

SHERKIN COMMENT

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Environmental Quarterly of Sherkin Island Marine Station

2015

40 Years of Sherkin Island Marine Station

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A Life Lived

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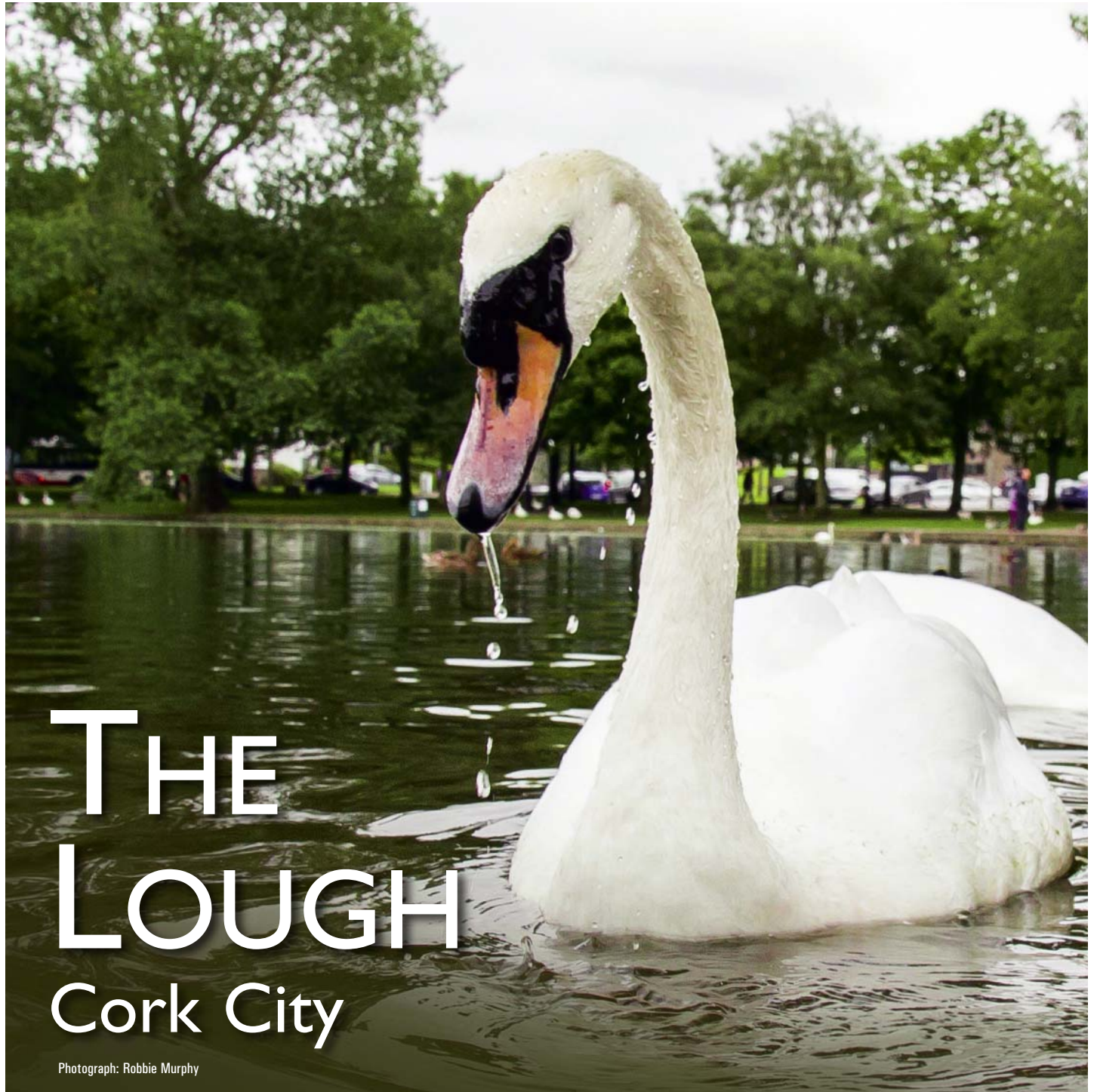
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Editorial

Preserving Our Past for the Future

By Matt Murphy

I RECENTLY came across a couple of articles that appeared in *The Newsletter of the Society for the History of Natural History*. Written by the President of the Society, Hugh Torrens, he highlighted his concern over the increasing number of specialist museum curators in Britain that are losing their jobs. A recent survey of 34 UK museums had shown a decline of 35% in such curators in the past 10 years. The consequence of this demise is that they leave behind many “orphaned collections”. One such collection of boxes of rocks and fossils, which was among the medical collections at University College London, was dumped as no one was aware of their scientific value or relevance.

The author states “If there are now many fewer curators here, perhaps similar crises have been occurring within our archival repositories, on which we historians must equally rely”. He mentions two case studies where he personally failed to find a repository in a museum for two major collections. The first collection involved the most remarkable industrial operations ever to have happened in England. This was the failed attempt by the Stone Pipe Company (1805–1815) to use pure Cotswold limestone [pipes] to supply the burgeoning cities of London, Manchester and Dublin, with much needed, unpolluted, water. The other collection belonged to the naturalist Robert Townson (1762–1827), a true polymath. Hugh Torrens also accumulated a large research collection of books in many languages, and photos, slides, photocopies and copies of his several books. After finally finding a home for the collection at Shrewsbury Museum, it was once again in need of a home when that museum lost another natural history curator post and the museum had to put the material “aside, prior to disposal”. Each of these large research collections were rescued by the author and now reside at his unsuitable garage. In a further article Mr. Torrens describes where collections of archives given to museums were mislaid and could not be located. He also describes where the Royal Agricultural Society of England had a sale of all its “unique collections of historical books, paintings and prints” all of which had raised £400,000 in total.

The question I pose is how concerned are we in Ireland about our historical collections? Are our museums sufficiently staffed to care for such collections and equally important, have they sufficient resources for accepting and storing new collections? Museum curator staff are incredibly dedicated people and due to their commitment, so much of our past history has been saved – such as papers, books, artefacts, and herbaria. Are collec-



Preserving historical documents and artifacts is a challenge for a dwindling number of specialist curators.

tions being lost due to pressure on storage space being given over by administrators for other use? Are there sufficient resources being provided in Universities to care for herbaria and fauna collections?

Today our past is so well served by local Historical Societies that produce informative journals with many articles about times gone by. Much of the information is sourced from archive material, especially family sources. I question what archival material historians of the future will have available to them from the present time? Many will say that the digital age is here and that it will be the main source of historical records for the future? It may well be the source for national issues but will it be for local issues/events? Correspondence via email will in most cases be lost.

What is the lifespan of today's discs and what technology will be available to read them? We do not know with certainty.

On a personal level here at the Marine Station paper records of all our data is still kept in fire proof safes, as well as on computer. I already know from past experience that when computer data needs checking having the paper copies for verification is vital as human error is almost unavoidable in data input.

I believe there needs to be much more thought given before paper copies are discarded and records are committed to digital format only. So much will be lost for historians of the future.

Matt Murphy, Sherkin Island Marine Station, Sherkin Island, Co. Cork.

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The Cry of the Curlew

By Oscar Merne

*O Curlew, cry no more in the air,
or only to the water in the West...
I hardly hear the Curlew cry...*

THE above two references to Curlews are from poems by W. B. Yeats, written over 100 years ago. Unfortunately, most people nowadays will not hear the cry of this enigmatic species in their former breeding places, because they have declined towards extinction here in the last forty years or so.

The first full survey of the breeding population was carried out for the Breeding Bird Atlas in the seasons of 1968–72, at which time they were found nesting or probably nesting in nearly 90% of the c.1,000 10-km squares that cover our island in the Ordnance Survey National Grid. A repeat Atlas survey in 1988–91 showed a contraction of the breeding range of nearly 20%, and the Irish population was estimated at 12,000 pairs. Since then, the reduction in range and numbers accelerated and the latest Atlas (together with intensive searches in suitable habitats) now puts the breeding population at less than 200 pairs. Are Curlews going the way of the once-familiar Corncrake, which is barely hanging on in remote coastal areas between Connemara and Donegal?

While research (carried out by Dr. Anita Donaghy of BirdWatch Ireland) into the causes of the decline needs to be completed, it seems that the main problems are loss of breeding habitat. In the uplands, afforestation, intensive sheep-grazing, peat extraction, pushing arable crops ever higher, and maybe increasing recreational pressure in some areas, have all made former suitable areas un hospitable for Curlews. In the lowlands, large-scale arterial drainage schemes, followed by field drainage, have removed huge areas of former damp, rushy pastures, while most of the great raised bogs have been destroyed by industrial levels of peat harvesting. Clearly, with so many adverse impacts on the Curlew's

breeding habitat, turning the population around will be a monumental task. The recent removal of the Curlew from the Irish hutable species list, though overdue, is welcome, but the habitat issue is a far greater challenge.

Our Curlews are the Eurasian Curlew *Numenius arquata*, and, as the name suggests, they are limited to the Old World. They breed in the northern hemisphere at temperate latitudes across the boreal zone, from Ireland in the west to Siberia between Lake Baikal and China to the east (north of c.45° N and to c.120–125° E). In western Europe they extend as far northwards as the north of Norway. Their breeding habitat includes bogs (raised and blanket), fens, moorland, swamps, damp grassland, extensively-managed farmland, coastal marshes, dune slacks, open damp areas is natural forest terrain, and also dry heathland in some places. In the past, many such habitats were common and widespread in Ireland. The total Old World population is estimated to be 700,000–1,000,000 or more, the great majority of which are in Europe west of the Ural Mountains.

The severe winter conditions in the continental interior forces the breeding birds and their young to migrate southwards, or to the temperate coastal fringes of Europe. Outside the breeding season (often from as early as mid-July to March/April of the following year), flocks are found at migration staging areas and wintering grounds in the Mediterranean, on the west and east coasts of Africa (as far as the Cape of Good Hope and Madagascar), the Arabian Sea and Indian sub-continent coasts, southern China and Japan, SE Asia, and parts of Indonesia, the Philippines and Borneo. They are certainly long-distance travellers, but not so much as the high Arctic waders that migrate to New Zealand and Tierra del Fuego!

In Ireland, outside the breeding areas, Curlews (probably mainly migrants from Europe) are found mainly on the coasts, both in the large, muddy bays and estuaries,

and on stony shores. They appear here from mid-July and remain in numbers until March/April of the following spring. The principal sites used are Loughs Swilly and Foyle, Carlingford Lough, Dundalk Bay, Rogerstown Estuary, Dublin Bay, Wexford Harbour and Slobs, the Blackwater Estuary, Cork Harbour, Tralee Bay, the great Shannon/Fergus Estuary and Galway Bay. All these sites regularly support >500 birds, and peaks of up to 3,100 have been recorded. The Irish Wetland Bird Survey estimates that we have c.18,000–22,500 Curlews here in winter.

Curlews are our largest waders. In contrast with the little Turnstones and Sanderlings that I wrote about recently, a big adult female Curlew is up to 60 cm long, has a wing-span of up to 100 cm, and can weigh up to 1.36 kg. They are not colourful birds, having plumage that is generally streaked and mottled pale brown and grey, and their outstanding features are their extraordinarily long bills (up to 15 cm), long legs, and, of course, their familiar and evocative cries.

The Eurasian Curlew is one of eight species in the genus *Numenius*, of which four are Old World (Eurasian, Slender-billed, Little and Far-eastern), three are in the Americas (Long-billed, Bristle-thighed and Eskimo) and one (the Whimbrel) is circumpolar. Several are in trouble: The Eskimo Curlew may be extinct (over-hunted in North America); the Slender-billed is critically endangered (c.50 pairs); the Bristle-thighed is very vulnerable (extremely limited Alaskan/South Pacific islands range). Strangely, there is one old record of an Eskimo Curlew in Ireland, from 1870 when the species was still common in North America. Ironically, it was shot here and discovered in a poulterer's shop in Dublin...

Oscar Merne retired from Ireland's National Parks & Wildlife Service in January 2004. Before he died in January 2013, Oscar wrote a number of articles for Sherkin Comment to be published in future issues.



The Curlew in flight.



In Ireland, outside the breeding areas, Curlews are found mainly on the coasts, both in the large, muddy bays and estuaries, and on stony shores.



While research into the causes of the decline of the Curlew's Irish population needs to be completed, it seems that the main problems are loss of breeding habitat.

Research into the origins of the woody plant flora of Ireland

By Colin Kelleher

What can genetics tell us about plant origins?

One question that has intrigued and puzzled naturalists since the first descriptions of the Irish biota is – where has our native flora come from? We know that most of the island was covered in ice at the end of the last glacial maximum, so our current plant populations must have originated beyond the island, and likely beyond the tundra that extended to the ice free areas. Our current understanding is that three main southern refugia (Iberia, Italy and the Balkans) maintained populations of temperate species during the last glacial maximum. Following the ice retreat northwards the populations in these refugia emerged and recolonized Europe. Ireland contains an interesting mix of species, ranging from those associated with the

Mediterranean and we still do not fully understand the origins of this mix. The Tea-leaved willow (*Salix phylicifolia*) has a mainly arctic distribution and is a rarity in Ireland, found in only a few small populations in Sligo and Leitrim. The Montane willow (*Salix herbacea*) has a broader but still northerly skewed global distribution and is much more widespread on Irish mountains. On the warmer front we have some so-called Mediterranean elements. One notable example is that of the Strawberry tree (*Arbutus unedo*). The Strawberry tree can be found in the Beara and Iveragh Peninsulas in the south west of Ireland but is absent from Britain, with the nearest site being Brittany, and this is even considered planted, so the nearest proposed native site is further south in France or even into Spain. So, we know that our populations are disjointed from the main distribution



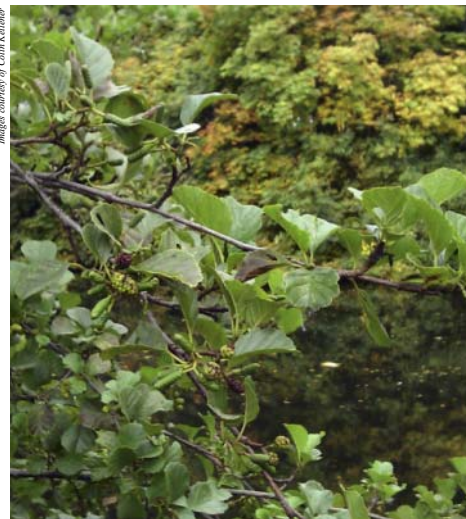
Montane willow growing in a crack on Tonelagee, Co. Wicklow.



The Strawberry Tree on Lough Leane, Killarney, Co. Kerry.

which wraps from the Bay of Biscay around the Iberian Peninsula into the Mediter-

anean. The Strawberry tree is perfectly at home on the shores of Lough Leane in Co. Kerry, but this habitat contrasts dramatically with the much drier Mediterranean habitats in which it is more commonly found. We know through this unusual distribution that Ireland has had a different colonisation history compared to our nearest neighbouring island, Britain. The puzzle of the Strawberry tree has occupied, and indeed vexed, botanists for centuries. Did the populations in the south west of Ireland survive the last glaciation or did they colonise after the glaciers retreated? Survival on the edge of glaciers is highly unlikely given their predominantly coastal Atlantic and Mediterranean distribution and the evidence suggests this is not the case. However, if the trees migrated after the glaciers retreated then why is the Strawberry tree not native to Britain? Could this migration have skipped Britain? In the DBN Plant Molecular Laboratory in the National Botanic Gardens we are using molecular genetic techniques to assess where the Irish flora originated from, in particular we are focusing on woody species. These techniques allow us to open up a hidden genetic landscape that up to two decades ago was unknown. In the DBN laboratory we have developed molecular markers (or molec-



Alder (*Alnus glutinosa*) on the bank of the River Liffey.



Sampling remnant pine forests in Clare.

ular characters) for the Strawberry tree and other species, which allow us to describe individual trees at a molecular level. This is the molecular genetic landscape. We can see variation that is not visible in gross macroscopic, or even microscopic investigations of the plants. We can then compare populations and track where they have come from.

Oak set the scene, others will follow

This type of research has already been undertaken for oak and it showed that our populations have an affinity with those of the Iberian Peninsula. We only find genetic types of oak in Ireland that originated in the Iberian Peninsula and none from glacial refuges further east. This seems logical – as the ice retreated populations moved northwards and colonised along the western seaboard. We will ignore the little issues of the lack of land and the large expanse of open sea along the way – these issues are still being debated. The fact remains that the plants got here! However, have all our plant species a similar story to oak? How prevalent is this Iberian connection in our flora? This is a question we are currently addressing by

adding additional tree species to the mix. Work being undertaken as part of the FORGEN project (www.forgen.ie) involves situating Irish populations in a European framework. Species such as alder, birch and Scots pine are being investigated to assess the genetic diversity and the provenance of the Irish populations. Scots pine is of particular interest as it is considered to have gone extinct around 400 AD or possibly later into the medieval period and was subsequently planted from Scottish material. The records are ambiguous and so we aim to use genetic analysis to give a first glimpse of what Irish populations are composed of and try to determine if any populations could be native. Over the next few years we aim to build a picture of the genetic makeup of the Irish woody flora from the more mundane such as birch and alder to the more exotic such as the Strawberry tree. This will increase our understanding of the genetic diversity and formation of Irish woodlands and will also aid in their conservation.

Colin Kelleher, National Botanic Gardens of Ireland, Glasnevin, Dublin.
www.botanicgardens.ie

2015 Beaches Awards for County Cork

Blue Flag Award

An Taoiseach The National Trust for Ireland, with support from the Department of the Environment, Heritage and Local Government and on behalf of the Foundation for Environmental Education (FEE). The International award is one of the worlds most recognised Eco Labels and is universally recognised as the benchmark for beach quality. The Blue Flag Award requires the adherence to 32 criteria including:

1. excellence in water quality and a committed monitoring programme.
2. provision of adequate safety and services, safety equipment and warning signals of potential hazards.
3. beach management programme, good infrastructure, accessibility and litter control
4. provision of environmental information and education.

Green Coast Award

The Green Coast Awards were first operated with Authorities in Wales and now extend to the coastline of Ireland for the sixth year running. The Green Coast Award is a symbol of excellence which recognises:

- Excellent Water Quality
- Good Management
- High Environmental Standards
- Community Involvement

Green Coast beaches may not have the necessary built infrastructure required to meet the criteria for Blue Flag Status, however they are exceptional places to visit and enjoy a rich coastal heritage and diversity. Community involvement through local Coast care groups is a requirement for the Green Coast Award and Cork County Council would like to commend the excellent work and commitment of our local community/Coast Care groups in the management and care of their local coastline. To find out how you can adopt a beach and form a coastcare groups contact www.beachawards.ie

An Taoiseach recently announced 7 Blue Flag awards and 10 Green Coast awards for County Cork bathing areas. The Blue Flag Awards ceremony was held on Ballinskelligs Beach, Co. Kerry, on Thursday 28th May. Presentation were made by the Minister of the Environment Community & Local Government, Mr. Alan Kelly TD.

	BLUE FLAGS	GREEN COAST
Youghal	Redbam	Ring
Shanagarry		Ardinahinch
Midleton		Inch
Garretstown	Garretstown	
Carrigaline		Rocky Bay
Old Head of Kinsale	Garrylucas	Oystermhaven
Clonakilly	Inchydoney	Inchydoney East
Rosscarbery	Owenahincha	
Skibbereen	Tragumna	
Schull	Barleycove	Ballyrisode
		Galley Cove
		Garinish
Beara		Dooneen Pier
Sheep's Head Peninsula		

IT'S A GREAT DAY TO BE AT THE BEACH!

LEAVE YOUR FOOTPRINTS ON THE SAND AND NOT YOUR WASTE.

On your next beach visit REMEMBER:

- Stay safe. Adhere to safety signage. Not all beaches are life guarded. Know which are – and obey the Lifeguard flags when displayed.
- Use litter and recycling bins provided at the beach or better still follow the *Pack it in Pack it out* initiative implemented on many of our Cork beaches and bring your litter home with you.
- Respect the fragile habitat, particularly the sand dunes. Sand dunes are a very important ecosystem and coastal defense system. Please do not trample the dunes – use footpaths and designated pathways. Driving, motorcycling scrambling and horse riding destroys the dunes. Please try and prevent these activities.
- Bring Your camera!!!!!!

The Environmental Education unit of An Taoiseach are running a Clean Coast Photography Competition as part of their Clean Coast programme. This is open to all amateur photographers . For more visit www.cleancoastphoto.org
Cork County Council Beach Byelaws 2011 have recently been implemented on our Cork Beaches. For Further information on Commencement, Interpretation, Authorised Persons, Prohibited Acts, Control of Dogs, Horses, Recreational Craft, Permits, Offences ETC please visit WWW.CORKCCO.IE
- THE BEACH IS A PUBLIC PLACE. Dog owners please respect the safety of others. Keep your dog on a leash and clean up after your dog. On the spot fine of €150 for dog fouling. Protect public health and is responsible.
- Get your school involved in beach activity days-marine education days organised by your local authority.
Remember – There is a BLUE FLAG CERTIFICATE awarded to schools who carry out marine/beach activities. For more information contact the Blue Flag Team at blueflag@eeu.antaice.org

BEACH AWARDS have benefits to the local community where amenities and environment are enhanced and a shared responsibility for the beach and the local environment is promoted. These awards also have a positive knock on effect for tourism in the County. The Local Authority depends on the full cooperation of the public in maintaining and progressing the blue flag and green coast awards along our beautiful coastline.

40 years of Sherkin Island Marine Station

By Matt Murphy

THIS year we celebrated 40 years of our Marine Station, which my late wife Eileen and I founded in 1975. We came to live on Sherkin in 1971 having lived near Banteer in North Cork for the previous 8 years. In 1964, we had purchased a small house and 15 acres on Sherkin, with the intention to eventually live there. Admittedly it was my dream more than Eileen's as I had spent a week's holiday on Sherkin in 1953 and always said I would live there "one day".

