

# Envirotalk



GOVERNMENT OF BERMUDA

Department of Environment and Natural Resources

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TO PROTECT BERMUDA'S ENVIRONMENT AND RESPONSIBLY MANAGE ITS NATURAL RESOURCES

## WELCOME

to our fall edition of Envirotalk.

In this issue –

- Learn how to **make your garden a haven for migrating birds.**
- See the results of Jeremy Madieros' **2018 White-tailed Tropicbird (Longtail) Breeding Survey.**
- The Pollution Control Section explains the new **regulations on sewage discharge from boats.**
- Have a question about **rats, chickens or injured wildlife?** See our 'who to call' sheet.
- **Environmental Calendar.** Check to see what environmental events are happening at this time.
- See the **Planting Calendar** to get a head start on what to plant this Fall.

Please contact:

**Envirotalk mailing list:** [envirotalk@gov.bm](mailto:envirotalk@gov.bm) to be placed on the mailing list or for suggestions for future articles.

## MAKE YOUR GARDEN A HAVEN FOR MIGRATING BIRDS

Bermuda is located in a prime position to receive birds as they migrate from North America to warmer climates in the Caribbean and South America as winter approaches. Each autumn Bermuda sees several waves of avian visitors arrive, ranging in size from tiny hummingbirds and warblers



*Snow Buntings – migrants from the Arctic on the beach at Cooper's Island (photo: Alison Copeland).*

to geese and the occasional bird of prey. Some of these migrants have travelled from as far away as the Arctic to reach our shores. When they arrive, all migrant birds are seeking the same things: food, water, shelter and protection from predators. In celebration of '[2018 the Year of the Bird](#)', we offer a few suggestions on how you can provide these things to make your garden an attractive re-fueling stop for migrants this autumn.

### 1. Grow a variety of plant species

Plants that flower and fruit at different times of the year will keep your garden attractive to birds throughout the seasons. A variety of species will also ensure there is something for everyone in terms of fruit size and hardness.

### 2. Grow fruits, berries, flowers and seeds

Birds are attracted by plants that provide them with seeds, fruit or berries and nectar. A few native and endemic plants that fruit in the autumn and winter, and are good for birds include: Snowberry, Bermuda Cedar, Bermuda Olivewood, Turkey Berry, Southern Hackberry, Wax Myrtle, Virginia Creeper vine, Bay Grape and Yellowwood. A pile of rotting logs and branches or a compost pile will attract insects which also provide food for birds.



*Northern Parula (Photo: Liz Copeland)*

### 3. Grow a variety of plant types.

The more types of plants you grow the more habitats you create. For example, ground-feeding birds like the Bluebird make use of open lawns to look for worms and insects, while most birds prefer the shelter of dense vegetation. Having a variety of shrubs, hedges, vines, palms and trees in your garden offers many types of shelter.

### 4. Provide water

A bird bath is an easy way to attract birds to your garden. After a long migration, they are desperate for fresh water. Bird baths should be raised and in an open area to allow birds to see any prowling cats or dogs. Unglazed, light coloured ceramic or cement baths are best. Migrating dragonflies are also numerous in the autumn and will use your bird bath. Keep an eye on your bird bath and you never know what you will see.

### 5. Provide seed with caution

If you are considering a traditional bird feeder with seeds, think about the location very carefully. Even if the feeder is placed high up, the birds will follow the spilled feed to the ground, so don't set one up if you have cats on the property.

Other tips on attracting wildlife to your garden can be found on our website: <https://environment.bm/attracting-wildlife>. Unfortunately each year a few migrants arrive exhausted or in poor health and are unable to recover. If you find an unusual dead bird, contact the Bermuda Natural History Museum (293-2727) or email us a photo to [environment@gov.bm](mailto:environment@gov.bm).

Your find could join the collection of preserved birds in the museum. If you find a live bird in need of assistance, it can be taken to the wildlife rehabilitation facility at the Bermuda Aquarium, Museum and Zoo (BAMZ).

*Alison Copeland  
Biodiversity Officer*



*Black and White Warbler at DENR office  
in Flatts (Photo: Alison Copeland)*

## 2018 WHITE-TAILED TROPICBIRD (LONGTAIL) BREEDING SURVEY

Seabirds have always been an important part of Bermuda's natural heritage; the earliest human settlers and visitors to Bermuda in the 1500s and early 1600s described an island that was teeming with hundreds of thousands of seabirds, of at least 8 to 10 different species.

Unfortunately, the arrival of man and introduced mammal predators was catastrophic for seabirds. Many seabird species were completely eradicated on Bermuda within 12 years of human settlement, with the Cahow reduced to near-extinction as early as the 1620s. By the year 2000, only 3 species of seabirds still nest on the island.

