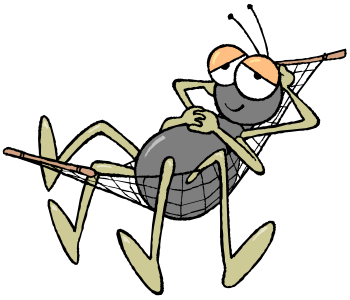

Nature's Web

Issue No. 50 Summer 2018

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Summer by the Sea

Image courtesy of Robbie Murphy

Editor's Page

Sky Lights

We have many beautiful skies here on Sherkin and my brother Robbie tries to get out when he can to photograph them. He recently captured this image of a solar pillar above the setting sun. This vertical band of light is created by light from the sun bouncing off tiny ice crystals suspended in the atmosphere. This optical effect can occur around sunrise or sunset as the light hits plate -like hexagonal ice crystals that are falling slowly through the air. The effect can also occur from manmade light sources and in that case it is known as a light pillar.

Another optical effect Robbie captured is a sun dog. Sun dogs are coloured spots of light that occur at a certain angle (22°) near the sun, when light is bent as it goes through ice crystals. This effect is known as refraction. Another name for sundogs is mock suns or parhelia, which means "with the sun".

Images courtesy of Robbie Murphy

Above: **A sun pillar over Roaringwater Bay.**
Below: **Sundogs—to the left and right of the sun.**

As Gaeilge! We are delighted to have teamed up with An Gúm, who are translating Nature's Web into Irish. Issues are now available, as gaeilge, at:
http://www.gaeilge.ie/maidir-le-foras-na-gaeilge/an-gum/lion-dulra/

Photo courtesy of www.bordbia.ie

Sunshine Hake

What you need:

- 4 hake fillets, about 175g each, skinned and boned
- Salt and freshly ground black pepper
- 4 tablesp. rapeseed oil
- 4 -6 medium potatoes peeled, cooked and chopped
- 1 red onion, peeled and thinly sliced
- 2 cloves of garlic, peeled and chopped
- 2 courgettes, cut into batons
- 24 pitted black olives
- 100g semi sun-dried tomatoes, drained
- 1 teasp. fresh thyme leaves
- Juice of ½ lemon

What to do:

Season the hake with salt and black pepper. Heat a large frying pan, approximately 30cm, and add 2 tablespoons of rapeseed oil. Place the hake, flesh side down, in the pan and cook for 4 minutes on each side. Remove and keep warm.

Add a little more oil to the pan and fry the cooked potatoes, onion and garlic for 3-4 minutes. Then add in the courgettes, black olives, tomatoes and thyme leaves and cook for another 2-3 minutes. Season with salt, black pepper and lemon juice.

Serves 4

Brought to you by Bord Bia **www.bordbia.ie**

Welcome to the Spring Edition of Nature's Web!

Dear Reader,

Welcome everyone to the Summer 2018 issue of Nature's Web. In this issue we talk to Oisín Foden, who is Education Development Officer with Irish Water Safety – he has a really important job. With the help of his colleagues, he develops courses to educate us about how to be safe around water. Find out more about these on page 7. He also reminds us that iws.ie is the one-stop-shop to water safety.

In this issue we also look at the daisy, a flower that we all recognise. If you don't know already, you can learn how to make a daisy chain. It is great fun! Check out nature news from around the world on page 12 and enjoy a giggle with the jokes on page 13.

We would love to hear your views and comments and suggestions for future articles. Have a good read!

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The Mole

Scientific Name: *Talpa europaea* **Irish Name:** Caochán

The mole is a small mammal, with a long, cylindrical body, covered in a black velvety fur. Its snout is naked except for sensitive whiskers. Also sensitive are the hairs on the tip of its short, upright tail, giving the mole information about its surroundings as it rubs off the roof of the tunnel. It has very short limbs and the large front paws are broad and spade-like. These permanently face outwards and have five sharp claws on each. As the mole spends most of its time in the dark, its tiny eyes do not see well so it relies mostly on its great sense of smell and touch. Though it does have internal ears, there are no visible openings so as to prevent soil getting in.

The collective noun for a group of moles is a **labour** of moles.

A male mole is known as a **boar**, a female is a **sow** and its young is a **pup**.

The mole is a solitary animal and lives alone. It is rarely seen above ground, spending most of its life underground in a series of permanent tunnels. These tunnels are not just for moving from one place to another, they also have different chambers with various purposes, such as kitchen, bedroom and birthing areas.

Moles have one litter each year, with about 2-7 young. They carry their young for 4 weeks and their young will leave their mother after 5 weeks.

What's for Dinner?

Moles usually make their tunnels in habitats where the earth is deep enough to tunnel, so it should come as no surprise that their main diet is earthworms. They even store some earthworms to eat later. Moles also like to eat the larvae of insects.