Our great adventure began in August 1971, when we arrived on Sherkin with five children, a few suitcases and some furniture. Our only means of making a living was with our adventure centre for children, which we previously ran on Munster's River Blackwater for some 13 years. In 1975 we ran a course on oil pollution of the rocky shore for adults. It was led by Dr. Jenny Baker, one of the world's experts on oil pollution of rocky shores, and by Gillian Bishop, a young British biologist who worked at the adventure centre, teaching children about the seashore. During the course, Jenny convinced us of the need for a long term monitoring programme on the Rocky Shore so as to get a better understanding of what was happening on the shore over a long period of time. Eileen and myself wondered what information was being collected on Ireland's rocky shores and it turned out the only data available was on a number of sites in Bantry Bay surveyed by Jenny, Gillian and others after an oil spill in the Bay in 1974. We decided to set up a monitoring and sampling programme on Sherkin and the islands in Roaringwater Bay with young volunteers. That summer five young students, who were studying for science degree in UCC, came to us as volunteers and under the leadership of Gillian Bishop, began the monitoring programme. It was then Sherkin Island Marine Station was born.

We built our first laboratory in 1976 in time for a field study group of students from Bangor University in North Wales. A number of university groups visited us between 1976 and 1979 from Bangor, Swansea and the University of Amsterdam, and also a group from the British Natural History Museum.

Today we have four laboratories and five library units. From the beginning, our aims have been to establish baseline data on the marine life along the coast, from Cork Harbour to Bantry Bay, and to identify and record the natural changes in the plant and animal communities. We also wanted to raise the level of awareness of the marine environment in Ireland and the potential of the marine resource to create jobs.

To help us achieve this, the Station has been staffed by volunteer scientists from April to November each year. Since 1975, nearly 600 volunteers have come through the Station, most with third level degrees. Without their participation, we would not have been able to achieve what we have today.

Over the 40 years of the Station we have carried out many surveys: some are long-term while others have been short-term or intermittent. We have always kept paper records of all the data, as well as storing information on computers.

The two largest and longest running programmes at the Station have been the Rocky Shore Survey and the Phytoplankton Monitoring Programme.

The Rocky Shore Survey has been running since 1975, with 69 sites surveyed annually on Sherkin Island, the islands of Roaringwater Bay and in Dunmanus Bay.

In 1995 the programme was extended along



Drolain Point, Sherkin Island, Co. Cork.

the coastline from Bantry Bay to Cork Harbour, increasing the number of sites to 144. Seven sites are surveyed monthly on Sherkin from April to October. In 2014 we reduced the number of sites due to financial constraints.

Since 1978 we have surveyed plankton populations in Roaringwater Bay and South of Sherkin. Permanent stations were visited at regular intervals from approximately April to November. This has now ceased since 2014.

Water samples were taken at different depths at each station, down to a depth of 50m. The water samples were then preserved and analysed to determine the population densities of each species. Annually we have analysed a thousand water samples and have preserved and stored these samples in the Station's archives since 1978.

We have undertaken large scale intensive survey work on terrestrial plants, both for the islands of Roaringwater Bay and Bantry Bay, overseen by Dr. John Akeroyd. As a result of this work, the islands of Roaringwater Bay have been recognised as botanical "hotspots" for rare plants. Two major flora books have been published by the Station on each of these areas.

Sherkin Island, the other islands in Roaringwater Bay and the waters that surround them, have been the subject of many surveys over the 40 years and innumerable internal reports of the findings were prepared. These include diving surveys, rockpools, macrofauna, otters, birds, butterflies and moths, beetles, flies and dragonflies. The survey work has enabled us to build up a huge collection at the Station, including extensive terrestrial and seaweed herbaria, fauna, butterfly, moth and insect collections and a large photographic collection.

I always believed that children have an instinctive love of nature. This was obvious when they came on the canoe-camping holidays on the River Blackwater. When we moved the adventure holidays to Sherkin and began to teach them about the rocky shore, I knew I wanted to bring this to a wider audience. In 1981, I decided to organise an exhibition in Cork City, bringing displays and live marine animals from Sherkin. We were fortunate in being able to book 10 days at Connolly Hall, the SIPTU headquarters in Cork. Over the next 20 years we organised 13 exhibitions there. Each year, over a 10-14 day period, we bussed in some 8000 local primary school children free of charge. These exhibitions were a great success and the excitement of both children and adults, who also came, was wonderful to see. Most had never seen such an array of marine life, including conger eels, lobsters, crayfish, spider crabs, octopus and many varieties of fish. Now we have a small, permanent exhibition at The Islander's Rest hotel on Sherkin.

In 1979 we organised our first workshop/conference on Sherkin. Others followed and when we organised our final one in 2009 in Cork City we had organised 39 environmental conferences with 470 speakers. Over 250 of these were from 21 countries around the world, with some returning a number of times to speak at our conferences. I am extremely proud of the topics and programmes of those conferences. I set out to educate and as I look back at the proceedings which we published the topics are still relevant today.

The 1990s saw us branch out into publishing as a way of expanding our educational programme. We have gone on to produce many publications, including guides to the seashore and wildflowers, colouring books, coffee table books on Ireland's birdlife and marine life, information on the ecology of the Rocky Shores of Sherkin Island 1981-2000, bulletins, an environmental newspaper - *Sherkin Comment* - and an online newsletter for children - www.naturesweb.ie.

For seven years, Audrey, my daughter, visited primary schools, giving talks on the environment and the sea. During her time on the road she spoke to over 200,000 children throughout Ireland and left a lasting impression on the school children.

Our annual environmental competition for primary school children in Munster is now in its 18th year and gives schools an opportunity to focus on the environment. This has been huge success and we are always thrilled to see the variety and hard work that the children put into the entries. We had wonderful friends who were so generous in their support. Our educational programmes for young people have been a wonderful success because of support from state bodies and companies.

We have been manually recording the weather at the Station since the early 1970s. In July 1972 we began recording rainfall for Met Eireann and added sunshine and temperatures in 1974. This has been ongoing since then, with Met Eireann also installing an automatic TUCSON station in 2004 as part of a European Network.

This May we celebrated the 40 years of the station. The Good Lord blessed us with a scorching day. People later mentioned they got sunburned. That week, was the finest we had all summer. The great joy I had was meeting many of our former 600 volunteers, affectionately known as "the bods", who had from 1975 built up the unique data base on the marine and terrestrial life of Roaringwater Bay and beyond. These young volunteers gave so much to Sherkin. Most were from the UK. On the day some of these former bods came from around the world - Europe, Africa, USA and Thailand. So many said their time at Sherkin

was the reason they had pursued their current career. This was wonderful to hear as so many of our volunteers came with their third level degree having had little or no practical experience of the marine or terrestrial environment and it was at Sherkin that they got practical and worthwhile experience.

Sherkin Island Marine Station does not receive any grant aid or Government financial support for its research. It has been a great blessing that we have been able to undertake the research we believed necessary. Of course it was incredibly difficult at times and we have survived "on a wing and a prayer". I have had a passionate belief in long-term monitoring from the very beginning. I have never seen the need to publish data in the short term on our two major programmes - the rocky shore and plankton. Data over a year, or two or three, is of little or no value. One needs data covering a period of 15 years or more. What disturbs me most is when I read of people presenting a model on future phytoplankton blooms based on a very short term sampling programme, often days or a few weeks.

I am often asked what have I learned in the 40 years of the Station. First and foremost is to always question and challenge the conventional wisdom and the fashionable belief. It is not always true because the experts or the media say so! A simple word "why" can open up a Pandora's Box or an Aladdin's cave.

The volunteers that came to the Station over the years showed that my faith in young people was totally justified. The wonderful thing was they had no hidden agenda. They worked in all weathers, late into the night to enter data they collected. I challenged them, continuously reminding them the data would be needed away into the future. Their response is now that huge legacy of data that the Marine Station has amassed.

What has been the most difficult is trying to understand the rivalry and often bitter relationships amongst scientists in Universities and Institutions. I have seen wonderful scientists curtailed and sidelined by their superiors and deliberately starved of funds. The saddest issue over the years has been the lack of co-operation between various state and academic institutions. Funding was never a priority for the marine by any government over the years; what was provided needed to be used frugally and with care. Unfortunately it was not.

My advice to young people starting out on life's journey, if you have a dream work hard, be prepared to make huge sacrifices, be prepared to make mistakes, which will come and can be disheartening. The important thing is to learn from those mistakes. Always be true to yourself, listen carefully to advice, you do not always have to take it but it can be most helpful in getting you to understand issues.

As I am now in my 80th year I am so thankful to the Lord that Sherkin Island Marine Station will leave a legacy of Marine and terrestrial data for the SW coast especially Roaringwater Bay. It has been my great privilege to have lived on Sherkin and to have had an amazing soulmate in Eileen, who died in 1979 and who has always been my guiding light from above. I am equally blessed to have seven wonderful children without whose amazing input the marine station could not have survived.

I dedicate my life's work to my late dear wife, Eileen, and my family for the support and encouragement I got over the years.

Matt Murphy, Director, Sherkin Island Marine Station, Sherkin Island, Co. Cork.

The Pros and Cons of Wind Power

By Alex Kirby

WOULD I like a wind turbine at the bottom of my garden? Certainly not. There again, neither would I like a coal/oil/gas-fired power station, a large dam, a nuclear reactor or a pile of rotting biomass or slowly combusting cattle dung. Energy, rather like children in Victorian Britain, is to be used, but not seen or sensed in any way. So that doesn't get us much further.

There are plenty who will argue for or against wind power, some of them persuasive and many vociferous. These are among the arguments in wind's favour:

- as it's renewable it reduces the need to burn fossil fuels and reduces reliance on imports.
- it's abundant and free. Some estimates suggest there is enough wind to generate one-third of the world's electricity.
- small turbines can serve remote places not served by the grid.
- once built, the turbines cause no pollution and produce no waste, and are easy to decommission and dismantle.
- wind has a small footprint, so farmers can still cultivate and seafarers navigate around them.
- the turbines can be built offshore, out of sight of land. There and onshore as well, making, installing and maintaining them can provide jobs.

Wind's opponents make some trenchant points too:

- the turbines are eyesores, sited on remote hilltops where they spoil the natural beauty of the landscape.

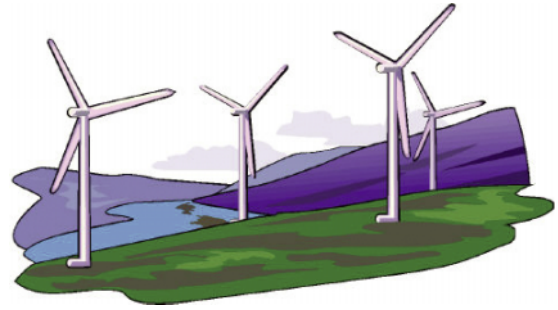
- wind is less efficient than fossil fuels or nuclear energy and is expensive to set up.
- it causes noise pollution, which some say can trigger stress-related illness. It can disrupt TV and radio signals and bird migrations and emit vibration which threatens marine life. There are military concerns that offshore wind installations can interfere with coastal radar systems.
- the real beneficiaries are far distant from the turbines themselves: the energy companies with their profits and the governments which can say they are reducing CO₂ emissions. Meanwhile the local community feels the turbines' impact.

One of the strongest arguments against wind power says because it is intermittent it can be used to generate electricity only when the wind is blowing strongly enough. You have to use it when it's available, the argument runs, because there is no way of storing it.

This argument has been used for years against solar energy too, which its critics say cannot be stored and so is no use for night-time applications. Wrong. A system has already been developed to store excess heat produced by solar plants and use it to generate electricity at any time.

The engineering challenge has been to design a system in which enough of the Sun's heat can be stored to produce full power continuously, even on cloudy days – and at night.

Now a plant near the Spanish city of Seville has developed a way to store enough heat to operate for 18 hours at full capacity without any additional power from the Sun. For many



months of the year it can run for 24 hours a day.

The plant is small, producing 20 megawatts of electricity – enough for 25,000 homes, reducing carbon dioxide emissions by 30,000 tonnes a year.

It has 2,650 mirrors which train the Sun's rays onto a central tower, where they heat molten salt to more than double the boiling point of water. More heat is produced than is needed for maximum power, so the surplus is stored in molten salt tanks until it can be used during cloudy periods or at night.

Another argument against wind farms – particularly offshore ones – is their threat to birds. But the UK's Royal Society for the Protection of Birds says siting is all: "If wind farms are located away from major migration routes and important feeding, breeding and roosting areas of those bird species known or suspected to be at risk, it is likely that they will have minimal impacts."

One argument against wind that is seldom heard is based on research by US scientists. They say harvesting the resource also reduces the resource: when a steady wind slams into a blade and keeps it turning, it transfers energy to the blade, and thence to the turbine. That slows the wind, leaving the grim prospect of diminishing returns.

Wind power is certainly working well in many places. The UK's National Grid says wind generated enough power in 2014 to supply

the needs of more than 6.7 million households, 25% of all British homes, all year round.

Taken together, renewables now supply 22% of global electricity. Global investment in clean energy rose by 16% in 2014, with solar, whose costs have plummeted in recent years, attracting over half the total funding. Only a series of large offshore wind farms stopped Europe bucking the trend. Global investment in renewables in 2014 totalled US \$310bn, just short of 2011's record \$317bn. But, with prices plunging, the money invested in 2014 bought almost double 2011's clean electricity capacity.

Is wind power good or bad then? As so often, it looks like a case of following the money. It's delivering the goods, it's attracting funding, and many of the commonest counter-arguments don't stand up to scrutiny.

There is one proviso: wind won't work everywhere, and shouldn't be expected to. Like free lunches, cost-free energy does not exist. But if you really do think climate change is a serious problem, it's hard to say we should neglect wind.

Alex Kirby is a founder editor of the Climate News Network.

www.climateactionnetwork.net

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Produced by Sherkin Island Marine Station



How to Choose a Career Path Using the Concept of Random Events

By David Crestin

I RETIRED in 1995 from a rather happy and active marine-related career in biology, specializing in fisheries. It was a long, circuitous route getting there, very little of it due to a deliberate choice of specific academic pursuits. I suppose the initial seed of an idea was planted when I first got to see the Atlantic Ocean coastline after my family moved to Boston, Massachusetts. I was five or six years old at the time and viewed the ocean as a mesmerizing miracle. Boats and ships captured my imagination, and I then and there pledged to myself that I would one day go to sea.

Growing up I had always maintained a strong interest in science and in particular, biology. Natural history subjects fascinated me to the point of my spending huge amounts of time reading in order to learn as much as I could. Nevertheless, a series of choices I made while a teenager kept me from finishing my public school academic training along a smooth trajectory to graduation. As a result, I received my high school diploma when I was nearly 20 years old, well behind my peers. At the time my circumstances loomed as a huge social conundrum. However, in retrospect, I look on those days as perhaps necessary for me to have reached a proper level of maturity.

With diploma in hand, I applied to and was accepted by Boston University where I entered a four-year liberal arts program. My major studies consisted of geography, geology and biology courses along with a substantial immersion into the humanities. Frankly, when I finally graduated with a Bachelor's Degree, I had no firm idea of what I wished to do professionally. Fortunately or unfortunately, before I could consider the options available, I was drafted into the United States Army. Such circumstances, however, were totally inconsistent with my love of the ocean and ships. As a result, and in a bit of a panic, I wasted no time to visit the draft board and make a plea for me to join the navy instead. It was due to quite an effort on my part that I was able to convince an elderly bureaucrat that I was not attempting to avoid military service. Rather, it was the service branch that

was the issue. I was successful in gaining a 30-day reprieve, and immediately visited the navy recruiting office, was sworn in, and breathed a sigh of relief. I had passed the qualifying test to attend officer candidate school and was ordered to begin training, at Newport, Rhode Island. When I graduated, I was commissioned an ensign and was fully prepared to become a career officer, a life that first captured my imagination as a child.

Of the five years I spent in the navy, virtually all were spent at sea. I was fortunate enough to sail across the Pacific and the Atlantic, as well as the Mediterranean Sea, North Sea and Irish Sea. Of the several vessels I served on, the last was an oceanographic survey ship. It was aboard that ship that I found a plankton net. One night our ship was drifting slowly when I first lowered the net and retrieved it. That event changed my life forever. Upon viewing the contents of the collecting jar at the end of the net, it was as if a door opened for me and I knew I wanted to study marine biology and to make it my life's work. Since my obligation to the navy was for only three years and I had already served five, I submitted a request to be allowed to leave to attend graduate school. At the same time, I applied to the University of Massachusetts graduate studies program and was accepted in the Department of Fisheries. Three years later I was awarded a Master of Science degree in Fisheries Biology. Now, I had to put my career choice to work.

My first job upon graduation was with an environmental consulting firm. We studied the potential impacts of a nuclear power electrical generating plant on organisms subjected to the cooling water systems and the discharge of heated effluent. This expanded into studies of fossil fuel plants and other large shore-side industrial developments. It involved both field and laboratory work of varying kinds. I became well versed in the types of impacts such activities could impose and how difficult it was to determine their actual damage to marine life in hard numbers. I believe these complex questions remain unanswered, although there has been a proliferation of large electrical generating sta-



1972: Dave Crestin tagging Atlantic salmon during a seven week cruise aboard a Canadian research vessel.

tions and other industrial uses along the waterfront.

From this initial entry into my chosen profession, I subsequently transferred to the United States Fish and Wildlife Service (FWS) under the Department of the Interior. The FWS was not only engaged in animal and environmental research, it was also a Federal regulatory body. At the time (1970s), the desire to construct both nuclear and fossil fuel generating facilities was substantial. One of my new responsibilities was to review

on behalf of the agency the adequacy of an applicant's environmental assessment studies. Having been totally immersed in preparing such studies, I was able to apply my experience to the issues of the day and became a member of a host of technical committees overseeing such studies in the northeastern United States. It was during these first positions after leaving school that I became certain that my interests focused on the marine environment more than freshwater or inland subjects. I

therefore applied and was hired by the National Marine Fisheries Service (NMFS), under the Department of Commerce.

The new position allowed me to review and help assuage potentially undesirable impacts from activities within the marine environment that were subject to regulatory authority of the United States Corps of Engineers, The United States Coast Guard, and the United States Department of Environmental Protection as well as the Nuclear Regulatory Commission.

During the course of the next twenty five years, I assumed added responsibilities involving applied science as well as administration and supervisory duties. These included day-to-day oversight of the foreign fishing fleet, the onboard observer program, management of the Atlantic bluefin tuna fishery and implementation of Federal regulatory programs in the Northwest Atlantic. With passage of the 200 mile limit, we became a regulatory agency for both foreign and domestic fisheries seaward of state waters. This brought me in contact with a host of international fishery institutions such as ICNAF, NAFO, and ICCAT as well as foreign government and fisheries officials. My last position before retiring was as Deputy Director of the Office of Fisheries Management and Conservation, in the agency's headquarters. I spent six years reviewing management and regulatory programs across the United States. Ultimately it led to the honour of working with the Sherkin Island Marine Station. Looking back, it certainly had been a rewarding ride. Now, living on Cape Cod, at the edge of the sea, I have remained a keen observer of marine issues.

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A Life Lived

By Matt Murphy

DAPHNE POCHIN MOULD was an extraordinary person. Writing was her passion but she had many talents. An avid photographer, geologist, broadcaster, pilot and flight instructor, she also had a great love for the natural sciences and for archaeology.

I was privileged to have known Daphne for over 40 years. She first came to visit me on Sherkin Island in 1971 and began writing articles for *Sherkin Comment* in 1989. Writing 61 articles in all, the last one was published in issue No 58. Daphne died in 2014 at the remarkable age of 93. Her life is a fascinating story and I hope this article will do her justice.

Daphne was a unique individual and this was obvious from a very early age. Those who knew her found her a most independent person, incredibly strong in her views on many issues and definitely was not shy in giving them. All her life, she had no interest in material possessions. Her early years, until her 30s, were a battle between her agnosticism and Christianity – a battle which was evident in the early books she wrote. From these one can see the depth of her thinking. To give some sense of what made her the person she was, I will try to give a broad summary of those early years before she came to live in Ireland.

Daphne was born on 15th November 1920 in Salisbury, England. In her book “The Rock of Truth” she tells us she was baptised as an infant in Salisbury Cathedral. She was brought up Church of England but said “I think I was agnostic from the very start. My thinking for myself was already taking me farther and farther away from the Christian religion. I turned to science, the biological sciences and to geology; a scientist I wanted to be and science I studied at every available opportunity.” Daphne used to go out in the country and identify the plants and trees, watch birds and other wild animals and search for fossils in the English chalk pits. She once said: “Science to me meant the discovery

of truth, reality, the nature of being, finding out what things were, what life was about.”

Daphne lived with her parents and an aunt and it was her aunt who mostly home-schooled her. Her school career was brief and interrupted because she had trouble with her eyes. Most of the time she worked alone for her Higher Certificate and University entrance. An only child, Daphne was a rebel from an early age. Her aunt read her the story of the Garden of Eden and she was not impressed. In disgust, her aunt, a Greek scholar, read her the *Odyssey* of Homer instead of the Bible.

Soon after Daphne turned seventeen there was a momentous change in her life. Her cousin lent her his big Horch car and she learned to drive. On a Sunday, she would drive her parents to a small country church near Salisbury but as she had no interest in the ceremonies she waited outside. She said “It was always fun to throw stones and a considerable spice in jeering at Christianity and the Saints.” Having access to a car she explored the countryside and in 1938 aged 18 she headed north on a visit to Scotland and the Highlands. This new world of mountains and peat-stained rivers thundering through the rocky glens and the endless lochs was to call her back again and again.

In the autumn of 1939 she enrolled for the BSc course in Pure Science at Edinburgh University. In her honours year of the course “I strained my heart by some means or other and it suddenly packed up on me. I thought I would die the next morning. My pulse rate sped up then halted with a jerk and the process began again. I fought for life for several days.” The idea of death was not frightening only annoying as there were things she wanted to do. She said “One’s past misdeeds do not rise before one, anyway, if you are as agnostic as I was then”. During World War II she joined the ARP (Air Raid Precautions – or Civil Defence) but soon transferred to the Volunteer Car Pool. This was a pool of cars and drivers that went everywhere, especially emergencies to hospitals, blood trans-

fusion business and emergency births.