The only seabird still common on Bermuda is the beautiful White-tailed Tropicbird, known by Bermudians as the Longtail, which was able to survive because it uses erosional cavities on steep coastal cliffs for nesting, where humans and mammal predators generally cannot reach.



*Longtail Chick (Photo: Tim White)*

Bermuda's Longtails are of international significance, because the island has the largest nesting population in the Atlantic basin, with about 3500 breeding pairs scattered around the island's coastline. The largest concentrations of nesting Longtails are on offshore islands such as the Castle Islands Nature Reserve, and the higher coastal cliffs such as Great Head in St. David's and High Point in Southampton.

To understand the overall status of their population, breeding success, and threats facing the species, the Terrestrial Conservation Division of the Department of Environment and Natural Resources has, since 2006, carried out an annual Tropicbird Breeding Survey, of all accessible nest sites at 10 different locations in the east end of Bermuda. A long-term study is the best method of determining if the Longtail population is stable, increasing or declining. Eight of the survey locations are on islands in the Castle Islands Nature Reserve, which are managed to eradicate rats and control human access. The other two locations are unmanaged control sites on Bay Island, Bailey's Bay, and the coastline west of Shelly Bay, Hamilton Parish, which contain rats, crows and other predators and are subject to some human disturbance.

Every summer, from early May until late September, every survey location is visited at least once every 2 weeks; every safely accessible nest is checked for breeding activity, or the presence of an egg or chick (each nesting pair produces only one chick annually, which is fed squid and flying fish by both parents until it flies to sea at about 70 days of age).



Longtail Chick (Photo: Tim White)

- Adult Longtails are fitted with alloy identification bands to positively identify individual birds on consecutive years. This has confirmed that most Longtails are faithful partners, returning to the same nests with the same mates for at least 5 to 8 years.

- Pairs that successfully produce chicks are most likely to stay together, while failed breeders often separate and find new partners.

- In addition, chicks are also fitted with bands, to determine the age at which they return to breed (from 3 to 6 years) and confirming that they return usually either to the place of their birth, or a nearby location.

- As of 2018, a total of 1506 adult and fledgling Longtails have been fitted with identification bands. A check is also made each year at each survey location to look for any new nest sites.

One of the biggest threats facing the Longtail in Bermuda is loss of nest cavities from hurricane erosion. During Hurricane Fabian in 2003, almost 300 nests were destroyed on the Castle Harbour Islands, representing over 50% of all nests in this area. A joint project between the Department of Environment and Natural Resources and the Bermuda Audubon Society developed an artificial Tropicbird nest that can be cemented in place on cliff edges and terraces. Over 100 of these "Igloo" nests are included in the survey. Surprisingly, breeding success has consistently averaged from 11% to 15% higher in artificial nests than in natural nest cavities over the 13 years of the survey.

One of the most encouraging results is that Longtail numbers appear to be increasing on 8 of the 10 survey locations. In 2006, a total of 206 nests were monitored, of which 160 had breeding activity, with 103 chicks

fledging successfully. By 2013, 274 nests were monitored, 230 with breeding activity and 145 chicks fledging. In 2018, 310 nests were being monitored, 250 with breeding activity, and 182 chicks fledging successfully.

The following are the results for the 2018 Tropicbird breeding survey, separated into artificial/natural nests:

Nest Type	Total Nests	Nests with breeding activity	Nests with successful breeding	Nests with failed breeding	Breeding Success
Artificial	101	81	65	20	80.2%
Natural	209	169	117	52	69.2%

Total no. of all Longtail Nests Surveyed: ..... 310

Total no. of all nests with Breeding Activity: ..... 250

Total no. of Longtail Chicks Successfully Fledged: ..... 182

Breeding Success Rate for all nests with breeding activity: .....72.8%

Bermuda’s Longtails are part of our local cultural and natural heritage, and their beauty is appreciated by both residents and visitors. Through this survey, we continue to gain information on their status, identify threats and management priorities, and hopefully ensure that they continue to grace the island’s coastlines for future generations to enjoy.

*Jeremy Madeiros*  
*Senior Terrestrial Conservation Officer*

**NEW SEWAGE DISCHARGE REGULATIONS FOR BOAT OWNERS**

The Department of Environment & Natural Resources can report *‘The Water Resources (Prevention of Pollution by Sewage from Boats) Regulations 2018 (BR83/2018)’* came into force in August 2018. These Regulations apply to owners and operators of recreational boats, live-a-boards, charter boats and all other boats that sail or motor in and around Bermuda. Other boats and ships engaged in international voyages and registered to carry more than 15 persons, or of 400 GT or greater, shall abide by *the Bermuda Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2015*, and shall not discharge untreated sewage within 12 nautical miles of the nearest land.

