gathering].



(Poster: BUEI).

In conjunction with the Bermuda Audubon Society, Prof. Paul Hackett initiated a **behavioral study of Bermuda's crows** in January. He appealed to the public to report crow observations through an online form. <http://www.hackettspace.com/crow-behaviour-bda> [K3.5 community spp. data, E3 community data, A3.4 collaboration, D4].

Four **White Pelicans** were photographed and recorded flying over the island in January. [K3.5 community spp. data, E3 community data].

By the 25<sup>th</sup> of January, rainfall totals for the month were edging near to the 1958 **record for the wettest January** ever, helped on by an unusual 5.34 inches of rain on January 5<sup>th</sup>. <http://www.royalgazette.com/news/article/20170125/is-this-wettest-january-ever>

In January the process of **updating the Bermuda Plan 2008** began, led by the Department of Planning. The public were invited to submit requests to rezone property or amend policies to the Department of Planning before the 31<sup>st</sup> of March. [G3 policy update, **I2.4 Bda Plan update**, B4].

Dr. Kristiina Ovaska arrived in Bermuda on Jan. 29<sup>th</sup> to survey sites for land snails, and participate in the **introduction to the wild of *Poecilozonites bermudensis* on Nonsuch Island**. On February 5<sup>th</sup>, 41 individually tagged *P. bermudensis*, collected in Hamilton and previously held at DENR, were released at a prepared site. [K4 reintroduction, K3.2 and K3.4 biocontrol and IAS monitoring, K3.1, K1.5, K2.1 critical habitat, J3.11 reintroduction, A3.4]



Dr. Ovaska surveying snails (left), a tagged *P.bermudensis* ready for release (right).

LookBermuda continued its Nonsuch Island **CahowCam for its fifth season** in January. This year, LookBermuda teamed up with the world renowned Cornell Lab of Ornithology to make the CahowCam part of Cornell's network of world-wide webcams reaching millions of viewers. A new camera design was mounted in the nest in December by LookBermuda's JP Rouja and DENR's senior terrestrial conservation officer Jeremy Madeiros. The new camera gives viewers a face-to-face view with the nesting bird. [D2, A3.4 collaboration + technology, L4.3 overseas funding, C].

- <http://www.royalgazette.com/news/article/20170131/cameras-put-national-bird-on-global-stage>.
- <http://bernews.com/2017/01/nonsuch-expeditions-partners-with-cornell-lab/>

Bermuda's **third annual winter lionfish derby** ran from January 1<sup>st</sup> to 28<sup>th</sup> 2017. Prizes were given for free divers and SCUBA divers at a wrap party on the 28<sup>th</sup>. In total 209 lionfish were speared during the tournament. [J.1, K3.4 research invasives, K3.5 volunteers collect data, K6.1 invasive sp., D.4 communication, D4.2 feral animal control, K1.7, E3 community monitoring, A2.5 social event].

During the 2016 Bermuda turtle project, 3 green turtles were tagged with satellite transmitters to track their movements around Bermuda and to distant feeding grounds. One turtle, named Hardy, left Bermuda and travelled to Andros Island in the Bahamas, where his transmitter stopped. In late 2016 the tag began transmitting again, after being found on a reef by a diver. The Bermuda turtle project team were able to coordinate with colleagues in the Bahamas and Florida to arrange **successful recovery of the tag**, and began the New Year with a wealth of new turtle migration data to review. [A3.4, K2.1 habitat, K4.2]. <http://bernews.com/2017/04/collaboration-leads-to-recovery-of-transmitter/>



## February 2017

The BZS lecture series continued on February 7<sup>th</sup> with a talk by Saskia Wolsak entitled **“String: a story of plants, knowledge, and human evolution.”** Saskia is a Bermudian studying ethnobotany, and her presentation included local knowledge of making string and rope from plant fibers. [A2.4 lecture, E5 traditional practices].

Minister of the Environment Cole Simons briefed Cabinet colleagues in the House of Assembly on ongoing efforts to monitor Bermuda’s **Exclusive Economic Zone**, including the final report from Satellite Applications Catapult on **fishing vessel activity**. The minister’s full statement from February 10<sup>th</sup> can be read here: <http://bernews.com/2017/02/monitoring-our-exclusive-economic-zone/> . On January 31<sup>st</sup> the Ministry of the Environment had announced that the preliminary results of a study of **satellite tracking data of vessels within Bermuda’s EEZ** between 2013 and 2016 showed very little probability of illegal fishing taking place. The study was conducted by Satellite Applications Catapult in the UK and funded by Aurum Fund Management Ltd. [F3.3 corporate, A3.4 technology, H4 technology for detection, **H4.2 satellite monitoring**, J5].

- <http://www.royalgazette.com/news/article/20170131/study-finds-low-risk-of-illegal-fishing>
- <http://bernews.com/2017/01/probability-of-illegal-fishing-in-our-eez-is-low/>

Gardeners were able to purchase native and endemic plants, vegetables and vegetable plants, and ornamental species at the Bermuda National **Trust annual plant sale** on February 18<sup>th</sup>. [E2.4].

On February 22<sup>nd</sup> the Plant Protection Laboratory of the DENR advised importers planning to bring flowers and other **horticultural materials** to the Island for the **America’s Cup** that import permits and procedures were in place to allow for efficient processing, while protecting the environment. [B4.11 IAS list, B4.10 advice, E10 businesses, K6.1 overseas IAS, D9 public event.]. <https://www.gov.bm/articles/surge-imported-plant-material-prompts-reminder-ministry-environment>.

In February several incidents of **dumping of raw sewage** were reported, prompting the Ministry of Public Works to remind the public that this type of pollution is an offence, and encouraging them to report suspicious activity. <http://bernews.com/2017/02/ministry-illegal-dumping-of-raw-sewage/> [K5.5 sewage monitoring, **D3.4 public reporting of violations**, D3, D3.6 media].

On Feb 23<sup>rd</sup> Environment Minister Cole Simons moved to the Education portfolio, and Sylvan **Richards became Environment Minister**.

Members of the Bermuda Audubon Society gathered at Government House on February 25<sup>th</sup> for a **bluebird box building workshop**. [E2.8 bluebird box].

On Sunday February 26<sup>th</sup> the Bermuda Audubon Society showed the **film ‘the Messenger’** at the BUEI auditorium. The film highlights the decline of populations of hundreds of species of songbirds due to climate change, pesticide use and other threats, and offers lessons and solutions. [D2, C].

Senior Marine Conservation Officer at DENR, Dr. Sarah Manuel attended a workshop in Vancouver, Canada on **'Other Effective Conservation Measures' (OECMs)** with IUCN. [A3.2 conference, I1 existing and potential PAs, A3.4 collaboration,].

**Corporate volunteers** from Coldwell Banker volunteered with the Bermuda Audubon Society in February to **coat Longtail igloos**, a key step in preparing them to be installed. [E2.8 longtail, F3.3 corporate project].



**Longtail igloos coated by volunteers.**

## March 2017

The Bermuda Audubon Society and Government House report that a **bluebird box trail** consisting of 11 boxes on the Government House grounds are being monitored. A number of chicks successfully fledged from the boxes this year. [E2.8 bluebird nest, E3.2 monitor, F3.3 installation].

On the night of March 2<sup>nd</sup> the **Cahow egg** inside the burrow fitted with the **CahowCam** hatched. [D2].

- <http://bernews.com/2017/03/cahow-chick-comes-shell-front-camera/>
- <http://bernews.com/2017/03/star-cahow-chick-hatches-live-camera/>

Bermuda participated in CARIBE WAVE 17, a **regional tsunami response exercises** on March 21<sup>st</sup>. [B4.12 emergency response]. <http://bernews.com/2017/03/tsunami-warning-exercise-set-today/>

Minister of the Environment Sylvan Richards spoke at Greenrock's annual **Earth Hour** event on March 25<sup>th</sup>. [E8.1 dates for enviro, D9.2 existing street festival, A2.5.]

- <http://bernews.com/2017/03/photos-video-2017-earth-hour-celebrations/>
- <http://bernews.com/2017/03/video-greenrock-announce-earth-hour-campaign/>

On the 27<sup>th</sup> of March a **fuel leak occurred at the Rubis site in Ferry Reach**, St. Georges. Clean up of the spill continued for the rest of the year, with periodic updates on progress from Rubis and DENR. [B4.10 list resources, B4.12 emergency response, K5.2 groundwater, D3, A3.4 overseas collaboration, F1].

- <http://bernews.com/2017/05/fuel-spill-expert-help-advise-government/>
- <http://bernews.com/2017/04/rubis-good-progress-in-recovering-fuel-spill/>
- <http://bernews.com/2017/04/cleanup-work-is-continuing-after-fuel-spill/>
- <https://www.gov.bm/articles/ministry-environment-update-gasoline-spill-rubis>

**Ministry of the Environment strategic planning** exercise began on the 31<sup>st</sup>, led by Government's management consulting section.[A2 coordination, G, B, H, I, J, K, L].

From March 11<sup>th</sup> to April 30<sup>th</sup> BZS ran **whale watching trips** aboard the R/V Endurance several times per week in the months of March and April for members and the public. [C3.10].

In March Bermuda was profiled in **British Birds magazine**, as part of a series on Important Bird Areas in the UK Overseas Territories. [D2.1].

- <http://www.audubon.bm/images/pdf/Newsletters/Vol. 28 No.1.pdf>
- <https://britishbirds.co.uk/article/important-bird-areas-bermuda/>

The Bermuda National Trust held their **Annual Children's Nature Walk** at Spittal Pond Nature Reserve on March 30<sup>th</sup>. Students visited stations throughout the reserve to learn from local experts, while being entertained along the way by volunteer guides. This year's event saw more than 285 children participate, and was sponsored by Arch Re. [D5 regulations to children, C3.10 outdoor teaching, D9 event].

- <https://www.bnt.bm/events/events-list/childrens-nature-walk>
- <http://bernews.com/2017/03/bnt-annual-childrens-nature-walk/>
- <http://bernews.com/2017/02/arch-sponsors-bnt-childrens-nature-walk/>

In March, more than 60 people took part in a free 5-week course on **home vegetable gardening** coordinated by the Department of Health in celebration of Nutrition Month. The initiative called 'Grow, Eat, \$ave' was taught by Chaplain Kevin Santucci.

- <http://bernews.com/2017/04/over-60-people-take-part-in-grow-eat-ave/>
- <http://bernews.com/2017/02/free-grow-eat-save-gardening-workshops/>

## April 2017

Horsefiled Landscaping committed in April to officially **sponsoring maintenance** of the Bermuda Audubon Society's Alfred Blackburn Smith nature reserve on South Shore. [E1.4 culling invasives + replanting endemics, F3.3 corporate +NGO sponsorship, I3 protected area mgt activity].

The Sustainable Development Unit and the Central Policy Unit were merged to create the new **Policy and Strategy Section** within the Cabinet Office, prompting comments from the media and local NGOs. [B2 policy]. <http://www.royalgazette.com/environment/article/20170421/green-campaigners-concerned-by-closure>

The Bermuda Audubon Society recorded some interesting **spring migrant birds** in April, including a Dickcissel and a ruby throated hummingbird in Jenningsland. A ruddy turnstone sporting a leg band was also seen in April. Research into the band number showed that the bird was banded in Delaware in 2014, and had been previously recorded in Bermuda. [K3.5 comm spp. data, E3 comm data, E3.5 photo new sp.]

On April 4<sup>th</sup> the Department of Community and Cultural Affairs presented the 6<sup>th</sup> annual Dr. Pauulu Kamarakafego Memorial Lecture. This year it was delivered by Saskia Wolsak, a graduate student in ethnobotany at the University of British Columbia. The title of her talk was **“Of fishpots, bonnets and wine: The cultural legacy of the Palmetto in Bermuda.”** [A2.4 lecture].