When Daphne graduated in 1943 she had not recovered fully from her heart problem and was not called up for full time war service. The Ministry of Labour decided she could take up a research fellowship that she had been awarded and so went on to work for a PhD in Geology. Her Director at the Department of Geology at the time suggested she gather what was known on the rocks at Foyers, which was right in the middle of the Highlands, so she paid a visit to the Geological Survey in Edinburgh. There she discovered only a small-scale map to indicate what was found in the area and when in the field realised to her horror that the map and the rocks did not agree. Studying that one hundred square miles of Scotland gained her a PhD from the University of Edinburgh.

In looking for a place to live she drove to Inchnacardoch at Fort Augustus to view a cottage overlooking Loch Ness. It had been empty for years, the roofs of the stables and coach houses sagged. The house itself was badly in need of repair, lighting was by oil lamps and the piped water supply came from a mountain stream. The garden of about three quarters of an acre, was overgrown. Daphne’s mother came from England to see the place and they decided to lease it for a five-year term. Both her mother and herself came to live permanently. Her father came for holidays as he was still teaching and later, when he retired, he too came to live there permanently. Daphne set about clearing the garden – overgrown bushes, brambles, rough grass and rushes. The following year she began reclaiming the three acre paddock field and sowed oats and potatoes using the garden to grown vegetables for sale. Her neighbour was a Sandy Grant and as Daphne said an “R.C” (Roman Catholic) who went to mass in the nearby Benedictine Monastery at Fort Augustus. He instructed Daphne on how to plough with a two-wheeled “walking” tractor with a 3.5 HP engine, harrow and so forth.

At this time Daphne planned to write about the old roads and cattle tracks of the West Highlands. She knew it would be necessary to research literature on the subject before exploring the roads themselves. The monks at the Benedictine Abbey were reputed to have a good library so putting her anti-Catholic objections in her pocket, she went down. Little did she the agnostic know this would be the beginning of a very difficult road to becoming a Catholic. Father Augustine met her and said she could borrow what books she needed.

Daphne’s first book “The Roads from the Isles” was published in 1950 when she was 30 years old. A



Daphne Pochin Mould



Daphne, with Dr Leander Wolstenholme, looking at plants on one of the islands in Roaringwater Bay, West Cork.



Daphne before a day's flying.

natural progression for her was to write about the islands themselves and her next book was “West Over Sea”. This book gives a comprehensive picture of life on the Outer Hebrides set against the legendary and historical background. Her intention then was to write about the inner islands of Scotland, including Iona of St. Columba and to “show-up” the Saints and the Church for what she thought they were. In order to write “Scotland of the Saints” and attack the Church, Daphne need to research the subject first and went back to Fr. Augustine. It was at him that Daphne threw all her arguments about the non-existence of God. She found herself in a miserable state of mind trying to fight it. She fought it in two

ways by change of thought and scene, by racing her car along nearby roads and doping herself with South American bands on the radio. She also walked the woods above her home trying to find arguments to break the proofs and to her horror discovered that a scientific training was no infallible shield against the arguments for God’s existence. Fr. Augustine was her “sounding ground” and the more they discussed the more miserable she became. Daphne’s battle with her inner self was very difficult. She was an agnostic in a tug of war which was now moving her inch by inch to formal instruction in the Catholic Church. She disliked it so much as she felt she was turning her back on Martin

Luther who had been one of her childhood heroes and who had the courage of his convictions and stood up to Rome. On 11th November 1950 she was received into the Catholic Church by the local Parish Priest.

In Autumn 1951 the lease on their house in Inchnacardoch was up and they decided to move to Ireland.

They first went to live in Conemara. While in Galway one day she passed the Dominican Church in the Cladagh. She had wanted to learn about the Dominicans and on calling to their priory she met a Fr. Dominic Fahy who became her friend. She quoted Fr. Fahy as saying "I can say anything I like to you and you do not mind." Her friendship with the Dominicans in Galway would lead to her book on the Irish Dominicans. In the Preface, the then Master General of the Dominican Order, Fr. Michael Browne wrote: "She has given us something which has long been desired."

In 1952 Daphne and her parents rented a large house near the Church of Ireland church at Aherla, 13 miles west of Cork City. Daphne went to the Dominican Church on Popes Quay, Cork, regularly. I was then an altar boy and often saw this woman dressed in tweeds with brown brogues striding up the isle with a large, leather-bound missal in hand. It would be some years before we were to meet in a different setting.

Daphne's book output was extraordinary. By the time she was 45 years old in 1965 she had fourteen books and various pamphlets published, since her first book in 1950. Her writings about Scottish saints prompted her to write more books, now about Irish Saints and monastic sites of Ireland. Her love of climbing Scottish mountains led her to scramble around Irish mountains and ultimately to another book, Mountains of Ireland (1955). She must have travelled many hundreds of miles as her descriptions of each mountain range are so detailed.

In the 1950s, Daphne took up flying in a small plane from Cork's Farmer's Cross Airfield (Cork Airport was built nearby in 1961). Flying became a big part of her life and led to her book "Ireland from the Air" (1973). To get an insight into Daphne's flying years and his memories of her, I spoke with Simon O'Flynn whom Daphne taught to fly. He told me he first got to know her 55 years ago. As a young man, Simon worked for his father at his butcher's stall in Cork's famous English Market and every week, dressed in tweeds and wearing her brogue shoes, Daphne came to the market. She would talk about her flying trips during these visits and after a time invited Simon to go up with her. He said the first few trips were scary but soon he grew to love it. Daphne was the first woman instructor in Ireland and one day she told him he needed lessons and that he already had six hours done with her! In time, under Daphne's instruction, he passed his pilot's licence.

Daphne loved flying and she would say to Simon that it was the key to archaeology – one can see so much from the air which is impossi-

ble to see from the ground. Daphne worked with the Cork Archaeology Survey undertaking the aerial photography for The Archaeological Inventory of County Cork – published in five volumes. In our archives at the Station I have superb slides of the coastline from Kinsale to Kerry and also photographs of Beara, Sheep's Head and Mizen Peninsula and Cork Harbour from the air, taken by Daphne.

To take photographs, Simon said she would open her side window of the Cessna 150 Single engine plane and with two hands on her camera shoot away. Simon said he held his breathe on those occasions and there were many of them! I have spoken to a couple of other people who had similar experiences. Daphne was a very accomplished flier and in time she became a chief instructor and was flying into her mid 70s.

As we talked about her mode of transport on land he said for a number of years she also had a 50cc moped. Her cars over the years were instruments to be used and not to be admired. Daphne always drove a "banger" and none would now pass an NCT test. He tells of sourcing a £30 car for Daphne from a friend – subject to her liking it. The friend phoned him after the visit saying he wouldn't believe it but she wanted a guarantee with it!

Simon said the reason Daphne and her parents came to Ireland was to get away from the huge divide between the rich and poor in Britain. Ireland they believed was the land of heroes and a society without a class system. She told him she had no fear. The only thing she feared was when her aunt would comb her long hair as a child. Daphne hated it. Her aunt said if she didn't let her untangle it bats would get caught in it – for many years she had a fear of bats!

Daphne had a love of dogs and cats. Her two Alsatian dogs went everywhere with her in the car, consequently they wrecked the upholstery. Her first article in Sherkin Comment No. 2 (1989) on Sheep's Head Peninsula had a photo of the dogs. Simon said Daphne never used words needlessly. She had a maverick approach to formality – an eye of a sceptic. One gem she never deviated from was about the monks on Skelligs Rock. she said "they were fat, had a great life living on puffins and donations from pilgrims and free from women".

I was so pleased in 1990 that Daphne accepted our Sherkin Island Marine Station Environmental Award. To quote what I said at the time: "Whatever she undertakes she does so with enthusiasm, immense thoroughness and dedication. She has an encyclopaedic mind on our great heritage of ancient monuments, buildings and ringforts. Her aerial photographic collection will in time be talked about in the same view as the Lawrence Photography Collection. Daphne is a most unassuming person, a great friend, a great educator and has a commitment to the environment, which is shown throughout her work.

Daphne's great tragedy were her final seven years. I have slight reser-



A selection of books by Daphne.



One of Daphne's photographs of Hungry Hill on the Beara Peninsula, West Cork.

ervations in writing about them but I feel having read much of Daphne's brutally honest writings about her life, it would almost be an injustice to her not to write about her final years. In January 2007, a neighbour saw the upstairs light on at her home over a couple of days but with no sign of Daphne. He contacted Simon O'Flynn and they called the Gardai. Daphne was found unconscious on the bed, guarded by her two Alsatis and was removed to Cork University Hospital. Her body temperature was so low there seemed no hope of her surviving. She was then nearly 87 years old. After nearly two months in hospital, Daphne made a remarkable recover but decided she had had enough and signed herself out. At the same time she booked herself into a guesthouse some miles west of the city. At first she was delighted with her new surroundings but in a short time she complained about the smallest thing yet Simon said the people were wonderful to her. Each evening she would phone the ever-patient Simon and as he said "I just listened". He eventually got the phone call that she had moved to

her time "on the road" as it were, she survived on her pension and support from friends. She suffered from arthritis in her hands, could not write and found typing difficult. For a writer, who still had a lot to say, this was a cruel blow. It would not be an exaggeration to say that her final years were like hell on earth for her.

When Daphne was moved to hospital Simon and Paul Tassie, a neighbour of Daphne's, contacted Muckcross House in Killarney to ask them to collect all Daphne's archives, mostly her photographs and slides. Daphne had said to Simon that in her will, everything was to go to Muckcross. It is wonderful that this happened as Daphne had a number of break-ins at her house over the years and, with no one around, anything could have happened her priceless collection.

I have wonderful memories of Daphne. Recently I pulled together a complete set of her books and as I delve into them I see a person who, as Simon says, was copper-fastened in the truth. She was an artist in her descriptions of places she visited. She noticed everything.

I would like to finish this article with a quote from Daphne's article "Flight to the Blaskets" that appeared in "The Countryman" Spring 1969. We pick up the story with Daphne in Killarney, waiting to refuel: "After I telephoned Cork airport, there is nothing to do but to wait. When you fly a small plane with the very limited endurance of a ten-gallon tank, you tend to organise trips around Ireland in the manner once adopted on record-breaking world flights; you organise fuel and oil at intermediate points. I lie on the grass in the sun beside the plane and wait for Ivor, who is driving over with the jerry cans we laboriously filled before I set off from Cork."

"He arrives in the family car, bringing father and mother for a day in Killarney. We fill up and check the oil. I climb in, and he swings the prop. Chocks away, and he ties himself into the second seat; we taxi out and take off. Killarney with its wooded slopes, where the arbutus and rhododendron and oak form a wild jungle, falls away behind us, while the high mountains, the MacGillycuddy Reeks, boil and smoke with rain clouds and swirling mists. I turn above the level plain at the head of Dingle Bay and out over the long sandy spits that criss-cross from the land on either side of Castlemaine Harbour. To our right are forty miles of the Dingle peninsula, the high line of the Slieve Mish leading on to Mount Brandon, Ireland's second highest and perhaps loveliest mountain, and to Mount Eagle, the height above Sleah Head at the tip of the peninsula."

Daphne died on 29th April 2014 at Cork University Hospital and donated her body to University College Cork. May she rest in peace.

Matt Murphy, Director, Sherkin Island Marine Station, Sherkin Island, Co. Cork.

To the end this extraordinary lady was writing articles for Sherkin Comment and for each article she wrote in the last few years, she didn't have backup material available to her – her memory was extraordinary. In

ECO ECHOES

The Environmental Legacy of the Gaslight Era

By Walter Mugdan¹

January, 2015

FOR thousands of years humans could not do much better than candle light for illumination. Vegetable oils, animal oils, beeswax – all were used; and while some substances did burn brighter than others, their “candle power” was not significantly different.

Until 1792. That was when William Murdoch – an employee of James Watt of steam engine fame – first lit his house in Cornwall, England with methane gas distilled from coal. (Coal gas is chemically similar to the natural gas in wide use today for heating homes, cooking food, and generating electricity.)

Gaslight was brighter, steadier and cleaner than light from other fuels. Gas streetlights were being installed in London by 1814, and by 1819 close to 300 miles of pipe had been laid in that city to supply some 51,000 burners. Gaslight crossed the pond almost immediately, coming to America by 1816. For decades gaslight was widely used for interior lighting, and for nearly a century it remained the dominant form of urban street lighting.

As I wrote in *Sherkin Comment* Issue #52 (2011), the manufacture of gas from coal left behind a bitter legacy of coal tar waste – a gooey residue loaded with toxic compounds such as polycyclic aromatic hydrocarbons (PAHs) that are known or suspected carcinogens. The thick tar never really hardens. Commonly dumped on or in the ground, it would ooze down until reaching an obstruction like bedrock, where it would then move sideways – often into the waterways adjacent to which the coal gas plants were usually built. Everything in the path of the slowly moving tar became contaminated. For the past 30 years we have worked at cleaning many of these coal tar sites, always at great cost.

In at least one place, another ecological echo of the gaslight era continues to reverberate. In Camden, New Jersey (across the Delaware River from Philadelphia, Pennsylvania) there was a company that made mantles for gas lights. Mantles enable gaslights to burn more brightly and steadily, creating more light (and less heat) than if the gas is burned by itself as it emerges from the pipe. Made of cotton or silk, the lacy mantles are shaped like miniature woven balloons. A mantle is affixed to the spout from which the gas emerges, creating a broad surface on which the actual burning of the gas occurs, causing the mantle itself to glow brightly. Surprisingly, although the mantle turns to ash once lit, it retains its shape and remains functional as long as you don't jostle it.

Though gaslight is no longer used in our homes or on city streets, it is still commonly used for camping and in places where electricity is unavailable. Gas mantles are, therefore, still in wide use around the world.

Carl Auer von Welsbach, a German chemist, invented the modern gas mantle in 1885, using various metal and rare earth compounds to strengthen and brighten the mantle. In 1890 he started using thorium instead, which gave off a much whiter and even brighter light. Alas, thorium – named after Thor, the Norse god of thunder – is radioactive, and produces radioactive radon gas when it decays. Worse yet, heating it until it glows (the very purpose of a mantle) causes radioactive radium and other elements to be volatilized and released; this happens each time the mantle is lit. These radioactive volatiles can be inhaled, raising safety concerns about their use indoors. (Nowadays, mantles are often impregnated with alternative materials such as yttrium or zirconium, though these are somewhat less efficient than the thorium-impregnated product.)

Welsbach established a factory in Camden, and a competitor, the General Gas Mantle Company, set up shop nearby. These plants operated from the 1890s to the 1940s. Both used thorium for their mantles. And both generated large volumes of radioactive waste materials during the extraction of the thorium from the ores in which it is found. Those wastes were used as fill material for residential housing developments in the surrounding communities. Testing in the 1990s showed elevated levels of gamma radiation – among the most dangerous for people – from soil under and around many homes and nearby public places, as well as the factory properties and adjacent road beds.

In 1996 the U.S. Environmental Protection Agency (EPA) added the Welsbach and General Gas Mantle Contamination Site to its national list of sites presenting the highest priority for cleanup of hazardous wastes. Sites on this list are eligible for government cleanup funding under America's “Superfund” law enacted in 1980. To date, EPA has spent some \$295 million at the site to remove over 380,000 tons of radioactive contaminated soil and debris from more than 120 residences, plus ballfields, park areas, commercial properties and roadways, and from the demolition of the former General Gas Mantle factory building. But immense expenditures still lie ahead to clean the former Welsbach Company factory building and other contaminated areas.

As I have written in past articles (*Sherkin Comment* # 56 and 57, 2014) the Superfund law provides that the companies who caused



Removing contaminated soil.

the toxic pollution – or their corporate descendants – are legally responsible for the costs of cleanup. Both the Welsbach and General Gas Mantle Companies went out of business decades ago, so initially EPA assumed there were no “responsible parties” who could foot the bill for this extremely expensive cleanup.

Until 2010, that is. That year Elizabeth Lablanc, an EPA attorney, discovered a histori-



Backfilling the excavated soil with clean fill.

cal connection between the General Gas Mantle Company and the Kerr McGee Company, a huge, multi-national chemical company headquartered in Oklahoma. Ordinarily such a discovery would be welcome news, because government funds for cleanup of hazardous waste sites are severely limited. However, a few years earlier Kerr McGee (KM) had transferred many of its environmental liabilities – including those associated with the Welsbach site – to a subsidiary corporation named Tronox. Then, in 2006, KM had “spun off” Tronox to become a completely independent corporation. EPA's claim regarding the Welsbach site (along with claims involving many other sites) was therefore against Tronox, and not against KM.

No sooner had it spun off Tronox than KM sold itself for \$19 billion to Anadarko, a large and prosperous energy company.

Meanwhile, things did not go so well for the newly minted Tronox Corporation. Saddled with huge environmental liabilities that far outweighed the comparatively meager value of the assets with which it had been endowed by its former parent company, Tronox in 2009 declared bankruptcy. It seemed that EPA would get nothing more than a few cents on the dollar for its environmental claims.

But Tronox did not go quietly into bankruptcy. Instead, it filed a multi-billion dollar



The Welsbach and General Gas Mantle Superfund Site in Gloucester, New Jersey, USA. The soil at the site was contaminated from radioactive thorium used in the manufacture of gas mantles from 1890s to the 1940s.

“fraudulent conveyance” lawsuit against its former parent KM, and KM's new parent Anadarko. The lawsuit contended that KM had intentionally but secretly loaded Tronox with environmental liabilities far exceeding the value of its assets, thus committing a fraud against the company's shareholders, creditors and environmental claimants.

The EPA, along with other claimants, joined the Tronox lawsuit as co-plaintiffs. After a lengthy and complex trial in which the plaintiffs prevailed, the parties reached a settlement. Under the terms of the April, 2014 deal, Anadarko and its subsidiary KM will hand over a whopping \$5.15 billion, one of the largest environmental payouts ever. Of this, some \$224 million will go to the Welsbach/General Gas Mantle Contamination site in New Jersey to help pay for the ongoing cleanup.

Gaslight is long gone, but it still casts dangerous and expensive shadows across our modern landscape.

¹Walter Mugdan is Director of the Division of Emergency & Remedial Response, U.S. Environmental Protection Agency, Region 2, New York City, New York, U.S.A. Any opinions expressed in this article are his own, and do not necessarily reflect the views of the U.S. EPA.

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Predicting the unknown from the unknown

Can we model our way out of ecological ignorance?

By Prof Barrie Dale

CHARLES DARWIN'S passionate belief that "Ours is but to observe the ways of Nature" helped lay the foundation for what we now call ecology – but his approach would not stand a chance in today's funding system for science. Is this because science has honestly developed beyond the "primitive" concepts he and his colleagues gave us two centuries ago, or have we as a society lost the plot? I was provoked into thinking about this recently by a powerful emerging trend in research on harmful algal blooms (HABs or "red-tides"). Here, as in many other fields of research, scientists are trying to predict future events, but the available background ecological data is inadequate, and scientific modelling is being proposed to somehow compensate for this. In my opinion, this is unrealistic for HAB-research or the many other fields of science facing the same dilemma. At its best, ecology involves observing which organisms live where and when, in order to ask the important questions of why and how they do so. This might eventually offer the possibility of predicting

ecological events such as HABs, but can we ignore these first steps? Can we really model our way out of ecological ignorance?

The early ecologist's world was very different, but they were at least as highly motivated as present-day scientists. These were a few, independently wealthy, privileged gentry, able to pursue basic science as a full-time "hobby". For them, it was sufficient to observe and record the ways of Nature for its own sake – revealing the wonderful "miracles" in the details of the natural world as an intellectual exercise for the few. It took another hundred years before David Attenborough could bring such delights into the homes of the masses through television, but in so doing, he too, always shows the greatest respect for these early pioneers – he certainly has not lost the plot! So what has changed?

Society's basic attitude to science has definitely not changed since Darwin's time; society still expects a "pay-back". Already back then, there were huge socio-economic benefits from "observing the ways of Nature" – for example, greatly improved agriculture and

increased food production. But Nature paid a dreadful price; and today, what started as "observing the ways of Nature" has become an urgent, headlong rush into "understanding the ways of Nature", as the ecological damage caused by our "progress" threatens our very existence. "The gentlemen's hobby" has rapidly developed into crisis management of the planet.

Today, basic scientific research is a "public service industry" – the public pay for research, and in return, they expect practical solutions for serious environmental problems: how damaged is the biosphere, and how will it respond to future global change? By now, the initial concept of observing the ways of Nature could, and should have led to a long-term monitoring effort that would give us at least one hundred years of ground-truth data on what has been happening in the natural world. Sadly, however, we have seriously neglected these first steps, and scientists now feel pressured into making ecological predictions, even in the absence of adequate data. This can be likened to a person trying to plan where to go, without knowing where he is coming

from, or where he is. This is where the plot was lost, as illustrated by the example from HAB-research.

HABs threaten public health, wealth and welfare worldwide, and hundreds of researchers are working on them. Some HAB-species in the phytoplankton (microscopic algae in the sea and lakes) produce toxins causing sickness, or even death in humans, other species kill fish, while others interfere with the workings of fishing gear or desalination plants. More than forty years of research has seen great progress in identifying the organisms and toxins for short-term public warnings of up to a few weeks prior to any danger. However, this has not led to a general ecological understanding of why these organisms cause problems where and when they do, and both scientists and the public should be asking: why? This is not just to point the finger of blame at science – scientists alone have not caused society's problems with the natural environment, and they do not control funding priorities for addressing them – we are all in this together!

