SHERKIN COMMENT

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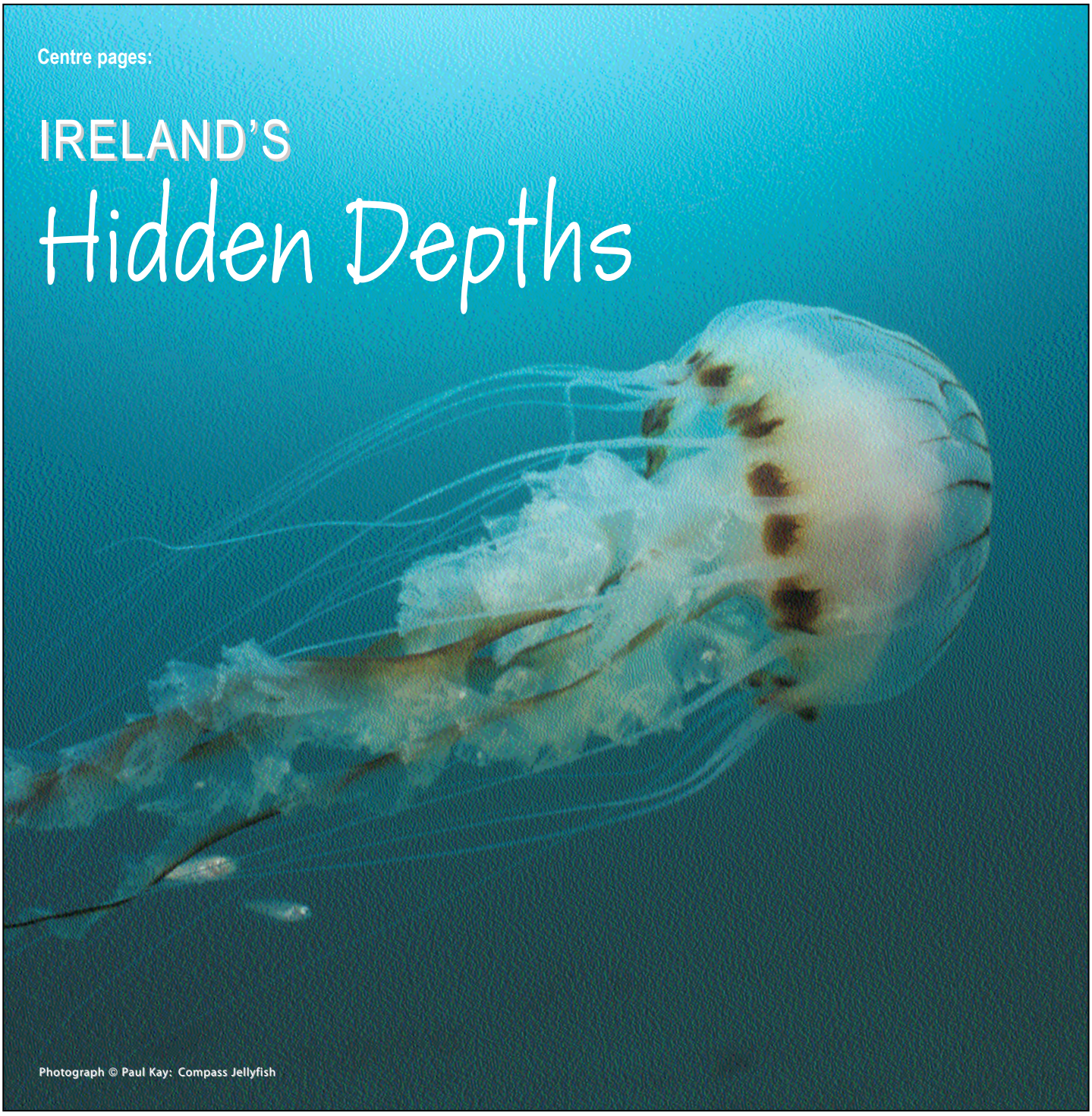
Centre pages:

IRELAND'S Hidden Depths



Photograph © Paul Kay: Compass Jellyfish

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The Skype *Generation*

By Matt Murphy

We are engulfed in the midst of a serious financial crisis, our youth see no prospect of work and 50,000 of their number are emigrating to seek employment in Canada, Australia and other parts of the world, leaving behind 450,000 of their fellow countrymen and women unemployed. We are being drained of our most productive and talented resource, as many of our youth will never return. The social fabric of our country is being destroyed with cities, towns and parishes suffering the closure of local pubs, post offices and shops. Countless communities are finding it difficult, if not impossible, to maintain sporting and social activities, due to loss of players and participants to emigration. Many of our youth, currently in Second and Third level education, accept emigration or unemployment as their unavoidable fate. This level of low morale must not, and cannot be allowed to continue.

There is a huge sense of anger at the behaviour of bankers and developers who were largely responsible for the present state of affairs. There is also a realisation that the regulators, who were supposed to oversee the banks, failed miserably in carrying out their duties. Against this unregulated background, together with massive bank bonus payments, cheap credit and a get-rich-quick mentality, people spent as if there was no tomorrow. Consumer products were purchased with credit and massive loans were taken out to fund the acquisition of properties, both at home and abroad. It was assumed that matters would continue, in this fashion, into the foreseeable future and that the much heralded "soft-landing" would ensure that everything would be fine in the end. It was not to be and could not be. Massive mistakes were made, crimes committed and billions in debts placed on the shoulders of our blameless youth for generations to come.

We must now learn from the mistakes of the recent past, stop the blame game and consider how best to repair and develop our still great nation – and great nation it is. It must be remembered that the evolution of the Celtic Tiger had its roots in the self-sacrifice, community spirit, and prudent management of earlier generations, who remembered past periods of recession. Let us now return to the values of these generations, in the knowledge that we have a young and well educated population, eager to work, if given opportunities.

It was a striking feature of rural Ireland, in the not too distant past, that those difficult times brought forth a community spirit, out of which emerged the Co-operative movement. This movement was led by selfless individuals committed to their communities, who put the interests of their neighbours before their own and who worked tirelessly for the common good. This movement transformed rural Ireland and succeeded in developing agriculture, and indeed other sectors to become world class industries. In recent years, profit became the top priority and many co-ops became large public companies where shareholder remuneration often displaced the objectives of the founding members. It is perhaps time for co-ops to re-evaluate their roles and again become the leaders and the promoters of local enterprise. This initiative must come from its ordinary members and shareholders in the knowledge that their family's future depends on them.

Co-ops have professional management and corporate structures, command huge financial and human resources. They are ideally placed to invest and actively participate in the many good and worthwhile local projects and ideas struggling to get off the ground. Unless initiatives such as this are pursued the only way many will see their children and grand children in the future will be on *Skype*.

New policies and incentives must be applied at National level and with public, private and institutional participants working together. No one sector or organisation has all the answers and a teamwork approach offers the best chance of success. In this regard there is a glimmer of hope that may offer a template for many other sectors of the economy where jobs can be created. Recently the Department of Agriculture, Fisheries and Food published a strategy report, "Food Harvest 2020". This report lays out a vision for Ireland's largest indigenous industry namely the agrifood and fisheries sector which collectively employs some 150,000 people with an annual output of over €24 billion. The Report was prepared by a committee of 31 people from various public companies, organisations and semi-state bodies. Recommendations were made for ten specific sectors, mainly agriculture, horticulture, seafood and related activities.

At Sherkin Island Marine Station for the past 35 years, we have been particularly vocal on the potential for environmentally sustainable marine and seafood sector development, thus certain aspects of the Report are to be very much welcomed. The seafood target output envisaged for 2020 is €1 billion per annum. The current value of output is €700 million. Aquaculture volume output is expected to increase by 78%. A startling fact in the Report is that 88% of fish caught in Irish waters is by non-Irish vessels, with very little, if any, landed in Irish ports. Increased landings in this country would create additional jobs on-shore and would compensate, to some extent, for the depletion of our valuable fisheries resource.

To achieve the targets outlined in the Report we must have a new government approach and policies must be undertaken, as present problems faced by the seafood and aquaculture industry demonstrate. There is a lack of joined-up thinking and a lack of focus on how objectives might be achieved. It is unbelievable that in 2010 BIM returned €5 million to the exchequer as they could not grant aid companies or individuals to expand in or on land at 18 bays around the coast because of an EU Directive that such financing cannot be given in SACs (Special Areas of Conservation). What is even more disturbing is that for 2011, BIM will return an estimated €3 million of a €3.5 million allocation. Over 80 firms in 2010 made submissions for grant aid for the development of new or existing projects, offering over 300 new jobs. They could not be assisted due to the EU Directive. The Directive operates as a blanket prohibition, without regard to scientific or site specific factors. In many instances there is no environmental adverse issue and the current approach needs to be appropriately addressed. In stating that we point out that Sherkin Island Marine Station has promoted environmental protection since its foundation in 1975. Its record on monitoring programmes on plankton, the rocky shore, terrestrial plants is well known. It has undertaken educational programmes for schools and has a extensive list of publications of environmental interest.

It is the role of government to untangle the net that is choking the development of the aquaculture industry. There are, for example, over 500 license renewal applications currently awaiting a decision from the licensing authority. What is not realised is that French companies now own nearly 40% of Irish oyster farms and as other Irish oyster farmers get older they will also sell their farms. In five years time 60% of the farms will be foreign owned and by 2020 over 85%. The reason for the take-over is simple, Ireland has unpolluted crystal clear waters, superior to any in Europe. This demonstrates that the vast potential of the industry is recognised abroad and yet we fail to realise this and its long term economic benefits, instead the industry has been totally hampered by red tape, some of it from the EU in Brussels. In similar fashion potential also exists in salmon, trout, turbot, cod, sea urchins and abalone farming.

Aquaculture is but one area where significant jobs can be created. Commercial fishing is another and has vast added value potential. Marine tourism such as angling, sailing and adventure sports can also be part of the increased job mix. The sea is a resource, which can provide sustainable ongoing jobs. Let us now use it sensibly and sensitively for the benefit of our people and the protection of our pristine environment.

If one were to ask if Ireland can step back from the edge of the economic precipice, the answer must surely be that it can. There are areas of opportunity – the sea is but one. It requires vision and leadership. We must rally to the cause so that the export of our human talent is stopped. This is the key factor to our recovery. The answer to our problem is not to be found in articles written by internationally renowned economic gurus, or in the business pages of our daily papers. There is no instant solution or silver bullet. The answer lies with us as a nation, learning from the mistakes of the past. Let us make our country a place that our people can have employment and enjoy the fruits of their labour. Let the *Skype* generation be free to return to work in the land of their birth if they so wish. One job created is one less family that has to leave. Great patriotic men and women formed our country and sacrificed much for the common good. They were not perfect but they were noble. How will future generations judge us?

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

Copeland Bird Observatory

Copeland Bird Observatory notice at landing place.

Images courtesy of Oscar Merne

Copeland Bird Observatory building.

By Oscar Merne

THE bird observatory on Cape Clear Island (next door to Sherkin Island) is probably the best know observatory in Ireland, but not the only one. Ireland's first bird observatory was located on Great Saltee off the Co. Wexford coast and operated through the 1950s and early 1960s. Other bird observatories were on Tory Island and Malin Head in Co. Donegal. But the one on the Copeland Islands off Co. Down was established in 1954 and is still going strong today. During its first 56 years of operation I never managed to fit in a visit, even though I was very familiar with the bird observations and studies being carried out, and also knew a number of the people involved in these. Finally, in September 2009, a plot to get me there, hatched by Neville McKee of the observatory and Lorraine Benson of the BirdWatch Ireland Tolka Branch, came to fruition when I was persuaded to join a small group from the Tolka Branch (Lorraine, Sean Kingston, Rosemary Doyle and Marie Sinnot) for a weekend visit on 11th to 13th September. We set sail from the attractive harbour at Donaghadee and landed on the bird observatory island at 19.00 hrs on the Friday, and remained there until 16.30 hrs on the Sunday. We were blessed with excellent weather and were able to spend all the daylight hours exploring the island, catching some migrant birds for ringing, observing the other fauna and flora – with Neville acting as our expert guide. Then at night we switched our attention to the hundreds of Manx Shearwaters coming in from the sea to their nesting burrows, and the soon-to-fledge young shearwaters coming out of the burrows to get a "fix" of the stars to aid their first migrations to South America and back. During our short visit we saw no less than 56 different bird species on the island.