On April 4<sup>th</sup> **the Niobe Corinthian** was sunk as part of the Bermuda Dive Sites Programme. Legislation will be amended to give the new shipwreck protected area status, with no fishing within 200 m of the wreck. Two moorings were attached to the wreck to allow safe visits. A video of the sinking © P.M. Rouja, the Department of Environment and Natural Resources can be found here: <https://vimeo.com/211737989> [E1.8 moorings, I1 new mpa, B4 biodv consideration, I4.8 mooring PA, G3 legislation].

- <http://bernews.com/2017/04/video-bermudas-newest-shipwreck-corinthian/>
- <http://www.royalgazette.com/news/article/20170405/old-ship-is-sunk-offshore-to-create-reef>
- <https://environment.bm/news-hot-topics//do-you-ever-get-that-sinking-feeling>

Bermudian graduate student Miguel Mejias gave a lecture at BAMZ on April 5<sup>th</sup> on the findings of his Master’s thesis work. The sold out lecture was entitled **“Longtails: where do they go and what are they doing at the end of their breeding season?”** [A2.4 lecture, K1.5 prioritised research, K1.6 gap, K3.1 distribution, E3.9].



Miguel Mejias with a GPS-tagged Longtail (A. Copeland).

In the Audubon Society's spring newsletter Paul Watson requested birdwatchers to report sightings of **White-eyed Vireos with coloured leg bands**. He has colour banded 67 birds so far in St. Georges and Devonshire to track the movements of individual birds. [K3.1, E3.6, K1.3, K3.5 community data].  
<http://www.audubon.bm/images/pdf/Newsletters/Vol. 28 No.1.pdf>

Robots in Service of the Environment (RSE) were at the Culture Hub at Ariel Sands to test a remote controlled **robot designed to cull lionfish** by stunning them at depths unreachable by SCUBA divers. [A2.4 technology, A3.4 technology transfer, K3.4 invasive distrib., D4].  
<http://bernews.com/2017/04/undersea-robot-to-combat-lionfish-problem/>

On April 6<sup>th</sup> bernews.com posted an article by local photographer Jessica Riederer on **oceanic drifters**, including the Portuguese man o' war, purple ocean snail and blue dragon or Glaucus sea slug. [D2.2].  
<http://bernews.com/2017/04/man-o-wars-ocean-snails-blue-dragons/>



**Purple Ocean Snail (Alison Copeland)**

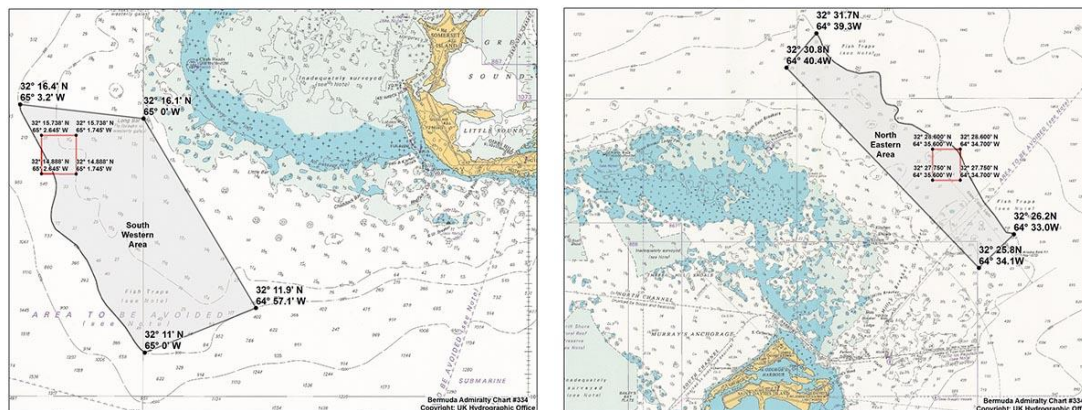
On April 8<sup>th</sup> the Bermuda Audubon Society held a **bird walk at Spittal Pond** to record spring migrant birds and to look for passing whales. [K3.5 community spp data, E3 comm data, C3.10 field trip].

On April 9<sup>th</sup> the **Bermuda National Trust's annual Palm Sunday walk** took place in Warwick and Paget. This year walkers visited Elbow beach, the Alfred Blackburn Smith nature reserve, Billy Goat Hill, Salt Kettle, the Paget railway trail and the Horizons Property. [D9 event].

In early 2017, the DENR participated in a biosecurity gap analysis on invasive species in the UK overseas territories. The resulting report, **"Tackling Invasive Non-Native Species in the UK Overseas Territories Gap Analysis of Biosecurity Capacity"** by Dr. Jill Key was published in April. It can be read [here](#). The report is the first step of a project, begun in December 2016. The project, *Tackling Invasive Non-Native Species in the UK Overseas Territories* was funded through the FCO's Conflict, Stability and Security Fund (CSSF) and led by the GB Non-Native Species Secretariat. [A3.4 collaboration UK, OT, B4.11 invasive list, D4, K3.4 invasive distribution, K6.1 IAS horizon scan].



The Marine Resources Section of the DENR announced that fishing in the ‘Hind Grounds’ and ‘Grouper Grounds’ will be prohibited from April 15<sup>th</sup>. This means that these **Seasonally Protected Areas will be closed two weeks earlier than usual**, and the legislation will be updated to make the early closure permanent. Observations from fishermen and government officers indicate the fish are aggregating to spawn earlier in the year, likely due to increased water temperatures. [D3, D3.2, D3.3 news, D3.4, E5.3 fishermen, G3, J5.1 harvested, J5.2 update, K3.3 research mgt response]. <http://bernews.com/2017/04/earlier-closure-period-hind-grounds/>



Southwestern and Northeastern closed areas (DENR)

The 78<sup>th</sup> **Agricultural Exhibition** was held from April 20<sup>th</sup> to 22<sup>nd</sup>, at the Bermuda Botanical Gardens. This year’s event was organized by AG Show Ltd.; a charity that has taken over producing the event from Government. [E5.5 cottage industry, F6 awards, **C3.9 exhibition**, D9.2 existing events, E7.3 youth].

- <http://bernews.com/2017/03/ag-show-announces-rubis-sponsor/>
- <http://bernews.com/2017/02/this-years-ag-show-to-be-held-april-20-21-22/>

Seri Fisher, aged 7 from Somerset Primary won the **Bermuda Audubon Society’s trophy** at the 78<sup>th</sup> Agricultural Exhibition for her bluebird box. In May, Seri accepted her award at Government House from Governor John Rankin during the Society’s AGM. [E7.3 youth celebrated, F6.3 indiv award].

As part of Earth Week and the **#EatLionfish campaign**, 11<sup>th</sup> Hour Racing organised a ‘**chef’s throwdown**’ at the National Museum of Bermuda on April 19<sup>th</sup>. The aim of the event was to raise awareness about sustainably sourced seafood, and the threat posed by the invasive lionfish. During the event, 6 celebrity chefs representing each of the teams vying for the 35<sup>th</sup> America’s Cup, prepared Bermuda-caught lionfish for the judges. Culinary arts students from the Bermuda College partnered with the chefs at the event. [D4, A2.5 social event, E10 private sector, D9 public event].

- <http://bernews.com/2017/04/celebrity-chefs-join-to-fight-invasive-lionfish/>  
<http://bernews.com/2017/04/eatlionfish-chefs-throwdown/>

On April 21<sup>st</sup> the Bermuda National Trust hosted its annual **Earth Day Student Video Competition** mini film festival and prize giving at the BUEI. This year 24 videos were submitted on topics such as local food, getting out into nature, remarkable trees, the ocean around us and the meaning of Earth Day. [F3.3 corporate sponsorship, E8.1 international day, E8.2 activity on international day, E7.3, D2, A3.4].

The videos can be seen here: <https://www.youtube.com/channel/UC4zAoF8asGSEajG1V7fS1Yg>

- <http://bernews.com/2017/04/bnt-2017-earth-day-student-video-competition/>
- <http://bernews.com/2017/02/trust-launches-2017-earth-day-video-contest/>

Various sports teams, schools and community groups celebrated **Earth Day** by taking part in **clean ups coordinated by Keep Bermuda Beautiful**. Groupama Team France members cleaned up Southlands Beach, 95 students from Saltus Grammar School cleaned John Smiths Bay beach, a group of 35 West End residents cleaned Mangrove Bay beach, a team from Land Rover BAR cleaned Admiralty Cove, and middle school students from the America's Cup Endeavour programme cleaned up Parson's Bay in Dockyard and Builders Bay in St. Georges. The Bermuda Golf Foundation cleaned up parts of Ocean View Golf Course and Barkers Hill. [E1.5 shore cleanup, E7.2 youth group, E8.2 activity on int'l day]. <http://bernews.com/2017/04/bermuda-celebrates-earth-day-with-clean-ups/>

The **spring lionfish tournament** took place on Earth Day, with 25 cullers landing 30lbs of lionfish. [K3.4 distrib invasives, K6.1 trends in invasive sp, A2.5 social event, D4 feral control, J1 mgt plan, K3.5 comm spp. data, E3 community data]. <http://bernews.com/2017/04/spring-lionfish-tournament-sees-30lbs-caught/>

From April 25<sup>th</sup> to 28<sup>th</sup> representatives from the DENR marine, terrestrial and biodiversity teams met with Dan Laffoley (Marine Vice Chair at IUCN's World Commission on Protected Areas) to discuss the **guidance notes for designating OECMs**, put together by an IUCN taskforce. OECMs are 'Other Effective Conservation Measures', as [specified under Aichi Target 11](#). [A2.4 workshop, A3.2 workshop, A3.3 CBD, A3.4 collaboration, A3.5 CBD, I1 protected area status, I1.4].

At the end of April, the Bermuda Reef Ecosystem Assessment and Mapping Programme (BREAM) released a 72 page report entitled 'Baseline **Condition of the Coral Reefs and Fishes Across Three Depth Zones of the Forereef of Bermuda**'. The report, co-authored by Thaddeus and Jessie Murdoch, was compiled from data collected between 2004 and 2011 at over 180 sites. The work was funded by the UK Overseas Territories Environment Programme (OTEP), the Bermuda Zoological Society, Bermuda Government and corporate sponsors Murdoch Marine Ltd., the Stempel Foundation and Partner Re. The report can be read [here](#). [A2.6, K2 critical habitat, K3 spp. mgt, K5, J5 economic sp., D2.2 news, D4 invasive, L].

- <http://bernews.com/2017/04/baseline-reef-health-report-released/>
- <http://www.bermudabream.org/>



Reef habitat, North Rock (Alison Copeland)

On April 24<sup>th</sup> the **UK National Report to the Convention on Migratory Species (CMS)** was published online. The report contains input from the UKOTs including Bermuda, on the status of local populations of listed whales, turtles, birds, fish and other species. The twelfth meeting of the conference of parties to the CMS was held in the Philippines in October 2017. [A3.3 int'l agreements, A3.5, A3.4].

<http://www.cms.int/en/document/united-kingdom-national-report-cop12>

On April 27<sup>th</sup> and 28<sup>th</sup>, Minister of the Environment, the Hon. Sylvan Richards attended a 2-day meeting of **Ministers of the Environment (or equivalent) from the UK Overseas Territories**. The meeting, hosted by the States of Alderney and coordinated by the UK Overseas Territories Conservation Forum, was attended by representatives of 13 territories. [A3.2 regional meeting, A3.4 info sharing, L4.3 overseas funding].

- [Video](#) interview with Minister Richards (© UKOTCF)
- [http://www.ukotcf.org/pdf/EnvMin/UKOTCD\\_EnvMin\\_Alderney\\_2017.pdf](http://www.ukotcf.org/pdf/EnvMin/UKOTCD_EnvMin_Alderney_2017.pdf)
- <http://bernews.com/2017/05/ot-cd-meet-discuss-environment/>



Meeting participants at Island Hall, Alderney. (Photo: Dr. Mike Pienkowski, UKOTCF).

On April 29<sup>th</sup> volunteers and staff from the Bermuda National Trust cleaned up the BNT nature reserve at Scaur Lodge in Somerset. **Volunteers cleared invasive vegetation** and opened trails with expert help from tree surgeons from Horsfield Landscape and Design Ltd. E1.4 culling invasives, F3.3 NGO, corporate sponsorship, I1.3 protected area mgt activity].