Image courtesy of Talpa_europaea_MHNT_pate CC BY-SA 4.0 Didier Descouens

The mole uses its large, spade-like front paws for digging.

Image courtesy of Taupinières_-_Mole-hills CC BY-2.5 PRA

Moles are known for making molehills in gardens and are considered a pest by some farmers and gardeners. The expression "making a mountain out of a mole hill" means making a big deal out of a small issue.

FACT FILE

Length: 14-18 cm

Weight: 250-550 g

Diet: Feeds mostly on earthworms but also eats insect larvae.

Habitat: Pastures, meadows, gardens,

Distribution: The European mole is very common in the UK and in Europe, except in southern countries. There are no moles in Ireland.

The Daisy

English Name: Common Daisy
Scientific Name: *Bellis perennis*
Irish Name: Nóinín

Images courtesy of Robbie Murphy

Daisies is native to Ireland. It can be seen on nearly every lawn or patch of mown grass. They can also be found in short grass in pastures and on the coast. Everyone is familiar with them and it is likely the tiny flowers can be found blooming almost right through the year, especially in a mild winter. The leaves are spoon-shaped and form a rosette that grows very close to the ground. The flowers are single and grow on slender, upright stalks.

The daisy is a composite flower. The neat little flower-heads are about 10–30 mm across. The yellow centre is actually a dense cluster of disc florets or tiny flowers imitating a single flower. On the outer edge are white ray florets, which again are tiny flowers, each of which have a strap-shaped side-petal. The flowerhead sometimes has a pinkish hue. Like some other flowers, they close at night and in dull weather.

The daisy is a perennial plant. Perennial means that the plant will live for several years. These plants have short, creeping rootstalks known as rhizomes, which often help daisies colonise a lawn. They can be difficult to get rid of and some consider them to be weeds. Others love the flash of white against the green grass!

FACT FILE:

Habitat: Short grassland, sand-dunes and lawns.

Colour: White and yellow.

Height: 5–20 cm.

Relatives

The daisy belongs to a huge family of about 21,000 species, known as the Asteraceae family. This is one of the largest groups of Irish wild flowers.

One relative that has a very similar name and similar appearance is the Ox-eye Daisy. The Ox-eye daisy is much taller, from 20-100 cm, and its flowerhead is much larger.

Other relatives include dandelions, sunflowers, asters, chamomile and yarrow. There are even vegetables in this family, such as Jerusalem artichoke, chicory and lettuce.

Ox-eye Daisies

beaches.ie

We are lucky to have some beautiful beaches in Ireland. Did you know that the water quality for many beaches around the country is tested during the summer months? If you want to check out a beach near you, or one you might visit during your holidays, visit www.beaches.ie to check out the water quality and other information for over 200 beaches. The website also provides information on other aspects of water quality, beach safety and ways to "love your beach".

Who samples the beaches?

The local authorities – the county and city councils around the country – manage the sampling and analysis of the water at the beaches, often getting help from other organisations with this.

Samples are generally taken just below the surface in waters which are at least 1 m deep, depending on tidal conditions. The safety of the people sampling the water is a priority—entering the surf zone where breaking waves are present can be risky.

For select beaches, the bathing waters are sampled every year from the end of May until mid-September. The official bathing season runs from 1st June to 15th September. By law, beaches that are being monitored and managed are required to be sampled monthly, at a minimum, during the bathing season. However, many local authorities sample every two weeks, and some even weekly.

Information courtesy of www.beaches.ie

Image courtesy of www.beaches.ie

The beautiful Barleycove Beach in West Cork.

What is the water sampled for?

Water is sampled for two common bacteria *E. coli* and *Intestinal enterococci*, which are organisms that live in the gut of all warm blooded animals including humans, livestock, dogs, birds and are present in a very large number in faeces (in other words poo!).

As soon as results are reported to the local authority, the results are made available on beaches.ie—usually within 48 hours after being analysed.

What restrictions might be put in place?

Every local authority is working towards improving water quality at their beaches. Unfortunately, pollution incidents sometimes happen. For example, bathing was prohibited on one beach for about three days after water quality deteriorated due to suspected agricultural activities/runoff.

On occasion, people were advised against bathing at particular beaches for the entire bathing season as the beaches may have been classified as having had poor water quality from the previous season.

Thankfully there are many beaches with excellent water quality!

Colour In

All in a Day's Work

Oisín Foden, Education Development Officer, Irish Water Safety

My name is Oisín Foden, I'm the Education Development officer for Irish Water Safety (IWS), the statutory, voluntary body that promotes drowning prevention education in Ireland.

Oisin Foden

Images courtesy of IWS

How long have you been involved with Irish Water Safety?
I'm based in Galway and have been involved with IWS since I was twelve years old when I participated in water safety lessons in Salthill. I have been a volunteer with IWS - Galway, one of thirty committees nationwide, since I was sixteen and have also been an active member of the Galway Surf Lifesaving team. As a volunteer I have taught water safety and coached surf life saving to children and adults interested in becoming a pool, river or beach lifeguard or indeed have the skills in water survival, self rescue and the skills to save others from drowning.