"Heligoland" funnel trap for catching migrants.

BirdWatch Ireland group with Neville McKee (second from left) relaxing at the bird observatory.

The three Copeland Islands – Big Copeland, Lighthouse Island and Mew Island – lie off the north Co. Down coast at the south entrance to Belfast Lough from the North Channel. On a clear day, the Mull of Galloway, in south-west Scotland, can be seen to the east.

Copeland Bird Observatory is located on Lighthouse Island, the middle of the three Copeland Islands. This island is roughly oval in shape, c.500 m long (north to south) and c.350 m wide and covers c.16 ha. There are low cliffs on the eastern side but otherwise the island slopes gently to rocky shores from its highest point 40 m above sea level. The bed rock is lower Palaeozoic shales and slates and this is overlain by glacial till. Until the lighthouse was closed in 1884 and moved to the nearby Mew Island, Lighthouse Island was farmed, but then abandoned until the bird observatory was established in 1954. Since then, management for nature conservation has largely involved (a) planting of native trees and shrubs to provide shelter, cover and feeding opportunities for migrant birds, and (b) mowing rides of grassland, to encourage rabbits to create a network of burrows which are then used as nesting sites by Manx Shearwaters, and also to provide landing and take-off "runways" for the shearwaters coming and going at night. The mowing also seems to benefit a variety of orchids and other plants that require short grass swards.

The Manx Shearwater colony on Lighthouse Island has grown from perhaps 300 pairs in the 1950s to nearly 3,000 pairs now (with c.1,800 additional pairs nesting on Big Copeland). Increasing numbers of both adults and their chicks have been ringed since the observatory was established, and the cumulative total ringed to date is very close to 30,000 birds. These ringed birds have generated about 250 recoveries, mostly in the northern winter from the coasts of Brazil, Uruguay and Argentina in South America, but with Copeland birds also reported from South Africa, Angola, United States and Canada. The recent use of tiny electronic geolocators attached to Manx Shearwaters has shown that some birds go as far as Tierra del Fuego, at the southern tip of South America, a round trip of over 25,000 km. Ringing has also shown that some birds live to over 50 years, and probably fly well over one million kilometres in their lifetimes.

Mew Island at dawn.

Of course, while the Manx Shearwaters on Lighthouse Island are the most important birds, Copeland Bird Observatory, like bird observatories elsewhere, also carries out studies of bird migration during the spring and autumn periods. These involve recording of visible migration and the catching and ringing of migrants that drop in to rest and feed on the island. The Copelands are not on a major migratory flyway, though the North Channel may act as a "corridor" for birds that are following the coastlines, and the lighthouse on nearby Mew Island may attract night migrants when the skies are clouded over. Over 100,000 birds of c.150 species have been ringed at the observatory since 1954. Scarce/rare species among these include Quail, Little Stint, Mediterranean Gull, Little Auk, Hoopoe, Wryneck, Ashy-headed Wagtail, Red-backed and Woodchat Shrikes, Icterine, Melodious, Barred, Subalpine, and Yellow-browed Warblers, Firecrest, Red-breasted Flycatcher, Nightingale, Bluethroat, White's Thrush, Common Rosefinch, Fox Sparrow and Scarlet Tanager. The most numerous passerine migrants ringed (each with totals over 1,000) have been Swallow, House Martin, Meadow Pipit, Starling, Sedge Warbler, Willow Warbler, Chiffchaff, Goldcrest, Robin, Blackbird, Song Thrush, Linnet and Lesser Redpoll.

Lighthouse Island is a designated Area of Special Scientific Interest and a proposed Special Protection Area under the European Union's Birds Directive. It is owned by the Northern Ireland National Trust and managed by the bird observatory. Access is by boat from Donaghadee and there are relatively sheltered landing places on the east and south sides of the island. Permission to visit the island should be obtained from the bird observatory (www.cbo.org.uk). Visitors are accommodated in the spacious observatory buildings, where most "mod-cons" are available. A modest fee, which includes the boat fare, is charged. I strongly recommend a visit to this lovely island!

Oscar Merne retired from Ireland's National Parks & Wildlife Service in January 2004.

Meet me in St. Louis

Image courtesy of Kaldari

Virginia Bluebells (*Mertensia virginica*)

By John Akeroyd

IN early April I found myself transported to familiar scenes from late childhood. I stood beside a miniature lighthouse on a bluff above the Mississippi River, pouring south with mighty currents. Across the mile-wide water, near the Illinois bank was a long wooded island – the very place where Huckleberry Finn hid after escaping from a brutal drunk father, and where he met up with Jim, runaway slave and thus fellow fugitive. From here the pair set off on their epic raft journey south. Just below me lay the small riverside town of Hannibal, Missouri, home to Huck, his over-imaginative friend Tom Sawyer and their equally imaginative creator Mark Twain. The 19th-century, white weather-boarded houses where they lived are still there, even the famous fence that Tom persuaded the other children to whitewash. Scarlet cardinals and handsome American robins (more a thrush) flew from bush to bush but, alas, introduced European periwinkles dominated the ground flora beneath native horse chestnuts, Red Buckeye (*Aesculus pavia*). However, the previous few days had given me a tantalizing glimpse of North America's native wildflowers and vegetation.

I was in the USA as a guest of old friend and colleague Dr Peter Wyse Jackson, formerly Director of the Dublin Botanic Gardens in Glasnevin, now President of Missouri Botanical Garden and a Professor at Washington University in St Louis. The day before I'd delivered a public lecture at the Garden on my work in Transylvania, Romania (see *Sherkin Comment* 32 & 40), and it was good now to relax in such stimulating new surroundings. We'd driven up on the freeway from St Louis through a countryside of low hills surprisingly covered by trees, here and there with limestone outcrops colonized by dark junipers, rather similar to what one sees in southern Europe. Groups of Redbud (*Cercis canadensis*), so similar to the Judas Tree (*C. siliquastrum*) of the Mediterranean, splashed bare spring woodland margins with coral pink pea-flowers. A diversion to collect dandelions – Peter was making 'dandelion honey' from an infusion of these – took us into a small valley nature reserve with a sheet of blue Virginia Bluebells (*Mertensia virginica*) and patches of pale pink Dutchman's Breeches (*Dicentra cucullaria*) beneath the just-emerging foliage of oaks and sycamores.

For my first visit to America, I'd clearly arrived at a good season. Late snows had melted and, despite some warm spring weather, the fierce summer heat was still some time away. Two days earlier Peter had taken me to the Shaw Nature Reserve at nearby Gray Summit, owned by the Botanical Garden, a happy mix of prairie fragments and deciduous woodland. Restoration Biologist Dr James Trager, an ant specialist but clearly an expert all-round naturalist, took me around his domain, enthusiastically showing me the colourful spring flora. Dry stony grassland had some early prairie wildflowers, although the main flowering was yet to come. Two members of the borage family, golden yellow and scarlet, splashed the ground among dry grasses. Other prairie species had yet to flower, such as patches of American Aloe (*Manfreda virginica*), *Iris* and *Clematis* that paid tribute to the restoration efforts of the Nature Reserve staff.

But the real spring treasures were in the woods, especially damper and more humid places near streams: more Virginia Bluebells, especially in damp bottomland forest near the Meramac River, along with the dicentra, anemones and dog-tooth violets (*Erythronium albidum*), Wild Sweet William (*Phlox divaricata*), at least three violets including Yellow Forest-violet (*Viola pubescens*), even a few *Trillium* (although these grow better further east). Bloodroot (*Sanguinaria canadensis*), which is often over by this time, formed whitish patches, while the first flowers of Sassafras (*Sassafras albidum*), such an iconic plant and a member of the tropical laurel family, brightened bare branches with greenish-yellow flowers. Other attractive flowering trees were Serviceberry (*Amelanchior arborea*) and Choke Berry (*Prunus virginiana*), both with showy white blossom. This flora has similarities with that of our European springtime woods, but is undoubtedly richer – and a visual spectacle on a par with the bluebell woods of Ireland and Britain.

Image courtesy of US National Park Service

Redbud (*Cercis canadensis*)

Image courtesy of Kaldari

***Claytonia virginica*, the Eastern spring beauty.**

The day after my arrival we had visited another local protected area, the Native American mounds at Cahokia, slightly to the east in Illinois. Here in our early Middle Ages, thousands of people lived in North America's then largest settlement and hub of the highly developed Mississippian culture. The custodians have retained a remarkable feeling for this landscape of massive earth mounds, created by hard human effort, alongside the lakes, grasslands and bird-filled cottonwood thickets of the great river valley. St Louis is imbued with history – for example, it was from here that Lewis and Clark set firth in 1804 to explore the West.

I'm left not only with abiding images of varied and beautiful woodland wildflowers, but also violet-blue sheets of handsome Dooryard Violets (*Viola sororia*), similar to dog-violets, on the front lawns of both grand and humble homes, and in Tower Grove Park. There also were great drifts of palest pink Eastern Spring Beauty (*Claytonia virginica*) that burst into flower as the sunshine became increasingly warm. Not to mention a fine Botanical Garden, magnificent streetside *Magnolia* trees, spacious parks and some elegant 19th-century houses in St Louis, and that great Mississippi River itself winding south towards Memphis and New Orleans – as well as so many friendly and welcoming people.

Dr John Akeroyd, an expert on the European flora, who has worked since 1990 on botanical surveys at Sherkin Island Marine Station, is the author of A Beginner's Guide to Ireland's Wild Flowers *(2008) and* The Natural History of Sherkin Island *(2009).*

Hannah Hauxwell's Legacy

Images courtesy of Anthony Toole

Hannah Hauxwell in 2010, (aged 84)

By Anthony Toole

BALDERSDALE is a high, isolated valley, trapped to the north, south and west by the bleak moorlands of the North Pennines. Its river, the Balder, rises in the soggy peat of the Cumbria-Durham border and runs, in its ten miles, through three reservoirs, Balderhead, Blackton and Hury, before joining the Tees at the village of Cotherstone. It is served from the east by a minor road, which splits at Hury, though neither branch travels far, leaving the western exit accessible only to a determined walker.

The Pennine Way long distance footpath descends to the approximate mid-point of its 265-mile length at Blackton, just beneath the Balderhead dam. Here, it passes through Low Birk Hat, one of the scattering of small farms that provide Baldersdale with its meagre population. The fields that lead down to the farm buildings are now maintained as a nature reserve by Durham Wildlife Trust. Their collective name, Hannah's Meadow, commemorates one of the most unlikely of television celebrities of the last decades of the twentieth century, Hannah Hauxwell.

Hannah, an only child, was born in 1926, at Sleetburn Farm. When she was three, her parents moved less than a mile down the valley to Low Birk Hat, where she lived until 1988. Her father died when she was seven, leaving her mother and an uncle to run the farm. When they died, Hannah found herself, alone at the age of thirty-five, looking after the farm, in which there was no electricity or indoor running water.

She first came to prominence in 1973, when a Yorkshire Television film, 'Too Long a Winter,' depicted her struggles to survive, with a negligible income, in this extremely beautiful, but very harsh part of England. Sixteen years later, a follow-up film, 'A Winter Too Many,' told of her later tribulations, culminating in her reluctant sale of the farm and move to a cottage in Cotherstone.

While at Low Birk Hat Farm, Hannah kept a small number of sheep and one or two pigs, the sale of which brought her the bulk of her annual income of less than £300. She was most fond, however, of her cattle, of which she had a maximum of ten at any time. Throughout her years at the farm, and those of her ancestors for four generations, farming was carried out using strictly traditional methods, which allowed no use of artificial fertilizers on the fields. The result of this was the evolution of meadows with an extremely rich diversity of wild flowers. In fact they are regarded as among the finest examples of upland hay meadows in England.