## May 2017

A news article on bernews.com on May 10<sup>th</sup> highlighted the **community garden in Paget** where 24 'lot holders' grow organic vegetables and fruits on 14 x 12 ft plots on an acre of government owned land. [C5, E5.7, E5 trad practice]. <http://bernews.com/2017/05/community-gardening-plot-thrives-in-paget/>

On May 9<sup>th</sup> Bernews.com featured an article and photos by local photographer Jessica Riederer showing some of the **life found in Sargassum weed**, including Sargassum frog fish, nudibranchs, shrimp, hydroids and crabs. Sargassum washed up on South Shore in large amounts this week. [E3.5 photographer, D2.2 news, k3.5]. <http://bernews.com/2017/05/sargassum-fish-nudibranchs-shrimp-crab/>

On May 13<sup>th</sup> members of the Bermuda Audubon Society took part in the **Global Big Day** – an annual world-wide bird count. Highlights from Bermuda observations include 12 purple martin, 9 chimney swifts, a swallow, herons and spotted sandpipers. [E8.2 international day event, K3.5 community spp data, E3 comm data]. <http://audubon.bm/images/pdf/Newsletters/Vol. 28 No.2.pdf>

Since August 2016 the Bermuda's **Living Reefs Foundation** has installed two '**coral gardens**' in Castle Harbour, in collaboration with BIOS, to help enhance coral recruitment in a damaged habitat, and refine and test restoration techniques. On May 19<sup>th</sup> the foundation held a 'coral garden party' at the Tucker's Point Hotel to raise funds for ongoing projects. [K4 restoration research, A2.5, A3.4, E1.3, L]. <http://bernews.com/2017/05/living-reefs-to-host-coral-garden-party/>

In early May at **Seabin filtration device** was installed in the waters of Hamilton Harbour at the Hamilton Princess marina. A mesh bag inside the device collects floating plastics and other trash from the sea surface. The device was installed as part of a pilot project at 6 participating marinas in Europe and the USA, with the Bermuda bin sponsored by Butterfield Bank. [E1.5 marine, E1.7 boating]. <http://bernews.com/2017/05/photos-installation-seabins-hamilton/>

Former Premier and environmentalist **Dr. David Saul died in May**, and many tributes were paid by, among others, the Bermuda National Trust and Bermuda Audubon Society. Dr. Saul was an instrumental early member of the Buy Back Bermuda campaign to preserve open space through crowd funding its purchase. [F6.4].

Audubon Society members marked **Caribbean Endemic Bird festival** by taking a field trip to Nonsuch Island. During the trip, Government Conservation Officer and BAS board member Jeremy Madeiros fed 4 Cahow chicks which had been translocated to Nonsuch Island as part of the ongoing (and award winning) Cahow Translocation Project. [E8.2 international day event, C3.10].

Senior Marine Conservation Officer at the DENR, Dr. Sarah Manuel attended the first technical workshop of the project **Transatlantic Marine Protected Area Network** : Marine mammal's protection, a way to enhance transatlantic cooperation between MPAs. The meeting was in St. Martin from May 15<sup>th</sup> to 17<sup>th</sup>. [A3.2 conference, I1, A3.4 collaboration, A3.5, I3 PA mgt].

Education Minister (and former Environment Minister) Cole Simons chaired the **third joint meeting of the Sargasso Sea Commission and the Signatories to the Hamilton Declaration** on Collaboration for the Conservation of the Sargasso Sea in Horta, Azores in May. [A3.2 host, A3.3 int'l agreement, A3.4, A3.5]. <http://www.royalgazette.com/environment/article/20170518/simons-attends-sargasso-meeting-in-azores>

On May 17<sup>th</sup> Dr. Scott LaGreca, Curator of Cornell University's Plant Pathology Herbarium, presented an **Introduction to Lichens**, as part of the BZS's Lecture Series. Attendees learned about Dr. LaGreca's 10 years of studying Bermuda's lichen species, as well as getting to see specimens close up. [K3.1 poorly studied taxa, E3.9 visiting scientist, A2.4 lecture].

<http://bernews.com/2017/05/bzs-lecture-introduction-lichens/>

The first **lionfish permit class** took place at the BUEI on May 18<sup>th</sup>, with subsequent classes taking place in June, July and August. The classes allow Bermuda residents over 16 years of age to receive a special permit allowing them to hunt lionfish in situations prohibited under the laws that regulate spearfishing. Specifically, permit holders can hunt lionfish while using SCUBA, within one mile of shore, and on wrecks and other protected sites. Visitors to the island can take **PADI's Bermuda Lionfish Specialty Course** at one of the participating local dive shops. [J5, E3.6 sightings, D6 visitors, K3.4 monitor invasive, K3.5 citizen science, E3, C4 adult edu].

In May the **Take Back Our Park lobby group** expressed concern over proposed amendments to the Bermuda National Parks Act 1986. The amendments were tabled, but not debated until later in the year, due to the calling of the General Election at the start of June. [A2.6, I3].

<http://www.royalgazette.com/environment/article/20170515/botanical-group-wants-talks-over-park-future>

The Bermuda Environmental and Sustainability Taskforce (BEST) and Greenrock voiced concern over **commercial development** outside of the five **beaches designated for concessions** by the Bermuda Tourism Authority. They were particularly concerned with the jet ski rental business establishing in seagrass and mangrove habitat in Coot Pond, St. Georges. [A2.6 NGO, I4.1, I4.4 planning conditions, K6.4 critical habitat, H, H5].

- <http://bernews.com/2017/05/commercialisation-of-coot-pond/>
- <http://www.royalgazette.com/news/article/20170826/best-urges-businesses-to-protect-island>

**Snorkelling trips to North Rock** were held by the Bermuda Zoological Society from May to September for members and their families, members of the public and visitors to the island. [C3.10 field trip].

Sarah Lyons from the University of Leeds was in Bermuda collecting figs from **Indian Laurel** *Ficus microcarpa* to examine for **pollinator wasps** for her master thesis from the 23<sup>rd</sup> of May to 11<sup>th</sup> of June. Her thesis entitled "A Study into the Diversity of Fig Wasp Species (Chalcidoidea) Associated with the Invasive Tree, *Ficus microcarpa*, on the Archipelago of Bermuda and the Impact they Inflict on its Reproductive Success," is available from the BAMZ library. [K3.4 invasive distrib., K3.1, K1.5 gov support].



Ripe Indian Laurel fruit in Somerset (Alison Copeland)



The America's Cup Bermuda (ACBDA) organisation collaborated with the Bermuda Aquarium Museum and Zoo and Department of Environment and Natural Resources to capture as many turtles as possible from the area of the Great Sound which will be used as the **America's Cup race course**, beginning on May 26<sup>th</sup>. The turtles were temporarily housed at BAMZ for the duration of the racing in an effort to reduce the likelihood of a turtle strike by race boats. [J4 facilities, B4.12 response planning, D9 event].

- <http://www.royalgazette.com/news/article/20170510/government-responds-to-turtle-concerns>
- <http://www.royalgazette.com/environment/article/20170515/bests-fear-over-turtle-relocation>
- <http://www.royalgazette.com/environment/article/20170507/great-sound-turtles-moving-home-for-cup>
- <http://bernews.com/2017/05/sea-turtles-arriving-temporary-home/>
- <http://bernews.com/2017/05/acbda-turtles-being-temporarily-relocated/>
- <http://bernews.com/2017/05/additional-information-on-sea-turtle-relocation/>
- <http://bernews.com/2017/05/relocating-sea-turtles-great-sound-ac/>

At the end of May the **Race for Water Foundation's vessel Odyssey** stopped in Bermuda during the America's Cup events. During several weeks on the island, Race for Water staff showcased the vessel which runs on hydrogen, solar and wind power. On July 6<sup>th</sup> they hosted a discussion on ocean plastic pollution with local NGO stakeholders. [K5.3, K5.6, E1.7 boating public, A3.4, A3.2 workshop].

- <http://www.royalgazette.com/environment/article/20170523/boat-brings-green-message-to-bermuda>
- <http://bernews.com/2017/07/swf-race-water-boat-leave-bermuda/>
- <http://bernews.com/2017/06/minister-richards-opens-waste-energy-workshop/>

## June 2017

On June 6<sup>th</sup> Crystal Cave staff celebrated the **International Day of Caves and the Subterranean World**. Visitors to Crystal Cave and Fantasy Cave were treated to special offers for the day. [E8.2 int'l day event].

<http://www.royalgazette.com/environment/article/20170605/international-day-of-caves-to-be-highlighted>



Visitors in Fantasy Cave

On June 8<sup>th</sup> Greenrock held its **School Awards Ceremony** for the 2016/17 school year. This year marked the 4<sup>th</sup> year of Greenrock's **Eco-Schools Programme**, with 21 schools now involved, and 6 schools earning Green Flag status. [Celebrate youth involvement E7.3, enviro clubs E7.2, A2.5 social event].

<http://bernews.com/2017/06/greenrock-2016-2017-school-awards-ceremony/>

On June 8<sup>th</sup> to mark **World Oceans Day**, bernews.com posted an article by Bermudian environmentalist Stuart Hayward debunking myths about the ocean. [ E8.1, E8.2, D2.13]. <http://bernews.com/2017/06/five-myths-for-debunking-on-world-oceans-day/>

**Remediation work at Evan's Pond** is ongoing, with another set of sediment samples collected June 14<sup>th</sup>. The work to reduce the amount of pollutants in the pond-bottom sediments is a collaboration between Fort Environmental Laboratories, the BZS (Bermuda Amphibian Project) and DENR. The work is being funded by a 2 year grant from the HSBC Global Water Programme [K5.1 amphibians, A3.4 collaboration, E2, K2.1 critical habitat, K2.2 monitoring, K5.4 chemical, L, F3.3 sponsored project].

The **Nonsuch Island Natural History Camp** did not take place this year. [C2.7].

The **International SeaKeepers Society presented awards** to 4 Bermudians for their commitment to ocean conservation at a dinner held on June 22<sup>nd</sup>. Awardees were Waterstart Bermuda founder J.P Skinner, government's Custodian of Historic Wrecks Dr. Phillippe Rouja, Chris Flook and Judie Clee. <http://www.royalgazette.com/lifestyle/article/20170626/skinner-humbled-by-seakeepers-award.> [ D3.7, F6.3 indiv., A2.5 event].

The June 22<sup>nd</sup> edition of the free PechaKucha talks featured Alba Fernandez talking about how to **reduce plastic consumption** in daily life. [D2.7 consumer choice, E10.16 straws, E10.7, F2, A2.4 lecture.] <http://www.royalgazette.com/environment/article/20170608/plastic-free-experiment-becomes-way-of-life>

In June middle school students took part in two-day training courses in free-diving, snorkelling and reef biology through the BZS's 'Kids on the Reef' programme. **Kids on the Reef** was sponsored by XL Catlin, and led by Dr. Alex Amat (Bermuda Zoological Society) and Beth Neale (I AM WATER Conservation Trust). This year marked the 5<sup>th</sup> year of the programme, and saw groups participating from Dellwood, TN Tatem, and Whitney. [BZS formal education school groups C3.11]. <http://bernews.com/2017/06/five-years-of-xl-catlins-kids-on-the-reef/>

The last Cahow chick of the 2016/17 breeding season fledged overnight on June 27<sup>th</sup>. This year the **Cahow breeding population** reached 117 nesting pairs, which produced a record 61 fledged chicks. [J1.3 implement plan, K1.5 gov priority, A3.4, D3.7 success, J2.3 gov adopted plan, J2.5 report]. <http://bernews.com/2017/07/record-number-of-cahow-chicks-fledge/>

On June 27<sup>th</sup> the almost 50 green turtles which were being held at BAMZ for the duration of the America's Cup races were returned to the Great Sound. [E1.7 boat, J4 facilities, B4.12 response planning, D9 event].