What do you work at now?
In 2014 I became the IWS National Education Development Officer. I work with national schools and swimming pools to increase the number of children participating in the PAWS (Primary Aquatics Water Safety) programme.

Can you tell us more about PAWS?
We developed this course to incorporate all aspects of the aquatics strand that is a part of the physical education component of the primary school syllabus. This programme, developed with the input of practising school teachers who are also members of IWS, is specifically tailored for primary school pupils and is exclusive to primary schools. Teachers receive resources that give them the knowledge to teach and certify their pupils with nationally recognised awards that are recommended by the Department of Education and Skills.

Can the students learn some of this information in the classroom?
Part of the programme includes a detailed classroom element so that children learn all about staying safe around water – before they even leave the classroom. National school teachers bring the pupils through a number of online resources that are designed to change the children's attitudes and behaviours around water. Subject matter includes safe swimming, safety on the farm, safety at home and safety on open water and inland waterways.

Do students learn about the importance of Ringbuoys?
Yes, students are also taught simulated rescues on land, such as the use of the red ringbuoy that we designed and that is housed in yellow boxes at waterways nationwide. These ringbuoys are used every year to save lives from drowning and although they are regularly vandalised, I am hopeful that by instilling in children at a young age, a respect for these essential lifesaving devices, we will see a reduction in the number of ringbuoys reported missing or vandalised. In short, we are equipping children with the skills that will keep them safe at our wonderful aquatic environments.

What do you enjoy about your job?
I really enjoy working with an organisation that has such an important role, one that is also a registered charity with nearly 5,000 members around the country, many of whom giving their time, energy and knowledge back to their communities.

What is the most important part of your job?
Tragically we lose an average of eleven people to drowning every month in Ireland and in just ten years, thirty children aged fourteen and under drowned nationwide. Every minute of my working day is filled with tasks that aim to reduce these figures and as much as I rely on so many volunteers to help, we can only succeed in reducing these tragic figures when we see an increase in the number of parents, guardians and schoolteachers taking the time to teach children how to be safe.

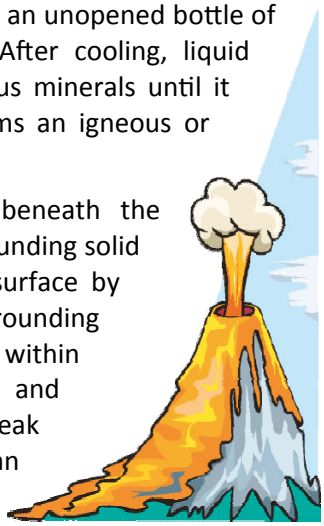
How can we help?
Your first stop is our one-stop-shop to water safety – iws.ie. *Together, Let's Bring Drownings Down.*

Volcanoes

Volcanoes are openings, or vents where lava, small rocks (tephra), and steam erupt on to the Earth's surface. Many mountains form by folding, faulting, uplift, and erosion of the Earth's crust, however volcanic terrain is created by the slow build up of erupted lava.

Molten rock below the surface of the Earth that rises in volcanic vents is known as **magma**, but after it erupts from a volcano it is called **lava**. Magma is made of molten rock, crystals, and dissolved gas—imagine an unopened bottle of soda with grains of sand inside. After cooling, liquid magma may form crystals of various minerals until it becomes completely solid and forms an igneous or magmatic rock.

Originating many tens of miles beneath the ground, magma is lighter than surrounding solid rock. It is driven towards Earth's surface by buoyancy, it is lighter than the surrounding rock, and by pressure from gas within it. Magma forces its way upward and may ultimately break though weak areas in the Earth's crust. If so, an eruption begins.



The 'Ring of Fire'

There are about 1,500 potentially active volcanoes worldwide, aside from the continuous belt of volcanoes on the ocean floor. About 500 of these have erupted in historical time. Many of these are located along the Pacific Rim—the Pacific Rim refers to the geographic area surrounding the Pacific Ocean in what is known as the 'Ring of Fire.' In the United States, volcanoes in the Cascade Range and Alaska (Aleutian volcanic chain) are part of the Ring, while Hawaiian volcanoes form over a 'hot spot' near the centre of the Ring.

Different ways magma erupts

Magma can be erupted in a variety of ways. Sometimes molten rock simply pours from the vent as fluid lava flows. It can also shoot violently into the air as dense clouds of rock shards (tephra) and gas. Larger fragments fall back around the vent, and clouds of tephra may move down the slope of the volcano under the force of gravity. Ash, tiny pieces of tephra the thickness of a strand of hair, may be carried by the wind only to fall to the ground many miles away. The smallest ash particles may be erupted miles into the sky and carried many times around the world by winds high in the atmosphere before they fall to the ground.