When Low Birk Hat went up for sale in 1988, the Durham Wildlife Trust obtained a grant of £25 000, which enabled it to buy two meadows and a pasture, of total area nine hectares. These fields became Hannah's Meadow Nature Reserve, and were declared a Site of Special Scientific Interest.

The highest field, sloping down from the valley road, is the pasture. This is somewhat acidic in nature, containing sedges and soft rush. In springtime, it is a breeding ground for skylarks, meadow pipits and waders such as lapwing, redshank and curlew.

The north-west corner of the upper meadow is occupied by Hannah's Barn. This was in a state of dilapidation when it was acquired by the Trust. A new roof was added and the walls repaired and re-pointed using local stone. It now serves as an unmanned visitor centre, and contains examples of traditional farming implements and displays illustrating the history, farming methods and wildlife of Baldersdale. It is reached by way of a wooden boardwalk along the northern edge of the meadow.

The fields are leased to the owner of High Birk Hat Farm, which stands at the roadside, just above the pasture. He tends the meadows in the traditional manner, which maintains the plant diversity. Each year, the Durham Wildlife Trust carries out surveys at a number of sites to ensure that the meadows continue to thrive.

Management of the meadows follows an annual cycle. Spring is when the lambs are born. After they have been moved onto the pastures, manure is spread onto the fields. This maintains a low nutrient regime which encourages the growth of flowers at the expense of the grasses. If the grounds were too nutrient-rich, as would be the case if artificial fertilizers were used, then the grasses would outcompete the flowers. Fertilizers also tend to destroy many of the fungi that are essential for the natural health of the soil.

From late spring until the beginning of August, the hay crop is allowed to grow unhindered, and it is during this period that the meadows achieve their colourful glory. Among the variety of grasses are fox-tail, sweet vernal and crested dog's-tail, while the flowers include ox-eye daisy, ragged robin, eyebright, wood cranesbill, marsh marigold, bird's foot trefoil and the relatively rare globe flower.

Clover is important as its roots contain nodules that harbour bacteria capable of fixing nitrogen from the air. Another important plant in maintaining the balance between flowers and grasses is yellow rattle. This is a parasitic plant, which fastens onto the roots of grasses, absorbing some of their nutrients and so limiting their growth.

In late summer, the hay is cut and allowed to lie for two or three days, giving time for the seeds to fall to the ground. After the hay has been baled and taken into storage, cattle are grazed on the late grass, during which time their hooves press the seeds into the soil, thus aiding their germination.

November brings the year's final act, in which the ewes are brought into the meadows to run with the ram, in preparation for the cycle to begin again with lambing in the spring.

At the age of 84, (in 2010), Hannah Hauxwell still lives alone in her cottage in Cotherstone village, though now she is surrounded by neighbours. Indeed, her recipe for a contented life is, 'Good health, good friends and good neighbours.' Understandably frail in appearance, she is, nevertheless, remarkably sharp in her mind. She can give vivid accounts of her life in Baldersdale, but admits that she hated the winters. Her television fame brought her the opportunity to travel through Europe, and even to America. She has no regrets, and though living only five miles from Low Birk Hat Farm, she does not return, feeling that her memories are too poignant.

Regardless of the re-drawing of the county boundaries, which in 1974 took Baldersdale out of Yorkshire and into Durham, Hannah still calls herself a Yorkshirewoman, and despite the unremitting harshness of the winters she endured, remains grateful to have lived in one of the most beautiful places in England.

Durham Wildlife Trust
www.durhamwt.co.uk
("Season of My Life" By Hannah Hauxwell and Barry Cockcroft 1989 ISBN: 0 09 972970 9 Arrow Books Ltd.)

From top: Hannah's Meadow; Inside Hannah's Barn; Ragged robin; Lapwing; Hannah's Meadow and Barn, and High Birk Hat Farm; Baldersdale – Blackton and Hury reservoirs from Balderhead dam.

Business Development in Inland Fisheries Ireland

By Ciaran Byrne

ON July 1st Inland Fisheries Ireland was established following the amalgamation of the Central and Regional Fisheries Boards. This action was probably the biggest structural change in the inland fisheries sector since the formations of the Boards in 1980. The establishment of IFI provided the perfect opportunity to critically appraise the marketing and promotional work being done by the fisheries service and identify where it could be developed and expanded to enable it to respond to the changing external environment.

Following this process it was apparent that while the fisheries service, working closely with the various tourism interests, has built up considerable experience and expertise in promoting Ireland as a premier angling destination, much more could be done to encourage the domestic participation and development of angling. Such development of angling should be implemented and managed on a local basis, but it generates a national benefit from the improvements in the resource

It was in this context that the Business Development Division was established. One of the aims of this Division is to focus on, and develop the business of angling with the ultimate aim of encouraging more people into the sport and supporting those who derive some or all of their income from angling as well as empowering the local angling stakeholders to promote and develop the resource.

Thus the first job is to work with the recreational angling sector to help and empower them to take more responsibility for the development and promotion of the fisheries resource. Up and down the length and breath of the country there are angling clubs who, on an unpaid voluntary basis, are working extremely hard to develop their particular fisheries. This effort is all done on a local basis for individual fisheries, and in most cases is never really captured, however there is a significant national benefit derived from such works. Unfortunately much of this effort is unstructured and has, in many cases been hampered by a lack of funding, skills and the proverbial red tape. The Business Development Division is currently working with the National Angling Federations to put in place structures which will facilitate local development works making it easier for clubs to access various funding streams, the expertise required to draw up and implement fisheries development plans and most importantly reduce the red tape. IFI is developing a number of web based 'how to' guides which will deal with various aspects involved in developing fisheries and these guides will complement the work of the IFI staff on the ground.

Images courtesy of Inland Fisheries Ireland

The perception is that funding, or more precisely the lack of funding is one of the biggest limiting factors preventing clubs from engaging in local fisheries development works. However when this area is critically examined there are actually quite a range of potential sources of funding available to angling clubs, and the issue is not one of funding per se but the access to and the management of funding, as almost all of the funding streams have conditions and governance requirements attached. IFI is actively working to make it simpler for clubs and federations to identify and access potential funding streams. In short this aim could be summarized by the phrase "helping the sector to help itself". Much of this effort will in the first instance be in the form of how to guides and booklets which are currently being developed and will be available on the IFI website (www.fisheriesireland.ie) over the coming months.

It is no secret that the economy is in a very precarious state and Ireland inc. badly needs to focus on core business to help it move out of recession and start the process of rebuilding the new balanced economy which is not over reliant on the property and banking sectors. Ireland has a natural competitive advantage over other countries in the area of tourism, and this is the primary reason why tourism has been identified as one of the core areas which will help to kick start the new economy. Broadly following the eminent Harvard business Professor, Michael Porters 1990 theory on the competitive advantage of nations, Ireland must focus on its competitive advantages and really build on them. Inland Fisheries Ireland has a very important role to play in this regard, as the agency responsible for the management, promotion and development of the inland fisheries and recreational sea angling one of our most important natural resources. Thus a second aim of the Business Development Division is to work with the sector, the tourism agencies and any other relevant bodies to increase the number of overseas visitors coming to Ireland to partake in angling.

IFI has built an excellent relationship with the States two main tourism agencies, Failte Ireland and Tourism Ireland. In this regard we have worked closely together to identify the potential gaps in our international angling offering. With the exception of some of the specialist angling areas, angling broadly follows the overall trends in tourism and therefore the biggest market for overseas anglers is the UK and like the overall tourism numbers the number of angling visitors coming from the UK has declined. Thus the job is very clear, to enhance the status of Ireland as a premier angling destinations. Any increase in overseas anglers will generate a positive return in local communities. Most importantly the communities which benefit the most from angling tourism are typically in rural areas where there are precious few other income generating opportunities, thus angling revenue is particularly important for rural communities. In this context the aim of the Business Development Division is to increase the number of people who derive some or all of their income from angling tourism, by increasing the number of tourists. If we can generate additional jobs or support existing jobs by improving the numbers of angling tourists then it will be a job well done.

Dr. Ciaran Byrne, CEO, Inland Fisheires Ireland. For further information and details in relation to the above article please contact Ms Suzanne Campion, Head of Business Development, Inland Fisheries Ireland, Swords Business Park, Swords Co. Dublin.

GREENING THE BUILT ENVIRONMENT

The Fourth in a Series of Articles

By Walter Mugdan[1]

IN previous editions of *Sherkin Comment* I have written about the evolving "green construction" movement, which seeks ways to make our "built environment" more eco-friendly and sustainable. The first installment focused on ways to reduce the "carbon footprint" of buildings. The second focused on ways in which traditional air pollutants associated with construction can be minimized, and the third looked at ways to reduce water consumption and pollution. This fourth and final installment considers how building materials can be selected, used and recycled so as to reduce the overall environmental impact of a building project.

In considering that environmental impact, it is essential to consider the complete lifecycle of a given material or piece of equipment. How much energy, water, pesticides and fertilizer went into growing and harvesting a natural product like wood? How much energy went into assembling, manufacturing, and transporting an item to the building site? What hazardous wastes were generated along the way? How much energy will a piece of equipment use over the course of its service life? How difficult will it be to disassemble and recycle the material at the end of its useful life? Developing accurate estimates of these impacts is difficult; but software tools now exist that allow designers to do just that.

Wood is one of the most widely used building products. As they grow, trees sequester carbon. If new trees are regrown (by planting or natural reseeding) on land where older trees have been cut, while the cut wood is incorporated into new buildings, the combined effect may be neutral or even beneficial from the perspective of an overall "carbon budget." But the sustainability of forestry practices varies widely around the U.S. and around the world. In many places forests are cut for timber and replaced with farms and human habitations. But it is now possible to buy wood products that have been certified by an independent third party as having been harvested in a widely accepted sustainable manner. (The Forest Stewardship Council is one of the most well established of these.) Sustainability can also be considered when selecting the types of wood used in a building project. For example, fast growing bamboo can be used in place of slow growing hardwoods, and/or hardwoods from tropical rain forests.

All major construction projects use concrete – indeed, it is the second most widely used material on earth (after only water). Large amounts of fossil fuel are used to manufacture Portland cement, the ingredient in concrete that makes it all stick together. Concrete therefore has a heavy "carbon footprint," accounting for more than 5% of the world's greenhouse gas emissions. As it happens, coal combustion products — that is, coal ash — from coal-fired power plants can be used to replace a significant fraction of the Portland cement that would normally be needed for use in concrete. The coal ash would otherwise have to be disposed of in a landfill. Every ton of coal ash used in concrete offsets about one ton of Portland cement and, in turn, reduces GHG emissions by nearly a ton. Moreover, concrete made with coal ash is actually less permeable, more durable and stronger than concrete made with Portland cement alone. "Green" concrete is not new – it was used 80 years ago in the construction of the massive Hoover Dam in Nevada (though the choice had nothing to do with environmental considerations). Green concrete was also used in the recent reconstruction of a major highway bridge in Minneapolis, Minnesota after its collapse in 2007.

Many other building materials can be made entirely or partially from recycled materials. Recycled steel is very common, but other recycled materials can also be used. Examples include plastic lumber (made from recycled plastic bottles and the like); recycled glass (used in countertops or in place of crushed rock in drainage fields); and recycled bricks (aesthetically pleasing and therefore very fashionable). Even the weathered wood from old barns in the U.S. is in great demand. And these products are by no means useful only in small, upscale projects: the huge Destiny shopping mall under construction in Syracuse, New York is procuring more than 20% of its building materials from recycled sources.

Materials used inside a building also have environmental footprints that can and should be minimized. Paints, carpets, carpet adhesives, and composite wood products (used in many kinds of furniture) are all sources of volatile organic emissions that adversely affect indoor air. Low-volatile alternative product lines are now available with excellent performance characteristics.

Lighting consumes nearly 10% of a building's electricity. Energy-efficient, high performing "green lighting" is therefore an important part of the equation. Almost anywhere an incandescent lightbulb might have been used, a compact fluorescent lightbulb (CFL) can and should be used. Likewise, the energy efficiency of appliances like refrigerators, heaters and air conditioning unit should be maximized.