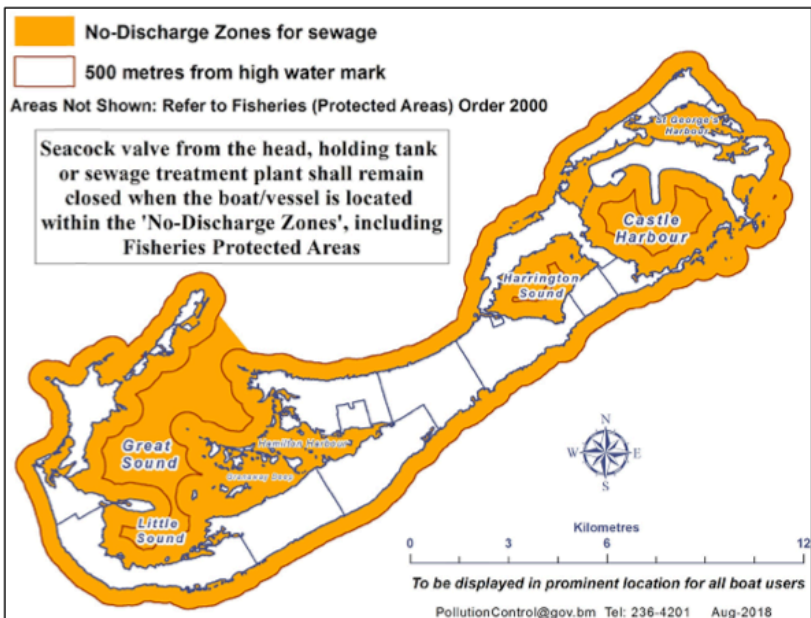
## Why are the new regulations needed?

Sewage from boats can be a health hazard to bathers in popular boating areas. Furthermore, it compromises the health, biodiversity and aesthetics of Bermuda's marine environment. The 'twin pillars' of Bermuda's economy are its international business and tourism industries, both of which are dependent on Bermuda maintaining a pristine environment.

The addition of sewage to shallow, nearshore marine habitats can cause dissolved oxygen concentrations to drop. This effect can be more significant in enclosed water bodies and is one of the potential causes of fish kills or fish die-offs observed in Bermuda during the summer months.

## What do the new regulations say?

As a result of the new 2018 Regulations recreational boaters may only discharge sewage overboard when outside of the 'No-Discharge-Zones' as shown in the figure below. Sewage may only be discharged outside of the near-shore areas (i.e. greater than 500 metres from the nearest land, <1,640ft) in addition to outside of the more enclosed areas of Great Sound, Little Sound, Harrington Sound, Castle Harbour, Hamilton Harbour, St George's Harbour and Fisheries Protected Areas.



The Regulations also require an instruction sticker (as seen above) showing the 'No-Discharge-Zones' to be placed in a visible location adjacent to the toilet on board.

On boats with a toilet and holding tank, when inside the No-Discharge Zones, the toilet should be connected directly to the holding tank (i.e. not in bypass) and any over-board discharge valve must be in the 'closed' position. The over-board discharge valve (i.e. Seacock) must remain in the 'Closed' position whenever the boat is moored or anchored within the 'No-Discharge-Zones.' Toilets with no holding tank should not be used within the No-Discharge Zones. 'Porta-potties' designed to hold sewage, which can be emptied at a shore-side facility or at home, should be used instead.

The instruction stickers and brochures are available to be picked up from either the Department of Environment and Natural Resources (DENR) in the Botanical Gardens or from the Boats and Mooring Section of Marine & Ports Services (MPS) located in the old Paget Post Office, Middle Road, Paget.

### **Options for disposing of sewage**

The options for discharge of sewage from boats currently include certain marinas and shore-side sanitation trucks. Additionally, boats can transit outside of the No-Discharge Zone and discharge sewage to the sea. Contact details for pump-out facilities are provided in a brochure available from the Department of Environment and Natural Resources (Botanical Gardens) and Marine and Port Services.

Marina and shore-side facility owners looking to provide sewage pump out facilities should contact DENR to discuss how a shore-side or mobile pump out system can be operated and connected to a sewer main, septic tank and disposal borehole, or collect and hold tank. For more information, please call 239-2356, 239-2303 or email: [pollutioncontrol@gov.bm](mailto:pollutioncontrol@gov.bm).

### **Reporting Pollution**

If you notice anything unusual, such as dead fish, an oil slick or suspected sewage discharge in the near-shore, please notify Bermuda Radio at 297-1010 or the Department of Environment and Natural Resources as soon as possible. Your report will be treated in strict confidence. If possible, please take photographs of the observed issue.