Image courtesy of USGS

Geologist collecting a fresh sample of a slow-moving lava flow at Kīlauea volcano in Hawaii.

Information and photograph courtesy of the US Geological Survey

HAWAII'S Volcanoes

Together, the islands of Hawaii form the State of Hawaii, one of the 52 states of the United States of America – the only state located outside North America. It is situated in the middle of the Pacific Ocean, 3,857 km from San Francisco, California.

The capital of Hawaii is Honolulu, located on the island of Oahu, and it has a population of approximately 1.36 million people.

The Hawaiian Islands are at the southeast end of a chain of volcanoes that began to form more than 70 million years ago. Each island is made of one or more volcanoes, which first erupted on the floor of the Pacific Ocean and emerged above sea level only after countless eruptions.

The United States Geological Survey (USGS) Hawaiian Volcano Observatory is responsible for monitoring six active volcanoes on the Islands of Hawai'i and Maui. These volcanoes are classified as "active" because they have erupted within the past 10,000 years and have the potential to erupt again:

Kilauea: the youngest and most active volcano on the Island of Hawai'i (see below).

Mauna Loa: situated on the Island of Hawai'i, it is the largest volcano on Earth and has erupted 33 times since 1843.

Hualālai: the third most active volcano on the Island of Hawai'i and has erupted three times in the past 1,000 years.

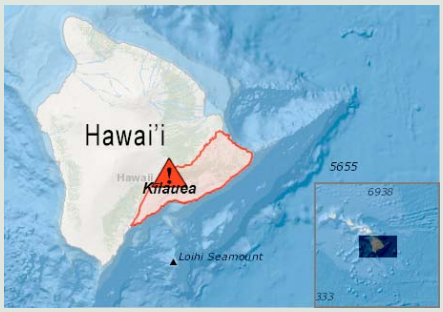
Mauna Kea: the highest volcano on the Island of Hawai'i. It erupted most recently between about 6,000 and 4,500 years ago.

Lō'ihi: the only known active Hawaiian submarine volcano, erupted most recently in 1996

Haleakalā: the only active volcano on the Island of Maui, erupted most recently between about 600 and 400 years ago.

Kilauea Volcano
on the island of Hawai'i

Kīlauea has been erupting nearly non-stop since 1983, when a vent opened on the volcano's East Rift Zone. Since then, lava flows have buried 55 square miles of public and private land, destroying vast tracts of native forest, about 9 miles of highway, and 215 structures, including homes, a church, and a National Park Service visitor centre. This eruption is ongoing, with increased activity since early May 2018, causing further destruction.



Images courtesy of USGS

Above: Kilauea has erupted almost continuously since 1983 at Pu'u 'Ō'ō and other vents along the volcano's East Rift Zone. *Below*: One of the many fissures that have recently opened on Kilauea. *Right*: One of the recent fissures at Kilauea.

Information and photographs courtesy of the US Geological Survey

John Phillip Holland

Father of the Modern Submarine

By John Joyce

One Irishman who had a profound effect both on naval warfare and our exploration of the seas, but who was largely ignored and humiliated during his own lifetime was John Phillip Holland – the inventor of the modern submarine. Holland was born on February 29th 1841 in Liscannor Co. Clare and inherited his love of the sea from his father, who was a member of the Coast Guard with the duty to watch out for French Invasion attempts.

When the Holland family moved to Limerick in 1853, young John was encouraged by his science teacher Brother Dominic Burke. By his late teens, John had already drawn up plans for a working submarine, but it was not until he emigrated to America that his ideas were taken seriously. In 1888, Holland drew up plans for a working submarine which won a US government competition, only to be frustrated when the money he should have received was diverted into surface ships.

He persisted however and, following his winning of another competition to design a submarine boat, he had enough funds to start The Holland Motor Torpedo Boat Company and began to design submarines for the US Navy.

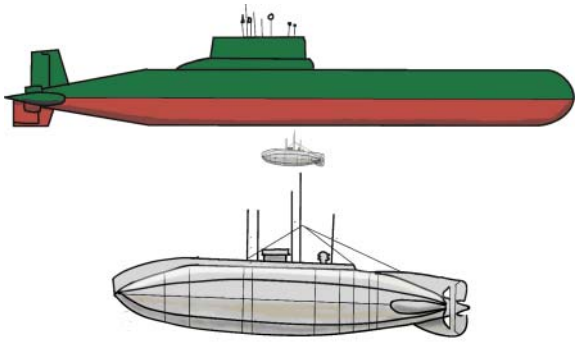
However, the traditional thinking of those in command and the over-management of his designs frustrated Holland's attempts to fully realise his dreams for the potential of the submarine in military use.