- <http://www.royalgazette.com/environment/article/20170627/turtles-released-back-into-wild>
- <http://bernews.com/2017/06/confined-sea-turtles-released-in-great-sound/>

The **Bermuda National Trust's annual awards** were presented at the BUEI auditorium on June 22<sup>nd</sup>. This year 23 awards were presented. A full listing of all awards can be found at: <http://bernews.com/2017/07/bermuda-national-trust-hands-23-awards/>. The environmental awardees were:

School Programme Certificates	Somersfield Academy	for its dedication in pursuing three Eco School Pathways
School Programme Certificates	Saltus Grammar School	for its clean-up programme at John Smith's Bay headed up by teacher Erika Powell
Wee Environmentalist Awards	Southampton Pre-School	for the installation of a square foot garden led by teacher Karen Joyiens
Wee Environmentalist Awards	The Lyceum	for schoolwide involvement in the creation of an outdoor classroom and their outdoor learning programmes led by teacher Sarah Brown.
Young Environmentalist	Tyler DeCouto, Jaden Smith and Marco Stirling	who organised their class at Somersfield Academy to remove invasive Casuarinas at Cooper's Island, built igloos for Longtails and created an additional nesting territory for endangered Diamondback Terrapins at Mangrove Lake
Young Environmentalist	Evie Hackett	who cleared, replanted and re-labelled the Sensory Trail at Windreach, designed for less able-bodied people to learn about the Bermuda ecosystem
Young Environmentalist	Lily Crofts, Sophia Papadopoulo & Bradley Stewart	for their 'End the Plastic Bags' island-wide awareness campaign
Awareness	Justin Lewis and Michelle Stauffer	for their short film "A Plastic Sea" on the impact of plastics on the ocean and some solutions to the problem. The film was showcased by National Geographic
Awareness	BEST and Sebastian Matcham	for BEST's user friend and informative website
Awareness	11 <sup>th</sup> Hour Racing	for their creation of and support for #EatLionfish Chef's Throwdown which brought together the chefs from all of the America's Cup's teams designed to find the tastiest Lionfish recipes;
Awareness	Butterfield Bank	for the creation of a scholarship for post-graduate students in the area of island or marine protection
Deforest Trimmingham (Top Awareness Award)	St. George's Historical Society and the St. George's Foundation	for rescuing a series of six murals painted by renowned artist Emile Verpillieux of life in 1930s Bermuda. The murals had been displayed in the St George's Town Hall until they were badly damaged by Hurricane Fabian in 2003. The St George's Historical Society raised funds for their restoration. They now hang in the St George's Foundation where they are accompanied by interpretive panels describing their importance, the artist and the restoration process.

Environment	Farmers Marco and Andrea Borges	who live at National Trust property Lemon Moor, located between the Paget lights and Paget Marsh, for their efforts to turn the property and small farm into a showcase, which has drawn praise from commuters and passers-by.
Environment	Farmer Reid Selley of Ocean Blown Farm	for his efforts to improve soil-based agriculture using local nutrients.
Environment	Lionel Thompson	for his weekly efforts to clean up and maintain the stretch of road between First Avenue and the bus stop on Cavendish Road.
Patsy Phillips Bermudiana (top Environment Award)	the Bermuda Lionfish Task Force	for the design and implementation of the Bermuda Lionfish Control Plan. To date, more than 600 individuals have been trained and licensed as Lionfish cullers.

[Annual awards F6.1, recognition operational activities F6.2, individual awards F6.3, celebrate youth involvement E7.3, A2.5 social event].

## July 2017

A class of students from Vermont spent the week of July 3<sup>rd</sup> at BIOS learning about Bermuda and doing lots of snorkeling which they chronicled in a blog: <http://vtvlcmarinebio2017.blogspot.com/>. [A3.4].

Researchers from Chester Zoo and the University of Kent were in Bermuda for a month from July 4<sup>th</sup> to do a mark-recapture **survey of Bermuda Skinks** on the Castle Harbour Islands. [A3.4 collaboration, L4.3, K1.5 prioritised research, K3.1 species, will relate to K4.]

On July 5<sup>th</sup> the Department of Environment and Natural Resources reminded the public of the laws pertaining to the **purchase and collection of local mussels**. [D2.7 consumer, D3.3, D3.4 violations, J5.1 harvested spp., E5.3 fishermen]. <https://environment.bm/news-hot-topics//if-you-like-to-eat-bermuda-mussels>

In July **Greenrock held its first summer camp** for 9 to 14 year olds. Campers learned do-it-yourself projects such as paper recycling and hydroponic gardening along with invasive plant culling and monitoring marine plastics accumulating in the Hamilton Princess hotel's Seabin. [C2.7, C2.8, C3.10]. <http://bernews.com/2017/06/greenrock-eco-camp-july/>

Dr. Stephen Compton an entomologist from the University of Leeds was in Bermuda from July 4<sup>th</sup> to 9<sup>th</sup>. Whilst here, he undertook field visits to **collect fruit from Indian Laurel** trees (*Ficus microcarpa*) to examine for pollinator wasps and other insects (as his graduate student had done in May). He also gave a presentation to government officials on **insect-mediated biocontrol** of invasive plants. [K3.2 biocontrol, A3.4, K3.4 invasive distrib., K3.1, K1.5 gov support].

The Bermuda Zoological Society held a full suite of **Aqua Camps** in the summer of 2017 for children from primary 1 to senior school. [C3.11 BZS education, C2.7 camps, C2.8 camp attendance, C3.10 outdoor teaching].

At the end of June and beginning of July, a team from the DENR visited 16 locations around the island where the **invasive vines Kudzu and Lablab** (or Hyacinth Bean) had previously been reported. Vines were still found at 6 of the spots and 6 new sites were identified. The team cut and poisoned the vines, and appealed for the public's help in reporting new infestations. [D4 IAS information, K3.4 distribution, K3.5 community data, K6.1 trends, B4.11, E3.6 reporting].

- <https://environment.bm/news-hot-topics//keep-an-eye-out-for-these-invasive-plants?rq=kudzu>
- <http://bernews.com/2017/10/keep-eye-two-invasive-plant-species/>



LabLab vine at Gladys Morrell Nature Reserve

At the **BirdsCaribbean 21st Conference Meeting** in Cuba in July, Dr. David Wingate was honoured with a Lifetime Achievement Award in recognition of his “exceptional knowledge and contributions to avian knowledge and conservation in Bermuda and the Caribbean”. [A3.2 conference, D3.7 indiv, F6.3 indiv].

The **Ministry of the Environment was disbanded** as a standalone Ministry on July 20<sup>th</sup> following the appointment of the new Cabinet. The DENR and Dept. of Planning were moved to the Ministry of [Home Affairs](#), and the Dept. of Parks became part of the Ministry of Public Works. [A1.1].

The **seventh annual Groundswell Lionfish Tournament** was held on July 24<sup>th</sup> with an afternoon weigh-in party and fish tasting at BIOS. This year 92 fish were caught by 110 hunters, by freediving, traditional SCUBA and tech diving. [K3.4 distrib invasives, K6.1 trends in invasive sp, E1.5 marine clean up, A2.5 social event, D4 feral control, J1 mgt plan, K3.5 comm spp. data, E3 community data].  
<http://www.royalgazette.com/environment/article/20170722/lionfish-tournament-roaring-success>

**Nonsuch Island Expeditions** launched a newsletter at the end of July. The update explains that the CahowCam is now in its 5<sup>th</sup> season and has received 600,000 views and streamed 8.5 million minutes of video. Highlights from this year's cahowcam season showed the hatching and development of **Cahow chick 'Shadow'**, the return of a **Storm Petrel** to the vacated burrow, and an interaction between the storm petrel



and two large red land crabs inside the burrow. [D2, E3.5 photographer].

<http://us8.campaignarchive2.com/?u=4e80d4d0f1d2d24e9ebf914fb&id=a05b144657>

A **loggerhead turtle named Chad** was tagged and released in July following a stay at the **rehabilitation facility** at the Bermuda Aquarium Museum and Zoo. Chad was found by divers in the West End tangled in a cargo net in October 2016. Another loggerhead named Daisy was rehabilitated the previous July (2016) following months of rehab at BAMZ. [K3.1 poorly studied taxa, J4 vet facility, D2.2, D3.7 success story].  
<http://bernews.com/2017/07/injured-loggerhead-turtle-released/>

**Nonsuch Expeditions** made a series of **aluminum prints** available in July. The photos, by National Geographic photographer David Litchwager, show animals and plants including the Bermuda Skink, Blue Angelfish and Verrill's hermit crab. The prints are available online and in Bermuda. A series of natural history notecards are also on sale in several Bermuda stores and hotels. [E3.5 photo, E5.2 art].

On July 16<sup>th</sup> a group of partners announced that there will be an **Ocean Risk Summit in Bermuda** in 2018. The lead sponsor is XL Catlin, and other partners include the IUCN, Ocean Unite, BIOS, Bermuda Business Development Agency and Bermuda Tourism Authority. The aim of the summit is to bring together businesses, scientists and government representatives to hear about the latest research on ocean changes and related risks and threats. <http://bernews.com/2017/07/first-ever-ocean-risk-summit-bermuda/>. [E10.4, E10.5, K6.3, A3.4, A3.2, A2.5, A2.4, K5 impacts, K6.2 climate change, B4].

Nonsuch expeditions continued its **art installation at the LF Wade International Airport** of large size prints of the animals and plants of Nonsuch Island. The installations are available for patrons to sponsor. This year the exhibit was extended to the Cedar Aviation private air terminal as well. . [E3.5 photo, E5.2 art].  
<http://us8.campaignarchive2.com/?u=4e80d4d0f1d2d24e9ebf914fb&id=a05b144657>

In July summer law programme students and mentors from law firm **Conyers, Dill & Pearman** spent **two days volunteering on Trunk Island** with the Bermuda zoological Society. The BZS is removing invasive vegetation on the island to use it as a 'living classroom'. The students cleared paths and planted a living fence with prickly pear. [E10 private sector, L5.1, F3.3 support private sector, E1.3 habitat restoration, E1.4 culling and planting, E1.6 but not annual].

On July 26<sup>th</sup> the selection committee for the **Environmental Education Grant** named Joshua Santucci-Smith as the 2017/18 recipient of the award. Joshua is studying marine biology at the University of Tampa [C7.1 postgraduate study].

On July 27<sup>th</sup> Dr. Corey Eddy gave a talk at the BUEI entitled **“Lionfish, Dusky Sharks, Hogmouth Fry...Oh My!”** In the talk he gave an overview of the findings of his recent PhD thesis on lionfish, and proposed some new research that he would like funding for on lionfish and shark telemetry. He also briefly spoke about the Darwin Plus-funded baitfish study, which started this year. [A2.4 lecture, A3.4, E3.9 visiting scientist, K1.5 gov, K1.7, K3, K6.1 invasive, L4 int'l grant, K3.1, J5 econ marine sp., D4 feral].



## August 2017

The **Bermuda Turtle Project** completed its 50<sup>th</sup> year of work in Bermuda in August. The annual in-water course on the biology of sea turtles began on August 14<sup>th</sup>. During the two-week training programme this year's participants caught **194 green turtles at 14 sites**. The annual report for 2017 can be read at: [https://bamz.org/sites/bamz.org/files/files/BTP%20Ann%20Report%202017%20-%20WEB%20FINAL%20ch%203\\_21\\_18.pdf](https://bamz.org/sites/bamz.org/files/files/BTP%20Ann%20Report%202017%20-%20WEB%20FINAL%20ch%203_21_18.pdf) [K3 sp, A3.2, A3.4, C7 training].

On August 2<sup>nd</sup> the **female hawksbill turtle** from Devils Hole Aquarium released back into the wild by DENR staff with assistance of the new owner of the aquarium. She was tagged and measured before being released. [K3.1 tag, J1 plan, D3.7].

A BBC story noted that radioactive iodine from nuclear reprocessing in the UK and France has been detected in the ocean near Bermuda. [K6].