Computers and other electronic equipment are present in many buildings. The manufacture, use and especially the disposal of such products (which generally have a rather short useful life, because of the rapid advancement in technology) have significant environmental consequences. Many hazardous materials go into the manufacture of high-tech electronics, including lead, cadmium, mercury and beryllium. The equipment uses electricity throughout its life (as much as 8% - to 10% of total building use). And at the end of its useful life it is typically either disposed of in a landfill, or sent to an impoverished third-world country where useful materials such as copper wire, lead, gold and silver are extracted by the most primitive and environmentally risky means. Software tools now exist to help electronics purchasers select electronics that have been designed and manufactured, and can be operated and disposed of, with fewer adverse environmental impacts.

Finally, what goes up must come down. In the long run nearly every building will be demolished, and during its lifetime it will probably have been renovated several times. These activities, along with new construction, generate huge amounts of construction and demolition (C&D) debris. EPA estimates that some 136 million tons of C&D debris are generated annually in the U.S.. A large fraction – 50% or more – can be recycled. This includes bricks, stone, concrete, asphalt, wood, and carpeting. Buildings should be designed from the start with their "end of life" already in mind, so that components and materials can be more easily recycled when that day arrives. Deconstructing buildings in a manner so as to maximize the recycling potential can be more costly, but experience at facilities such as Kodak's huge industrial park in Rochester, New York show that substantial offsetting savings can be realized by avoiding disposal costs and selling valuable secondary materials.

This series of four articles has provided a brief glimpse of the many innovative ways in which architects, engineers, builders and building owners and managers can minimize the substantial environmental impact of the built environment. Not every strategy will be available to every owner; but every owner can – and should – do something.

Images courtesy of US EPA

Coal combustion products — that is, coal ash — from coal-fired power plants can be used to replace a significant fraction of the Portland cement that would normally be needed for use in concrete.

[1]Any opinions expressed in this article are the author's own, and do not necessarily reflect the position of the U.S. Environmental Protection Agency.

Walter Mugdan, Director, Emergency & Remedial Response Division, U.S. Environmental Protection Agency, Region 2, New York City, USA. (August 2010)

The Antipodes Islands & their Albatross

An insight into subantarctic Antipodean Albatross research

By Julia Baer

Images courtesy of Julia Baer

Antipodean Albatross breeding pair, showing courtship display. The female is on the left, easily distinguished by an all-brown neck and belly. Antipodes Island, Jan '10.

Introduction

The Antipodean albatross is endemic to the New Zealand subantarctic, with over 90% of the population breeding on the Antipodes Islands. The Antipodes Islands are the most south-eastern of the five island groups that make up the New Zealand subantarctic, situated 730 km south-east of the New Zealand mainland at 49°41' S and 178°48' E. This is exactly the opposite side of the globe to London, hence the name 'Antipodes'. The only other known breeding location of the Antipodean albatross is on Campbell Island (NZ), with up to 10 breeding pairs. Wandering albatrosses (*Genus Diomedea*) have been split into 5 different subspecies (DNA confirmation pending), of which Antipodean albatross *Diomedea* (exultans) *antipodensis* and Gibson's albatross (*Diomedea* e. *gibsony*) constitute 50% of all wandering albatrosses. Because the Antipodean albatross breeds at fewer than five locations worldwide and the population number is declining rapidly, the species is listed as 'vulnerable' (IUCN).

The Antipodes are one of the world's least modified islands, inhabited only for short periods by sealers, shipwrecked castaways and researchers. Farm cattle, sheep and goats were introduced in the late 1800's, but had trouble coping with the harsh climate and quickly died out. Today, the only alien species are a few herbaceous plants, some self-introduced passerine birds, and the house mouse (*Mus musculus*). The Antipodes Islands are a Nature Reserve administered by the Department of Conservation (DOC) New Zealand, with a very strict quarantine and visitor control. Only researchers with work permit are allowed to land on the island, all other visitors are restricted to stay offshore and can only view the island 'from the outside'. The Antipodes comprise a main island of 2025 ha (about 7 km × 5 km), five smaller islands, and several islets and stacks. The vegetation is dominated by tussock grass (*Poa littorosa*), which can grow up to 2 m high along the cliff tops. There are no trees and only small areas of the low woody shrub *Coprosma antipoda*. The island's geology is of volcanic origin, with conspicuous basalt cliffs and volcanic plugs. Cliffs of 150 m height surround the island, but the central areas of the island consist of low rolling hills, with Mt Galloway (366m) and Mt Waterhouse (358m) as the two highest points. Captain Henry Waterhouse of the British ship HMS Reliance was the first person to chart the island group in 1800. His discovery sparked a sealing boom which lasted less than 10 years before the fur seal population was all but exterminated. Today there is a small but healthy fur seal population, in addition to several elephant seal haul out and pupping sites. There was never any permanent construction on the island except two wooden huts. One of them is the castaway hut which was constructed in 1886 and has not been modified since; one can still see the signatures of unfortunate sailors scribbled on the inside walls. The crew of the Spirit of the Dawn was even more unfortunate. Their ship foundered off the coast on 1893, five men died; the remaining 11-man crew was unable to locate the castaway hut and lived on raw muttonbirds, mussels and roots for 87 days before attracting attention of the steamer Hinemoa. The second hut was built in 1978, replacing a more basic hut and tents. This hut is reserved for researchers that visit the island, however infrequently. There was a period of over 15 years until the early 90's when no research was undertaken on the island whatsoever, due to the remote location and costs involved. Once the treacherous trip across the Southern Ocean is overcome, the researcher hut is a surprisingly comfortable place to stay. It has no heating and can be damp, but thanks to solar energy one can plug in a laptop and keep the satellite phone going. Because the space is small, cooking on the camping stove warms up the hut in the evening when everyone has returned from a long day pushing through the tussock to locate breeding albatrosses.

An annual average of 5136 Antipodean albatross pairs breed on the island (census 1996), with a total mature population estimate of 17 000 birds. Most of these birds breed in areas of tussocky lowland, at a density of 5.5 – 8.5 nests/ha. Nests are built in tussock vegetation high enough to afford protection from prevailing westerlies, but not so dense as to prevent an easy take off. Antipodean albatrosses feed pelagically on squid, fish and crustacean and are relatively frequently caught by tuna long-line fishing boats, particularly off East Cape, New Zealand: 31% of all banded Antipodean albatrosses found dead between 1969 and 1994 suffered fisheries-related deaths (unpubl. data, New Zealand Banding Office). New Zealand government observers have been on board fishing vessels to document and return all birds caught in the New Zealand EEZ for autopsy. The results for the 2006/07 fishing season (NIWA Autopsy Report 06/07) showed that in the longline fisheries overall, albatross taxa made up about 70% of returned birds, with the proportion of albatross taxa

Antipodes Island Main Hut (left) and Castaway Hut (right). In the background Anchorage Bay and Perpendicular Head (150m). Antipodes Island, Dec '09.

highest in the chartered tuna fishery (ca. 80%) and in the ling fishery (64%). Antipodean albatrosses were caught exclusively by longline fisheries. There is serious concern that the population will not sustain the level of bycatch, which caused the initiation of the privately funded Antipodes albatross monitoring programme in 1994. This long term study is carried out on the Antipodes Islands and aims to determine the effect of bycatch on population size and the calculation of sustainable levels of bycatch. The pelagic ecology of wandering albatrosses is still subject to speculation and albatrosses have rarely been observed feeding naturally when not attracted to bait. To locate foraging areas frequently visited by Antipodean albatrosses, a number of breeding and non-breeding adults on Antipodes Island have been equipped with satellite transmitters since 1996. The transmitters were fixed to the birds by harness, tape or glue. The deployment of harness transmitters was soon abandoned because of an increase in mortality rate, desertion and weight loss, while taped or glued transmitters did not appear to affect fitness. The results from the satellite data showed that the average length of breeding Antipodean albatross foraging trips lasted for 14 days until hatching, shorter trips of up to 4 days during guard stage and an alternation between short and long trips during chick-rearing. Favoured foraging areas varied between birds and sexes, but overall the seas to the north-east and south-east of the Chatham Islands (800 km east of NZ) are the areas most used by breeding Antipodean wandering albatrosses. The implementation of stricter fishing quotas and fishing practises that reduce bycatch in combination with higher observer coverage would be very important in these areas.

Because the albatross monitoring programme is continued largely with private funding, it is often carried out in conjunction with other research projects on the island. Whenever possible field researchers assess the breeding success of the previous season's nesting in chosen study areas, band chicks for future recruitment measurements and determine breeding pair numbers. Recruitment in albatrosses is most difficult to assess since chicks spend the first 5 years of their lives out on sea and after that spend only little time on land until they breed at 10 years of age. This requires a large sample of banded chicks and it takes a decade before the survivors of these chicks are recruited into the breeding population. The average Antipodean albatross chick fledging success between 1994 and 2001 on Antipodes Island was 75.1%. Since then fledging success declined steadily down to a record low of 56.6% in 2009. These numbers document the declining health of the population and show the crucial role of monitoring projects such as the one undertaken on Antipodes Island. In the past 5 years albatross research was carried out in conjunction with a white-chinned petrel monitoring programme. Unfortunately 2010 is the last year of this programme and no other research projects based on Antipodes are planned for the coming years, which makes a continuation of the albatross study highly problematic unless new sources of funding are found.

Julia Baer was a volunteer at Sherkin Island Marine Station in 2001. All of the above data (unless otherwise mentioned) is derived from Department of Conservation (DOC) publications by Kath Walker and Graeme Elliot, the principal Antipodean albatross researchers and funders of the ongoing monitoring programme.

Images courtesy of Julia Baer

Male Antipodean albatross in flight, with a wingspan of up to 3.20m. Antipodes Island, Jan '10.

Antipodean albatross chick close to fledging. View south-west of Orde Lees and Windward Islands. Antipodean Island, Dec '09

Promoting Duhallow's Local Rivers

By Pat Fitzpatrick

RIVERS are seen as a vital resource to Duhallow, with the North Cork/East Kerry region being birthplace to Ireland's second largest river, the Munster Blackwater. The river, which is designated as an SAC, is famously known as a salmon angling river but is also home to other river species and birds, including the greatly endangered Freshwater Pearl Mussel. It is our duty to protect and conserve rivers and streams for future generations to enjoy, and to maintain 'good ecological status' for these species and birds which are dependant upon them.

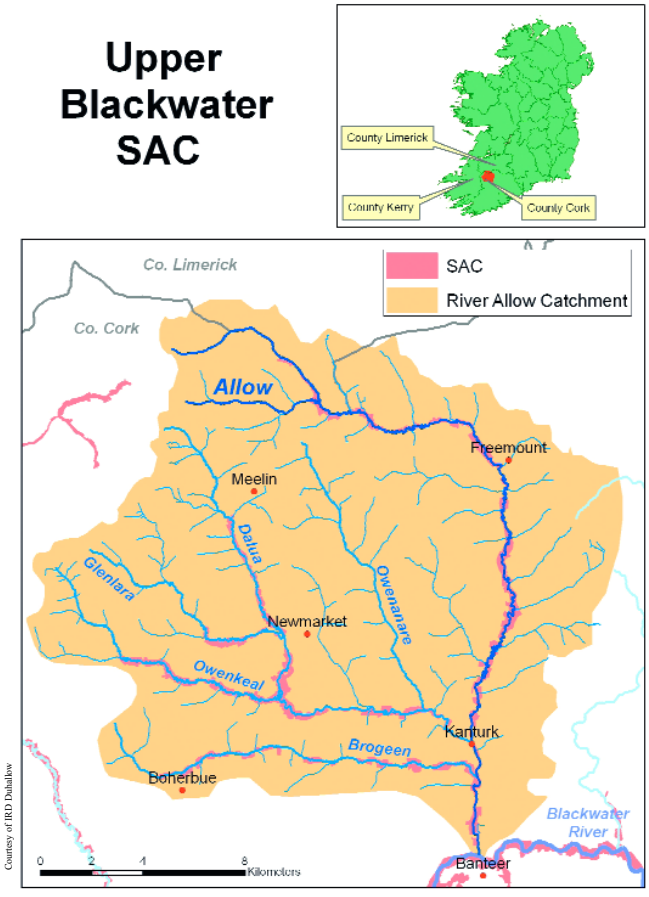
IRD Duhallow LTD, a Rural Development Company based in Newmarket Co. Cork, was initially established in 1989 to promote the tourism potential of the local rivers in Duhallow. It administers LEADER and Local Development programmes as well as running the Rural Transport and Warmers Homes Insulation and a meal service for the elderly. IRD Duhallow was one of two successful Irish applicants to receive funding from the EU LIFE+ Environmental Programme, targeting the Upper Blackwater River, with various river restoration works outlined to ensure the conservation status of riverine species while promoting this natural resource as an amenity to be enjoyed by the whole community. The IRD Duhallow LIFE project with a total project budget of around €2 million (with almost half of that from the LIFE+ fund) began in 2010 and ends in 2014.