*Geoff Smith*  
*Environmental Engineer*



# WHO TO CALL?

## CONTACTS FOR PESTS, FERAL ANIMALS AND WILDLIFE



### **Rats? Mosquitos?**

*Dept of Health - Vector Control Section  
278-5397 or 278-5333*



### **Feral Chickens, Pigeons or Crows?**

*Dept of Environment and Natural Resources  
Report it online: [www.environment.bm/feral-bird-control](http://www.environment.bm/feral-bird-control) or Call Mandy: 299-2329 ex 2139  
\*\*DO NOT take injured chickens or other pest species to BAMZ.  
They will not treat them.*



### **Terrapins?**

*Dept of Environment and Natural Resources  
Call Mandy: 299-2329 ex 2139  
\*\*DO NOT take terrapins to BAMZ*



### **Injured Wildlife\*?**

*Bermuda Aquarium, Museum and Zoo (BAMZ):  
293-2727*

*\*Does NOT include pests, feral, invasive, pet or domestic animals like chickens, cats or dogs.*



## FALL ENVIRONMENTAL CALENDAR

### October 2018

#### **International Migratory Bird Day**

IMBD officially takes place on the second Saturday in May in the U.S. and Canada and in October in Mexico, Central and South America, and the Caribbean each year. Locally, the Bermuda Audubon Society usually organizes a September or October birding event

<http://www.worldmigratorybirdday.org/about>

### November 2018

#### **Wednesday November 14th: GIS Day**

GIS (Geographic Information Science) Day is the Wednesday of the National Geographic Society's Geography Awareness Week, which is the third week in November.

- <http://www.gisday.com/about/index.html>

#### **Wednesday November 21: World Fisheries Day**

The origin of World Fisheries Day is linked with the establishment of the World Fisheries Forum (WFF), an international fisher's organization. Established in 1997, WFF was founded on the common principles of sustaining fishing communities, sustaining the fisheries, social justice, and preserving the cultural history of fish harvesters and fish workers.

[http://www.gdrc.org/doyourbit/21\\_11-fisheries-day.html](http://www.gdrc.org/doyourbit/21_11-fisheries-day.html)

<http://toobigtoignore.net/what-will-you-be-doing-on-the-world-fisheries-day-2017/>

## PLANTING CALENDAR – WHAT TO PLANT IN THE FALL...

### VEGETABLES

#### **September**

Beans, Broccoli, Brussels Sprouts, Cabbage, Carrots, Cauliflower, Celery, Chard, Cucumber, Eggplant, Kale, Leeks, Mustard Greens, Parsley, Pepper, Potatoes, Radish, Rutabaga, Tomato, Turnip.

#### **October**

Beans, Beets, Broccoli, Brussels Sprouts, Cabbage, Carrots, Cauliflower, Celery, Chard, Chives, Cucumber, Eggplant, Endive, Kale, Leeks, Lettuce, Mustard Greens, Onions, Parsley, Pepper, Potatoes, Radish, Rutabaga, Spinach, Squash, Strawberries, Thyme Tomatoes, Turnip.

#### **November**

Beans, Beets, Broccoli, Brussels Sprouts, Cabbage, Carrots, Cauliflower, Celery, Chard, Chives, Kale, Leeks, Mustard Greens, Onions, Parsley, Potatoes, Radish, Rutabaga, Spinach, Squash, Strawberries, Thyme, Tomatoes, Turnip.

### FLOWERS

#### **September**

Celosia, cosmos, gazania, globe amaranth, impatiens, marigold, salvia, snow-on-the-mountain, vinca and zinnia.

#### **October**

Ageratum, antirrhinum, aster, aubrieta, begonia, bells of Ireland, candytuft, carnation, centaurea, chrysanthemum, cineraria, dahlia, dianthus, geranium, gerbera, gypsophila, impatiens, larkspur, lathyrus, nasturtium, nicotiana, pansy, petunia, phlox, rudbeckia, salpiglossis, salvia, statice, snow-on-the-mountain, spider flower/cleome, star-of-the-veldt, stock, sweet William, verbena and viola.

#### **November**

Ageratum, antirrhinum, aster, aubrieta, begonia, bells of Ireland, candytuft, carnation, centaurea, chrysanthemum, cineraria, dahlia, dianthus, geranium, gerbera, gypsophila, impatiens, larkspur, lathyrus, nasturtium, nicotiana, pansy, petunia, phlox, rudbeckia, salpiglossis, salvia, statice, snow-on-the-mountain, spider flower/cleome, star-of-the-veldt, stock, sweet William, verbena and viola.

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GOVERNMENT OF BERMUDA

**Department of Environment and Natural Resources**