Nobody should be surprised at the lack of ecological answers, here, or elsewhere in science. Generally, there is no long-term phytoplankton monitoring prior to HAB-events that would provide ground-truth data for asking "why here and now?", and researchers have to devise their own investigative strategy "after the fact". It is hard to understand why it has proved so difficult to establish long-term environmental monitoring programmes, but it probably involves political reluctance to commit long-



term funding. Still, such monitoring is the crucial first step towards understanding changing environments and biotic responses, and scientists and funding agencies together bear responsibility for not having pressed more for this at the highest levels of decision-making.

The alternative strategies have usually identified "the target species", and attempted to study their ecological requirements with respect to a few abiotic factors such as temperature and salinity, often in laboratory cultures, and with little or no attention to the complex biotic interactions with other organisms within the plankton. Basic ecology teaches us that organisms live where they do in response to both biotic and abiotic factors, and it is therefore not surpris-


ing that the resulting ecological data is inadequate. However, if the data is inadequate for understanding past and present events, what possibility is there for plausible predictions of future events? Surely, we need to get back to basics and concentrate efforts more on "good old fashioned" environmental monitoring to find out what is really happening out there.

In Darwin's time, customers could consult a fortune-teller gazing into a crystal ball to predict their looming fate. Today, science should be seen as doing better than re-inventing the crystal ball!


Barrie Dale, Professor Emeritus, Department of Geology, University of Oslo, Oslo, Norway.

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EPA Publishes Focus on Urban Waste Water Treatment in report

- 38 of Ireland's largest sewage discharges fail to meet the mandatory treatment standard.
- Raw sewage discharged from 44 areas.
- 9 large areas do not meet the European Union Directive requirement to have secondary (biological) treatment in place.

WASTE water must be treated prior to being released back into the environment in order to remove contaminants that could pose an environmental or health risk. The Focus on Urban Waste Water Treatment in 2013 report, published recently by the EPA, provides a review of the environmental performance of urban waste water treatment plants serving over 500 cities, towns and villages across the country and outlines the waste water infrastructure in place.

The report covers 2013 which was the last year that local authorities were responsible for the management of urban waste water collection and treatment infrastructure. Responsibilities for these assets transferred to Uisce Éireann/Irish Water in 2014.

Waste Water Treatment Infrastructure and Effluent Quality

The European Union Directive concerning urban waste water treatment requires a minimum of secondary (biological) treatment at 162 larger urban areas in Ireland. It also specifies effluent quality and sampling standards to be achieved for treated waste water reintro-

duced to the environment from such areas. In addition the Directive requires a more stringent level of treatment (nutrient reduction for phosphorus and/or nitrogen) at 26 large towns and cities discharging to designated sensitive areas that may be at risk of eutrophication. Secondary treatment alone may not offer sufficient protection to these sensitive waters and more stringent treatment is necessary to prevent the accumulation of excessive nutrient loads.

Key findings regarding infrastructure and effluent quality in 2013 include:

- 94% of the national waste water load receives at least secondary treatment. This is three times more than in 2000.
- Nine of the 162 larger urban areas did not meet the Directive's requirements to provide secondary treatment. These include Killybegs and the Ringaskiddy-Crosshaven-Carrigaline area where the provision of treatment is now fourteen years overdue; and Clifden where discharges from an old overloaded treatment plant are impacting on bathing waters.
- Eight of the 26 large towns and cities discharging to sensitive areas did not meet the

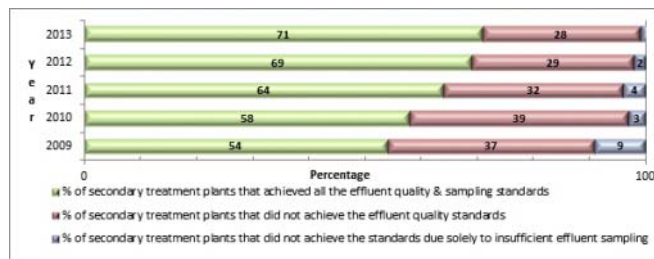


Figure 1. Assessment of effluent quality at 441 secondary treatment plants against the European Union quality and sampling standards for the water quality indicator parameters of BOD, COD and suspended solids

- Directive's requirement to provide nutrient reduction infrastructure and did not meet nutrient quality standards.
- 38 of the 162 larger urban areas, accounting for 63% of the national waste water load, failed to meet the mandatory effluent quality and sampling standards set in the European Union Directive. These include our two largest cities Dublin and Cork.
- Raw sewage was discharged from 44 areas, including tourist centres such as Bundoran, Spiddal, Ballyvaughan, Ardmore and Duncannon.
- 35% of incidents reported to the EPA were attributed to insufficient treatment capacity. An incident is a discharge in non-compliance with the requirements of an EPA waste water discharge licence.
- 50% of 350 infrastructural improvements required by EPA licences before the end of 2013 were not completed.

Operation and Management

The operation, maintenance and management of treatment infrastructure is essential to optimise the performance of waste water treatment plants. The EPA report identifies the following:

- 71% of the 441 plants with secondary treatment achieved the minimum effluent quality and sampling standards, up 17% since 2009 (see Figure 1).
- 37% of 759 incidents reported to the EPA were attributed to issues surrounding the operation and management of the waste water works.
- 45 of 246 audits conducted by the EPA in 2013 found that a maintenance programme for plant and equipment was not in place.
- The sampling of waste water discharges was insufficient at 16 secondary treatment plants.

Receiving Environment

Urban waste water is one of the principal pressures on water quality in Ireland.

The EPA report highlights the following in relation to the receiving environments:

- Waste water discharges contributed to poor water quality at 4 designated bathing

waters in 2013, including Clifden and Ballyloughane Beach (Galway City). Discharges from a further 4 areas, including Youghal and Ardmore, were considered a significant risk to the quality of designated bathing waters.

- Urban waste water is the suspected cause of serious pollution at 6 river sites, down from 9 in 2009. Some of the urban areas linked with serious river pollution include Moville and Raphoe in Co. Donegal and Tubbercurry in Co. Sligo.
- A total of 49 waste water works have been linked with serious, moderate or slight pollution of rivers, down from 56 in 2009.
- 11 river sites where pollution in 2007–2009 was linked with waste water discharges improved during 2010–2013 and were classified as unpolluted during the most recent monitoring.
- The EPA prosecuted Longford County Council in relation to an incident that occurred in 2013 where discharges from Longford Town caused a deterioration in the receiving waters which resulted in a fish kill.

Recommendations

Waste water must be treated and managed in order to protect our rivers and beaches and prevent pollution. Continued financial investment in waste water infrastructure is essential to address a legacy of under-investment, provide the upgrades and improvements necessary to protect receiving waters and ensure compliance with national and European obligations. The discharge of raw, untreated sewage needs to be eliminated.

The management, operation and maintenance of plant and equipment should be prioritised to optimise the performance of existing infrastructure, reduce incidents and improve effluent quality.

The report, Focus on Urban Waste Water Treatment in 2013, is available on the EPA website at <http://www.epa.ie/pubs/reports/water/wastewater/wwreport2013.html>.

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By Lin Baldock

LYME BAY: Six Years On

SCALLOP dredging in Lyme Bay off the coast of Dorset and Devon on the south coast of England was wreaking very considerable damage to the highly sensitive benthic communities on the rocky reefs in the bay. In order to protect these reefs a Statutory Instrument closed about 60nm² to bottom towed fishing in July 2008. This action followed serious concern expressed over the damaging impact of scallop dredging on the boulder and bedrock reefs which support diverse benthic communities including the pink seafan (*Eunicella verrucosa*). This closure still applies in 2015.

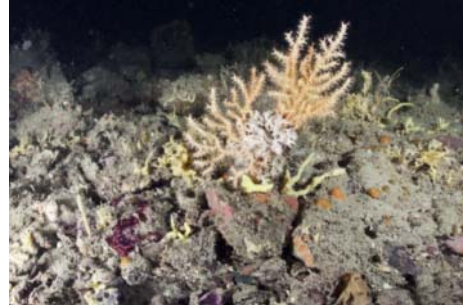
Much of Lyme Bay has now been designated a candidate Special Area of Conservation (cSAC) by Natural England largely for these bedrock reefs with their diverse communities of sponges, seafans and bryozoa. Unsurprisingly, there is a complex mosaic of bedrock and boulder reef habitat interspersed by patches of sandy sediment and mobile waves of dead maerl locally called "swanks". These sedimentary habitats are ideal for king scallop (*Pecten maximus*).

Mobile gear fishermen have argued that they should be allowed into parts of the statutory closure and the cSAC on grounds that these are not classified as reef, the qualifying feature for the cSAC. There have been some concessions to this view resulting in the cSAC having a more complicated boundary which follows the vagaries of the seabed types. This intricate limit makes it even more difficult effectively to police incursions into the protected areas.

As a result of the closure to mobile gear fishermen have turned to the use of fixed gear (pots and nets) and there is now concern among the community that there is over exploitation of these resources. This has led to consultations as how best to manage the fisheries in the protected areas and discussions have been had on capping the static gear fishery for crab, lobster and whelk (*Buccinum undatum*). Many fishermen engaged in these fisheries have been audited and been shown to comply with the Responsible Fishing Scheme (RFS) run by Seafish. The scheme was launched in 2006 by the Seafish Industry Authority with the aim of enabling skippers to demonstrate compliance with good fishery practice in the UK. Members of the working group behind the Lyme Bay Fisheries and Conservation Reserve project have agreed a



Fragmented Ross Coral colony, broken sponges and over turned cobbles after pot hauling.



Recovering boulder-cobble reef with pink seafan, coral worm and encrusting fauna - 2013.



Lanes Ground 2013 - tassal sponges with encrusting sponges, bryozoa and sea squirts



Seafan on boulder reef.

voluntary code of conduct to be implemented by participating fishermen (the Lyme Bay Commercial Fishermen's Voluntary Code of Conduct). Measures include use of Inshore Vessel Monitoring Systems (IVMS) and limits to the lengths of net set and the number of pots worked by any one vessel. As a result of extensive discussion with interested parties an integrated fisheries management plan has now been developed.

Recreational sea anglers have seen an increase in the diversity of catches within the Lyme Bay closure which they attribute in part to the trawling ban since 2008. This group too has drawn up a voluntary code of conduct.

A study has been set up to investigate the concerns of over exploitation of some resources: the Lyme Bay Potting Intensity Project. The study is to run for over three years and was established in discussion with fishermen from local ports who have agreed the location of experimental areas to be subject to varying fishing effort including no-take zones. Local fishermen have also taken on the responsibility of ensuring that the agreed fishing effort is implemented correctly within the experimental areas.

The use of static fishing gear is not without its impacts upon some of the more fragile components of the benthic community. This too will be

monitored during the study. Here the damage caused by the experimental deployment and recovery of a lobster pot is shown with fragments of a devastated Ross Coral (*Pentapora foliacea*) colony and loose bits of yellow sponge.

As to the reefs themselves there has been a dramatic recovery in the complex benthic communities in these habitats since 2008. A series

of SCUBA dives were made on four reef sites in Lyme Bay in the autumn of 2013. Several members of the survey team had dived in Lyme Bay since 2004 maintaining careful records and had noticed a gradual improvement in the diversity of the benthic fauna in the years after the closure. In 2013 there was a diverse benthic community flourishing at all the sites visited.

Improvement is most evident on the boulder-cobble reefs which, because of the nature of the seabed, suffered the most severe damage from scallop dredging. The first image illustrates the situation as it was in the summer of 2006, two years before closure. Here there is bare, shattered mudstone bedrock, fragmented Ross Coral and heavily silted cobbles. The

second photograph shows the situation in the autumn of 2013. The species-rich faunal turf was recovering dominated by encrusting, erect and cushion sponges, bryozoa and hydroids. Occasional healthy pink seafans and large, intact colonies of Ross Coral were also recorded.

What are the gains?

The closure of Lyme Bay has provided an opportunity to monitor the impact of this action on a large area increasing our understanding of the benefits of closing an area to mobile fishing gear both on the target fishery and benthic fauna. It has also kick started cooperation between various fisheries and conservation interests to achieve better managed and sustainable fisheries. Concerns for over exploitation of fixed gear fisheries has led to the development of a collaborative study to monitor the effect of various potting intensities both on the habitat and the fishery concerned. Without the closure the free-for-all approach to fishing would probably have continued in Lyme Bay despite local efforts at voluntary controls. Finally, continued monitoring of the recovery of the benthic fauna has made it possible to begin to evaluate the impact of the closure and the timescale involved in the progress to revival of these fragile communities.

Lin Baldock is interested in the distribution of temperate marine invertebrates and algae and has a collection of underwater images from the UK and Ireland.

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By Eleanor Buckley

THE fishery for brown crab is one of the most valuable in Ireland – in the region of 6,000 tonnes of edible brown crab is landed by Irish fishermen each year with a value of over €8 million. Declawing of Irish Brown Crab at sea will impact this fishery. It is the responsibility of every crab fisherman in Ireland to ensure the sustainability of this fishery and to work with the Sea-Fisheries Protection Authority (SFPA) to ensure stocks are maintained. As the Competent Authority for the enforcement of sea-fisheries law and food safety law in the seafood sector, the SFPA works to ensure the sustainability of these stocks and also to promote food safety in the seafood sector.

Crab claws are a popular choice as they are easier to cook and prepare than live crab and contain the best quality crab meat. However, brown crabs should not have their claws removed at sea. Declawing of crabs is the process whereby one or both claws of a live crab are manually pulled off and the animal is then usually returned to the water.

Whilst the practice is defended by some, however, in Irish waters, declawing at sea is prohibited. *Council Regulation (EC) No. 724/2001 on the Conservation of fishery resources through technical measures for the protection of juvenile and marine organisms* does permit the retention on board of separated crab claws not exceeding a maximum of 1% of the total catch weight. This tolerance is to facilitate the landing of claws which have

Sea-Fisheries Protection Authority highlights adverse affects of declawing Irish Brown Crab

been accidentally lost during handling, storage and transport.

Discarding clawed brown crab or using them as bait has the potential to introduce serious disease into the crab stock. A higher incidence of Bitter Crab Disease (BCD) has been noted in Irish waters where declawing is common. The survival rate of brown crab, which have their claws removed, is likely to be low and ultimately reduce the potential yield from the fishery.

Furthermore, if a crab survives declawing it will be unable to feed effectively and may subsequently die of starvation. Most crabs use their claws for capturing and eating prey – crabs with one claw would be disadvantaged in subsequent feeding and a crab with both claws removed would find feeding even more difficult. Moreover, declawing has been shown to result in a physiological stress response in the brown crab as well as resulting in bigger wounds.



De-clawing of crab at sea is a poor animal welfare practice, which also has negative impact on the viability of stocks.

To help ensure the safety and sustainability of this valuable fishery, the SFPA produced a guide which can be accessed at *SFPA's Consumer Guide for Brown Crab* (<http://www.sfpa.ie/Portals/0/CorporateAffairs/InformationLeaflets/ConsumerAdviceBrownCrab.pdf>) – this highlights how consumers can take some simple precautions when purchasing their crab. For example, when buying whole crab, whether live or cooked, it is important to ensure that the product measures at least 130mm across the widest part of the shell – there is a legal minimum landing size of 130mm or 140mm for Irish brown crab depending on the location the vessel is fishing in. The sale and/or display of undersize crab is illegal and highly damaging to stock survival and the SFPA requests that consumers who find undersize crab on sale as well as fishermen who observe illegal activity in the fishery to report it to the SFPA's confidential line at 1890 76 76 76.

Susan Steele, Chair of the SFPA said: 'We have to work together to change the practice of clawing at sea. I use the word 'we' to include both the crab fishermen and the SFPA. It is in everyone's interest to maintain a brown crab fishery in Ireland and to encourage more stocks. The legislation is there to protect both the industry and the crab stocks. The current

practice of throwing clawless, defenceless crabs into the sea to be scavenged on by predators does not aid the fishery. The Irish crab industry is of major importance to many coastal communities. The SFPA are committed to working with this sector of the fishing industry to promote compliance with conservation requirements and to deter the method of declawing. This is a shared responsibility and it is the responsibility of every fisherman to ensure that we maintain brown crab stocks.'

For further press information, please contact Eleanor Buckley, Communications Manager, Sea-Fisheries Protection Authority on 023 88593 46/ 087 920 3658 or email eleanor.buckley@sfpa.ie.

About the SFPA

The Sea-Fisheries Protection Authority is the independent statutory body, legally charged with the State's sea-fisheries law enforcement functions. The Authority enforces the EU Common Fisheries Policy and sea-fisheries law generally and food safety law relating to fish and fishery products.



"It is in everyone's interest to maintain a brown crab fishery in Ireland and to encourage more stocks."

SFPA inshore patrols target illegal fishing

Over 100 inshore inspections have been completed since the Sea-Fisheries Protection Authority (SFPA) recommenced their seasonal inshore patrols last month across the south, west and north west coasts with the support of the Naval Service and Air Corps as well Inland Fisheries Ireland. The patrols are part of a range of conservation measures to help protect the long term sustainability of Ireland's valuable crab, lobster and whelk fisheries.

The infringements identified by Sea-Fisheries Protection Officers of the SFPA to date have included the discovery of undersize lobster and crab. Regulations are in place regarding the minimum size that can be harvested to ensure these species can reach maturity. Since 1 January 2015 new national regulations¹ on lobster sizes have included a maximum and minimum size, recognising the important role that very large lobster play in the reproductive potential of stocks.

Susan Steele, Chair, SFPA said: "The sustainable management of these valuable inshore fisheries is critical to safeguard their future and, importantly, the economy of many coastal communities. Illegal fishing by a small number of fishermen is unfair to those thousands who fish legally and jeopardizes the inshore industry. The SFPA along with the support of the Naval Service and Air Corps is committed to creating a level playing field and we are delighted that the excellent inter-agency co-operation between the SFPA, Naval Service and the Air Corps is resulting in enhanced compliance levels being encountered in these patrols," she said.

In addition to the SFPA's ongoing RIB patrols, the Naval Services' LE Orla and the LE Giara have been involved in joint inspections with the SFPA while Air Corps are flying frequently on all coasts. The patrols will continue through the autumn.

Sea-Fisheries Protection Authority, Tel: 023 8859300 Email: sfpa_info@sfpa.ie Web: www.sfpa.ie



Sea Fishery Protection Officers from the SFPA who will be conducting inshore patrols across the south, west and north west coasts through to the autumn.



Denis Twomey

By Denis Twomey

THE Lough is a shallow, freshwater limestone lake near the centre of Cork City and a popular amenity for the people of the area. Fed by underground springs, it covers four hectares and averages 1m in depth. It is a well known and important refuge for wildfowl – such as ducks, geese and swans.

On 18th June 1963, the inaugural meeting of the Lough Wildfowl Society took place at 8 Ophelia Place, The Lough. It grew out of an idea I developed, under the auspices of the Lough Parish Guild of Muintir na Tire. After a short period it was realised that the idea of a wildfowl sanctuary, if it was to be developed, required its own specialist type organisation to work on it. Membership was £1 per year, with Associate Members paying 5 shillings and Junior Members 2/6.

In most countries, the areas chosen for wildfowl sanctuaries would have a background in wildfowl breeding in spring or of visiting birds in winter. The Lough, modest in size as it is in a built up suburb, was up to standard as far as general criteria went.

The objects of the Society were the conservation of the Lough's wildfowl and the education of people in general to an appreciation of the wildlife of the country.

The collection of wildfowl at the Lough enabled many people, who normally did not have the opportunity to do so, to study and watch numerous species of waterfowl in their natural habitat. It also enabled many wild duck to rest and feed in peace.

The Lough as a wildfowl sanctuary was modelled at the time on the Wildfowl Trust at Slimbridge, Kent, in Southern England, and the work of Dr. Jeffery Harrison who flooded gravel pits and converted them into a nature reserve. The Wildfowl Trust that was set up there has gone from strength to strength and has broadened its scope to the management of wetlands.

In the two years prior to the Society being established, a rearing pen was set up in my back garden, which incorpo-

Cork's Lough Wildfowl Society

A Wildlife Group in the City in the 1960s & 1970s

rated a small pond, built of stone. This pond had to be refilled frequently as it leaked. Perhaps at the time pond liners were not available or if they were we could not afford the cost. Our first clutch of mallard eggs were obtained from Major William Bell of Fota Estate, and they were placed under a hatching hen (know also as a broody hen or in West Cork a clucking hen). We reared five ducklings, which were released on The Lough on or about the end of July 1962 – our first introductions. From time to time mallard may be observed on different parts of the Lee, e.g. the tidal portion in front of the City Hall and these could be descendants of those that were originally introduced on The Lough.

The interest from the public was very heartening and we had only a few cases of birds being hunted by dogs. An introduction sign/glass case was erected on the banks of the Lough and it gave details of the birds released and their sponsors. The purchase of the birds was made possible by a sponsorship scheme, the companies that were involved to the best of my memory/records were Cork Gas Co., Martin Mahony Bros, Cork Milk Producers, Musgrave Bros, W.J. Heaslip – Millers, Irish Refining Co, F.H. Thompson, Beamish & Crawford, Dowdall & O'Mahony Arthur Guinness. The half century since has taken its toll on that list – a number are no longer trading.

The following wildfowl were released on 20th October 1962:

- 5 Atlantic Canada Geese
- 3 pairs of Carolina or Wood Duck
- 1 pair of Chiloé Wigeon
- 1 pair of Mandarin
- 1 pair of Magellan Geese.

The winter of 1962/63 took its toll and a number of the birds were lost. As I recall, we certainly had a steep learning curve as all the factors in running a wildfowl reserve came into play at different times, due to weather etc...

At a later date a wooden punt was purchased, which helped with many projects for example the building of a release pen on the bog. The boat was generously sponsored by Guinness.

As well as rearing wildfowl and introducing them on the reserve at the Lough, the Society organised lectures and outings, distributed literature on its amateur findings and had a very successful stand at the Cork Summer Show and at the Science Exhibition in City Hall in 1967. One of the most adventurous outings was to the Skelligs off the Kerry coast to study the gannet colony. The Society also encouraged other sanctuaries to be set up, including one in Arklow, Co. Wicklow, to which the Society sent up mallards.