The river restoration works proposed will be specifically undertaken on the Allow River, which flows through Freemount and Kanturk before joining the main Blackwater Channel outside Banteer. Examples of proposed works will include halting river bank erosion through bank revetment, introducing alternative forms of cattle drink sources for livestock along the river and control of river weed, these works are targeted at negative impacts on the river that have occurred overtime. Careful land management practices undertaken in such a way will result in an improved and protected environment. For instance, fencing and alternative cattle drinks can reduce sediment and nutrient inputs leading to improved water quality as well as stock health and productivity. Selective pruning of bankside trees can improve fisheries and bank revetment can enhance biodiversity while also reducing the risk of flooding. These works should result in the improvement of the water quality of the river, thus maintaining it at a high standard.

Image courtesy of Matt Murphy

The Munster Blackwater, near Banteer, Co. Cork. The River is Ireland's second largest and is designated as a Special Area of Conservation.

The species targeted by the project include the Freshwater pearl mussel *Margaritifera margaritifera*, Atlantic salmon *Salmo salar*, otter *Lutra lutra*, kingfisher *Alcedo atthis* and dipper *Cinclus cinclus*, species that once thrived in the area but are now in serious decline. The pearl mussel has attracted a lot of interest in recent years due to its interesting ecology, life cycle, ability to produce pearls and, most importantly, its decline which has left the species in danger of extinction. Pearl Mussels have a symbiotic relationship with salmon and trout as they act as the pearl mussels' temporary hosts. In their early life stage, they attach to the gills of the fish or trout, and nourishment is taken from this fish host until they are large and mature enough to exist independently (they increase to about six times their original length), at which time they fall into the substrate of the river. The fish provides the essential step in the mussels' life cycle, and mussels improve water quality by filtering water. Each mussel has the ability to filter up to 50 litres of water per day. Hence, pearl mussel requires very high quality rivers with clean river beds and waters with very low levels of nutrients and a minimal threat of siltation.



An important aspect of the project is engaging local communities and promoting the importance of local rivers and the species which local rivers contain. The project is conducting a public awareness campaign for these targeted species in the Duhallow area where leaflets and brochures are being distributed and field visits conducted. Another integral part of the project is education, whereby local schools both at primary and secondary level are participating in the project and learning about all aspects of river life. This aspect of the project involve students documenting flora and fauna they find around their homes, which will then be collated together on maps, which will be available online.

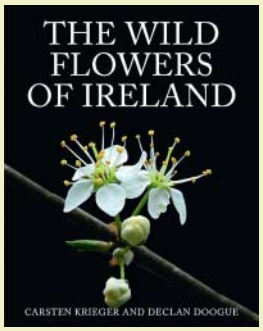
The project drawn together by IRD Duhallow is managed and developed by a steering group including members from the Kanturk and District Trout Anglers, Blackwater Salmon Development Group, Statutory Agencies, IRD Duhallow's Environmental Forum and Inland Fisheries Ireland, which are responsible for undertaking some of the actions in the project.

It is the intention of IRD Duhallow to make this a flagship project in Ireland ensuring completion of a successful environmental conservation project while also satisfying the needs of relevant stakeholders including farmers and landowners. Michael Twohig, Chairman of IRD Duhallow says *"We are working with our communities, schools, farmers, angling clubs and environmental interests on this project. We have long believed that our natural resources, if properly developed with an eye to conservation hold the best prospect of economic revival for Duhallow. The project will provide a template that can be used nationally illustrating how landowner's needs as well as the needs of the environment can work in tandem. With the sensitive development of our rivers through improved river water quality and fish stocks, the Upper Blackwater catchment has the potential to generate tourism based on angling, ecotourism and wildlife appreciation to benefit the entire community while also enhancing agricultural practices in the area.*

Pat Fitzpatrick, Project Co-ordinator, IRD Duhallow Life, James O'Keeffe Institute, Newmarket, Co. Cork.
www.duhallow.com

Ireland's Wild Flowers Magnificently Revealed

A Review by John Akeroyd



LAST September appeared a true masterpiece from one of Ireland's most distinguished and learned botanists*. It was also a landmark in the study of the Irish flora, being both a popular account of the island's botanical richness and one of few wild flower books written from an Irish perspective. Most flower books provide an account of the British flora, with Ireland (mainly the Burren) as an afterthought, and field botany has perhaps been regarded in Ireland as a 'Big House' activity. But Dublin, a centre of learning and a place liberal in outlook, has long been a hotbed of field botany. The author of this book, a lifelong Dubliner, learned much about plant identification from Howard Hudson, a veteran Dublin botanist who had been instructed in botany by J.P. Brunker, author of the 1950 *Flora of County Wicklow*. Brunker himself learned his trade from Nathaniel Colgan, a great naturalist of the late 19th to early 20th century – that 'hey-day of Irish botany', according to the legendary Professor David Webb, whom Declan Doogue also knew well. It's been my great pleasure to accompany this amiable enthusiast in the field for more than 30 years, notably with the Dublin Naturalists Field Club, and seen him pass on his own vast knowledge.

The book is sumptuously produced, a large-format coffee table book but one with an authoritative text. Picture captions well link the text and Carsten Krieger's numerous fine colour photographs. These are beautiful, sometimes slightly overpowering in their detail but frequently deeply evocative, and they will sell the book's message even to those who are only slightly aware of flowers. Of Ireland's thousand or so native plant species and long-term introductions, the book concentrates on 300 common or widespread plants, with plenty of reference to some scarcer species. Declan Doogue begins by stating how plants indicate environmental factors and changes, which we can follow by looking at associated climatic, ecological, geographical and historical data. He considers lawn and garden weeds, then takes us through urban wasteland, sand-dunes, rivers and canals, lakes and bogs, fens, hedges (including their wild roses), grassland and woodland (not least rare swamp woodland), always explaining the basics of ecology and threats from habitat loss – he well explains the dynamic nature of habitats and plant communities. Finally he guides us round the flora of the Burren, a special treat he leaves until the end (and thus not overshadowing all the other wonderful things in the book). He explains Latin names, their derivation, construction and value as a universal language; he also shows the excitement of plant recording, and how the trapping, handling and displaying of these data are so relevant in today's automated digital age. All this and the information he gives on the legal protection of plants, including the EU's important Habitats Directive, is probably unfamiliar to many people. The book exudes ideas for botanical projects – here is a science, like astronomy or meteorology, where anybody can contribute important data and ideas.

One of Declan's greatest strengths is his affinity with the habitats that derive from human activity – he has always been a driving force for recording plants (and animals) within Dublin city and its suburbs. He understands and conveys the value of stone walls, churchyards, an orchid-rich railway cutting through an esker or glacial debris ridge, the old gravel workings that support the few Irish populations of Red Hemp-nettle (*Galeopsis angustifolia*), or the centuries of horse grazing that have allowed outlying mountain grassland plant communities to persist on the Curragh of Co. Kildare. He tells the stories of some of the naturalized alien plants such as Oxford Ragwort (*Senecio squalidus*), which has long made its home in Cork City, and welcomes newcomers such as Ivy-leaved Toadflax (*Cymbalaria muralis*), once a local plant in southern Europe, now an integral element of Irish walls! He dissects the human landscape of Ireland – for example, his plea to seek out interesting introduced plants in older small towns – like a botanical William Trevor. He also fully understands the science, notably the role of genetics, variation, ecological gradients and evolution in shaping our flora and, rather than fret about the loss of native vegetation, he enthuses about how plants have survived and often thrived in Ireland. Nevertheless he is ever conscious of the constant threats to our heritage of wild flowers, such as the impact of some aliens or the loss of wet grassland, with plants such as the once-widespread Sneezewort (*Achillea ptarmica*) now in decline. The book's final section, on that quintessential Irish place, the Burren, brings together many of the author's themes. His succinct account of everything from the rarities to the diminutive winter annuals of rocks and walls shows how innovative management of this unique region might be a lesson for the conservation in Ireland. He ends with a well-chosen reading list.

The book, enthusiastic, perceptive and clear, is the output of somebody who has devoted his life to teaching children (and adults). The style is gentle, persuasive and didactic, as if we're out with a real expert on an excursion, as indeed we are. The author shows why our wild flowers are important and thus we need to conserve them. Here is an effortless synthesis of information on the places, patterns and processes that give rise to a rich and ever-changing flora in this small and increasingly human-disturbed island. Above all, Declan Doogue gives a feel of what it's like to be a botanist, and captures the sheer excitement of looking for plants and building up a detailed picture of the Irish flora. There is a timely warning though – botanical skills are dying out in universities and in the wider community. How one wishes that the author's sanity, wisdom, knowledge and sensitivity to nature were present in the academic world. And among politicians and those who make decisions on our behalf.

* *The Wild Flowers of Ireland*. Carsten Krieger & Declan Doogue. Pp. 320 pp. Gill & Macmillan, Dublin. 2010. Hardback. £29.99, €29.99. ISBN 978-0-71714-661-1.

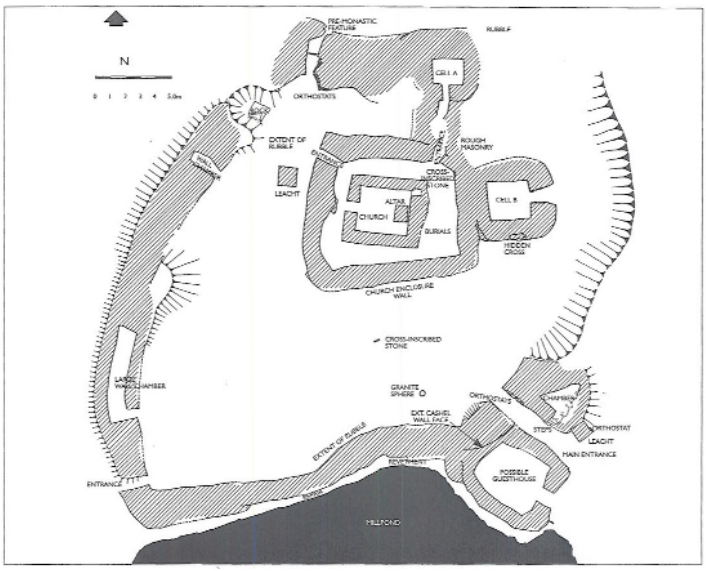
Dr John Akeroyd has studied the Irish flora for over 30 years. He edited The Wild Plants of Sherkin, Cape Clear and adjacent islands of West Cork (1996) *and is author of* A Beginner's Guide to Ireland's Wild Flowers (2008).

An Afternoon on High Island *(Ardoilean)*

High Island which lies off the North West coast of Connemara.

By John Gore-Grimes

HIGH ISLAND is just 2 ½ miles off the North West coast of Connemara. It was chosen by Irish anchorites as a place of exile for the love of God or the *peregrinatio pro amore dei*. It was the 'peregrinatio', in the sense of wandering at sea without plotting a course or seeking a direction which guided Brendan the Navigator to the Islands of Sheep (Faroes), the Island of Smiths (Iceland) and onwards to Vinland (America) and the Islands of Birds (West Indies). Although a lesser journey, it may have guided St. Féchín to the shores of Ardoilean in the 7th century.