- <http://www.royalgazette.com/news/article/20170823/radioactive-material-identified-in-waters>
- <http://bernews.com/2017/08/radioactive-iodine-detected-near-bermuda/>

On August 9<sup>th</sup> Dr. David Wingate reported a “100% successful” breeding season for Bermuda’s 3 remaining pairs of **Common Tern**. This summer **9 birds fledged** from sites in the Little Sound, Hamilton Harbour and St. Georges Harbour, after being banded for future identification. [K3.1, K2.2 key sites, D10.7 signs, D3.7 success story, D2.2]. <http://www.royalgazette.com/news/article/20170809/local-seabird-back-from-brink-of-extinction>



Common Tern fishing in Flatts Inlet (Drew Pettit)

The Department of Planning hosted **4 summer interns** in 2017. The students engaged in mapping, report writing and research on subjects such as Tree Preservation Orders, assessing abandoned buildings and residential land availability. [C6, C7, C7.3 land mgt, C7.4 GIS, K6.4 forward planning].

- <http://www.royalgazette.com/education/article/20170825/interns-learn-ropes-in-planning>
- <http://bernews.com/2017/08/planning-dept-celebrates-their-summer-interns/>

A **video entitled ‘Charted Waters’** showcased Bermuda’s shipwrecks and marine environment appeared on the homepage of CNN.com in August. The video was viewed more than 500,000 times on Facebook. [D1, D2, D6, D9 America’s Cup] <http://bernews.com/2017/08/bermudas-mysterious-undersea-attracts-spotlight/>

On August 9<sup>th</sup> the Biodiversity Section of the DENR visited **Port's Island** to confirm a population of the large Bermuda land snail *Poecilozonities bermudensis* was present in the islands woodlands. Specimens were collected for captive breeding at BAMZ and transfer to overseas institutions. [J1.1 and 1.6 new plan, J1.3 implement, J1.5 update, J2.3, J3 ex situ, J4, K3 & K1.5 priority sp.,].



*P. bermudensis* under a rock on Port's Island (Alison Copeland)

On August 15<sup>th</sup> the Department of Environment and Natural Resources advised the public that following the recent amendments to the Fisheries (Protected Areas) Order 2000, the **Red Hind aggregation sites** within the seasonally protected areas will be open to fishing from August 15<sup>th</sup>, but that the **Black Grouper aggregation areas** (the extended closure areas) remain closed until December 1<sup>st</sup>. Additional amendments to the Fisheries Regulations 2010 were also made to protect the Red Hind. Fishermen are asked to contact the Marine Resources Section if they land a Black Grouper or Red Hind which is tagged.

- <https://www.gov.bm/articles/amendments-made-fisheries-regulations-2017>
- <http://bernews.com/2017/08/ministry-fisheries-regulations-protected-areas/>
- <https://environment.bm/news-hot-topics//jmkb1dz0kr5ev5tvfvfhpkqmzi4nu1>

On August 16<sup>th</sup> the BZS lecture series continued with Dr. Roldan Valverde, the scientific director of the Sea Turtle Conservancy. His well-attended lecture, entitled '**Nesting Rituals of the Olive Ridley Sea Turtle: the Arribada**' showed video and photos of the mass nesting events in Costa Rica, and some results of his 30+ years of research. [ A2.4 lecture, E3.9 visiting scientist].

On August 17<sup>th</sup> Minister Walton Brown announced that Government has capped the number of **recreational lobster divers** at 500 for the 2017/18 season, which opens on September 1<sup>st</sup>. Licenses will be issued on a first come first served basis until the cap is reached. Licensees must sign the terms and conditions of the license, acknowledging that they are required to submit their catch data by April 20<sup>th</sup> 2018. Declining commercial lobster catches and a lack of catch data from recreational divers has been a problem for the past several years. [J5 marine sp., K3.3, E5.3 fishing practices, K5.6 recreational users].

- <http://www.royalgazette.com/news/article/20170817/brown-500-lobster-licences-available>
- <http://www.royalgazette.com/news/article/20170821/lobster-divers-support-latest-guidelines>
- <http://bernews.com/2017/08/cap-of-500-recreational-lobster-diver-licences/>
- <http://www.royalgazette.com/news/article/20170809/anger-at-reduction-in-lobster-licences>

On August 22<sup>nd</sup> the BZS announced the 2 winners of the 2017 **Steinhoff Scholarships**. Akinyi Apopa will be pursuing an MSc in Outdoor Environmental and Sustainability Education at the University of Edinburgh and Amber Reid will be finishing her BSc in Environmental Sciences at Northeastern University. [C7.1 postgrad study, C6.]. <http://www.royalgazette.com/education/article/20170822/bzs-scholarships-handed-out>

Saskia Wolsak, a graduate student in ethnobotany at the University of British Columbia, gave a talk at **Think Fest** on the **erosion of plant knowledge in Bermuda**, focusing on culturally significant plants such as cedar, palmetto, allspice and cassava. Think Fest is organized by Think Media as a platform for Bermudian academics. [A2.4 lecture, E5 traditional practices, K1.7 forum].

- <https://think.bm/?event=thinkfest-2017-wild-coffee-and-indigo-the-hidden-ethnobotany-of-bermuda>
- <http://www.royalgazette.com/news/article/20170824/bermudian-to-share-knowledge-on-plants>

In an August 25<sup>th</sup> press statement BEST reminded **entrepreneurs and decision makers** that those pursuing new business ventures should inform themselves of the **environmental regulations** governing their proposed activities. They urged all to adhere to the processes in place to safeguard the environment. Additionally, BEST urged the Bermuda tourism Authority (BTA) and Bermuda Economic Development Corporation (BEDC) to consider the environment amid calls to ‘breathe life into Bermuda’s tourism product’ [A2.6 ngo input, E10 businesses, **E10.6 tourism**, F2 incentive behaviours].

- <http://www.royalgazette.com/news/article/20170826/best-urges-businesses-to-protect-island>
- <http://bernews.com/2017/08/attraction-is-bermudas-natural-environment/>

**A tiger shark** named Andy, tagged in Bermuda in 2014 by the Guy Harvey Research Institute, traveled 33,820 miles in 1,113 days. Andy’s ongoing trek is adding to knowledge about the emerging pattern of Tiger Shark migration between Bermuda and the Bahamas. [K2.1 critical habitat, K3.1, A3.4, ?K3.3, ?J5.1]. <http://bernews.com/2017/08/tiger-shark-andy-breaks-distance-record/>

An August 12<sup>th</sup> article in the **Irish Times** noted that the **Bermudiana** was a species of conservation concern in Ireland, and is listed as protected under Northern Ireland’s Wildlife (NI) Order 1985. [D2.2 news]. <http://bernews.com/2017/08/bermudiana-having-tough-time-in-ireland/>



Bermudiana at Seymour’s Pond, Southampton (Alison Copeland)



## SEPTEMBER 2017

At the beginning of September, the Department of Health published results of **bathing water testing** at local beaches from April 30<sup>th</sup> to August 20<sup>th</sup>. The report indicated that bacteria levels were within acceptable limits, and were monitored using the US Environmental Protection Agency methodology [K5 water quality, K6 potential threats, K5.5 sewage monitoring].

- <http://www.royalgazette.com/environment/article/20170902/beaches-pass-tests-for-levels-of-bacteria>
- <https://www.gov.bm/seawater-monitoring-programme-bathing-beaches>

On September 2<sup>nd</sup> Bernews.com profiled Bermudian photographer and BAMZ volunteer Ryan Amaral [D2.2, E3.5]. <http://bernews.com/2017/09/ecoguardian-highlights-bermudas-wildlife/>

Work began at **BAMZ** on September 5<sup>th</sup> to **repair the foreshore** of the facility which had sustained damage during hurricanes in 2015 and 2016. <http://www.royalgazette.com/news/article/20170828/restoration-work-to-begin-at-aquarium>

Senior Marine Conservation Officer at the DENR Dr. Sarah Manuel attended the **4<sup>th</sup> International Marine Protected Areas Congress (IMPAC4)** in La Serena-Coquimbo, Chile from September 4<sup>th</sup> to 8<sup>th</sup>. [A3.2, A3.4, A3.5 int'l conference].  
<http://www.impac4.org>

KBB's **annual Coastal Clean-up**, sponsored by Ernst and Young, took place on the weekend of September 16<sup>th</sup>. Volunteers removed marine debris from 36 locations around the island, and completed data cards which will be sent by KBB to the Ocean Conservancy in the US. [E1.5 clean up programme]

- <http://www.royalgazette.com/environment/article/20171004/hundreds-helped-keep-bermuda-beautiful>
- <http://bernews.com/2017/10/680-volunteers-remove-12000-pounds-of-litter/>

On September 10<sup>th</sup> an article appeared in the UK's **Telegraph newspaper** announcing the **hatching** of **7 Bermuda Skinks at Chester Zoo**. The collaboration between the Department of Environment and Natural Resources and Chester Zoo's reptile team is part of the DENR's lifeboat programme for protected species. The long-term goal is to develop captive breeding and husbandry methods for the Skink, so that captive bred skinks can be produced and returned to the wild. [A3.4, J3 ex situ, J3.3 overseas zoo, K1.3, K1.5 govt, K4 restoration, K4.2 requirements, K4.3 disease, L4.3].

- [http://www.telegraph.co.uk/science/2017/09/10/worlds-first-endangered-bermudian-skink-hatch-chester-zoo/?WT.mc\\_id=tmg\\_share\\_fb](http://www.telegraph.co.uk/science/2017/09/10/worlds-first-endangered-bermudian-skink-hatch-chester-zoo/?WT.mc_id=tmg_share_fb)
- <http://www.royalgazette.com/environment/article/20170910/magnificent-birth-of-rare-skinks-in-uk-zoo>
- <http://bernews.com/2017/09/seven-skinks-have-hatched-at-chester-zoo/>

The Department of Environment and Natural Resources carried out a **public consultation** on plans for a new **Plant Inspection Facility** at the Plant Protection Lab. [J4.2 facilities BG, K6 potential threats].  
<http://govconnect/Pages/aroundThePublicServices/plantInspectionFacility.aspx>



The Caribbean saw **significant hurricane activity** this year with Category 5 Hurricane Irma causing considerable damage as it moved through the Caribbean from September 5<sup>th</sup> to 10<sup>th</sup>. Hurricane Maria also reached Category 5 strength, but deteriorated quickly after making landfall in the Caribbean on September 19<sup>th</sup> and 20<sup>th</sup>. The cumulative effects of these storms had a devastating effect on regional biodiversity. <http://bernews.com/2017/09/dd-thousands-birds-must-perished-hurricane-irma/>

On September 8<sup>th</sup> the **Throne Speech** was read, following the general election of July 18<sup>th</sup> and change in Government. Environmental initiatives announced in the **2017 Speech from the Throne** included:

- Government committed to bringing the Land Title Registration regime into force (Throne Speech pg. 18)
- Government will consult on mandatory recycling, single-use plastic bags and bottle deposits, resulting in a Green Paper (Throne Speech pg. 18).
- Increased enforcement and penalties for Planning policy violations and retroactive permission applications (Throne Speech pg. 19).
- Identify open spaces for protection and legislate protection beyond ministerial discretion (Throne Speech pg. 19).

Other issues that will impact the environment and environmental services include:

- the Brexit negotiations
- Government's focus on economic diversification
- Government's commitment to reducing food prices
- STEAM education initiatives
- Green Paper on transport
- commitment to reduce the cost of energy

The 2017 Throne Speech can be read here: [https://www.gov.bm/sites/default/files/Throne-Speech-TS\\_2017\\_Web%20Version.pdf](https://www.gov.bm/sites/default/files/Throne-Speech-TS_2017_Web%20Version.pdf)

[F2.2 bottle bill, F2.1 plastic, F4 open space, F4.7 housing, F4.6 transport, G1 revising and new legislation, G2 legislation gaps, G3 amend existing, adopt new, I4 strengthen protected areas, H1.4 retroactive planning, ].