In July 1967, I left Cork to visit a number of wildfowl research reserves in Britain and Denmark. The highlight of my visit was the Wildfowl Trust at Slimbridge. It was an unforgettable experience to be able to study the finest collection of Wildfowl in the world. Of the then 147 species of ducks, geese and swans known in the world, the Trust had 124 of them represented.

The resident birds that were present on the Lough 60 years ago were coot, waterhen (moorhen), mute swan – usually one breeding pair and little grebe (dabchick). These were augmented in winter with the addition of pochard, tufted duck and a handful of mallard and teal. Before the Lough was declared a sanctuary, these species of waterfowl (to include our definition of wildfowl) could be observed either on the water or flighting in and out of the "bog" (the island in the lake). Traditionally the island was always referred to locally as the bog on the Lough. If one mentioned the word 'island' they probably would understand what you meant, but would think you were getting very grand in yourself.

The bog is technically described as a "floating scraw" and for its expansion and development depends on small sally trees spreading roots on rotting vegetation, which would have build up year after year. Some of the "trees" also fall and again vegetation builds on this. This presented problems when building a release pen for birds, particularly the ducks. When confined to a small area the ducks exposed lead shot that would have percolated

down into the soft peat type "soil" and took it up as if it was grit. This resulted in them getting lead poisoning, which is fatal. To prevent it happening birds were confined for as short as possible in the release pen. In passing, the pen wire rusted very quickly where it was submerged in the peaty type water, which must have been very acidic.

You might wonder where did the lead shot come from? The southwest part of the Lough was in the flight path of duck and snipe and was regularly shot during the season. This was much curtailed when housing developed in the area and it became an amenity for people walking and children playing in the surrounding grassed area.

Snipe flighted regularly in winter in and out of the bog. This was in the context that bogs and wet areas were literally only a direct flight of a mile or two away. These areas have since been drained and most are gone, under a dual carriageway and warehouse developments. We also had visits from shoveler (a pair or two) and water rail.

The lake iced up most years for perhaps one or two days or a week and in some years for several weeks. The birds that kept "open water" were the coots, mute swans and in later years they got some assistance from the small flock of pochard. The major problem with the frozen lake was that it provides ready made bridges for a keen terrier to travel out to the bog and hunt it, causing disturbance, if no actual damage. Unfortunately a wing clipped bird is unable to fly and may be killed unless it seeks whatever open water is available. What I have just described did not happen very often, but it is certainly a factor in an "open" situation.

The fascination of wildfowl is part of the story of man's relationship with birds that provided food (when man was primarily a hunter/gatherer) and at the same time fascinated him with their migrations. For example, where did barnacle geese come and go from, in part of the West of Ireland? The places that wildfowl breed or winter in tend to be generally wild and largely uninhabited



A flock of Canada Geese at the edge of the Lough.



Rearing wildfowl in the back garden in the 1960s for introduction into the Lough.



A release pen on the island in the Lough.

places, with nature at its most diverse all round – ideal places to contemplate the world while getting away from the hustle and bustle of modern living. Due to land drainage and competition for other uses, even marginal wild places came under pressure and thus wildfowl had a big challenge to survive. Shooting people, conservationists and other like-minded people began to realise that "pay back time" was here or was on its way. Conservation may be for all sorts of reasons, however even though late in some places, the conservation of wetlands had begun. One project sparks another and a number of projects got underway or, as already mentioned, were up and running in the UK. This sparked off a very moderate practical interest in Ireland many years before studies of wildfowl were carried out, i.e. counts, records etc...

The Society was instrumental in getting Cork Corporation to apply to Minister Micheál Ó Móráin, Minister for Lands, to make the Lough a wildlife sanctuary.

Under the Wild Birds Protection Act 1930, the Minister made an order dated July 17, 1963, under the above Act, entitled "Wild Bird (The Lough, Cork City Area) Order, 1963". "In accordance therewith, the killing or taking of wild birds and the taking or destroying of the eggs of wild birds is prohibited in the Bird Sanctuary, The Lough, Cork as specified in the Order." This official government order creating a sanctuary did help as it gave legal protection to the birds and a situation where authority had the backing of even higher authority, including the local Garda who were very helpful. Fifty years ago crime was not having a light on your bike!

Though the Cork Wildfowl Society ended in the early 1970s, the Lough has continued to be an important habitat for a large bird population and a place where the citizens of Cork City can enjoy watching and studying wildfowl in their natural habitat.

Denis Twomey,
Model Farm Road, Cork.



The Domestic type of the swan goose is known as the Chinese Goose (*Anser cygnoides*). The wild swan goose is native to Northern China and is rare.



Canada Goose, descendent of the original geese introduced on the Lough 50 years ago.



Goose - widely distributed in Ireland, augmented in winter by migratory birds.



Mallard feeding at slipway.



Black swan, native to Australia and now New Zealand, introduced to the latter country over 100 years ago.

THE LOUGH Cork City

Photography by Robbie Murphy
Details by Denis Twomey



Feral pigeons mopping up some grain left by wildfowl.



Mute swans feeding on bottom of lake.



Domestic Geese.



Greylag Goose, large and heavily built goose, probable ancestor of most of our domestic geese.



More domestic geese.



Path at the Lough.



Mute swans.



Mallard, one of our common wild duck. They have spread from the Lough and taken up residence in any available pond/driver in the Cork area.

TELLUS

A major regional geological survey being undertaken by the Geological Survey of Ireland

By Emma Scanlon,
Ray Scanlon &
Mairead Glennon

TELLUS is a major regional geological survey being undertaken by the Geological Survey of Ireland. The project, consisting of low level airborne geophysical surveys and ground based soil surveys, is planned to continue across all of Ireland in the coming years. Previous phases of the survey have resulted in an improved understanding of the environment and natural resources and the data are available openly and freely to all. In Roman mythology, Tellus was the goddess of the Earth.

The Air Survey:

In the current phase, Tellus North Midlands, two specially equipped planes will fly approximately 90m above the ground to collect geological data in rural areas, rising to 240m in urban areas. The two white, single propeller C208B Cessna Grand Caravan planes have a blue stripe and red nose with registration numbers VH-ZKG and VH-ZKB. The sound of the plane is less than that of a passing lorry. A small receiver attached below the aircraft takes measurements as they fly over different types of rock, soil and water.

The Ground Survey:

Samples of soil, stream sediment and stream water are taken by sampling teams, at a frequency of one site per 4 km² or approximately 1000 acres. The samples are analysed for a suite of geochemical elements and compounds, showing the natural chemical variability of earth materials. Teams have recently finished soil sampling in the north midlands region.

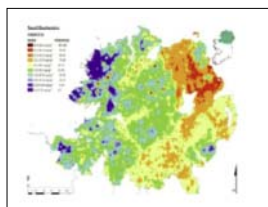
Past, Present and Future

Since 2007, over 25,000 km² of the island of Ireland has been surveyed through Tellus surveys.

The first phase of the Tellus Project, comprised geoscience surveys of Northern Ireland completed between 2004 and 2007. These surveys comprised geochemical surveys and a low-level airborne geophysical survey of the whole of Northern Ireland.

In 2011, a cross border partnership between GSI, GSNI, Queens University Belfast and Dundalk IT were successful in its bid for €5M EU funding to complete Tellus Border; an extension of the Tellus survey into the border counties of Ireland. Tellus Border successfully concluded in December 2013.

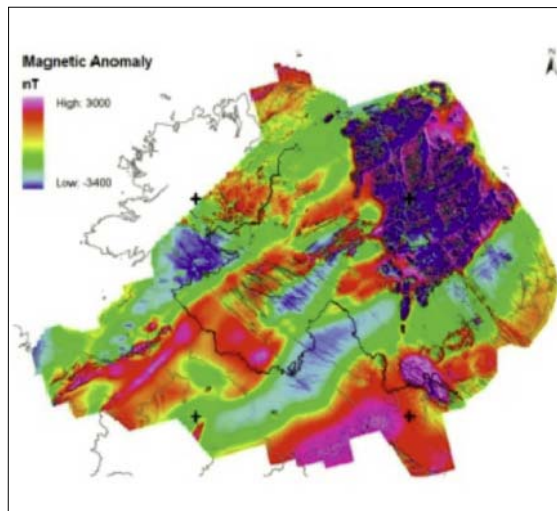
Tellus continues as a programme area in the Geological Survey of Ireland, funded by the Department of Communications, Energy and



Topsoil Geochemistry for Cobalt.



Aerial Surveying.



Magnetic Anomaly.



Manually surveying and sampling for the Tellus Surveys.



Some of the benefits of Tellus surveys

The data captured by a geochemical survey is useful for:

- Geological mapping – identifying the chemical and physical properties of soil, which is formed from the rocks beneath
- Agriculture – for example, helping to better manage crop and animal health through understanding high or low contents of essential agricultural trace elements
- Mineral prospectivity – identifying areas of interest for mineral exploration

The data captured by a geophysical survey is useful for:

- Geological mapping – understanding underground geological structures, on land and in the coastal near shore environment.
- Health for humans – for example, by measuring the radon gas associated with naturally occurring radioactivity in rocks and soils, the data helps us to better understand where the health risks may be.

Contact details: Tellus Survey,
Geological Survey of Ireland,
Beggan's Bush, Haddington Road,
Dublin 4. Tel: 00353 (1)678
2761. Email: tellus@gsi.ie
www.tellus.ie

Natural Resources. The current survey phase, Tellus North Midlands, is in operation mainly in counties Roscommon, Longford and Westmeath, and also in adjacent areas of Mayo, Galway, Offaly, Kildare, and Meath. This survey follows southwards from the border region survey and aims to complete airborne geophysics data acquisition and soil geochemical sample collection by mid-2015.

The Geological Survey of Ireland now aims to complete Tellus surveying in 50% of the country by end of 2017, with the view to completing the country in subsequent phases.

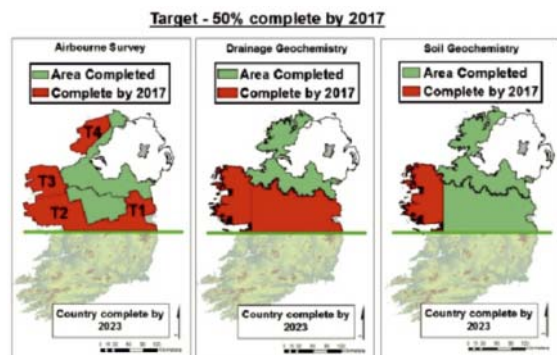
An ongoing awareness-raising campaign is continuing to alert animal owners and the general public to the details of survey operations if they have concerns about sensitive animals.

Geochemical data

Over 150 geochemical datasets, including cobalt in topsoil (above) revealing geological controls the chemistry of earth materials

Geophysical data

Eight geophysical datasets including total magnetic intensity (above) showing new detail in regional geological features, often obscured by soils and thick glacial deposits.



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Printers of Ireland's Hidden Depths

Wildlife of the Suffolk Coast

By Anthony Toole

I HAD been sitting for less than a minute. The surrounding heather played a seemingly infinite set of variations on the theme of purple interrupted by contrasting yellow patches of knee-high gorse. A sudden movement, and a tiny bird disappeared into a taller clump of gorse to my left. As I scanned this with binoculars, it flew across to another bush, where it paused for perhaps a second before flitting off again to disappear into a line of gorse thicket. But that fleeting glimpse was enough to show me the red breast and long tail that identified it as a Dartford warbler, a rare bird that in Britain is found only in a few scattered heathland areas of southern England.

The scene of my brief encounter with the Dartford warbler was the National Trust's Dunwich Heath, one of a string of wildlife hotspots that together make up the Suffolk Coast and Heaths Area of Outstanding Natural Beauty. Indeed this thin strip of land, running for some thirty kilometres from just south of Lowestoft, England's most easterly town, is an almost unbroken succession of Sites of Special Scientific Interest, Special Protection Areas and Ramsar wetland sites. At the northern boundary of Dunwich is the Westleton Heath National Nature Reserve, while to the south lie the lagoons and reedbeds of Minsmere bird sanctuary.

These heathland areas were created when early farmers, more than a thousand years ago, cleared the trees to allow their sheep to graze. During Anglo-Saxon times, Dunwich was the capital of East Anglia, a prominence it lost when much of the town and its coastline were washed into the sea following severe 13th century storms. In recent centuries, the encroachment of agriculture has further eroded the heaths, which remain as a rare habitat reaching to the very edge of the sandy coastal cliffs that continue to disappear by the year.

The Dartford warbler is doubly unusual in that, unlike its neighbour, the nightjar, and other heathland warblers, such as the blackcap, it remains in residence here throughout the year. In harsh winters, this has led to declining numbers when the insect food supply has been seriously depleted, though the small populations

have shown resilience in bouncing back again when the weather has improved.

There was plenty of bird food here while I made my visit, for on my meanders around the sandy footpaths, I saw countless butterflies: hedge brown, small heath, small tortoiseshell, red admiral and peacock, as well as dragonflies and damselflies, while large areas of gorse were covered with spiders' webs. This bounty was also being enjoyed by the many swooping swallows and the heath's less shy residents, its skylarks and meadow pipits.

In contrast to Dunwich Heath's 87 hectares, its southern neighbour, Minsmere, extends to more than 2000 hectares. It is owned by the Royal Society for the Protection of Birds, and its mosaic of woodland, grassland, beach and wetland habitats make it one of the most important wildlife reserves in the country. It came to public prominence in May-June 2014, when the BBC chose it as the venue for its 10th anniversary series of Springwatch live television broadcasts.

It was a month after these broadcasts when I arrived at Minsmere, so perhaps I missed the most exciting period, in which the birds' breeding activity was at its most feverish. Nevertheless, the sand cliff beside the Visitor Centre, honeycombed with nesting tunnels, was noisy with the comings and goings of dozens of sand martins, frantically feeding up their chicks in readiness for their southerly migrations.

I followed the Coast Trail,

one of three circular walks of around 2.4 kilometres that led to various viewpoints in the reserve. A short detour brought me to the North Hide, and a first view over the West Scrape, a shallow, brackish lagoon dotted with islands, ringed by reedbeds and populated by terns, gulls and greylag geese. In the distance rose the incongruous outline of the Sizewell Nuclear Power Station, shining with what looked like a pristine cleanliness.

The track ran to the north of the scrapes, past reedbeds through which darted sedge warblers and possibly even the occasional bearded tit. On reaching the beach, it turned south, past sand dunes and the concrete cube relics of a World War II coastal defence line and on to a further series of hides.

The birds pecking in the muddy margins of the East Scrape included little ringed plovers, greenshanks, lapwings, common and curlew sandpipers, dunlins and godwits. Wading through the shallow pools were a few solitary herons and little egrets and several dozen avocets. In the deeper waters, mallards, coot, moorhens and shelducks floated serenely, while Barnacle and Canada geese rested on the islands.

The track crossed a sluice through which water flowed to regulate the levels on the scrapes, then turned back past the extensive reedbeds of the North Levels. Scarlet pimpernels spotted the dull brown rubble footpath with specks of colour. To the sides stood tall, white blooms of marsh mallow, a plant confined to small

areas of coastal wetlands in the south of England.

These reedbeds are home to the very secretive bitterns, whose camouflage makes them almost impossible to see, even when one is looking at them. Marsh harriers can often be seen searching for the small birds that are their main prey. In the afternoon heat, however, only chaser and hawk dragonflies and vivid orange, green and blue damselflies shared the air above the reeds with the swallows.

While the wetland habitats of Minsmere may be the most important in terms of bird life, the mosaic structure allows for the survival of other environments with their own particular inhabitants. To the northern and western corner are the woodlands and grasslands that are populated with small birds, such as the many varieties of tits, finches and warblers, along with larger species like, woodpeckers and jays.

Here can be found mammals of all sizes, ranging from shrews through water voles, stoats, rabbits, grey squirrels and foxes to badgers and deer. There are also introduced animals like Muntjac and rare Chinese water deer. On the drier areas leading up to and into Dunwich Heath, one may find lizards, grass snakes and adders, with frogs, toads and newts in isolated damper patches. And there are the common and grey seals that frequently haul themselves onto the beaches.

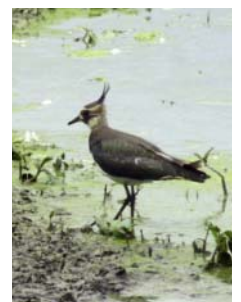
Like almost all nature reserves, Dunwich Heath and Minsmere would not remain in their present conditions if left to Nature alone. A great

deal of work is done throughout the year to prevent scrub vegetation from taking control of the heathlands and scrapes. Excessive weed growth needs to be cleared from the ponds and the reedbeds thinned out periodically.

The reserves remain open throughout the year to allow visitors of all ages to enjoy the spectacles of the annual cycles of life. Spotting some of the creatures requires patience, and a bit of luck. Though many of the birds that spend the summer here will have gone south by autumn, they will have been replaced by migrants from the Arctic. Visitors to the Suffolk Coast

looking for its wildlife are very unlikely to leave disappointed, whatever time of year they come.

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Clockwise from top: Scarlet pimpernel; Barnacle and Canada Geese, East Scrape, Minsmere; West Scrape, Minsmere; Lapwing (left); Marsh mallow (right); Moorhen and chicks; Hedge brown butterfly; Small tortoiseshell butterfly; Chaser dragonfly; Gorse and heathers, Dunwich Heath.

THE FLORA OF CORK CITY

A Personal Perspective

By Tony O'Mahony

CORK is a compact city, neatly nested in the west-east aligned valley of the River Lee, upriver of the magnificent Cork Harbour. Its geology consists of limestone and sandstone outcrops (an aesthetically delightful feature) and this arrangement is reflected in the stonework of Cork's beautiful old walls and architecture. The city's environs boast a wide range of distinctive wildlife habitats (e.g. rivers, streams, woodlands, saltmarshes, freshwater ponds, hedgerows and sandstone and limestone quarries), which in turn hold a diversity of wildflower species, both indigenous and naturalised. It is this admixture of native and alien plant species that adds such zest to the recording of the flora of Cork City and its environs – a dynamic mix that is always in flux, with some species thriving as the decades go by, whilst others wain, or die out completely. Born into this environment in June 1949, I had developed a passion for the study of wildflowers by the age of ten, and this scientific enterprise has become a lifelong obsession, providing me with a limitless source of interest, knowledge and pleasure, over the past fifty years.

Cork City's Rare Native Plant Species

Five decades of recording the flora of Cork City and county (i.e. 1964–2014) has provided a fascinating overview of the gains and losses of plant species within that time period. In Cork City in particular, it has been possible to ascertain the distribution and frequency of all of its common and rare native plant species, the latter (and their habitats) being highlighted for special legal and environmental protection, whenever possible. In this connection, the city's wall-tops and hedgerows provide a home for cohabiting populations of the nationally rare annual species,

Little Robin (*Geranium purpureum*) and Round-leaved Crane's-bill (*G. rotundifolium*), both of which exhibit an extremely localised distribution in Ireland, and are mainly confined to lime-rich soils. The widely-scattered, extant populations of these two rarities, are very vulnerable, given that their habitats can easily be eliminated by infrastructural developments. Little Robin is a member of the Mediterranean element in the Irish Flora, and was first recorded in Ireland from Cork City (prior to 1838) by William Alexander, when he was just twenty years of age – a precocious botanical talent! After 1848, this species was lost sight of in Cork, until I happened to re-find it in a number of Cork City stations in June 1969. I continue to monitor the fate of these dwindling, relict populations on an annual basis.

The Alien Component of the Cork Flora

In the nineteenth century, Cork City provided the first anchorage in Ireland, for a suite of adventive plant species, some of which arrived (as seeds) in the stoneballast of ships trading between Cork and foreign ports. In response to congenial living conditions, these adventives quickly became established on walls and waste ground in the city. As a child, I was intrigued and delighted each May, when local wall-tops were aglow with the pink, vermilion, or white blooms of Spur Valerian (*Centranthus ruber*) growing cheek-by-jowl with the radiant yellow flower-heads of Oxford Ragwort (*Senecio squalidus*). To me, these two, colourful plant species were a sure and welcome indication that the heady days of summer were imminent. Yet, despite their cohabitation on Cork's walls, both had very different origins and histories: Spur Valerian being a native of the Mediterranean region, and established in Cork City by 1818, whereas Oxford Rag-

wort was endemic to the lava slopes of Mount Etna, in Sicily. Oxford Ragwort escaped from cultivation in Oxford Botanic Garden in 1794 and, over time, spread along the British railway network. In Ireland it was established and of common occurrence in Cork City and its environs by 1838, and similarly availed of the Irish railway network to very gradually extend its range to other parts of our island. Historical data of this nature, adds immeasurably to the study and intrinsic interest, of local, regional and nationally botany, and puts one's finds in their proper geographical context.

Plant Aliens at Cork's Tivoli Docks and on the Quay-Walls

During the 1970s, Tivoli Docks (the original location for the Cork-Swansea Car Ferry) provided a further berth for alien arrivals in Cork City. This mixture of adventive species, unleashed a spectacle of colour up to the late-1990s,

before enclosure and herbicide spraying of the Tivoli wastelands, ended their glory days. Yet, a similar, scintillating floral display of adventives can still be seen on Cork City's limestone quay-walls, as, for instance, between Wandesford Quay and Sullivan's Quay, on the south channel of the River Lee. Here, we find species of very different origins, sharing the same cramped space, such as: the yellow-flowered, North American Monkeyflower (*Mimulus guttatus*); purple-flowered Indian Balm (*Impatiens glandulifera*) and Chinese Butterfly-bush (*Buddleja davidii*); the red-flushed, remarkably daisy-like flowers of Mexican Fleabane (*Erigeron karvinskianus*) and the lush-green, mosslike, rampant carpets of the Mediterranean plant, Mother-of-thousands (*Soleirolia soleirolii*).