Plan of the monastery on High Island, Co. Galway. The solid line equals definite wall faces, whereas dotted lines indicate conjectural ones *(Map reprinted with kind permission of Grellen Rouke)*.

Perhaps too the island may have enjoyed middle to late Bronze Age inhabitants. Pollen evidence suggests crop agriculture at some period after 1000 BC. There is a good reason to believe that men and women of the Iron Age may have lived on High Island. Materials used in the church flooring indicates dates of between 300 BC and 20 AD.

If it was St. Féchín who founded the 7th century monastic settlement, he was a busy man. He founded his first monastery at Fore in Westmeath, where there was eventually a community of 300 monks. At Fore, St. Féchín drew water from the marsh by cutting a tunnel through the rock to establish a watermill. There was a watermill on High Island close to the ruins of the monastic settlement, but the evidence suggests that the mill was a 10th century development.

St. Féchín founded and built other monasteries at Imaid Island, and on Omey Island close to High Island. He founded a monastery at Ballysadare and established several churches in the area of his birthplace near Bella in the townland of Coolooney, Co. Sligo.

Dr. Hammer in his 'Chronicle of Ireland' observed:

"Ireland remembreth the Feast of St. Féchín, that he was the King's bloud, and Abbot who cured many of the flixe or floxe and dyed thereof himself".

St. Féchín died of the yellow plague in the year after the Council Whitby on the 20th February 665. When next you pass through Termonfeckin, spare a thought for this energetic saint whose brother, a man of equal energy, was King Conn of the Hundred Battles.

Landing on High Island sent a tingle from the soles of my shoes to the top of my head. We were stepping into the history of old Ireland. Your mind will race to try and get some sense of the life which the tiny community of Bronze Age and Stone Age people endured or perhaps enjoyed in this remote place. You will feel but not see the presence of the small community of monks moving silently through the long grass. The bell will ring to call the brothers to prayer but you will not hear it.

The landings are steep and the grass is long. On the 18th June 2010, we saw no rabbits. High Island is a special place and before you reach the medieval monastic enclosure, you will pass two places of accommodation / storage. Walking south, the large black shed on the right is Duchas property. So too is the stone / timber building on the left-hand side but it was the

Images courtesy of John Gore-Grimes

Part of the monastic enclosure.

2011 Beaches Awards for County Cork

Blue Flag Award

An Taisce-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. It ensures the following beach quality criteria are maintained:

- excellence in water quality and a committed monitoring programme.
- provision of adequate safety and services, safety equipment and warning signals of potential hazards.
- beach management programme, good infrastructure, accessibility and litter control
- 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 fourth 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 Annabel McLoone, An Taisce amcloone@eeu.antaisce.org and www.beachawards.ie

An Taisce recently announced **11** Blue Flag awards and **12** Green Coast awards for County Cork bathing areas at an awards ceremony held in Wexford June 9th where presentations were made by the minister of the Environment Mr Phil Hogan.

	BLUE FLAGS	GREEN COAST
Youghal	Youghal Front Strand (Main Beach)	
	Youghal Claycastle	Youghal Claycastle
	Redbarn	Ring Strand/Greenlands
Shanagarry	Garryvoe	Garryvoe
		Ardnahinch
Midleton		Inch
Carrigaline		Rocky Bay
Old Head of Kinsale	Garretstown	Oysterhaven
	Garrylucas	
Clonakilty	Inchydoney	Redstrand
Roscarberry	Owenahincha	
	Warren	
Skibbereen	Tragumna	
Schull		Ballyrisode
		Galleycove
Mizen Head	Barleycove	
Beara		Garinish
Sheeps Head Penninsula		Dooneen Pier

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 Taisce are running a Clean Coast Photographic 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.CORKCOCO.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 be 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 contact Annabel McLoone An Taisce at amcloone@eeu.antaisce.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 affect 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.

property of the poet Richard Murphy, who owned the Island from the early 1960's until 1998. Murphy's poem 'High Island' describes this tranquil place beautifully. There are seven verses and the first four are quoted below:

A shoulder of rock
Sticks high up out of the sea,
A fisherman's mark
For lobster and blue-shark.

Fissile – and stark
The crust is flaking off,
Seal-rock, gull-rock
Cove and cliff.

Dark mounds of mica schist,
A lake, mill and chapel,
Roofless, one gable smashed,
Lie ringed with rubble.

An older calm,
The kiss of rock and grass,
Pink thrift and white sea-campion,
Flowers in the dead place.

Images courtesy of John Gore-Grimes

The graveyard has beautifully engraved headstones.

The monastic enclosure at the southern end of the island.

The monastic enclosure at the southern end of the island is located on a fairly strategic site in a small valley with a lake close by and a small pond some short distance south of the mill pond lake. The shelter from winter storms and its proximity to the mill pond provided the best convenience. The east wall of the cashel, or what remains of it, is set into the bottom of a steep hill which reaches up to the Ardoilean peak at 62.3 metres. This location offered no defensive opportunity to the community beneath the fast rising ground but that too may have been deliberate. There is a carefully restored grave-yard with beautifully carved headstones set in to the ground to the east of the church wall. There are just two cells within the enclosure but there are three fairly spacious chambers which are set into the outer wall or cashel. On the south side of the west entrance, located on the shore of the mill pond, is a large chamber which, it is suggested, may have been a guest house. The community on High Island would have received penitent visitors, none more renowned than Brian Boru who came to visit Abbot Gormgil there.

It is hard to say how many monks lived within the small cashel which enclosed the monastery at High Island but the suggestion is that it may have been ten or perhaps a dozen monks. St. Gormgil was the High Island Abbot in the latter part of the 10th century. No clear date of his lifespan is to be found. He was thought to have been the most saintly man of his time and he was renowned as an Anmchara or soul friend. Other holy names associated with High Island and more or less with the time of St. Gormgil included Maelsuthunius, Celechaius, Dubthacus, Dunadach, Cellachus, Tressachus, Ultun, Mgelmartinus, Cormachus and Conmachus. These monks thought nothing of travelling alone without road or signpost to distant places such as Fore in Westmeath and perhaps to Durrow to pray at the Altar of Finian the Recluse. The cashel on High Island encloses a church with a leacht (altar) below its east facing window. The church itself is further enclosed with a robust enclosure wall.

Apart from Richard Murphy and Duchas, it is reputed that the Island was, for a time, owned by Brian Boru. Much is written of Boru which has been manipulated by fictional interpretation of his adventures published to suit one cause or another, including the spectacularly well published account of this noble King saying mass in his tent on the high ground above Clontarf on the 23rd April 1014 when he was killed by a few Norsemen who were fleeing the battle and happened to stumble upon him. Boru was certainly killed, but as a layman it is at least doubtful that he was 'saying' mass.

Looking around High Island on a fine day all the usual suspects were bickering away on the rocky outcrops and cliff ledges. A few were seen at the edges of grass. The absence of rabbits allows the grass to grow high and it is just possible that those shy anchorites of the bird world, the corncrake, might rest or even breed there. With high grass and no murderous haymaking machines these birds might just find the solitude which they seek. Perhaps the elusive Morning Dove has paid a visit to High Island. They have been sighted on Inishbofin (the island of the white cow) but they are extremely rare. If it has not already been undertaken, a survey of the birds on High Island might produce some interesting results. High Island is and thoroughly deserves to be a Special Protection Area (SPA). If you go there please tread carefully. There is much to be seen and much to be learned, and if you cannot go there and still have an interest in it, you can purchase a copy of "High Island" – An Island Monastery in the Atlantic, by Jenny White Marshall and Grellan D. Rourke, published by Town House and Country House, Dublin. It is a beautiful publication which will make it difficult for you not to visit Ardoilean after you have read its pages.

John Gore-Grimes, Cavendish House, Smithfield, Dublin 7.

The east facing window of the church (above); the leacht (altar) below the window.

City of Ships

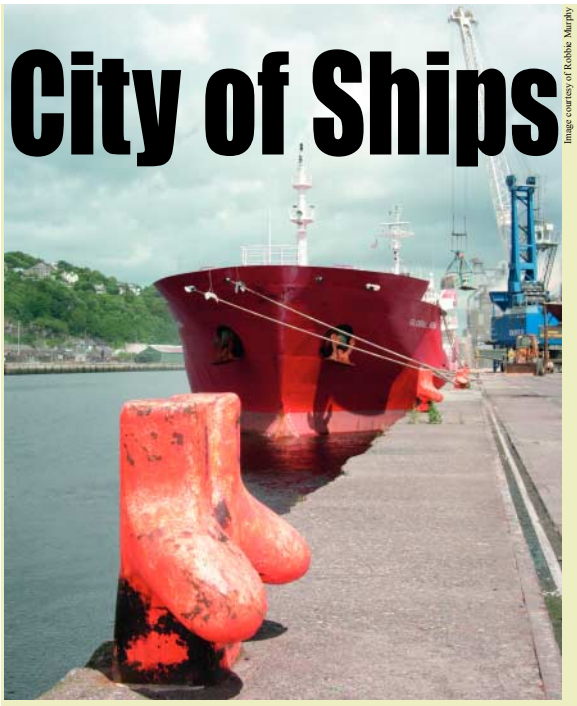


Image courtesy of Robbie Murphy

Tied up at Cork Docks.

By Daphne Pochin Mould

THE world's harbours are numberless, ranging from the very large to the very small, from places where fleets of ships for war or peace could moor at their ease, to the very small and difficult to access yet useful ports of call. Cork's Harbour is one of the world's finest – very spacious and very beautiful. St. Finbarr may have begun urban settlement on high, dry land above the river and marsh where the round tower once stood and now the great cathedral. However Cork, the Marsh, grew out of dry islets where the swans nested, and little ships could navigate the many streams into which the river Lee split as it met the sea.

The Harbour is vast, enclosing many lesser anchorages and islands, including Great Island (Cobh) and Spike, with its star-shaped fort that guarded the entry up river to the City.

Here came the people of Celtic Ireland in small wooden boats and later the far-ranging Vikings in Norse ships, triumphs of the ship builders' craft – long and fast for warfare. Fatter and rounder, their knorr ships carried cargoes, families and farm animals to settle new lands.

Ships and more ships came. Merchantmen and men of work, adventurers and explorers, people who could help map, and coal boats for Cork's ever-hungry fires. Later the first steam boats and paddle ships crossed harbour and crossed Channel, to Britain, with little "Sirius of Cork" making the first steam trip all the way across to New York.

Steam eventually replaced sail power. People questioned the coming of iron ships – was it possible a metal vessel would float? "I threw mither's poker in the loch and it sank". So many hopes and fears – bigger ships, better armed, better provisioned. The English Navy, which had been based at Kinsale, moved to Cork and Haulbowline Island (now the headquarters of the Irish Navy and in which women now serve with the men!). Also came oil tankers, container ships, cruise liners and flotillas of yachts and yachts men and women. Cork claims the Royal Cork Yacht Club, funded in the 18th century, as the world's oldest. Its old clubhouse at Cobh is now the Sirius Centre; the club's present base is at Crosshaven. The people who owned the big houses, with their great gardens and estates, discovered the joy of "messing about in boats" and built yachts to sail and to race.

Cork's first newspaper was the Hibernian Chronicle, which dates from 1769. It recorded most things that happened in Cork, and all the ships coming into the Harbour – ships' names, where from, where to, masters' name, cargo. So from that date you can consult the library archives (or micro film). Did your family have a boat trading into or out of Cork or a son in the Royal Navy like the young captain of the 'Kangaroo' Sloop of War, who while cruising off the Cork coast, spotted the French "Armada" heading for Ireland and Bantry Bay and got the news through to the Admiralty?