In a press statement **responding to the Throne Speech**, **BEST** commended Government's intention to crack down on retroactive Planning approvals and strengthen protections of open space. [A2.6 ngo, H1.4 planning, I4 protected areas, D2.2 newspaper].

<http://bernews.com/2017/09/best-two-nuggets-of-environmental-treasure/>

On September 12<sup>th</sup> Dr. Philippe Rouja gave a keynote address to business leaders at the **Bermuda Captive Conference**, highlighting the links between shipwrecks and cultural heritage, and environmental conservation. [L5.1 business community engagement, D2.12, A3.2, A2.4].

The gill parasite *Brooklynella sp.* was identified as the cause of a **fish kill event** that took place in mid-September. A range of inshore reef fish species were affected. This parasite was also responsible for a fish die off in 2009, and is believed to be thriving due to high sea temperatures. [B, A3.4, E3 community monitoring, B4.10 list personnel, B4.12 response plan, K3.3, K6 threats, J5 marine sp.].

- <http://www.royalgazette.com/environment/article/20170922/parasite-to-blame-for-fish-deaths>
- <http://bernews.com/2017/09/denr-fish-die-likely-caused-parasite/>
- <http://bernews.com/2017/09/die-dead-fish-washing-shorelines/>
- <https://environment.bm/news-hot-topics//fish-die-off>

**Tobacco Bay was closed to swimming** after water samples showed high levels of bacteria. The beach was reopened a few days later, when bacteria counts dropped to acceptable levels. [B4.12 emergency response, K5 impacts].

- <http://www.royalgazette.com/environment/article/20170925/tobacco-bay-to-reopen>
- <http://bernews.com/2017/09/tobacco-bay-beach-closed-to-swimmers/>

The latest update to the **IUCN Red List of Threatened Species** was published in September, including for the first time an assessment of the extinction risk faced by the endemic **Bermuda maidenhair fern**. The assessment was done in collaboration between the Royal Botanic Gardens Kew and the Department of Environment and Natural Resources. It can be viewed at: <http://www.iucnredlist.org/details/114905835/0> [A3, A3.4 collaboration, K1 status, threats, maps, K1.5, K3.1, C7 training, D2].



**Bermuda Maidenhair Fern with spores (Alison Copeland)**

Senior Biodiversity Officer, Dr. Mark Outerbridge attended the **Capacity Building Workshop for Caribbean Small Island Developing States Towards Achieving Aichi Biodiversity Target 9** in Kingston, Jamaica September 18<sup>th</sup> – 22<sup>nd</sup>, 2017. The meeting was convened by the CBD in response to several decisions, and included presentations on a regional overview of invasive species projects and policies, discussion of regional priorities and work towards a Caribbean action plan. [A3.5 int'l conference, A3.4 exchange, A3.2 workshop, G1, K6.1 overseas invasive data, B4.11 invasive list] <https://www.cbd.int/meetings/IASWS-2017-01>

The BZS held its 5<sup>th</sup> annual **Reef Watch** on September 23<sup>rd</sup>. Coral reef surveys and fish counts were conducted by 19 teams of volunteers during the event, at 33 sites across the Bermuda Platform. The day finished with a BBQ and tabulation of the results on Trunk Island. The event raised more than \$22,000 for BZS. The **Reef Watch report for 2017** will be available here: <http://www.bermudabream.org/bzs-reef-watch.html>. [Social event A2.5, community participation data collection, E3, volunteers data collection K3.5, surveys E3.3, K1.9, K2.1 monitoring critical habitats, economically important spp. K3.3, possibly K5.8 ship silting, K6.2 bleaching, business community support L5.1].

- <http://www.royalgazette.com/environment/article/20170921/reef-watch-calls-on-citizen-scientists>
- <http://bernews.com/2017/10/scientists-carry-out-health-check-of-reefs/>

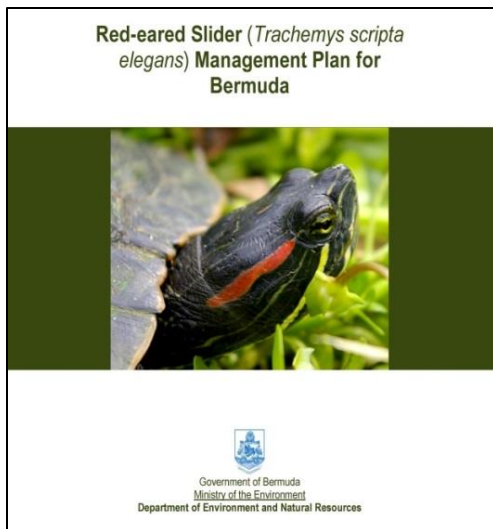
Environmental watchdog group **BEST celebrated their 10 year anniversary** at the end of September. They invited supporters to continue protecting conservation zones. [A2.6]. <http://www.royalgazette.com/environment/article/20170927/best-ten-years-of-advocating>

The Bermuda National Trust held a work day at their **Gladys Morrell Nature Reserve** with students from the **Bermuda College**. The volunteers learned how to identify native, endemic and invasive plants, and helped to cut back invasive plants and clear vines from the trees. They also cleared a significant amount of Lablab vine from the field. [C3.10 outdoor learning, E7 youth involvement, E1.3 restoration].



**Bermuda College work group at Gladys Morrell Nature Reserve (Photo: Bermuda National Trust).**

On September 28<sup>th</sup> the Department of Environment and Natural Resources published a **Red-eared Slider Terrapin Management Plan**, which is available for download from: <https://environment.bm/s/RedEaredSlider-management-plan-for-Bermuda.pdf> [B4, D4, G2, **J1 plan**, K3.4, K6.1, J2.1 web, J2.3].



On September 29<sup>th</sup> Education Minister Diallo Rabain announced in the House of Assembly that the Ministry had partnered with Panatel VDS Ltd. to produce **3 new Bermuda Geography text books**. [C3.4 text book, C1.3 print material, A3.4].

<http://bernews.com/2017/10/new-geography-text-book-young-geographers/>



## OCTOBER 2017

In the first week of October, Cabinet approved the appointment of Dr. Tammy Warren (Bermuda), the Hon. Wilfred P. Moore (Canada) and Frederico Cardigos (Azores) to the **Sargasso Sea Commission** for a three year term. <http://bernews.com/2017/10/sargasso-sea-commission-international-experts/> [A3.4, A3.5 Bda rep., A3.3 agreement].

Senior Marine Conservation Officer at the DENR, Dr. Sarah Manuel attended the second technical workshop of the project **Transatlantic Marine Protected Area Network** : Marine mammal's protection, a way to enhance transatlantic cooperation between MPAs. The meeting was in Husavik, Iceland from October 2<sup>nd</sup> to 4<sup>th</sup>. [A3.2 conference, I1, A3.4 collaboration, A3.5, I3 PA mgt].

On October 12<sup>th</sup> the DENR undertook a work day at **Spittal Pond with corporate volunteers from Sun Life Financial**. Volunteers dragged and chipped a large amount of felled Casuarina from the western hillside of the nature reserve near the Checkerboard. [E1.3 habitat restoration, E1.4 culling and planting, F3.3 private sector, I3 PA mgt].



Wood chipper at Spittal Pond for Sunlife work day (Photo: Peter Drew)

On October 6<sup>th</sup> the Royal Gazette profiled **BermyFresh Farms**, producers of organic, hydroponically grown herbs, microgreens and mushrooms. [E5.7 sustainable agriculture].

<http://www.royalgazette.com/lifestyle/article/20171006/mushroom-man-makes-most-of-organic-farming>

The Bermuda Audubon Society held its annual **Paget Island Bird Camp** from October 13<sup>th</sup> to 15<sup>th</sup>. [K3.5 community spp data, E3 comm data, C3.10 field trip].

The Department of Environment and Natural Resources held town hall meetings on October 10<sup>th</sup> and 11<sup>th</sup> to consult the public on changes to the **regulatory framework for dogs**. The proposed changes aim to improve the general care of dogs, promote responsible ownership and make enforcement of policies and legislation more efficient. [G2 legislative amendment, G2.2, H1 enforcement powers].

- <http://bernews.com/2017/10/improving-the-care-management-of-dogs/>
- <https://environment.bm/news-hot-topics//town-hall-meetings-on-dogs-next-week>

On World Food Day 2017, the Crop Trust highlighted the deposition of seeds of wild crop relatives at the **Svalbard Global Seed Vault**. The press release highlighted the endemic Bermuda Bean, which is Critically Endangered. The details of the project appeared in a Bernews.com article on October 17<sup>th</sup>. [J3 ex situ, J3.6 seeds, D2.2]. <http://bernews.com/2017/10/bermuda-bean-seeds-in-fail-safe-arctic-vault/>



**Wild Bermuda Bean seeds (photo: Alison Copeland)**

On October 19<sup>th</sup> Government Senior Agriculture Officer Thomas Sinclair gave a public lecture at BAMZ as part of the BZS lecture series. The talk, entitled “**Introduction to Bermuda’s Bees**” gave a history of bees in Bermuda and update on the latest projects and challenges facing beekeepers on the island. [A2.4 lecture, E5.5 beekeeping, E5.7]. <http://bernews.com/2017/10/bzs-lecture-an-introduction-to-bermudas-bees/>

Renaissance Re Holdings Ltd. donated \$250,000 to the Bermuda Zoological Society to support **outdoor learning programmes** at the Trunk Island Living Classroom. [F3.3 private sector sponsorship, L5, C3.10, C3.11 BZS]. <http://bernews.com/2017/10/renre-donate-250000-for-living-classroom/>

National Geographic photographer David Doubilet posted a photo to the NatGeo Instagram page showing a **Sargassum Frogfish** in a raft of Sargassum weed. The photo got over 270,000 likes. [E3.5]. <http://bernews.com/2017/10/camouflaged-sargassum-hides-from-predators/>

On October 26<sup>th</sup> Dr. David Wingate gave his lecture ‘**Man’s Impact on Bermuda**’ at the BUEI auditorium. The talk highlights man’s influence on Bermuda’s natural history from the settlement of the island to present. [A2.4 lecture, D2]. <http://bernews.com/2017/10/buei-talks-host-mans-impact-bermuda/>



On October 30<sup>th</sup> Bermuda's second **Sea Bin** was installed at the Royal Hamilton Amateur Dinghy Club. The bin contains a catch bag that traps floating litter and debris as water is pumped through the bin. The first seabin was installed at the Hamilton Princess Marina in May. [E1.5 marine clean-up, E1.7 boating].

<http://bernews.com/2017/10/bermudas-second-seabin-installed-dinghy-club/>

In October, Government provided an update on the **clean-up of the Rubis fuel spill** at Ferry Reach, saying that 25% of the original spilled volume had been cleaned up over the last six months, and operations were ongoing in accordance with Bermuda's Risk Based Corrective Action (RBCA) Guidelines. [B4.12 response plan, E10.17, K5, B4, D2.2].

- <http://bernews.com/2017/10/government-provides-update-on-fuel-spill-recovery/>
- <http://bernews.com/2017/10/fuel-spill-to-take-a-few-years-to-clean-up/>

In late October, a **Western Tanager was photographed** at Ferry Point Park by Ian Fisher and Paul Watson. The sighting is only the second of this species in Bermuda, the first being from 2006 when David Wingate reported the bird, also at Ferry Point. [K3.5 com spp. data, E3 community data].

- <http://www.royalgazette.com/news/article/20171201/rare-bird-sighted-for-second-time>
- <http://audubon.bm/images/pdf/Newsletters/Vol. 28 No.3.pdf>

On November 6<sup>th</sup>, Dr. Brian Luckhurst (Bermuda's former Senior Fisheries Officer) presented the keynote address at the 70th Annual conference of the [Gulf and Caribbean Fisheries Institute \(GCFI\)](#), held in Mexico. Dr Luckhurst's presentation, titled '**The Oceans are Changing - Implications for Fisheries**', focused on fish spawning aggregations, particularly in Bermuda. The lecture was streamed live on Facebook and can still be viewed online. [A2.4 lecture, A3.2 conference, J5 marine sp.]. <https://www.gcfi.org/conferences/>

## NOVEMBER 2017

**Several boat trips** to look for returning Cahows at sea were run in November by the Bermuda Audubon Society and the Bermuda Zoological Society. Attendees were treated to some excellent sightings of the Cahows, along with other birds, flying fish and dolphins. [K3.5, E3, E3.5, C3.10].