The Future of Cork City's Flora

Currently, the flora of Cork City is diverse and species-rich, this being a reflection of the wide range of ecological habitats that are still present within the city limits. However, Cork City Council's plans for the repointing of the limestone quay-walls in the near future, may lead to the elimination, or massive reduction, of the very colourful flora (i.e. native and naturalised species) that they currently support.

Tony O'Mahony, 6 Glenthorn Way, Dublin Hill, Cork.



Oxford Ragwort (*Senecio squalidus*).



One of the docks in Cork City.



Spur Valerian (*Centranthus ruber*).



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GROUPERS

(Family: Serranidae) in NE Atlantic & Mediterranean Waters

By Declan Quigley

GROUPERS (including Seabasses, Creolefish, Coney, Hinds, Hamlets, Anthiines and Soapfishes) belong to a relatively large family of teleost fishes known as the *Serranidae*. Although the systematics of the *Serranidae* is still in a state of flux, it is generally considered to currently represent about 64 genera including at least 475 living species which are found worldwide in coastal (depths <100 m) tropical, subtropical and temperate marine habitats, most frequently on coral reefs and rocky substrates. Juveniles of some species are commonly found in the lower reaches of estuaries.

Although at least 20 Grouper species have been reported from the NE Atlantic and Mediterranean Sea (Table 1), only 7 of these have been recorded, albeit rarely, from European Atlantic waters northwards from Spain and only two of these from Irish waters: Dusky Grouper (*Epinephelus marginatus*) and Comber (*Serranus cabrilla*). There is one unsubstantiated single report of the Eastern Atlantic White Grouper (*E. aeneus*) from UK waters (Cornwall) dating from 1832 (Couch 1832) and another unusual, albeit confirmed single record of the Western Atlantic Warsaw Grouper (*Hyporhamphus nigritus*) from Brittany (NW France) dating from 1999 (Quero et al. 2000). There are also unverified reports of the Rock Hind (*E. adscensionis*) from the NE Atlantic (Canary Islands & Azores). About 40% (N=7) of the species recorded from the Mediterranean Sea are regarded as non-native aliens, having naturally migrated either from the Indo-Pacific region via the Red Sea/Suez Canal (Lessepsian/Erythrean Invaders) [N=3] or from the Atlantic Ocean via the Straits of Gibraltar (Atlantic Invaders) [N=3]. A single Mediterranean record of the Indo-Pacific Honeycomb Grouper (*E. merra*) is thought to have been deliberately released as an aquarium fish.

Most Groupers are monandric protogynous hermaphrodites (i.e. they first mature as females, and after spawning one or more times as females, they change sex, spawning thereafter as males). It is interesting to note that many species of Wrasse (Labridae) are also protogynous hermaphrodites (Quigley 2009). The inducement for sexual transformation is thought to be related to exogenous (e.g. behavioural) as opposed to endogenous (e.g. size) factors. Other species are synchronous hermaphrodites, with both sexes functional at the same time in a single individual. Although synchronous hermaphrodites can fertilize their own eggs, they normally spawn in pairs and alternate the release of eggs and sperm in order to have their eggs fertilized by other fish. Many Groupers are late matur-

ing; some species do not mature until they are 8–10 years of age. During the brief (1–2 week) spawning season, some species form large aggregations at specific sites. The largest males often control harems containing three to 15 females. The fertilized eggs and newly hatched larvae have a relatively long pelagic phase lasting up to 60 days in some species, following which, the fully metamorphosed juveniles (25–30 mm TL) settle and adopt a benthic existence.

The vast majority of Groupers are bottom-dwelling solitary ambush predators, feeding on a wide range of taxa, particularly crustaceans, cephalopods and fishes. Some Groupers have been observed following Moray Eels [Muraenidae], Common Octopus (*Octopus vulgaris*), and occasionally other fish as they forage over the reef, in order to catch the small crustaceans and fishes that are frightened from their hiding places. Although some species, such as the Atlantic Goliath Grouper (*E. itajara*), can attain a maximum length of 2.5 m, weigh up to 455 kg, and live for up to 37 years, many species grow no longer than 10 cm, and some species, such as the Longfin Perchlet (*Plectranthias longimanus*), a colourful zooplanktivore found in the Indo-West Pacific, only reach a maximum length of 3.5 cm.

A small number of Grouper species, known as “Soapfishes” (e.g. the Indo-Pacific Goldenstriped Soapfish *Grammistes sexlineatus*), get their name from the extremely bitter tasting toxin, grammistin, which is produced in the dermis. The latter species, as well as others (e.g. the Western Atlantic Yellowfin Grouper *Mycteroperca venenosa*), have also been associated with ciguatera poisoning in humans. Nevertheless, several species of Grouper are exploited by both artisanal and sport fisheries as highly sought-after food fish, with a dramatic increase in commercial global landings since 1950. During 2012, estimated global landings of wild-caught Groupers amounted to 270,000 tonnes. However, over the last decade, an increasing number and quantity of species have been produced by aquaculture units. Indeed, during 2012, estimated global aquaculture production of Groupers amounted to 118,000 tonnes.

Many Grouper species are currently regarded as threatened. Tagging studies have shown that Groupers occupy relatively small home ranges and are generally resident on a particular reef for long periods of time (often years). This site specificity, along with the species relatively slow growth rate, late onset of maturity, formation of large and easily captured spawning aggregations, and high economic value, make them particularly vulnerable of over-exploitation by both commercial and recreational fisheries (angling & spear-fishing).

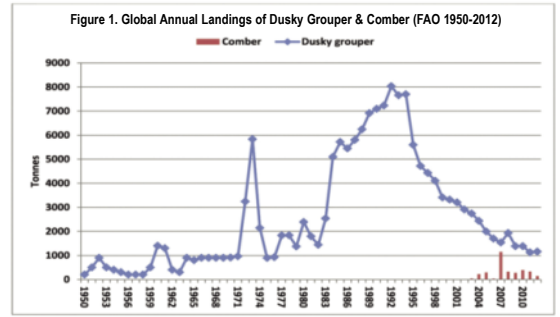
Dusky Grouper (*Epinephelus marginatus*)

The Dusky Grouper is found in the SW Atlantic from Argentina (northern Patagonia) to Brazil (Rio de Janeiro), in the E Atlantic from western Ireland (rarely) to South Africa, including the all of the Macronesian Islands, Mediterranean and Black Sea. It also occurs in the Indian Ocean from South Africa to Madagascar and Mozambique (Irigoyen et al. 2005). The species has rarely been recorded from NW European waters (Wheeler



1978). Indeed there are only three records from Irish waters: Aran Islands, Co Galway, November 1955 [92.5 cm TL] (Healy 1956); Howth, Co Dublin, December 1956 [84.5 cm TL] (Went 1957); and Skelligs Islands, Co Kerry, November 1982 [95.6 cm TL] (O’Riordan 1983), and nine from the English Channel, eight of them dating as far back as 1846 (Couch 1862; Mahe et al., 2012).

The Dusky Grouper is a sequential protogynous hermaphrodite, late maturing (6–8 years), slow-growing, long-lived (50 years), territorial species with sedentary habits, usually found in rocky areas at depths down to 80 m. It is reported to attain a maximum length of 150 cm and weight of 60 kg. The current IGFA World Rod & Line Record, weighing 21.25 kg, was captured off Sardinia during 1990. The species is very heavily overexploited to the extent that it is now regarded as endangered. Indeed, from an estimated peak of 7699 tonnes in 1994, global landings have plummeted by 85% to 1157 tonnes during 2012 (Figure 1).



Comber (*Serranus cabrilla*)

The Comber is found in the E Atlantic from the south coast of Ireland (rarely) southwards round the Cape of Good Hope to Natal, South Africa (SW Indian Ocean), including all of the Macronesian Islands, Mediterranean and western Black Sea. It is a relatively small (maximum 40.0 cm SL; 822 g), fast-growing, short-lived (c.8 years), hermaphroditic species which occurs over a wide range of habitats (rock, sand, mud, and *Posidonia* beds) and depths (5–500 m). In southern waters, the species reaches sexual maturity at 2 years of age (13–15 cm SL). The Comber feeds on a wide range of taxa, including crustaceans, molluscs, cephalopods, polychaetes, echinoderms and fishes, albeit primarily crustaceans. The species exhibits two distinctive colour morphs that appear to be segregated by depth: ‘red’ specimens are usually found at depths <20 m while ‘yellow’ specimens are usually found at depths >20 m. The Comber is commercially exploited by artisanal fisheries throughout its range; at least 147 tonnes was landed by Mediterranean countries during 2012 (Figure 1).



The species is regarded as relatively uncommon at the northern limits of its European distribution in the English Channel (Wheeler 1978). Two vagrant specimens recorded from the North Sea coast of the UK [48 km NE Tyne, North Shields, November 1915 (Storrow 1916) and from near Scarborough, Yorkshire,

January 1938 (BMHN:1938.2.1.1)] would appear to be the most northern European records. There are at least 34 records of adult size specimens (22.5–27.0 cm; 400–822 g) from the English Channel dating as far back as 1832 (Couch 1832), as well as occasional records of juveniles, pelagic eggs and post-larvae during July–August (Stergiou 1997; Genner et al. 2004, 2009), which would suggest that a small oscillating population has long been established in the area. The species has also been reported on rare occasions from Welsh waters (Kay & Dipper 2009). The UK Rod & Line Record, weighing 822 g, was captured off Mounts Bay, Cornwall during August 1977.

Although there are only five records of adult size specimens from Irish waters [3 specimens from the Labadie Bank (50° 32’N, 08° 12’W), off Co Cork, c.1950 (BMNH:1951.2.19.17-19); one from 4.8 km off Ballycotton Lighthouse, Co Cork, August 1969 [24.7 cm FL; 250 g] (Went 1970); and another from Dingle Bay, Co Kerry, July 1973 [19.6 cm; 77 g] (Went 1974)], it is possible that this relatively small cryptic species may occur more frequently off the S coast of Ireland that the current paucity of records would suggest. Increasing sea water temperatures in the area during recent decades (Boelens et al. 2005), may eventually facilitate the long-term establishment of the species in Irish waters.

Declan T. Quigley, Dingle Oceanworld (Mará Beo Teo), The Wood, Dingle, Co Kerry. Mobile: 087-6458485. References are available from the author. Email: declanquigley@eircom.net

Table 1. Groupers (Family Serranidae) reported from the NE Atlantic & Mediterranean Sea

Common Name	Species Name	NE Atlantic									Mediterranean
		Ireland	UK	France	Spain	Portugal	Morocco	Canaries	Madeira	Azores	
Mediterranean Fairy Basslet	<i>Anthias anthias</i>										
Mottled Grouper	<i>Mycteroperca rubra</i>										
Island Grouper	<i>Mycteroperca fusca</i>										
Warsaw Grouper	<i>Hyporhamphus (Epinephelus) nigritus</i>										
Halifa Grouper	<i>Hyporhamphus (Epinephelus) halifensis</i>										
Dusky Grouper	<i>Epinephelus marginatus</i> (E. guaza; E. gigas)										
White Grouper	<i>Epinephelus aeneus</i> (as <i>Perca robusta</i>)										
Dogtooth Grouper	<i>Epinephelus caninus</i>										
Goldblotch Grouper	<i>Epinephelus costae</i>										
Orange-spotted Grouper	<i>Epinephelus coioides</i>										
Malabar Grouper	<i>Epinephelus malabaricus</i>										
Blacktip Grouper	<i>Epinephelus fasciatus</i>										
Honeycomb Grouper	<i>Epinephelus merra</i>										
Rock Hind	<i>Epinephelus adscensionis</i>										
Creole-fish	<i>Paranthias furcifer</i>										
African Hind	<i>Cephalopholis taenips</i>										
Comber	<i>Serranus cabrilla</i>										
Painted Comber	<i>Serranus scriba</i>										
Black-tail Comber	<i>Serranus atricauda</i>										
Brown Comber	<i>Serranus hepatus</i>										

∇∇ Unconfirmed Report. *Lessepsian/Erythrean Invader. **Atlantic Invader. ***Aquarium Release

EPA Drinking Water Report

THE EPA *Drinking Water Report 2013* is based on the EPA's assessment of the 240,718 sample results reported by local authorities for public and private water supplies. In 2013 the local authorities were responsible for public water supplies. Public supplies are now the responsibility of Uisce Éireann: Irish Water, and local authorities continue to be the supervisory authorities for private water supplies.

The drinking water regulations provide the EPA with supervisory powers for public water supplies. The EPA can direct a public water supplier to improve the management or quality of a public water supply. Under the regulations a public water supplier must notify the EPA of drinking water non-compliances or risk to public health from a public water supply.

Public Supplies

Some key findings of the report on the 978 public water supplies:

- 174,644 test results submitted for assessment.
- 99.82% of samples comply with microbiological parameters.
- 99.51% of samples comply with chemical parameters.
- 40 boil water notices and a further 4 water restrictions were issued during 2013.
- *E. coli* was detected at least once in the 10 supplies, up 3 on 2012.
- Trihalomethanes limits were exceeded in 61 supplies, down 35 on 2012.
- 140 supplies were on the RAL at the end of 2013, this reduced to 121 by January 2015.
- 16 directions were issued by the EPA in 2013.
- More than half of supplies audited required disinfection system improvements.

The quality of public supplies

926 supplies were fully compliant for *E. coli*. 11 samples (10 supplies) failed the *E. coli* standard and 11 samples (8 supplies) failed the *Enterococci* standard.

Trend in the number of public supplies where *E. coli* was detected

All supplies were 100% compliant for 15 of the 23 chemical parameters. Of the remaining parameters:

- 1 sample failed the chemical parameters Antimony, Arsenic and Bromate;
- 4 samples (3 supplies) failed the Copper standard;
- 8 samples (7 supplies) failed the Nitrate standard;
- 13 samples (11 supplies) failed the Lead standard;



The EPA can direct a public water supplier to improve the management or quality of a public water supply.

- 33 samples (27 supplies) failed the Fluoride standard;
- 7 samples (6 supplies) failed the individual pesticide standard and
- 104 samples (61 supplies) failed the Trihalomethanes standard.

Water Restrictions and Boil Notices

During 2013 there were 57 boil water notices and 12 water restriction notices active in 16 counties, affecting over 35,831 people. By the end of 2013, 19 boil notices and 8 water restriction notices remained in place across 12 counties, affecting over 17,000 people. Further water restrictions are also likely because of a more stringent lead standard for drinking water and a more systematic identification of lead pipes.

Enforcement of Public Supplies

- 429 notifications of exceedances of the standards were investigated by the EPA.
 - 53 audits of public supplies were conducted by the EPA.
 - 16 directions were issued by the EPA in 2013.
- More than half of supplies audited

required disinfection system improvements.

Improvements to disinfection systems, better management of water treatment and more investment in robust and resilient infrastructure is required.

Remedial Action List

Since 2008, the EPA has listed 449 supplies on its Remedial Action List.

- 309 were resolved at the end of 2013.
- 72% of the original 339 listed on the RAL were removed.
- 140 supplies were on the RAL at the end of 2013.

As of January 2014 there are 121 supplies on the EPA Remedial Action List. 36 of these water supplies (serving over 187,000 people) have inadequate treatment for *Cryptosporidium*. The complete list of public water supplies currently on the RAL (including details of the proposed remedial measures and associated timeframes) is available at www.epa.ie/pubs/reports/water/drinking.

Strategic Issues

The priorities for Irish Water are to improve the water supply system by:



- Removing and preventing Boil Water Notices by improving disinfection systems;
- Implementing a National Lead Strategy to deal with lead related water restrictions;
- Optimising the treatment process to reduce trihalomethanes in water;
- Prioritising EPA Remedial Action List schemes for improvement / investment and
- Protecting Sources and abstraction points by developing Drinking Water Safety Plans.

Overall, the compliance rate in public supplies is good but this masks the specific and serious problems occurring in some supplies and the significant risk of future problems. Investment is needed to improve the supplies where people cannot use their water and to reduce the risk of other supplies failing to meet the required quality standards in the future.

Private Supplies

Some key findings on Private Water Supplies:

- 66,074 test results were submitted for assessment.
 - 97.53% of samples comply with microbiological parameters.
 - 99.57% of samples comply with chemical parameters.
- E. coli* detected at least once on 63 small private supplies, 32 private group water schemes and 1 public group water scheme.

The microbiological quality of private supplies, while improving, remains inferior to public supplies.

The quality of private supplies

2,070 supplies were fully compliant for *E. coli*, but 96 supplies had samples taken that failed. All supplies were 100% compliant for 12 of the chemical parameters. For a further seven parameters, a single sample failed each. Of the remaining parameters:

- 2 samples (2 supplies) failed the Copper standard;
- 5 samples (5 supplies) failed the Fluoride standard;
- 11 samples (9 supplies) failed the nitrate standard and
- 34 samples (33 supplies) failed the Trihalomethanes standard.
- Two supplies (3 samples) failed the individual pesticide standard.

The EPA report shows that water quality in the private water supply sector lags significantly behind the quality in the public network. The EPA will be pressing local authorities to make greater use of the powers available to them under the drinking water regulations to drive improvements in water quality in the private water supply sector.

The EPA Drinking Water Report 2013 is available at:

<http://www.epa.ie/water/dw/>. The full data-set of 2013 data is available at: <http://erc.epa.ie/safer/iso19115/displayISO19115.jsp?isoID=3073>.

Environmental Protection Agency,
PO Box 3000, Johnstown Castle
Estate, Wexford. www.epa.ie

Henry Williamson

Novelist, nature writer and conservationist

This owl motif, printed at the end of all Henry's books, alludes to the barn owls in the roof of his first Devon cottage.



Image courtesy of Henry Williamson Society



Henry as a young man.

JOHN AKEROYD describes the neglected genius who wrote *Tarka the Otter*.

EIGHTY years ago in 1935, an unusual best-seller took British publishing by storm, selling up to 3000 copies a day. No story of romance, adventure or crime, although all featured, it was the biography of a fish. *Salar the Salmon* was written by Henry Williamson, who in 1928 had won a prestigious literary prize for another animal saga, *Tarka the Otter*. Superbly observed and crafted, *Tarka* (never out of print), *Salar* and Henry's other animal stories have deservedly remained popular, if perhaps less so in recent years. Yet this prolific author of over 50 books preferred to dwell on another theme, currently topical, the experience and effects of World War I on his generation.

The countryside is a recurrent element in English literature, with a long tradition of authors who write about nature, farming and landscape, and I've collected their books since childhood. I discovered *Tarka the Otter* in 1960 when a thoughtful teacher read it to us in Nature Study (which should be taught in all

schools). Later, essays on nature and England's vanishing countryside that Henry wrote for *The Daily Express* – these and Rachel Carson's *Silent Spring* – made me a conservationist. There was also the thrill of discovering his other books, notably the 15-novel *Chronicle of Ancient Sunlight*, a panorama of Edwardian England, World War I and its aftermath. Alas, these have frequently been overlooked by both readers and critics.

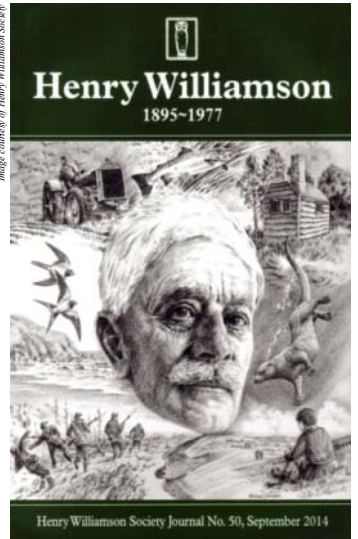
Henry Williamson (1895–1977) grew up in the then expanding south London suburb of Lewisham. From the first he showed a passionate love of nature and wanted to write, but seemed doomed to dull office life. Then in autumn 1914 he enlisted and was sent to the Western Front, where he endured the First Battle of Ypres. One incident in particular would remain with him always. He wrote home on 26 December 1914 of the informal Christmas Truce, when he and others talked and exchanged gifts with German soldiers. Later he recalled how they felt *their* military cause was just and also learned that German cousins were fighting nearby. Falling ill, he returned to England, becoming a Machine Gun Corps transport officer. Dogged by poor health, maybe through stress, Henry twice returned to France, for the Battle of Arras at Easter 1917 and for the German spring 1918 offensive that so nearly ended the war. Shortly after, he again returned to England on medical grounds. Letters and diaries convey not so much horror as the tedium and discomfort of trench life. In fact Henry was gassed, received minor wounds and near-misses, and an exploding shell killed his horse – and gaps in his papers probably hide more traumatic events. He saw enough to convey the truth, and later avidly researched the war for the novels.

The war over and remembering an idyllic 1914 holiday, he moved to Devon for peace and solace. Writing allowed this deeply sensitive man to express his feelings. Today we'd say he suffered post-traumatic stress, and although he married twice and had several children, his family and private lives were fraught and he could be a prickly fellow, if devoted father and friend. Even the suffering of his animal characters, particularly *Tarka* pursued by otter hounds, reflects the uncertainty, pain and fear of battle. A self-taught writer – war was his university – his style was somewhat erratic but he possessed astonishing descriptive powers, whether evoking the countryside and its wild creatures, portraying Devon villagers, describing how he restored and managed a Norfolk farm, or recalling his Edwardian childhood as London engulfed fields and woods, and the carnage of 1914–18. He wrote with love, compassion, humour and attention to detail, even if more an enthusiastic than skilled naturalist, and certainly no botanist! The *Chronicle's* huge narrative of people and place should perhaps have been shorter but that might have blunted Henry's vivid sense of time and place, remarkable descriptions of a now lost English countryside and devastated landscapes in France and Flanders, and sympathetic depictions of the lives, emotions and foibles of ordinary people. The books sold well but are now too often forgotten, partly because some people have judged him harshly for a 1930s

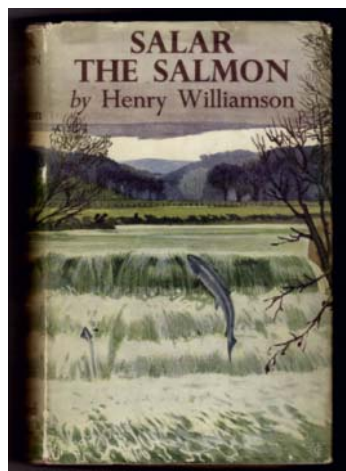
flirtation with fascism, a stance arising from wartime experience.