In Germany however, Holland's ideas were taken very seriously with the development of the 'Undersee Boot' or 'U-Boat' – submarines that were used to great effect to blockade England and sink any ships carrying food or munitions there from America during both World Wars. Such was the power of submarines to disrupt marine transport that Winston Churchill once said 'the only thing that ever really frightened me during the war was the U-boat peril'

In more modern times, submarines have thankfully taken on friendlier functions, such as marine research, underwater exploration and salvage missions. However, they are still in military use, having been developed as submerged platforms for transporting and firing intercontinental ballistic missiles armed with nuclear warheads. The largest of these, and indeed the largest submarine ever built, was the Soviet 'Typhoon' Class submarine. It was as big as a World War II aircraft carrier with a total displacement of 48,000 tonnes and armed with twenty missiles - each with ten nuclear warheads.

In spite of his powerful influence on modern naval warfare through the development of the modern submarine, John Phillip Holland died a poor man in August 1914 without proper acknowledgement of his invention.

It was just forty days before a German U-Boat torpedoed and sank the liner Lusitania off the coast of Cork.



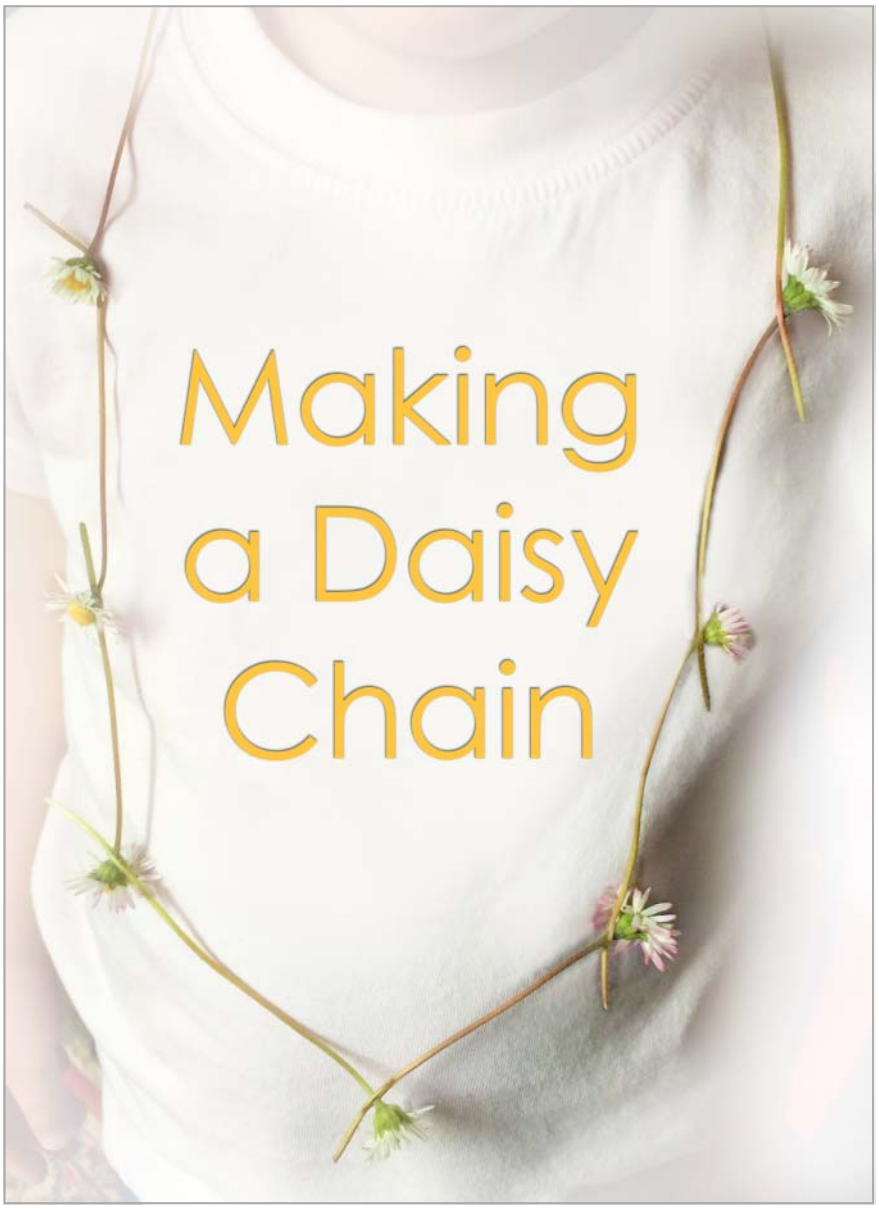
The *Typhoon Class* Soviet nuclear-powered ballistic missile submarine, seen in comparison to the original *Holland One* submarine below.