On November 7<sup>th</sup> the Friends of the Bermuda National Library held a presentation by Frances Eddy on **planting vegetable seeds, caring for seedlings** and transplanting them into the garden. [E5.6 home gardening, A2.4 lecture, C5, E5.5]. <http://bernews.com/2017/11/planting-seeds-caring-for-seedlings-on-nov-7/>

The Bermuda Aquarium Museum and Zoo stressed the importance of removing fishing line and other entanglement hazards from the water, after a green turtle was found drowned off Lagoon Park after becoming tangled in fishing line snared on a boat mooring. The press release also urged the public to **report suspected wildlife in distress** as soon as possible to give wildlife rehabilitation staff the best chance to save the animal. [J4 rehab, D2, D3 public role, E1.7 boaters].

<http://www.royalgazette.com/environment/article/20171112/call-for-vigilance-after-turtle-death>

The Department of Environment and Natural Resources published a **protected species recovery plan for the Common Tern** in November. The 33 page plan, written by Miguel Mejias, highlights work done on the

species to date, threats, required management measures and natural history information. The plan can be read [here](#) or at the BAMZ library. [J1.6 new plan, J1.3, J1.7 listed spp., J2.1 plan on web, K3.1, K1.3].

November 8<sup>th</sup> staff from the DENR and corporate volunteers from **Sunlife Financial held a work day at Spittal Pond** to resurface the coast path with Casuarina chips and plant native plants. [E1.3 habitat restoration, E1.4 culling and planting, F3.3 private sector, I3 PA mgt].



Staff from Sunlife on a bench they installed at Spittal Pond. (Alison Copeland)

In November the Department of Parks solicited public views on an application to operate all-terrain vehicle (ATV) tours on the railway trail in Somerset and in Hog Bay National Park. [A2.6, E10.6].

- <http://www.royalgazette.com/environment/article/20171111/best-reports-difficulty-with-atv-submissions>
- <http://bernews.com/2017/11/garden-club-bermuda-objects-atv-access/>
- <http://bernews.com/2017/11/walk-around-the-proposed-atv-tours-route/>
- <http://bernews.com/2017/11/bnt-objects-to-atv-trail-proposal/>
- <http://bernews.com/2017/11/action-group-welcomes-atvs-public-consultation/>

On November 15<sup>th</sup> the Department of Environment and Natural Resources published the **Cahow Recovery Programme 2016 - 2017 Breeding Season Report**. The 25 page report, compiled by Senior Terrestrial Conservation Officer Jeremy Madeiros, provides details from the most recent Cahow breeding season, which saw a record number of **117 breeding pairs**, producing a record total of **61 successfully fledged chicks**. The report can be read [here](#). [D2, D8, J1.3 implementation, J2.3 gov, K1.5].  
<https://environment.bm/news-hot-topics//2016-2017-cahow-breeding-season-report-now-available?rq=cahow%20report>

A public meeting was held at the Department of Environmental Health on November 21<sup>st</sup> following numerous complaints about the **smell from the cow manure pit** at Green Land Dairy Farm on Store Hill in Smiths. [E5.7 agriculture].

<http://www.royalgazette.com/news/article/20171122/residents-want-quick-fix-of-farm-smells>

On November 19<sup>th</sup> Dr. Mark Guishard presented a lecture “**Should Bermuda Care about Climate Change**” at a Think Fest event at the Bermuda College. [K6.2 climate change, D9 event, A2.4 lecture]. <http://bernews.com/2017/11/should-bermuda-care-about-climate-change/>

On November 23<sup>rd</sup> the Department of Environment and Natural Resources said in a press release that so far for the 2017/18 breeding season **125 pairs of Cahows** had been found breeding – a new record for the species. [J, A3.4, K3, K2 J1].

- <http://www.royalgazette.com/news/article/20171123/record-number-of-cahow-nesting-pairs>
- <http://bernews.com/2017/11/125-nesting-pairs-of-cahows-identified/>
- <http://bernews.com/2017/11/great-start-2018-cahow-nesting-season/>
- <https://www.gov.bm/articles/great-start-2018-cahow-nesting-season>

The **amendments to the Bermuda National Parks Act** passed the House of Assembly on November 24<sup>th</sup> and the Senate on December 14<sup>th</sup>. The amendments will update the fee structure for the Department of Parks, enabling the charging of fees for goods and services. Amendments to schedule 3 made changes to the composition of the National Parks Commission, with the inclusion of representatives from local ENGOs, park user groups and commercial enterprises. The Amendments to Schedule 1 of the Act included the listing of new protected areas and the re-classification of some existing areas. The **Bermuda National Parks Amendment Act 2017** and the Bermuda National Parks Amendment Act 2009 will both come into operation on April 1<sup>st</sup> 2018 [I4 strengthen protection, I4.5 buffer, I5 restoration, I3 mgt, I2 PA system, I2.4 zonings, I2.2, A3.4, B1.6 inter-ministerial, D3, D10.7 sign, F4, G3 amendment, H1].

- <http://bermulaws.bm/laws/Annual%20Laws/2017/Acts/Bermuda%20National%20Parks%20Amendment%20Act%202017.pdf>
- <http://www.royalgazette.com/politics/article/20171127/parks-legislation-modernised>
- <http://www.royalgazette.com/politics/article/20171214/great-initiative-to-expand-national-parks>

Legislation to bring the **Land Title Registry** into effect passed the House of Assembly on November 24<sup>th</sup> and was approved by the senate on December 13<sup>th</sup>. The **Land Title Registration Amendment Act 2017** amends the Land Title Registration Act 2011. [I1, F4, G2 legislation, G3 amendment]. This was a Throne Speech initiative.

- <http://bermulaws.bm/laws/Annual%20Laws/2017/Acts/Land%20Title%20Registration%20Amendment%20Act%202017.pdf>
- <http://www.royalgazette.com/politics/article/20171127/land-title-registry-to-come-into-effect>
- <http://www.royalgazette.com/news/article/20171213/central-land-title-registry-to-be-set-up>

The **Neil Burnie Foundation** held a fund raiser in November to support the Foundation’s marine research and awareness initiatives including shark tagging and a contribution to the BZS’s Kids on the Reef programme. <http://www.royalgazette.com/news/article/20171124/vets-legacy-reveals-wonders-of-deep> . [L, C3.10, C3.11 BZS].

Premier David Burt represented Bermuda at the **Joint Ministerial Council (JMC)** in London in the last week of November. Premier Burt discussed climate change and natural disaster recovery issues with UKOT

and UK colleagues, including Prime Minister Theresa May and Foreign Secretary Boris Johnson. The UK pledged financial and logistical support to Territories recovering from impacts of Hurricanes Irma and Maria which struck the Caribbean this summer. [A3, L4.1 overseas funding].

- <http://www.royalgazette.com/politics/article/20171201/jmc-discussed-hurricane-impact>
- <https://www.gov.bm/articles/joint-ministerial-council>
- <https://www.gov.bm/articles/premier-burt-and-overseas-territory-leaders-meet-uk-prime-minister>
- <https://www.gov.uk/government/news/overseas-territories-joint-ministerial-council-28-and-29-november-2017>

At the end of November a **long-standing bee hive** in a Poinciana tree at the junction of King and Union Streets in the City of Hamilton was **removed** by City Parks staff and beekeeper Spencer Field. The City encouraged the public to report problematic bee swarming activity to them, so the issue could be dealt with by a professional to ensure the bees were not harmed. [E5.5, A3.4, D2.5].

- <http://bernews.com/2017/11/long-standing-bee-hive-removal-hamilton/>
- <http://www.royalgazette.com/environment/article/20171130/residents-buzzing-after-bees-are-removed>

## DECEMBER 2017

On December 2<sup>nd</sup> Public Works Minister Lt.Col. David Burch, accompanied by Home Affairs Minister Walton Brown, officially opened the **Farmer's Market at the Botanical Gardens**. The Saturday morning market presents home-grown goods from 42 vendors, and will be held until June 2018. [E5.5].

<http://www.royalgazette.com/news/article/20171203/farmers-market-formally-opened>

In December, environmental groups including BEST and Take Back Our Park welcomed the long-awaited addition of the 37-acre **Southlands** property to the list of National Parks. The addition was one of several made in the **Bermuda National Parks Amendment Act 2017**. [I2, I4 level of protection, I5 restoration potential, G3 amend legislation].

- <http://www.royalgazette.com/news/article/20171206/southlands-added-to-list-of-national-parks>
- <http://www.royalgazette.com/environment/article/20171219/environmentalists-want-update-on-southlands>
- <http://bernews.com/2017/12/group-welcomes-national-park-designation/>





DENR and BAMZ staff removed a **raccoon from a shipping container** at Pembroke Paint Company on December 5<sup>th</sup>. As a potential vector for disease, the animal was immediately euthanized. The shipment had originated in Ontario, Canada. [D3 public role awareness, D4.2 press animal control].

<http://www.royalgazette.com/news/article/20171205/stowaway-raccoon-is-put-down>

On Saturday December 9<sup>th</sup>, a team from One Communications lead a community **clean-up of Frank's Bay in Southampton** and the adjacent railway trail. [E1.5].

<http://bernews.com/2017/12/one-communications-kicks-onecommunity/>

On December 10<sup>th</sup> Bernews.com reprinted an article that was written for [theconversation.com](http://theconversation.com) on **how many undiscovered creatures there are in the ocean**. The article highlights different methods of counting species, naming conventions, how species names aid conservation and new approaches to species classification, such as genetic bar coding and online databases. A link to the prequel video of the upcoming BBC series Blue Planet II was also included. [D2.2 news, definition C3.1].

<http://bernews.com/2017/12/column-undiscovered-creatures-in-the-ocean/>

On December 9<sup>th</sup>, employees of **Artex** and their families joined BZS staff to cull Brazil Pepper from **Trunk Island** as part of the ongoing restoration of the Living Classroom on the island. [E1.3 habitat restoration, E1.4 culling and planting, F3.3 private sector, I3 PA mgt].

<http://bernews.com/2017/12/artexs-team-aids-in-restoration-of-trunk-island/>

**Global Indemnity Re** made a \$12,500 donation to the **Bermuda Turtle Project** on December 11<sup>th</sup> in recognition of the project's 50<sup>th</sup> anniversary. [F3.3 private sector sponsorship, L5, L6].

- <http://bernews.com/2017/12/global-indemnity-re-supports-turtle-project/>
- <http://www.royalgazette.com/environment/article/20171214/gir-donates-to-bermuda-turtle-project>

**America's Cup team Land Rover BAR** published their **2017 Bermuda Sustainability Report** in December. The 46 page report detailed strategies used and lessons learned through the entirety of the team's presence in Bermuda; including the approach to building a sustainable base, reducing operational impact, deconstruction and building legacy, and the partnerships formed. It also touched on the impact of the 11<sup>th</sup> Hour Racing Exploration Zone which provided education experiences for the public and 1,800 school children. [D4 IAS, A3.4, A2.5 social event, **D9 public event**, D9.2, E7 youth, E10 private sector, F3.3, L, F6.2, C1 interactive education, C4 adults, C3 school children].

<http://bernews.com/2017/12/land-rover-bar-bermuda-sustainability-report/>

Keep Bermuda Beautiful and several community partners coordinated extra trash cans and volunteers for Elbow Beach to accommodate **garbage from Christmas Day** celebrations. Trash and recycling were moved from the beach to the road for collection by volunteers on Boxing Day. [E1.5 clean up].