A sturdy wooden writing hut on a Devon hilltop, built with the *Tarka* prize money, is his memorial – fortunately recently purchased by sympathetic buyers. Henry never achieved the literary fame he deserved, but was one of the first high-profile conservationists, creator of an otter loved by generations of children (though a very adult story) and someone many remember for his articles and broadcasts. Archive 1960s film in recent World War I television coverage showed a dignified old soldier with a gentle mellifluous voice. Henry's last years were sadly marred by dementia, and he died in London far from his beloved Devon. There, on the day he died, they shot the final scene for the film of *Tarka the Otter*. But not everybody had forgotten Henry Williamson. Distinguished poet Ted Hughes, for whom *Tarka* proved a revelation when he read it aged 11, gave the address at his funeral.

Dr John Akeroyd has visited Sherkin for nearly 30 years, writing or editing botanical and other publications for the Marine Station. He is Editor of the Journal of the Henry Williamson Society
(www.henrywilliamson.co.uk).



The cover of the Henry Williamson Society Journal depicts Henry's life as farmer, soldier, naturalist and writer, and as a young boy absorbed in nature.



First edition of *Salar the Salmon* (1935), with jacket illustration by C.F. Tunnicliffe – John Akeroyd's copy, bought in 1976.

Marine Harvest currently employs 260 staff in the West of Ireland, supporting local communities in rural coastal areas to produce the finest salmon in the world, which is proudly presented to customers all around the world.

The company has plans to double its business and employment over the next five years subject to new aquaculture licenses.

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Seafood Exporter of the Year 2010

Birds of the Homeplace The Lives of Ireland's Familiar Birds

By Anthony McGeehan,
with Julian Wyllie

The Collins Press
www.collinspress.ie
ISBN: 9781848892293

Price: €24.99/2014



What a wonderful book! From the moment you start reading, it's like a cosy fire-side chat, with anecdotes and stories really bringing the book to life. This is a book you can read from cover to cover and then keep by your side as a reference guide. It's quite obvious that the two authors have a wealth of knowledge and experience between them.

The book itself is essentially in two parts; the first part explores the lives of birds, in general and specific terms, and goes on to suggest equipment and techniques for bird-watching. It's here that you get a real insight into what makes birding so fascinating to so many people. The second part is called Species Accounts and looks at the characteristics of individual birds, but is much more informative than just an identification guide. The whole book is illustrated with beautifully clear photographs.

Knowing Julian, I can confirm that his knowledge and dedication to birds and the natural environment is astounding, and Anthony's qualifications speak for themselves. Between them, they have produced a lively, entertaining and informative book, which will appeal to both experienced enthusiasts and right through to armchair garden watchers. Highly recommended.

Terry Farnell

Publications of Interest



Britain's Habitats A Guide to the Wildlife Habitats of Britain and Ireland

Sophie Lake, Durwyn Liley,
Robert Still and Andy Swash

Princeton University Press
www.press.princeton.edu
ISBN 978-0-691-15855-6

Price: €39.99/2014

Subtitled 'A Guide to the Wildlife Habitats of Britain and Ireland,' this beautifully produced book gives due prominence to such important Irish sites as the Burren, Connemara, Kerry, the Shannon and others. It looks at nine principal habitats, which it sub-divides into 64 variants and a further nine that are rare. The



vegetation that characterizes each, and hence the fauna that lives there are determined largely by geology, climate and soil chemistry. None of these habitats is completely natural, but all have been, for millennia, and are still being influenced by human activity. They overlap in places and are continually evolving.

The structured layout of the book makes for ready comparison of the habitats described and the text is easy to read and assimilate. An introduction explains the classification, tells how each environment has formed and includes a historical timeline and maps

showing the geology and climate and where special conservation areas are found. Each habitat is allocated two or four pages in which its characteristics are summarised along with its origins and development, its conservation needs and the flora and fauna that live there. The sections are each illustrated by up to a dozen excellent photographic images showing typical examples of the habitat and a small but representative selection of its plants, animals, birds and insects.

Anyone with an interest in the outdoors will find this book indispensable. I will certainly be dipping into it frequently.

Tony Toole

My First Book of Irish Animals

By Junita Browne

Illustrated by Aoife Quinn
Browne Books
jbrownebooks@gmail.com

ISBN: 978-0-9550594-1-4

Price: €13.99/2014

My First Book of Irish Animals is a lovely book. It introduces the reader to 26 of the animals that can be found in Ireland – some on land and some in the sea. From the Red Squirrel to the Pine Marten to the Bottlenose Dolphin, each animal is beautifully illustrated and is accompanied by very informative and accessible descriptions and facts. Alongside the animal's name in English, we are given its Irish name and are also shown its size in comparison to a human. At the back of

the book, we find tips to help wildlife and to help children connect with nature. Aimed at a young audience, the book would be an ideal present for children in primary school but would be a lovely introduction to Ireland's animals for adults too. It is great to find a book dedicated to Ireland's fauna, especially one that will capture the imagination of anyone remotely interested in nature.

Susan Murphy Wickens



Too Cold for Sharks

Kids' Own Publishing
Partnership
www.kidsown.ie

ISBN: 978-1-902432-94-6

Price: €10.00/2014

This book is about ocean safety and fishing life by 116 children from all over Ireland. Commissioned by the Health and Safety Authority of Ireland, *Too Cold for Sharks* helps children to learn about the dangers of the ocean and how they can stay safe by the sea.

Following a nation-wide competition, 84 children were selected as winners from every Education Centre catchment area in the country. At six coastal venues around the country, they spent a day taking part in a workshop with the publishers, the HSA and those directly involved in fishing organisations and sea rescue. There they learnt more about life at sea, in-

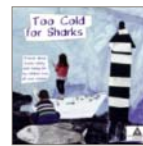
cluding the dangers and real life rescue stories, and they also explored themes of community, fishing hazards, ocean safety, weather and loss. Thirty-two children from fishing families in each coastal community were also invited to participate in the workshops and, with the help of artists Sharon Kelly and Orla Kenny and writer Jo Holmwood, the conversations and art produced on the day were included in this book.

It becomes clear through the voice of the children in the book, what a big impression the sea has plays in many of their lives and how

aware they are of the dangers of that environment. *Too Cold for Sharks* is an excellent publi-

cation. It not only gives a glimpse into the lives of children and families that live in or have a connection to coastal communities but it makes it clear that the issue of safety at sea is important no matter where you live – whether it's Castletownbere, Killybegs or Howth. Told in the words of the children, the book is an effective way of helping children (and adults) realise the importance of safety at sea.

Susan Murphy Wickens



Irish Specimen Fish 2014

Annual Report of the Irish
Specimen Fish Committee

Available for free download at
www.irish-trophy-fish.com

The Annual Report of the Irish Specimen Fish Committee is always of interest. In 2014 the committee processed 578 claims, with 526 ratified. The year has seen the largest ever recorded weights for four species of Irish fish. They were rod catches: a carp (14.24kg/31.4 lbs), a thin-lipped mullet (2.86kg/6.31 lbs), a golden grey mullet (1.2kg/2.65 lbs) and a spur dogfish (11.06kg/24.38 lbs). Two anglers received Gold Specimen Badges having had over 50 specimen awards over the years. They were Des Chew from Rathfarnham, Dublin 14 (awards from 2008–2014) and Brian Cooke from Killybegs, Co Dublin (awards from 1981–2014). All records for 50 species of fish are listed in the book, including where and when the fish was caught, the name of the angler, the weight of the fish, its length and methods used for capture (maggots, sweetcorn, worms, mackerel, boillie etc...). There are excellent photographs of anglers with their specimen fish and it is really good to see the number of children included: Conor Ward with his Roach/Rudd hybrid (2.61kg/5.75lbs), Sarah Lynch with her Twaitie Shad (1.22kg/2.69lbs) and Emmet Hope with his Pouting (1.37kg/3.01 lbs). I continue to find these specimen catches fascinating and was particularly impressed with a conger eel weighing in at 20.64 kg/45.5 lbs! Anglers will find this book of great interest.

Matt Murphy

FAMINE PUBLICATIONS

Available from Cork University Press www.corkuniversitypress.com

Monuments and Memorials of the Great Famine

By Catherine Marshall

ISBN: 9780990468608

Price: 2015 / €11.95 / 40pp

This book looks at the Famine through the memorials and monuments erected to commemorate the event and it comes up with some interesting reasons why it took so long for the country to erect any memorials and what the memorials that were eventually erected had to say about the famine.

The following are the reasons given as to why memorials were not erected for generations after the Famine:

- Lack of funds. Poverty continued well into the 20th century in Ireland. In 1910 some of the worst slums in the British Empire were in Dublin.
- Lack of the will to commemorate the Famine. This came about because Ireland was still under British rule until 1922 and Britain did not want to commemorate the Famine. As Ireland was still beset with poverty its people did not want to commemorate people who died in abject poverty.
- The shame of the people who survived the Famine
- In the 19th century monuments tended to be erected to heroes rather than the virtual annihilation of a people.

Some monuments started to appear in the 1950's but these tended to be local or individual initiatives. An example of this type is the 50ft high cross erected by Frank Sorensen, a Cork taxi driver, in the paupers graveyard at Carr's Hill, Cork.

From the 1990's onwards there was an "explosion" of monuments erected. This was brought about by the "Celtic Tiger" and the monuments were commissioned by either the Government or wealthy institutions or individuals. These tended to either depict the plight of the people, like John Behan's monument, depicting a "coffin" ship, erected in Mayo in 1997 and it's partner, depicting the "coffin" ship arriving with survivors, erected in New York in 2000 or else consist of a list of the names of the people who died in the event being commemorated, like the monument erected in 2007 at Eireann Quay in Toronto, Canada to honour the 1124 people who died there in 1847.

The book also identified a common problem faced by all the artists who produced the monuments i.e. they were trying to capture the essence of a long past event using present day criteria as a basis. Because of this I agree with Asenath Nicholson who said the workhouses were the real monuments of the Famine along with the "relief projects" which still survive around the country as they were used by or built by the people who were alive during the Famine.

I enjoyed the book which was very well researched and written and it gave me a different perspective on the Famine and our attitude to it as a Country. The other thing that struck me about the book is that it was published in America.

Paddy Marshall

Apparitions of Death and Disease: The Great Hunger in Ireland

By Christine Kinealy

ISBN: 9780990468615

Price: 2015 / €11.95 / 40pp

Gaping at the heart of historical discussion of the famine that swept Ireland from 1845–52 is the question of how such suffering could occur. Apparitions of Death and Disease provides a valuable and fascinating insight into the conditions that lead a nation to starve. Christine Kinealy's interrogation of contemporary scientific knowledge of the potato blight's causes, the British government's inadequate responses to an escalating crisis and a succession of failed public and private philanthropic measures examines the political and socio-economic environment that engendered a very human tragedy. This beautifully produced and illustrated volume utilises a variety of sources, from historical eyewitness accounts to recent artworks, providing a unique and comprehensive perspective on Ireland's Great Hunger.

Catherine Prowse

Limits of the Visible: Representing the Great Hunger

By Luke Gibbons

ISBN: 9780990468622

Price: 2015 / €11.95 / 40pp

In Limits of the Visible, Luke Gibbons considers contemporary and retrospective visual responses to the Irish Famine, contemplating the ability of these images to demand ethical actions from the viewer, not just emotional re-actions. Evocatively illustrated by fascinating historical resources and more recent artistic responses to one of the nineteenth century's greatest humanitarian disasters, Gibbons powerfully argues that what is left out of these images through a "judicious obscurity" conveys the sense of a tragedy too immense for adequate representation. An essential resource for students, academics and readers interested in the ability of the human imagination to respond to ethical crises.

Catherine Prowse

The Tombs of a Departed Race: Illustrations of Ireland's Great Hunger

By Niamh O'Sullivan

ISBN: 9780990468639

Price: 2015 / €11.95 / 40pp

Niamh O'Sullivan's comprehensive analysis of artworks and illustrations depicting Ireland's Great Hunger offers an

intriguing fresh perspective on this great tragedy's social context. Examining the advent of mass-printing and the emergence of the illustrated periodical as a journalistic phenomenon in the nineteenth century, O'Sullivan demonstrates how artists with little experience in depicting humanitarian crises became reporters, and found a fresh visual language to express the enormity of the trauma. The collation of such important pictorial resources alone makes Tombs of a Departed Race a fascinating study, and O'Sullivan's analysis provides a powerful and moving testament to the effectiveness of images in creating a history where words fail.

Catherine Prowse



Heritage Houses of County Cork

A Review by Matt Murphy

THIS book was produced by the Heritage Unit of Cork County Council. It is the second in a series of guidebook-style publications on heritage sites and buildings in the county. The first was the excellent *Heritage Bridges of County Cork*, which was published in 2013. This latest book highlights the rich architectural heritage of the county, in particular the more modest of historic buildings – those that lie somewhere between the grandeur of the Country House and the quaintness of the Thatch Cottage. As we journey through the book we are brought from Prehistoric Houses right through to houses of 20th century Cork.

Heritage houses have seen so many different lives and lifestyles and have adapted to meet changing needs over time. Most people today would find it hard to picture home life without running water or electricity yet for millennia people lived without them.

The book looks at the history and development of the ordinary house in Cork. The vast majority of these buildings represent the bulk of our architectural heritage where the Irish people live out their daily lives. To get a sense of when these houses were built, included in the book is a most interesting timeline of house styles from the Neolithic era 3900 BC to 1930 AD.

It is interesting to read of the phenomenal rate that villages and towns grew during the 18th and 19th century. Around the same time many members of the gentry began to build villages which promoted industrial development near their estates. Sir Richard Cox established a linen manufacturing village at Dunmanway, Thomas Adderly built houses at Innishannon to encourage Huguenot and Ulster Scot linen weavers to settle there and James St John Jefferys paid for the construction of a series of houses at Blarney.

The condition of Farm Labourers or cottiers' housing from the 1841 census showed that 48%



A Corrugated Cottage in Newtownshandrum – a fine example of the rich variety of vernacular dwellings in the County.



The Red House in Youghal, built in 1710, is a good example of a house built during the Queen Anne period.



Front elevation of a late 19th century West Cork House.

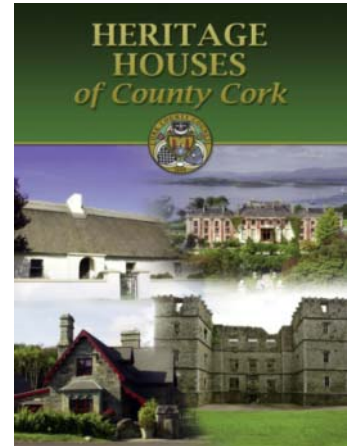
of the population were living in one or two rooms. Overall 80% of the population lived in 3rd and 4th class dwellings, compared to only 2.8% in 1st class structures. By the 1861 census however 80% of the 4th class dwellings had been demolished. The introduction of the 1890 Public Health (Amendment) Act which for the first time enforced minimum standards in housing form, fabric and number of occupants. The plans for these houses are described in detail and a drawing of a Labourers Act style house c. 1890 from Aherla in Co Cork is included.

Throughout history the houses built by the upper classes reflect their power and influence in society, also their wealth, privilege and education. The 12th and 13th century saw the building of the first stone castles in Co Cork. We see a picture of the impressive Liscarrroll

Castle, built in the late 13th century, and Blarney Castle, Cork's most famous and finest example of a Tower house. We learn that the hole through which tourists are lowered to kiss the Blarney Stone constituted part of what was originally used for dropping hot stones or hot oil onto attacking enemies. The 18th century saw the building of the Red House in Youghal and many other "grand" houses are described, including Maryborough House, Douglas, Cork. The book also explores the Architectural Styles and Features in houses and how they were influenced by fashions, economic trends and technological advances. We read about the types of houses in the Queen Anne, the Georgian, Victorian periods and details of the materials used are extensively covered such as chimneys, roof coverings, shapes and trusses – all illustrated by photographs and drawings.

The book focuses on a selection of thirty houses in County Cork, which illustrate the development of particular styles of houses or those that can be considered good examples of their type. There is a brief description of each followed by a discussion of its overall importance and historical context. The final pages of this most interesting book has a further 57 photographs of additional heritage houses in the County.

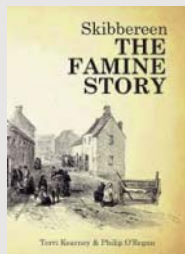
The Cork County Council Heritage Unit has



The publication is part of the County Cork Heritage Plan and as part of the project, numerous Heritage Groups and individuals throughout the County were asked to get involved, by recommending the inclusion of any houses in their local area, together with any stories or details they would provide about them.

provided us with a wonderful insight into the heritage house of the County. Reading the book certainly gives one a greater understanding about these buildings and it will make one look at houses in towns, villages and in the countryside from a different perspective. I hope they continue to document Cork County Council's wealth of historical information in future books.

Heritage Houses of County Cork.
Heritage Unit of Cork County Council
cork.heritage@corkeco.ie
www.skibbheritage.com/shop.htm
ISBN: 978-0-9525869-8-2.
Price: €14.00/2014



Skibbereen The Famine Story

By Terri Kearney & Philip O'Regan

A Review by Matt Murphy

IN 1845 more than half the people living in Ireland were directly dependent on the potatoes for their food. That year a potato blight, carried by imported seed potato from north eastern USA, took its toll on the Irish potato crop. By 1846, there was a 90% failure of the potato harvest in the Skibbereen Union area in West Cork, an area which stretched from the Mizen Peninsula to Ross-carbery and north to Drimoleague. The book "Skibbereen – The Famine Story" brings us on a journey through horrendous periods of the Great Famine in this devastated area. The book's authors aimed to "make this complex period accessible using contemporary reports of

people and places in the area."

We learn of people living in fourth class houses built of stone or mud with a thatched roof and an earthen floor. Measuring 12' x 15' the family sharing their living space with an animal, usually a pig, which was kept to pay the rent. By August 1846, with the total failure of the potato crop all but a few food depots had run out of food. By December thousands of people were slowly dying of starvation during that bitterly cold winter. Many public relief works were introduced such as breaking stones for roads. A gang of 150 old men, women and children were working on a relief scheme at Marsh Road, Skibbereen. The ground was covered with snow and there was a very severe frost - most declared that they had not tasted food for the day.

In desperation, the poor pawned their few possessions, fishermen their nets and many people their clothes. Dr. Dan Donovan, a physi-

cian that was one of the most heroic figures of the Famine in Skibbereen, states that in January 1847 "40,000 pawn tickets, some representing 8 to 10 articles, have been issued within 3 months' in Skibbereen".

With the poor dying on the streets of Skibbereen, a group to alleviate the suffering was formed. It set up one of the first large-scale soup kitchen in Ireland, feeding up to 8,600 people every day from the Steam Mill Building at Ilen Street.

In a report by Dr. Donovan he mentioned finding a decomposing body in a cabin and at its feet "lay a girl groaning with pain; and by its side was a boy frantic with fever." Elsewhere he gives an account of the Barrett family living in a shed 7ft x 6ft wide, surrounded by a rampart of human bones with six individuals close to death with fever.

One reads of international aid in 1847, government-run soup kitchens – the recipe a quarter pound of beef in 2 gallons of water, while Quaker run

kitchens contained six times that amount of beef – and the Skibbereen Union Workhouses, built to cater for 800 people, had 3,784 inmates by April 1849.

These are just an example of the some of the reports documented in the book of the tragedy that befell the people of the Skibbereen Union during the Great Famine of 1845–1849. The true enormity of this national tragedy is revealed through the expe-

riences of these individual people outlined in this book.

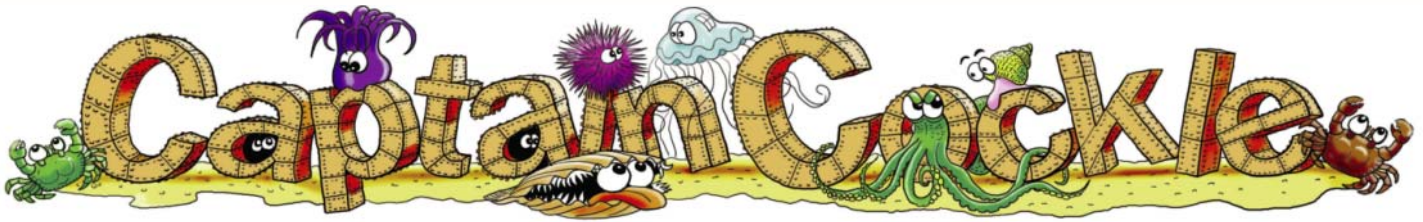
Accompanying the book is an app which uses the streets of Skibbereen town to trace the crisis as it unfolded using the voices of the people who experienced it. It can be downloaded from the Skibbereen Heritage Website for €5.00 www.skibbheritage.com. Both the book and the app would be an incredibly useful tool in schools, helping to put human faces and voices on the Great Famine.

www.skibbheritage.com
ISBN: 978-0-9926242-1-7
Price: €11.99 / 2015

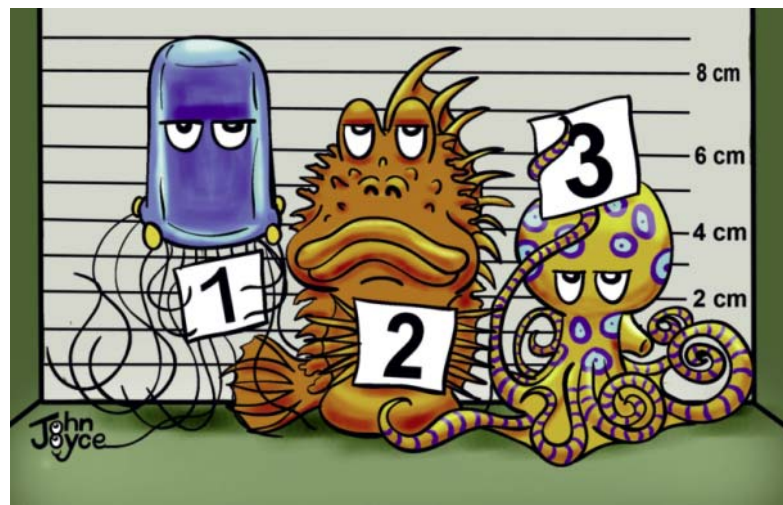


Old Chapel Lane, Skibbereen, Co. Cork, during The Great Famine.