Follow 'Black John the Bogus Pirate' on Facebook at https://www.facebook.com/BlackJohntheBogusPirate/

Activity

1. Near the bottom of the stem, use your thumb nail to create a split in the stem.

2. Push the stem from both sides to widen the split and create a hole.



3. Thread the stem of another daisy through the hole and pull it through until the head stops.

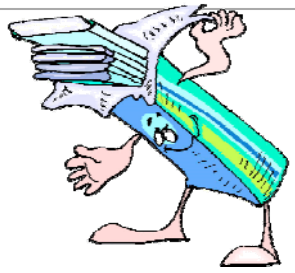
4. With every daisy you add to the chain, repeat the steps 1-3.

5. When your daisy chain is long enough, knot the first and last daisy to complete the necklace.

Images courtesy of Susan Murphy Wickens

The World Around Us

"Foreign Correspondent" Michael Ludwig reports on some strange goings on in the natural world.



The Story of Your Stuff

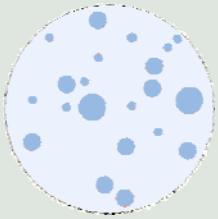
The Environmental Protection Agency (EPA) has found the 2018 winners of *The Story of Your Stuff* competition in Co. Kerry. Amber Pomeranz and Lauren Lehane, students at Presentation Secondary School Milltown, teamed up to tell the story of chewing gum – from its history to how it's currently manufactured and how innovative ways are being found to reduce its negative impact on the environment after use. You can view their winning video at www.thestoryofyourstuff.ie along with the runners up.

Students were asked to submit stories about the life cycle of an everyday object with an underlying theme of recycling and sustainability. The submitted entries focused on everything from wellies to wheels to plastic bottles.

One-use Plastic Bottles

It has become commonplace for people to buy water in plastic bottles. These bottles are used once and then disposed of, creating a lot of waste. Imagine if you bought a bottle of water five days a week—every week for one year. You would have used 260 plastic bottles! Sometimes you have no alternative but to buy bottled water but if you need to take a bottle of water with you every day, buying a reusable water bottle and filling it with tap water at home would avoid a lot of waste—and save a lot of money!

….and plastic IN our water is becoming a problem too!



A recent study of bottled water sold around the world, showed that tiny plastic bits, also called microplastics, were in many of them. Researchers tested over 250 bottles of water across 11 different brands, from nine countries. They found that plastic turned up in 93 out of every 100 of the bottles. On average, each bottle contained 10 particles that were wider than a human hair, along with 300 smaller particles. To count the pieces of plastic they used a particular red dye that clings to plastic and glowed when viewed under a blue light. After the dye was added, the water was poured onto a special type of paper that allowed the water pour through but caught the plastic. The pieces of plastic were then counted under the microscope.

Microplastics are getting into our waterways—streams, rivers, lakes and oceans. They can come from large pieces of plastics that break up, or from the many detergents, facial scrubs, toothpastes and similar products, that contain microplastics. These microplastics are put into these products to act as abrasives, producing a scrubbing effect. Some of our clothes, such as fleeces and nylon, are made from plastic, and when they are washed tiny particles break away and go into the waste water. All these reasons, and more, are the cause of microplastics in our waters.

Helping to make our seas rubbish-free

An 11-year-old Dublin girl, Flossie Donnelly, has fundraised to buy a sea bin for Dun Laoghaire Harbour. The bin, powered by electricity, uses a pump to suck in water around it, which in turn pulls in nearby plastics and rubbish that are floating on the surface of the water. Located at the marina in Dun Laoghaire it is being looked after by the authorities who empty it every day. It is a very simple and positive idea that is helping to keep the area cleaner for humans and marine life. Ideally, the plastic and rubbish won't make it's way into the water in the first place but well done to Flossie for highlighting the problem of marine litter and for showing us what can be done to help.

Fun Page

How much did you learn?

The answers to all these questions can be found in the newsletter...see if you can remember!

1 Molten rock underneath the Earth's surface is known as what?

2 Are their moles in Ireland?

3 If you bought a one-use plastic bottle each day, five days a week, for one year, how many bottle would you have used?

4 Is a daisy an annual or perennial plant?

5 When Oisín Foden was 12 year old, where did he learn water safety?

6 What are the tiny pieces of plastic in water known as?

7 What did John Phillip Holland invent?

8 Around what times of the day might a sun pillar appear?

9 What website gives you information on the water quality at 200 of Ireland's beaches?

10 What is the collective noun for moles?

11 What lifesaving objects are located at waterways all around Ireland?

12 How many active volcanoes is the USGS Hawaiian Volcano Observatory responsible for monitoring?

13 What item features in the winning video of the EPA's competition, *The Story of Your Stuff?*

14 In which Irish harbour has a sea bin been installed?

ANSWERS to How Much Did You Learn? : 1. Magma; 2. There are no moles in Ireland; 3. 260; 4. Perennial; 5. Salthill, Galway; 6. Microplastics; 7. The submarine; 8. Sunrise or sunset; 9. www.beaches.ie ; 10. A Labour of moles; 11. Ringbuoys; 12. Six; 13. Chewing Gum; 14. Dun Laoghaire Harbour.