An article in the Hibernian Chronicle of 1801, writes:

"*The circumnavigation of the globe had been heretofore supposed to be an attempt of the most daring and astonishing nature, and therefore the voyages of the Spanish navigators and also of Sir F. Drake were read with avidity, yet such was the ignorance of the true figure of the earth, the numbers, even of those termed the learned of for centuries, imagined the accounts of such voyages, not well comprehending how those who set off in an easterly or westerly direction, should return a trace or course diametrically opposite*"

Sailing ships had long learned about the world's prevailing winds that swirl round our planet and used some of them, such as the "Trade Winds", to carry their goods to market in far distant lands and bring back rum and coffee, sugar and tea. The writer of the Hibernian notes how the transport taking convicts to Australia regularly sailed round the world, going with the winds.

"The transport vessels which convey the convicts sail from Cork or ports in southern England, sail south and if they do not arrive at some of the African islands, do not touch at any port till they reach the Brazils, though sometimes they may be obliged to steer a south and easterly course and enter the Cape of Good Hope. They afterwards proceed easterly till they pass all the oriental islands leaving them to the northward of their course, and afterwards reach the western shores of the New South Wales, arriving between the latitude of 40 and 50 south of the Equator, double the Cape of that southern continent, and sailing north by east, arrive at Fort Jackson, where after landing the convicts and stores, proceed homewards across the Pacific Ocean, the Streights of Magellan, and the Atlantic, making the whole about 32,800 miles.

All this was done with none of today's equipment. There were maps but without the detail of today. A knotted, weighted line called the Log gave you your speed in knots (a knot is one nautical mile an hour) and another weighted line, marked in fathoms (6ft), gave the depth of water under you. They used a sextant to determine latitude. But you were on your own in vast and often unfriendly sea, with no possible communication with the land. Had the 'Titanic' not had the newly installed wireless, we would never have known what happened her. Yet most ships made it safely by sail power alone and the skill of the sailors.

Sadly, warfare of one sort or another, fuelled by local or international political, has been the background to most of Cork's, and Ireland's, history. In the 18th century the continental papers kept folk informed and the Chronicle read and summarised them. France, Britain, Spain, the American war of Independence – we can relive them, not only from official reports but from people's letters. What was it like to face cannon fire on a sailing ship?

The Chronicle printed an abstract of a letter from Simeon Busigny, Lieutenant of Marines, on board the "Flora" at Falmouth, on August 16, to his parents in Liverpool.

"*I am just arrived here in La Nymphe, French frigate of 38 guns, twelve pounders which we took on Thursday the 10th inst. off Ushant after an engagement of an hour and 10 minutes.*

Being ordered to join the grand fleet, we sailed from Spithead the 7th inst.; nothing material happened till Thursday the 13th, when we perceived a French frigate and a cutter ahead, bearing down on us; we immediately turned all hands to quarters and hoisted English colours., Ushant bearing S.S.E. seven leagues, at 5pm we came within gunshot, and received her broadside, reserving our fire till, we came yard arm to yard arm when every shot counted and a most desperate engagement ensued, which for the time it lasted, was the hottest ever known.

I had 12 marines with me on the forest-castle which was my station and proved the hottest in the ship, as the enemy attempted to board us there twice, the flikes of our anchors were fast in their fore-chain; the first attempt to board us, the French first Lieutenant jumped on our gunnel and made a push at me with his small sword, which pushed through my coast, waistcoat and shirt, without hurting me. I disengaged myself from him, and gave him a cut on the head with my hanger, which laid him sprawling on the gangway gored in blood, with half on my hanger sticking in his skull. The Frenchmen fought bravely until their Captain Chevalier de Romain fell. When they ran from their quarters immediately we boarded them and cut their ensign from the staff they then all went down on their knees and begged for quarters which was granted. The carnage in so short a time was amazing, they had 30 men dead on their deck and 70 wounded; we had only 5 men killed and 15 wounded. Our great guns shattered their hull most terribly; most of their men were killed by the marines with small arms. I had three men killed by my side and seven wounded, myself and another remaining unhurt out of twelve. I had indeed a most miraculous escape. My right eye is a little hurt by the wind of a 12 pounders, which wizzed past my face, and took my Sarjent's arm off by the shoulder. After the first broads I was as cool as if I had been eating my dinner, although the first shot wizzed past me as thick as hail; it would have shocked anyone to see me after the action was over, being all over besmeared with the blood and brains of my brave men who feel by my side.

The cutter never fired a shot, but lay off and on and when she saw her consort's flag struck, bore away for Brest, I suppose to tell their country men the news". The British ship had a lot of damage which had to be repaired on the spot but sailors of wooden sailing ships were expert in repairs at sea. Young Simeon was put in charge of the prize, with 14 marines and 120 prisoners to guard. "*She is the largest frigate yet taken; she is 138 feet keel and 35 feet breath of beam; and been only four days out of Brest, was bound on a cruize, so was well stocked with provisions and stores, has 500 pipes of wine on board, a dozen live sheep, four bullocks, two calves and two dozen of fowls.*"

(It was normal to ship livestock to kill during the voyage and provide some fresh meat, to augment the everlasting ships biscuits, salt meat, dried peas etc..).

Such was 18th century warfare, bloody bloody violent, but not the main killer in warfare. Until our own time, that has always been disease. These 18th century vessels were ravaged by fevers of one sort or another, as were settlements in new lands. Yellow fever reduced whole ships' crews to a few sick and shaken men. Malaria was becoming confined to hot countries though in earlier times Britain had it, "ague" they called it.

The dash and initiative attributed in the old romantic stories to Knights Errant appeared again in the 18th century in the ranks of the Privateers and what person of spirit would not wish to join them. Two daughters of a nobleman are reported to have owned a ship. A privateer was no private but a person who owned and sailed a small fighting ship. The owner must provide all the ship's needs, guns, ammunition, sails, supplies of all sorts food and what the old writers called the ship's "furniture". Then you must find a crew willing to be led by you. Fellows who knew how to work the ship, fore her guns and to fight. All hoped to make money. In the British Navy, prize money was awarded according to rank. An Admiral seeing the action from far off, could get the biggest share, the seamen who fought and died in the actual conflict the least. But a privateer was on his or her open and could divide the loot far more rationally.

To become a privateer you had to be officially licensed by your government, given "letters of marque (mark)" which allowed you to attack enemy ships but none other. The Americans even gave the skippers a printed list of the rules at the first briefing. They were to behave as gentlemen and not as pirates. The seas were full of them and the newspapers of reports of their capture, and recaptures.

These days it is hard to visualise a sea almost never empty of ships and a constant stream of vessels entering or leaving Cork Harbour. Convoys could be up to 100 ships, with at wartime a Naval vessel to provide an armed escort. All of which was done by sail power alone. Since the coming of engines, we wonder how it was done but it was and done very well.

The ships brought Cork cargoes of everything: Jamaican rum, choice French wines, London Porter, though Cork had its own breweries and distilleries. From farms and mountain pastures came a stream of butter on the Butter Roads to the Butter Market, where it was graded and packed for export worldwide. Cork had many things produced locally but imports were even more diverse. New foreign seeds and plants, luxury fabrics, thousands of quills to make pens (everything hand written until set in type) and feathers for the ladies hats. Those convoys sailed the Atlantic to the New World, or rounded the Cape of Good Hope to get tea from China and Indian goods.

We can only image the talk of skippers of those ships in the taverns and coffee houses of Cork, where men who had sailed the China seas gossiped with others who had spent the summer fishing cod on the Newfoundland Banks and drying them for export. And the local fishermen who had just come in with a good catch of herring caught locally.

Today, of course, Cork imports enormous amounts of all sorts of goods and sends out loads of other items. But we are hardly aware of all this enormous business for it is now all container vessels with a quick turnaround. Oil flows silently from tankers and they are off for more. Cork and Ireland still depend on sea born trade.

Groundwater Quality in Ireland 2007-2009

Progress – but more to do

By Matthew Craig

Background

The implementation of the Water Framework Directive in 2000 required a common approach to the assessment of water quality across Europe, firstly by identifying the pressures (and impacts) on water quality and then through an overall evaluation of the state or condition of our waters. The first assessment cycle has just finished and the results form the basis of much of the EPA's Water Quality in Ireland 2007-09 report.

Often the focus is on the water we can see at the surface and groundwater is forgotten, however groundwater often drives the quality of water at the surface as groundwater discharges (e.g. figure 1) to rivers, lakes and estuaries. As such, poor quality water in surface water may be the result of pollution in groundwater. However, direct discharges, e.g. from wastewater treatment works, may also be the cause of water quality problems in surface water.

Groundwater Overview

Overall, 85% of groundwater bodies were of good status in accordance with the Water Framework Directive (WFD) assessment process (Figure 2). Problems are evident in the west of Ireland in areas with shallow soils and subsoils. Although the pressures from industry, humans and agriculture are relatively low, the absence of subsoils enables pollutants to enter groundwater relatively easily. Water can readily travel through the fractured limestone aquifers and ultimately the pollutants discharge in the streams, rivers and lakes, significantly contributing to nutrient enrichment problems in these water courses. A small number of groundwater bodies were at poor status due to statistically significant upward nitrate trends at water supply wells and because of the legacy of historic pollution from mining activities and industry.

Nitrates & Phosphates

Generally pollution of groundwater has decreased somewhat in recent times, with an overall reduction in nitrate e.g. Figure 3, and phosphate concentrations. Above average rainfall has played a key role, and it is likely that implementation of the Good Agricultural Practices Regulations, in particular, the increase in farm storage for manure and slurry, and the reduced usage of inorganic fertilizers have been beneficial. The dilution from rainfall is more prominent in the productive aquifers with monitoring data indicating that the greatest reductions in nitrate concentrations have occurred in the karst limestones aquifers in the south-east. However, nationally, the nitrate concentrations remain highest in the south-east and south of the country.

Images courtesy of EPA

Figure 1: Groundwater issuing from a spring in Co. Galway

Ammonium & Microbial Pathogens

At the majority of monitoring locations, the mean ammonium concentrations were below the Drinking Water limit. Increases in ammonium were probably as a result of above average rainfall and pollutants not being attenuated by the soils and subsoils i.e. areas with extreme vulnerability. Positive faecal coliform counts were detected in 35% of water samples taken. Microbiological problems were observed in the areas where groundwater is more vulnerable to pollution (particularly at spring monitoring locations) because they have little natural protection from organic inputs. If abstraction wells are properly designed and installed, and are located in areas where the groundwater vulnerability is lower, the impacts of organic inputs should be minimal.

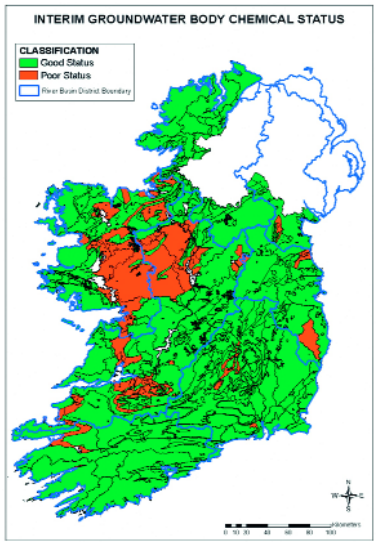


Figure 2: Chemical Status of groundwater bodies

The Way Forward

In Ireland we perceive our waters to be clean and wholesome; resulting in good quality drinking water and good quality water in our groundwater, rivers, lakes and coastal waters. Generally this perception is reality, with many of our rivers and lakes, particularly in upland areas, being of pristine quality. The main reason we see pristine water is lack of pressure from people, agriculture or industry and good practice when locating and installing potentially polluting activities. The reality is that Ireland does not suffer from an industrial legacy and the same level of agricultural intensification as many of our European counterparts and consequently we do not have the same overall degree of water quality problems seen elsewhere. Generally, as we move along water courses from upland areas to lowland areas and estuaries the influence and impact of pollution becomes greater and waters are generally no longer pristine, although they may still be of high or good quality.

The principal and most widespread cause of water pollution in Ireland is nutrient enrichment resulting in the eutrophication of rivers, lakes and tidal waters from agricultural run-off and discharges of wastewater. Further improvements in groundwater quality are required for both environmental and public health reasons. Key measures should include the optimal application by farmers of organic and inorganic fertilizers at times and in a manner that minimises leaching, and householders ensuring that their on-site wastewater treatment systems, such as septic tanks, are located, constructed and maintained properly.