<http://bernews.com/2017/12/help-keep-elbow-beautiful-christmas/>

The OCEARCH research group reported on December 30<sup>th</sup>, that one of its tagged sharks was swimming near the Island. Errol Finn, a 6 foot male **Shortfin Mako Shark** was tagged by the group on November 1<sup>st</sup> in Cape Cod, and tracked to a point Southeast of Bermuda. The Shortfin Mako is one of the species covered by the Sharks MOU of the Convention on Migratory Species, so this record is significant. Thomas, a 9 foot Blue Shark tagged by the group in 2015 was also tracked to the Southwest of the Island in May 2017. [D2.2, A3.4, K migratory].

- <http://bernews.com/2017/12/two-sharks-tracked-near-bermuda/>
- <http://www.royalgazette.com/news/article/20171230/mako-shark-errol-finn-followed-to-bermuda>



The **2017 Christmas Bird Count** took place on Wednesday, December 27th. Species of note included an immature Purple Gallinule, a Summer Tanager and a Yellow-throated Vireo as well as a flock of 12 Hooded Mergansers at Spittal Pond, two Snow Geese and two Brant Geese. As in past years, pest birds, particularly House Sparrows and European Starlings, made up the majority of the 7,000 individual birds recorded on count day. [The count itself is **BSAP item E3.8** and K3.5 as data is collected by the public.]

- <http://www.royalgazette.com/news/article/20180102/christmas-count-finds-85-species-of-birds>
- <http://audubon.bm/images/pdf/Newsletters/Vol. 29 No.1 Winter 2017-18.pdf>



**Mergansers (left) and Brant Goose (right) at Cloverdale Pond. (Alison Copeland)**

## New Scientific Papers at BAMZ library this year

### Publications that became available at the library in 2017:

Andradi-Brown, D. A. et al., Large-scale invasion of western Atlantic mesophotic reefs by lionfish potentially undermines culling-based management, *Biol. Invasions*, 2016. (BAMZ #3032)

Baird, Kaitlin, Life Within the Sargasso Sea: Sargassum Communities, *The Journal of Marine Education*, 29(1): 42-46, 2014. (BAMZ #3066)

Baker, D. M. et al., Investigating Bermuda's pollution history through stable isotope analyses of modern and museum-held gorgonian corals, *Marine Pollution Bulletin*, 114(1): 169-175, 2017. (BBP #253/BAMZ #3059)

Bjorndal, K. A. et al., Ecological regime shift drives declining growth rates of sea turtles throughout the West Atlantic, *Glob. Change Biol.*, 23: 4556-4568, 2017. (BAMZ #3096)

Bongaerts, P. et al., Deep reefs are not universal refuges: Reseeding potential varies among coral species, *Science Advances*, 3(e1602373): 12 pp., 2017. (BAMZ #3061)

Buck, K. N., L. J. A. Gerringa & J. A. Rijkenberg, An Intercomparison of Dissolved Iron Speciation at the Bermuda Atlantic Time-series Study (BATS) Site: Results from GEOTRACES Crossover Station A, *Frontiers in Marine Science*, 3(Article 262): 14 pp., 2016. (BAMZ #3034 – attached)

- Cresswell, J. N. et al., Anthropogenic infilling of a Bermudian sinkhole and its impact on sedimentation and benthic foraminifera in the adjacent anchialine cave environment, *International Journal of Speleology*, 46(3): 409-425, 2017. (BAMZ #3106/BBP #259)
- de Putron, S. J. et al., Variation in larval properties of the Atlantic brooding coral *Porites astreoides* between different reef sites in Bermuda, *Coral Reefs*, 11 pp., 2017. (BAMZ #3056)
- De Souza, J. N. et al., Contrasting patterns of connectivity among endemic and widespread fire coral species (*Millepora* spp.) in the tropical Southwestern Atlantic, *Coral Reefs*, 36: 701-716, 2017. (BAMZ #3104)
- Dobbs, T. T. & D. W. Boyd Jr., Status and Distribution of *Montandiola moraguesi* (Hemiptera: Anthocoridae) in the Continental United States, *Florida Entomologist*, 89(1): 41-46, 2006. (BAMZ #3040)
- Dobson, A. & J. Madeiros, Important Bird Areas: Bermuda, *British Birds*, 110: 155 - 172, 2017. (BAMZ #3073)
- Duron, Q., A. B. Shiels & E. Vidal, Control of invasive rats on islands and priorities for future action, *Conservation Biology*, 31(4): 761-771, 2016. (BAMZ #3107)
- Enders, K. et al., Abundance, size and polymer composition of marine microplastics  $\geq 10 \mu\text{m}$  in the Atlantic Ocean and their modelled vertical distribution, *Marine Pollution Bulletin*, 100: 70-81, 2015. (BAMZ #3064)
- Huffard, C. L. et al., Pelagic *Sargassum* community change over a 40-year period: temporal and spatial variability, *Marine Biology*, DOI:10.1007/s00227-014-2539-y, 2014. (BAMZ #3092)
- Macedonia, J. M., D. L. Clark & A. P. McIntosh, Differential Range Expansion and Habitat Use Among the Naturalized *Anolis* Lizards of Bermuda, *Herpetological Review*, 47(4): 529-535, 2016. (BAMZ #3057)
- Mejias, M. A. et al., Distribution and at-sea behavior of Bermudian White-tailed Tropicbirds (*Phaethon lepturus catesbyi*) during the non-breeding season, *Journal of Field Ornithology*, 14 pp., 2017. (BAMZ #3069/BBP #255)
- Mejias, M. A. et al., Nest-Cavity Selection and Nesting Success of Bermudian White-Tailed Tropicbirds (*Phaethon lepturus catesbyi*), *The Wilson Journal of Ornithology*, 129(3): 586-599, 2017. (BAMZ #3093/BBP #254)
- Murdoch T.J.T and J.M.H Murdoch. 2016. Baseline condition of the coral reefs and fishes across three depth zones of the forereef of Bermuda. BREAM: Bermuda Reef Ecosystem Analysis and Monitoring Programme Report, Bermuda Zoological Society, Flatts Bermuda. pp.237.
- Nunes, F. L. D. et al., Long Distance Dispersal and Connectivity in Amphi-Atlantic Corals at Regional and Basin Scales, *PLoS One*, 6(7): 12 pp., 2011. (BAMZ #3098)
- O'Farrell, S., On the Dynamics of Coral Reef Fishes: Growth, Senescence and Mortality, PhD Thesis, University of Exeter, 2011. (BAMZ #3108)
- Outerbridge, M. E. et al., Restricted diet in a vulnerable native turtle, *Malaclemys terrapin* (Schoepff), on the oceanic island of Bermuda, *Amphibian & Reptile Conservation*, 11(1): 25-35, 2017. (BAMZ #3039/BBP #243)

- Peters, M. J. & J. M. Marcus, The complete mitochondrial genome of the Bermuda buckeye butterfly *Junonia coenia bergi* (Insecta: Lepidoptera: Nymphalidae), Mitochondrial DNA Part B, 1(1): 739-741, 2016. (BAMZ #3041)
- Peters, M. J. & J. M. Marcus, Taxonomy as a hypothesis: testing the status of the Bermuda buckeye butterfly *Junonia coenia bergi* (Lepidoptera: Nymphalidae), Systematic Entomology, 13 pp., 2016. (BAMZ #3042)
- Reich, H. G., Robertson D. L. & G. Goodbody-Gringley, Do the shuffle: Changes in *Symbiodinium* consortia throughout juvenile coral development, PLOS One, 18 pp., 2017. (BAMZ #3068)
- Righton, D. et al., Empirical observations of the spawning migration of European eels: The long and dangerous road to the Sargasso Sea, Science Advances, 2: e1501694, 2016. (BAMZ #3109)
- Roper, C. F. E. et al., A Compilation of Recent Record of the Giant Squid, *Architeuthis dux* (Steenstrup, 1857) (Cephalopoda) from the Western North Atlantic Ocean, Newfoundland to the Gulf of Mexico, American Malacological Bulletin, 33(1): 78-88, 2015. (BAMZ #3097)
- Ryan et al., Final report for trans-Atlantic research passages between the UK and USA via the Azores and Iceland, conducted from R/V *Song of the Whale* 26 March to 28 September 2012, Marine Conservation Research International, 2012. (BAMZ #3095)
- Schneider, C. W., P. K. Quach & C. E. Lane, A case for true morphological crypsis: Pacific *Dasya anastomosans* and Atlantic *D. cryptica* sp. nov. (Dasyaceae, Rhodophyta), Phycologia, 56(4): 359-368, 2017. (BAMZ #3060/BBP #238)
- Sirovic, A. & J. A. Hildebrand, Ocean ambient sound south of Bermuda and the Panama Canal traffic, J. Acoust. Soc. Am., 139(5), 2417-2423, 2016. (BAMZ #3094)
- Turner, G. L., The Effect of Sedimentation on the Biodiversity of Coral Reefs in Bermuda, Dissertation, Cardiff University, 2017. (BAMZ #3110) (available in library)
- Turner, H. et al., *Plestiodon longirostris* (Bermuda Skink). Tail bifurcation, Herpetological Review, 48(1), 2017. (BAMZ #3105/BBP #252)
- Turner, H., *Plestiodon longirostris* (Bermuda Skink), Herpetological Review, 48(4): 812, 2017. (BAMZ #3180)
- Wagner, D. & A. Shuler, The black coral fauna (Cnidaria: Antipatharia) of Bermuda with new records, Zootaxa, 4344(2): 367-379, 2017. (BAMZ #3113/BBP #261)
- Wetterer, J. K., Invasive ants of Bermuda revisited, Journal of Hymenoptera Research, 54: 33-41, 2017. (BAMZ #3054)
- Winkelstern, I. Z. et al., Meltwater pulse recorded in Last Interglacial mollusk shells from Bermuda, Paleoceanography, 32: 14 pp., 2017. (BAMZ #3043)

## **Reports**

- Hallett, J., Turkey-wing mussel populations in Harrington Sound, Bermuda 20 years post-dredging, BZS & Bermuda Government Department of Environmental Protection, 2012. (BAMZ #3065)

Key, J. Tackling Invasive Non-Native Species in the UK Overseas Territories Gap Analysis of Biosecurity Capacity. Report, Great Britain Non-Native Species Secretariat, UK. It can be read [here](#).

Madeiras, J., Cahow Recovery Program 2015-2016 Breeding Season Report, Bermuda Government, 2016. (BAMZ #3090)

Pitt, J. & J. Hallett, Report on the Commercial Mussel Diver Fishery and Mussel Population Surveys in Harrington Sound, 15 pp., 2012. (BAMZ #3067)

Riederer, J. 2016. Bermuda Seahorse Surveys: September 2015-December 2016, Unpublished Report (BAMZ #3033). Only hard-copy available in the library.

Smith, S. R., M. Hall & S. Beland, Sargassum Community Studies near Bermuda, 2015, Department of Environment & Natural Resources, 2017. (BAMZ #3062)

Smith, S. R. 2017. Exploring Bermuda's Exclusive Economic Zone: studies in the Sargasso Sea, Department of Environment & Natural Resources (BAMZ #3063)

### **Thesis**

Eddy, William Corey, An Investigation of the Biology and Ecology of the Invasive Lionfish (*Pterois volitans* and *P. miles*) to Explore Their Ecological Impact and Inform Management in Bermuda's Marine Ecosystem, A dissertation in Marine Science and Technology, Degree of Doctor of Philosophy, University of Massachusetts, 2016. (BAMZ #3076)

Lyons, S. K., A Study into the Diversity of Fig Wasp Species (Chalcidoidea) Associated with the Invasive Tree, *Ficus microcarpa*, on the Archipelago of Bermuda and the Impact they Inflict on its Reproductive Success, Dissertation, Msc Biodiversity and Conservation, University of Leeds, 2017. (BAMZ #3111)

### **Management Plans**

Mejías, M.A. 2017. Recovery Plan for the Common Tern, *Sterna hirundo*, on Bermuda. Department of Environment and Natural Resources, Government of Bermuda. 33 pages.

Outerbridge, M E. 2017. Red-eared Slider (*Trachemys scripta elegans*) Management Plan for Bermuda, Bermuda Government. (BAMZ #3091).