Think of a Title

Have fun with your friends making up a title for this photo of a Ladder-Backed Woodpecker, seen in the Desert Botanical Garden, Phoenix, Arizona, USA.

Image courtesy of Alan D. Wilson www.naturespicsonline.com

Nature Jokes

Would you like a duck egg for tea?
Only if you quack it for me!

What is black and white and red all over?
A sunburnt penguin.

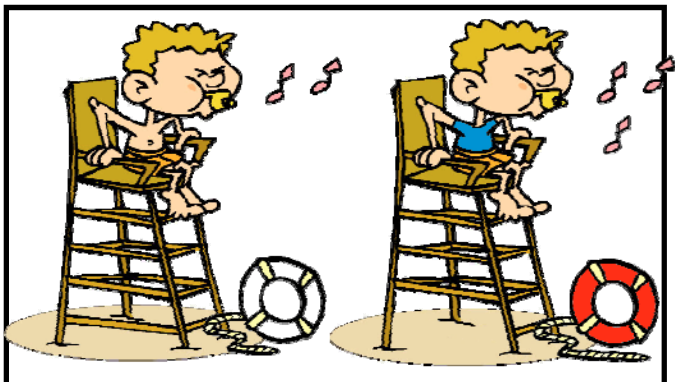
When is a car like a frog?
When it's being toad.

Why was the gardener accused of exaggerating?
He made mountains out of mole hills.

What do you get if you cross a dog with a daisy?
A colli-flower.

What race is never run?
A swimming race.

What did the beach say to the wave?
"Long tide, no sea"



Spot the five differences!

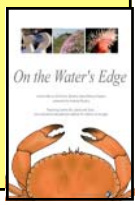
Learn More

Only €2.95each including postage or €12.00 (plus €3.10 p&p) for all eight! *32pp each*

Sherkin Island Marine Station has published a range of colouring books, guides and activity books for children. Each 32-page *Colouring & Guide Book* gives you the chance to colour, identify and learn about the wildlife around Ireland. *Safety Sam's Activity Book* is filled with activities to encourage safety for children. *My Nature Diary* contains lined pages to fill in a daily record of sightings and nature news.

Sea Life DVD: *"On the Water's Edge"*

Produced by Sherkin Island Marine Station, the DVD '*On the Water's Edge*', features a short film on life beside the sea. Presented by Audrey Murphy, it includes 6-10 hours of interactive material for children of all ages. *Only €6.00 plus €1.30 p&p.*

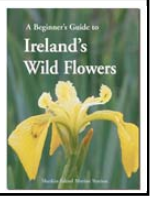


A Beginner's Guide to Ireland's Seashore is a pocket-sized guide, suitable for beginners of all ages. This book will help you to explore the wonders of marine life found on the shores

Only €8.00 inc postage

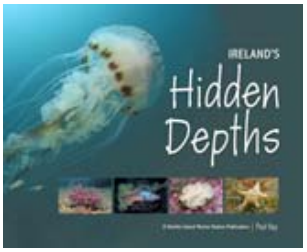
A Beginner's Guide to Ireland's Wild Flowers With the help of this pocket-sized guide, beginners of all ages will be introduced to the many common wild flowers found around Ireland. *206pp*

Only €8.50 inc postage



Ireland's Hidden Depths is another Sherkin Island Marine Station publication. Ireland's amazing marine life, glorious kelp forests and spectacular undersea scenery are featured in over 200 spectacular photographs by nature photographer Paul Kay. 277 x 227 mm 160 pps

Only €13.00 including postage



"An A to Z of Geology" explores the fascinating world of rocks and geology – a world of volcanoes, tsunamis, earthquakes, diamonds, gold and even dinosaurs! Produced by Sherkin Island Marine Station, in association with the Geological Survey of Ireland.

Only €5.99 plus €2.00 postage

To order books, email sherkinmarine@eircom.net and we can arrange payment via Paypal. Alternatively, send your name and address along with a cheque or postal order (made payable to *Sherkin Island Marine Station*) to: Sherkin Island Marine Station, Sherkin Island, Co.Cork. Ireland. Visit: **www.sherkinmarine.ie**
(P&P correct at time of publication)

Useful Web Addresses

There are lots of websites to be found on the internet that will give you further information on topics we have covered in this newsletter. Here are a few that may be of interest:

Sky Lights: https://www.woeurope.eu/reports/wxfacts/Sun-pillar.htm
https://www.atoptics.co.uk/halo/parhelia.htm

The Mole: http://www.nottinghamshirewildlife.org/animal-facts/mole

The Daisy: http://www.wildflowersofireland.net/plant_detail.php?id_flower=83

Beaches: www.beaches.ie

Irish Water Safety: www.iws.ie

Volcanoes: https://www.gsi.ie/en-ie/geoscience-topics/natural-hazards/Pages/Volcanoes.aspx
https://volcanoes.usgs.gov/index.html