JUNIOR PAGES



The Unusual Suspects



While Great White Sharks have been portrayed in books and films as the most dangerous marine predator, the animal which kills the most people in the sea each year is the humble Box Jellyfish of which the most dangerous is the Australian species *Chironex fleckeri*. This little animal has dozens of tentacles, each up to five metres long and enough toxin to kill around 60 people each in as little as three minutes. Anecdotal evidence suggests that 100 people die every year because of box jellyfish stings, more fatalities than those caused by sharks, crocodiles and stone fish combined. Another small bottom-dwelling animal with a bad reputation is the Blue-ringed Octopus of Australia, which grows to only about 20 cm across but carries enough venom to kill around 30 people and whose bite can kill a human in about five minutes.

by John Joyce

For more Fun Facts
check out
www.spindriftpress.com

The Great White Shark is the largest predatory fish in the sea and though it is portrayed as the most dangerous shark, that dubious honour goes to its smaller cousin the Tiger Shark which attacks less human beings than the Great White but causes more human fatalities. Tiger sharks will eat anything - seals, birds, squid, small sharks, dolphins and even old pieces of tyres.

It is worth noting however that the TOTAL number of human deaths in US coastal states caused by shark attack annually is still almost forty times less than those caused by lightning strikes and that only three species of shark - the Great White, Tiger and Bull Shark - have killed more than ten people.



Keeping a very low profile is the most venomous fish in the sea - the Stonefish which, because of its incredible ability to mimic part of the seafloor, inflicts injury by accident when barefoot beachcombers step on it and trigger its venomous spines. These produce a sting so painful that victims of Stonefish poisoning have been known to demand that the affected limb be amputated rather than endure the pain. Luckily, the Stonefish itself does not attack human beings and stings are usually the result of a barefoot swimmer stepping on one of these fish by mistake.

Stonefish are even consumed as food in some parts of Asia. Their venom is harmless once the fish is heated by cooking and its meat is consumed with ginger in a clear soup, or - for those who like to live on the edge - even raw as sushi or sashimi.

Shore Watch

This worksheet looks at the coastal environment and the animals and plants that inhabit it. It encourages children to study different factors that can affect the shore, developing a sense of responsibility towards natural environments.

Biodiversity Worksheet 10

STUDENT'S SHEET



gannet



human footprint



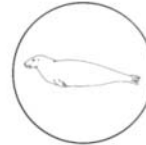
starfish



heather



blenny



grey seal



sea anemone



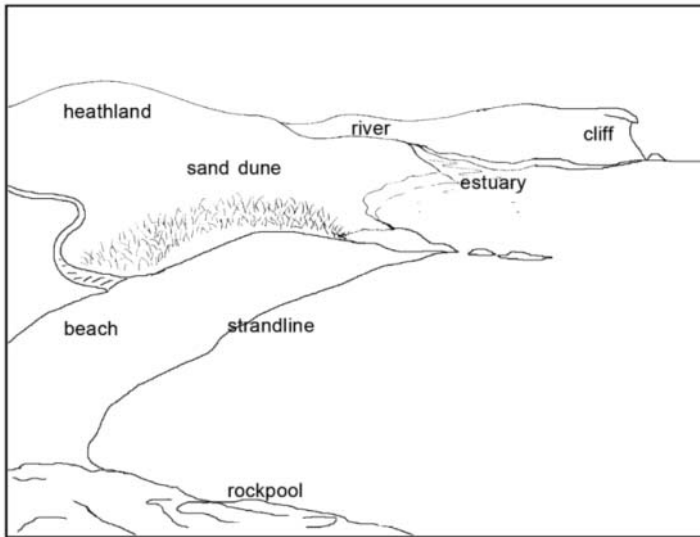
marram grass



oystercatcher



bladder wrack



sea lettuce



jellyfish



crab



bird footprint



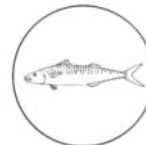
basking shark



periwinkle



thrift



mackerel

ACTIVITY OVERLEAF

Fill out the four grids at the bottom of the box on the left. Each grid is designed for children at different levels of learning.

Discuss with the child/children the words in the dictionary work box. See if they can identify places or animals to which these words would be relevant.

Research one of the animals or plants overleaf and write a piece of information on each. Once you have completed this work, draw a line to where on the shore you might find them. Cut out the animals and plants and stick them into your notebook, alongside the piece of research. Colour them in.

Create characters for a story, based on some of the creatures overleaf. Choose a theme for the story: food web, dangers, human interaction, conservation, weather, etc..

FURTHER DISCUSSION

Ask your family has a local beach changed over the years? Is there less or more rubbish on it? Is there more or less sand? What may be causing these changes?

Who uses the beach – swimmers, walkers, sunbathers, boating people?

How does rubbish get onto the beach?

Who should pick it up?

If you were keeping the beach clean, how would you feel if someone left rubbish on it?

How do you think the animals feel when their home is polluted?

How would you feel if your home was polluted?

How can we prevent the rubbish getting into the sea?

Do you think there is much biodiversity in the ocean? Is it a different type of biodiversity than you would find in the countryside?

How many of each of these can you find in the pictures above?

- birds
- crabs
- fish
- sea shells
- footprints
- seaweeds

List eight animals above that live IN the sea:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Place the eight words in the main picture in alphabetical order:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Research these words in the dictionary.

- Adaptation
- Biodiversity
- Conservation
- Ecosystem
- Erosion
- Estuary
- Habitat
- Zonation

Sea Life & Camouflage

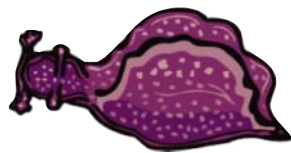
Animals that live in the sea face many dangers and one of the most dangerous is predators. Some animals use camouflage to protect themselves. This means that they have the ability to hide or blend in with their surroundings. An animal may be born with a particular colour or pattern and will therefore hide in an area that matches the colour of its own body. Others can change colour depending on the colour of their surroundings or if danger is near.



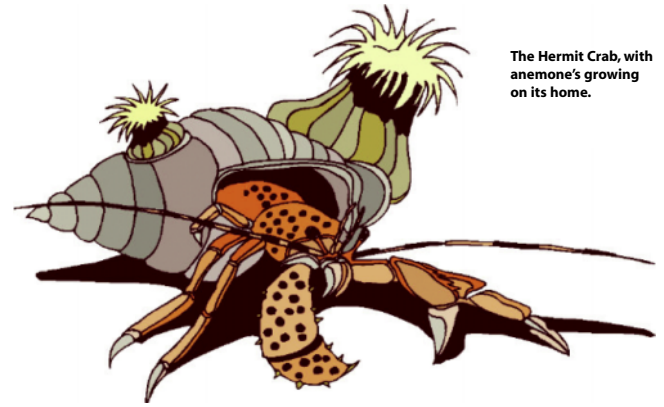
The skin of the Short-spined Sea Scorpion, which is mottled grey and brown on top and paler underneath, is well camouflaged in seaweeds and shallow waters. The markings can sometimes change to suit the background.

so they can hide in vegetation. Some animals even mimic or copy other animals or plants to hide from predators.

If a creature cannot change colour, it may 'decorate' itself with leaves or seaweed in order to hide. It may also allow another animal to live on it, for example a sea anemone living on a crab. The Sea Hare, changes colour according to what it is eating. If it eats green seaweeds it turns greenish in colour and changes to reddish in colour if it feeds on red seaweeds. This means Sea Hares will blend in with their surroundings as they eat.



The Sea Hare.



The Hermit Crab, with anemone's growing on its home.



This Scorpion Spider Crab is heavily camouflaged with sponges, which it would have picked off the rock and stuck to its shell.

Fish that live close to the sea floor are often dark in colour on the top side of their body, to match the dark sea bottom. This makes it harder for predators, such as birds and sharks, to see them from above. Fish that live closer to the surface are often lighter on the underside of their body to match the brightness coming from the sky. This makes them invisible to predators that may be underneath.



Shallow waters and sandy-bottomed rockpools are often hiding places for young flatfish. Flatfish often bury themselves in the sand with only their eyes showing, so that they are camouflaged from any predators.



Humans in Disguise

Unlike animals, humans don't have the ability to change the colour of their skin to suit their surroundings, however they use other means to blend into the background when necessary. People wear special coloured clothing to match their location: white when in the snow, black at night, browns and greens when in the forest. Humans also paint their faces and wear leaves and branches in order to blur the lines of their body. From a distance, it becomes much harder to pick out the human shape.

Camouflage Quiz

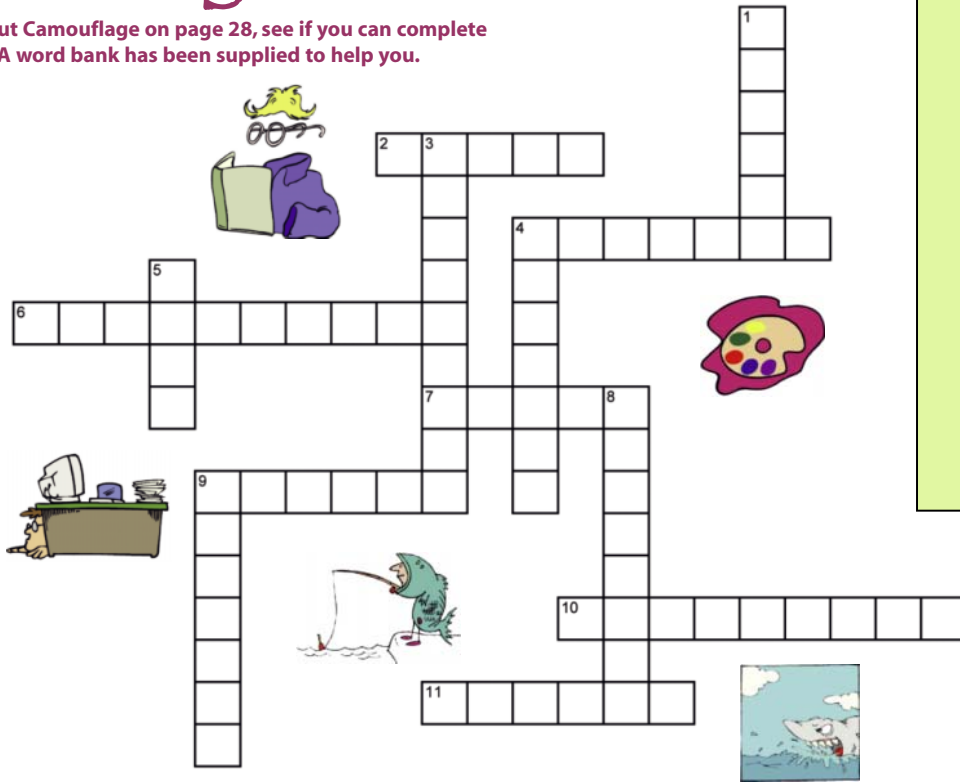
Having read about Camouflage on page 28, see if you can complete this quiz. A word bank has been supplied to help you.

ACROSS

- 2. To imitate or pretend to be something else.
- 4. Decorated with a design.
- 6. Not moving at all.
- 7. To mix two colours together.
- 9. Make different.
- 10. To vanish or cease to exist.
- 11. Something that can be a cause of harm.

DOWN

- 1. Something's hue or shade.
- 3. Something that is not visible.
- 4. To guard against.
- 5. To keep in a place where it cannot be seen.
- 8. Change the appearance of.
- 9. Stop something from being seen.



WORD BANK

- Blend
- Change Colour
- Conceal
- Danger
- Disappear
- Disguise
- Hide
- Invisible
- Mimic
- Motionless
- Pattern
- Protect

Answers on page 30.



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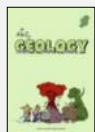
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GAISCE – *the President's Award*

John T. Murphy

Director, Development, retires from Gaisce – The President's Award



Annalea Heffernan, Gaisce Award Holder and President's Award Leader (PAL), with John T. Murphy.



Work colleagues gather to give John T. Murphy a 'send off'. L to R: John Murphy (CEO of Gaisce 1985 to 2006), Margaret Murtagh (Office Manager), Catherine Kiely and John T. Murphy.

By Marion Irwin-Gowran & Margaret Murtagh

HOW do you give an account of someone in a few words when they have become part of the furniture, the very fabric of an organisation? This is the challenge of writing about John T. Murphy's 30 years of involvement with Gaisce – The President's Award.

In December 2014, John T. Murphy retired as the Director, Development with Gaisce – The President's Award following almost 30 years of an illustrious career with the organisation. John T. (so called because of the confusion with the first appointed CEO of Gaisce, also John Murphy) began his working life as an articulated clerk with the Institute of Chartered Accountants following two years as a student in UCD's medial faculty. He left private practice to join Clerys of O'Connell Street as Management and Financial Accountant. John T. was also during this time an active member of Scouting Ireland,

Chairman of the European Task force on Leader Training and World Scout Training Committee. John was also the first Chairman of the committee on the merger of the Catholic Boy Scouts of Ireland and the Scout Association of Ireland to become the new 'Scouting Ireland'.

In 1984 the 'call' came to assist the government in setting up Gaisce – The President's Award and he never looked back and Gaisce kept moving forward. The two John's would often talk of taking out the map of Ireland and drawing a line to divide up the counties, then get into their respective cars and hit every town and village in those counties with a secondary school or youth group to deliver, like evangelists, the word of Gaisce. I use the word evangelist deliberately because anyone who would have encountered the two Johns in those days would

have felt the passion and energy with which they promoted the programme. It is no surprise then that the Award grew and within the first number of years the number of applications went from 300 to 3,000. When John T. retired in December of 2014 the number of Gaisce applications was in excess of 20,000.

John T. was always promoting Gaisce, in the supermarket the cashier could find themselves with a new pen, compliments of Gaisce, or better still he might look for the boss and see if there was a team willing to play in the upcoming Gaisce Golf classic, always with a smile and the charm of a bee keeper. There are many stories about John bumping into people going about their daily lives who would come away from him with notions of Gold Award Challenges or the recruitment of new PALs, always promoting and encouraging.

In 2004 at the second inauguration of President Mary McAleese, John T. was given the huge honour of being asked to MC the event, which he did with the same charm and enthusiasm with which he brought to all the great Gaisce occasions. At the event, President McAleese referred to John T. as Mr. Gaisce himself, a fitting title to all who know him. Speaking of royalty, having worked under four Presidents of Ireland as



John T. Murphy with entertainer Daniel O'Donnell at a summer garden party at Áras an Uachtaráin in 1998.



John T. shares a joke with President Mary McAleese at a summer garden party at Áras an Uachtaráin in 1998.

Patrons of Gaisce, John T. was the lead on all three visits of HRH Prince Edward, The Earl of Wessex to Ireland and the three visits of HRH The Duke of Edinburgh to Dublin including the hugely successful visit of Queen Elizabeth with a special meeting of Gaisce sponsors and participants in Farnleigh with The Duke of Edinburgh, Prince Philip in 2011.

Behind all of the big occasions, John T. went about his business in an unassuming manner. He could always be called upon to remember a name or a date of an event without referring to Google, something he was very proud of. He could often be found leaving little treats or temptations about the place, and always had a little supply for when they were needed most.

It was always said of John T. that he is a great man for the big occasions and while that is very true, it is always the

small things that people miss in the end, and it is John T.'s kind gestures and corny jokes that we who have worked with him for many of his 30 years in Gaisce will miss the most.

Not a man to let the dust settle for too long, John will now just about have time for all of his other interests and involvements. We here is

Gaisce Thank him for his huge contribution to the development of the Award and we wish him health and happiness as his next journey begins. Slán agus Beannacht!

For information on Gaisce – The President's Award see www.gaisce.org



Millennium Gold Encounter. John T. Murphy also in the picture is President Mary McAleese, who was Patron of Gaisce – The President's Award and HRH Prince Philip, Patron of the Duke of Edinburgh's Award.



2006: Gaisce Silver Award Presentation Ceremony. L to R: John T. with John Murphy (CEO of Gaisce 1985 to 2006), Mark Little, Barney Callaghan (CEO of Gaisce 2006 to 2013) and former board member Gerry Costigan.



Steps to Safe and Enjoyable Boating

1



Check condition of boat and equipment, hull, engine, fuel, tools, torch.

2



Check the weather forecast for the area.

3



Check locally concerning dangerous currents, strong tides etc.

4



Do not drink alcohol while setting out or during your trip.

5



Carry an alternative means of propulsion e.g. sails and oars or motor and oars.

6



Carry a first aid kit on board and distress signals (at least two parachute distress rockets, two red hand flares).

7



Carry a fire extinguisher, a hand bailer or bucket with lanyard and an anchor with rope attached.

8



Carry marine radio or some means of communication with shore.

9



Do not overload the boat - this will make it unstable.

Remember these rules: Enjoy yourself: Come home safely



Irish Water Safety

Sábháilteacht Uisce na hÉireann

10



Do not set out unless accompanied by an experienced person.

12



Wear a Personal Flotation Device at all times.

11



Leave details of your planned trip with someone ashore - including departure and arrival times, description of boat, names of persons on board, etc.

13



Keep an eye on the weather - seek shelter in good time.

14

In Marine Emergencies, call 999 or 112 and ask for Marine Rescue.

999 or 112



Irish Water Safety

Sábháilteacht Uisce na hÉireann

Steps to Safe and Enjoyable Boating



Sand, rarer than you think

By Michael Ludwig

SAND and gravel are the highest volume raw materials used on earth after water. They are usually created by nature, slowly. Unfortunately, their use rate greatly exceeds their creation rates, and supplies are shrinking. Sand is rock weathered (eroded) by wind, ice, water and/or chemicals. Natural weathering and transportation of sand and gravel continuously produces smaller and smaller grain sizes. Variation in wind, ice, and water energy also causes sorting by grain size. The amount of transport energy applied, separates the finer from the coarser (larger) sizes leaving those heavier (larger) sizes behind. This is particularly visible when walking along a beach. One can often see uniform deposits of sand that vary in grain size with their location. This is not as obvious after storms or glaciers where the available energy moves all the grain sizes. However, it is critically important when looking for "good" sand deposits. For instance, Paleozoic sand deposits are typically found in coastal waters no deeper than about 70 to 75 meters. These deposits were created usually during the four Wisconsin Glaciation period

cycles. Sand and gravel was created or simply pushed ahead of the glaciers. The material was often left as moraines or river deltas. As sea level rose, later, the deposits were redistributed into plains and shoals by oceanic processes. The maximum depth they occur at reflects the lowest sea levels created by the glaciers.

Sand grain shape is important in its use but as weathering continues it becomes rounded. The more transported, the more rounded it becomes and the less effective it is for good concrete mixtures. So, while sand and gravel resources around the world are generally plentiful, geographic distribution, quality requirements, and environmental restrictions on its extraction are making it more complicated and costly to obtain. The most important sources have been glacial deposits, river channels, and river flood plains. However, while many countries mine offshore deposits, the use of offshore deposits in the United States is just becoming a growth industry. These offshore mining efforts are often driven by the lack of local land sources as well as their proximity to shoreline restoration and resiliency projects.

In the aftermath of Tropical Storms Irene and Lee and "Superstorm Sandy" coastal communities in

the US are scrambling to rebuild homes and shorelines including beaches and dunes that were literally swept away. Two of the biggest questions facing the scramblers are; 1) where will suitable sand come from and 2) who is going to pay for it? Many are finding that while the answer to the first question is not too complicated (offshore sources), the second answer is far more complicated. And, that is partly because sand is not a single, "one size fits all" commodity and size is very important for different uses. Along with sand type (shape and color) size influences its residency time on a project site and how it feels when you walk or sit on it. And environmental impacts of mining must be understood. Sand when used in a coastal setting, needs to be able to withstand some amount of wind and wave erosion activity or it can be swept away in hours or days even in non-storm conditions. This can make restoration efforts impractical or just very costly. Sand is usually a mixture of grain sizes. Sharp sand can be painful to walk on but it is the best type of sand for use as concrete aggregate and it resists being moved better than round or heavily eroded or "weathered" sand that takes little energy to transport it offsite. "Sugar"

sands are the ones that beach users frequently prefer but they move so easily they require constant replacement on beaches.

Offshore sand and gravel mining is a rapidly growing industry as upland sites become less productive. Currently, offshore mining in the US appears to produce about 20 million cubic yards per year. Although the consequences of offshore mining are not visible, they can be extremely destructive to aquatic resources. Mining can adversely impact the seafloor along with its population of flora and fauna. Removing habitat and the inhabitants is just the start of the problems. Sorting the sand at sea dumps the finer particles into the water causing turbidity. Another unanticipated problem is the pits left in the seabed. Some pits are almost a square mile in size with depths exceeding sixty feet below the seafloor. Sand pits created in the seafloor often become silt traps accumulating soupy mixtures of silt, clay and organic materials. Many species find it difficult or impossible to survive on or in these deposits. If the mine site is not receiving sandy sediment relocated by currents or waves, the pits may remain unfilled for decades or longer. Some of the sand mine pits in lower New York Harbor



Sand is rock weathered by wind, ice, water and/or chemicals.

have been slowly filling for more than fifty years without reestablishing their original form or function. Making matters worse is the deposition of contaminated sediments into them from throughout the Hudson River catchment area. While some pits create habitat for pelagic fish to use as water temperatures decline, the benefits are temporary. As food and water temperature decline finfish are trapped and can starve or freeze to death.

Offshore sand mining merits comprehensive evaluation before being implemented.

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