Hawaii: https://volcanoes.usgs.gov/volcanoes/kilauea/status.html
https://volcanoes.usgs.gov/observatories/hvo/

Black John—the Bogus Pirate: http://www.clarelibrary.ie/eolas/coclare/people/holland.htm
https://www.facebook.com/BlackJohntheBogusPirate/

Microplastics: Microplastics: https://oceanservice.noaa.gov/facts/microplastics.html
https://www.rte.ie/news/2018/0219/941718-plastics/

Sea Bin:
https://afloat.ie/port-news/dun-laoghaire-news/item/38335-flossie-crowdfunding-for-seabin-in-dun-laoghaire-harbour
http://seabinproject.com/

The Story of Your Stuff: www.thestoryofyourstuff.ie

We cannot be responsible for the content of external websites, so please observe due care when accessing any site on the internet.

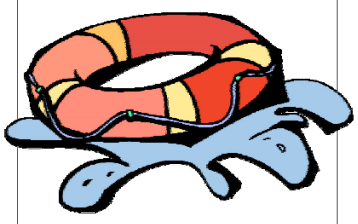
Wordsearch

Nature's Web Spring 2018 Wordsearch

Try out this giant wordsearch containing words found in this issue of the newsletter.

P	K	E	H	I	L	G	I	T	S	P	K	X	J	N	Q	K	A	M	B
L	M	A	T	P	Z	Y	K	L	O	X	O	E	T	Q	C	F	A	A	A
A	Y	D	N	I	A	H	C	Y	S	I	A	D	U	K	B	Y	U	Z	D
S	T	H	E	S	T	O	R	Y	O	F	Y	O	U	R	S	T	U	F	F
T	K	G	B	Y	H	K	K	T	N	E	D	O	F	N	I	S	I	O	L
I	R	I	S	H	W	A	T	E	R	S	A	F	E	T	Y	T	O	S	Q
C	N	D	E	J	M	A	M	I	C	R	O	P	L	A	S	T	I	C	S
B	I	A	H	N	I	I	N	E	H	L	I	F	E	B	U	O	Y	G	M
O	B	I	A	Q	I	A	V	O	L	C	A	N	O	E	S	C	F	O	H
T	A	S	V	N	R	R	T	V	B	O	M	Q	V	T	A	B	S	D	K
T	E	Y	A	C	Q	V	A	I	C	D	N	A	G	B	A	I	C	N	M
L	S	E	I	B	S	U	Y	M	K	K	A	W	M	G	I	N	X	U	X
E	P	L	E	J	Y	U	T	J	B	T	Y	W	Q	A	Z	R	N	S	R
S	K	A	D	K	D	Z	N	G	R	U	K	S	W	Q	P	Q	F	B	W
O	K	M	H	V	V	S	U	P	E	M	S	A	Z	Q	N	K	G	E	N
J	O	H	N	P	H	I	L	L	I	P	H	O	L	L	A	N	D	A	A
Q	H	L	W	C	U	E	B	P	X	L	O	B	J	U	G	X	J	C	E
L	A	X	K	R	J	O	F	E	Z	L	L	T	W	H	D	B	P	H	L
E	K	A	H	E	N	I	H	S	N	U	S	A	C	Y	U	J	S	E	O
Q	G	B	D	T	B	Z	U	L	Q	K	Z	Z	R	D	E	A	G	S	M

Beaches
Daisy
Daisy Chain
Hawaii
Irish Water Safety
John Phillip Holland
Lifebuoy
Microplastics
Mole
Oisin Foden
Plastic Bottles
Sea Bin
The Story of Your Stuff
Submarine
Sun Pillar
Sundog
Sunshine Hake
Volcanoes



(Over,Down,Direction): Beaches (19,14,S); Daisy (3,7,S); Daisy Chain (13,3,W); Hawaii (12,16,NE); Irish Water Safety (1,6,E); John Phillip Holland (1,16,E); Lifebuoy (11,8,E); Microplastics (8,7,E); Mole (20,20,N); Oisin Foden (19,5,W); Plastic Bottles (1,1,S); Sea Bin (2,12,N); Submarine (12,15,NW); Sun Pillar (6,12,SE); Sundog (19,13,N); Sunshine Hake (12,19,E); The Story of Your Stuff (2,4,E); Volcanoes (8,9,E).

Nature's Noticeboard!

Sherkin Island Marine Station would like to thank the following for their help with this newsletter, especially Bord Bia, Aoife Cain, Oisín Foden, John Joyce, Michael Ludwig, Robbie Murphy, US Geological Survey, Jez Wickens, Alan and Elaine Wilson.

Visit the Sherkin Island Marine Station website at www.sherkinmarine.ie

We appreciate support from the EPA and the Geological Survey of Ireland toward the newsletter.