While there is evidence of an overall improvement in water quality in Ireland, further actions are essential if we are to achieve our water quality targets for 2015 and 2021 as required by the Water Framework Directive. The EPA will work with the network of local authorities and other agencies in tackling the water quality challenges ahead.

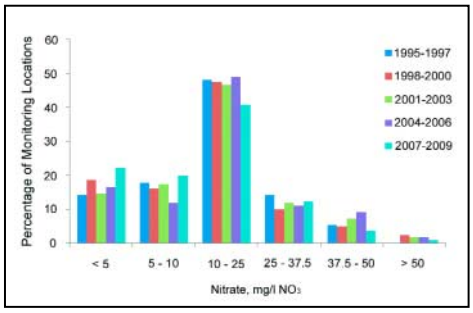
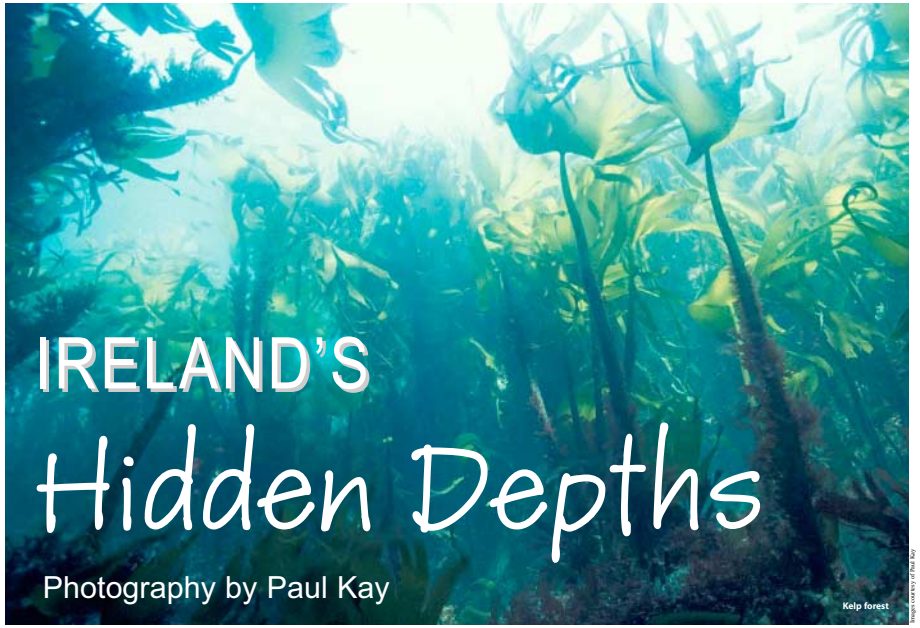


Figure 3: Nitrate concentrations in groundwater

Matthew Craig, Environmental Protection Agency, Dublin. www.epa.ie



Kelp forest

Images courtesy of Paul Kay

Fireworks Anemone

Cushion Star

Rough Periwinkles

Jewel Anemone

By Paul Kay

IRELAND has an immensely diverse marine environment, with massive variations in both the shallow coastal seabeds and their inhabitants. The undersea off the coast changes just as much as the coast itself. For most people it remains a largely unknown world, perhaps fleetingly glimpsed in television programmes, sometimes mentioned on the radio or occasionally shown in magazines. It is only seen directly by the fortunate few who are able to scuba dive and visit it for themselves.

Sherkin Island Marine Station's decision to produce a second book on Ireland's marine environment means that it is now possible to show off the richness with the benefit of new technologies. It is nearly 20 years since Matt Murphy first published "Ireland's Marine Life, a World of Beauty" which showed off Ireland's rich and spectacular undersea world and its inhabitants. In the intervening years technology has progressed and has profoundly altered underwater photography with digital imaging having rapidly taken over from film.

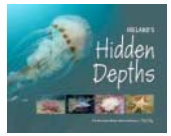
It would be marvellous if our understanding of, and care for, the marine environment had also progressed at such a rate. Unfortunately, accessing the undersea world around Ireland still remains the difficult and often physically challenging affair that it has been since scuba diving became viable. There have been changes though, and now there are several marine aquaria around Ireland's coast where some of the sea's inhabitants can be seen alive and in conditions similar to those in which they would normally live. Yet photographic images, either moving or still, remain the way that most people are able to see the marine environment, even now in the twenty-first century.

I realised a long time ago that I really was extremely privileged to be able to explore the undersea world directly for myself. When I first visited Sherkin Island, in Co. Cork, as a volunteer I had no idea that it would be a life changing experience and that my life's course would be irrevocably altered. Back in the early eighties underwater photography was difficult and frustrating and producing a satisfying image was something of a triumph. Now something of these images are a historic record in underwater photography terms.

The images in this book span some 30 years of underwater photography and are all from around the Irish coast. Having recently revisited some of the sites that I first dived back in the early eighties, I am also very aware that the photographs are actually very valuable as a comparison to how the same places look today. In many cases there are slight differences as encrusting creatures have grown or disappeared or have been replaced. On the whole though the differences are trivial and similar species can still be found.

Today the need for long term information about the seas and their inhabitants has never been greater so any underwater images from decades ago can now be of scientific use. As I originally trained as a scientific photographer this means that I have almost returned to my roots although not in a way that I might ever have anticipated.

Hermit Crab with Sponged Covered Shell.



Ireland's Hidden Depths is available from all good bookshops and can also be bought directly from Sherkin Island Marine Station www.sherkinmarine.ie.
Retail: €17.99 (plus €2.00 p + p)
ISBN: 978-1-870492-53-9 • 160 pp • Softback (with french folds) • 277 x 227 mm • 200 colour photographs
Orders can be be made online using Paypal.

A gully off Sherkin Island

Images courtesy of Paul Kay

Edible Crab amongst Common Starfish

A World-Class Facility in Ireland

By Michael Guiry

ALGAEBASE is a world-class taxonomic database with extensive nomenclatural, distributional, and bibliographic information on marine, freshwater and terrestrial algae that is based in Ireland. The existing data are freely available on the internet and are extensively used daily in over 210 countries, particularly amongst researchers with poor access to taxonomic resources.

Algae are a revolting mix. They include a whole range of phylogenetically unrelated photosynthetic (light-harvesting) organisms that basically don't fit anywhere else and are rammed uncomfortably into the general category of "plants" and photosynthetic "animals". They are mostly aquatic, requiring water for reproduction, and are usually considered "primitive". You can't say that algae are "plants" if you are a botanist—although it's only a venial sin—but it is fine for the rest of the relatively sane population!

Freshwater and terrestrial algae (what my children used to call "green slime") and seaweed (more green red and brown slimy stuff by the seaside) are the main components, but benthic (attached) and pelagic (free-floating) forms are included, as are prokaryotic (lacking a nucleus, i.e. the bacteria) and eukaryotic (possessing a nucleus, i.e. everything else!) organisms. (Scientists do love funny words and brackets, don't they?)

Phycodrys rubens

Asperococcus compressus

Courtesy of Shetlan Island Marine Station

Even an ancient Roman would be proud of AlgaeBase as it includes about 58 classes arranged in three empires, four kingdoms, and 15 phyla, although the classification at the class level changes almost daily, and is enough to make you well dizzy, as they say. As we taxonomists have been beavering away in our ivory towers in universities and museums since Linnaeus's time, there are about 127,000 names of algae swilling about, of which only about 30,000 have been verified as valid species, although that is more than enough for one small head. This compares with about 400,000 flowering plant species, and over 1.5 million animal species (mostly insects, and most of these are beetles!), of which only about 9,000 are mammals. Estimates of the number of species that live with us varies between 10 and 100 million. About 10% of seaweeds probably remain undiscovered, mostly in warm and very cold waters, but it is likely that more than 50% of all microalgae have not yet been described. For many years we used nets that had a mesh size that was too large, through which many the pelagic algae gaily sailed. There is now good evidence that these tiny algae (nanoplankton and picoplankton) are keeping spaceship Earth's atmosphere healthy despite the depredations of one particularly populous, and aggressive mammal of the genus Homo.

Over 45,000 bibliographic references (books and scientific papers: haven't we been busy?) are included with about 3,000 downloadable PDFs for your bed-time reading on your iPad, mostly of obscure and difficult to find, out-of-copyright 18th- and 19th-century literature, often excruciatingly rare and beautiful, with hand-painted colour plates. In excess of 168,000 distributional records from 250 countries and states (of larger countries) are included world-wide, mostly from national check-lists and taxonomic monographs, and we are delighted to allow downloading of our "instant" national checklists for everybody. Only published information is currently utilized. Some 10,500 images (mostly of seaweeds with some terrestrial and freshwater algae) are available free of charge for educational and/or non-profit use.

In the year 2010, there were 410,000 individual visitors to the algaebase from 208 countries with 2,567,000 page views, which is equivalent to 25 million so-called "hits" or two million "hits" per month, an increase overall of 30% on the previous year. The top ten countries using AlgaeBase are in order: USA, Spain, Brazil, UK, Germany, France, Canada, Mexico, Italy and Portugal. Not surprisingly, the USA accounts for 18% of all usage. The lowest usage is from the Caribbean and Pacific Islands and from African and South American countries with poor internet connectivity.

AlgaeBase was initially a personal attempt in 1996 on my part to put information on seaweeds on the internet using a personal site, and initially required no funding. Like Topsy, it grew and grew, and from 2000 various national sources in Ireland provided funding (mainly Structural Funds and ERDF, and most particularly the Department of Education and Science and Higher Education Authority's Programme for Research in Third-Level Institutions) and from the European Community (INCO-DEV, FP6 and FP7. Such riches we may never see again.

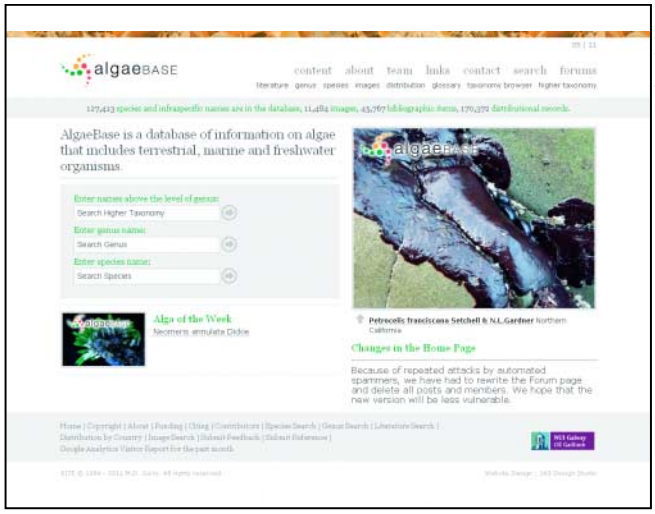


Image courtesy of www.algaebase.org

AlgaeBase is available at http://www.algaebase.org

We estimate that, to date, AlgaeBase has cost about €850,000 in data-entry, €180,000 in programming, and €65,000 in capital equipment, a total investment of over 1 million Euro, and this does not include the host's overheads (NUI Galway). It would be a shame to lose such a resource for a lack of continuance funding.

Currently, AlgaeBase, the only Global Species Database that I know of in Ireland, is suffering from the downturn. We are in the process of developing a plan to allow us to seek funding from sponsors, and while we may not be as popular as Munster Rugby, we do hope to raise some sponsorship in Ireland to keep our world-class service free, particularly to those less fortunate than ourselves.

Prof. Michael Guiry, Ryan Institute, NUI Galway, Galway, Ireland.

REDFISHES & ROCKFISHES

(Family: Scorpaenidae; Sub-Family: Sebastinae)

in Irish & European Atlantic Waters

By Declan T. Quigley

REDFISHES or Rockfishes belong to a large sub-family (*Sebastinae*) of fishes represented by 7 genera and about 133 species worldwide. The vast majority of species are confined to the North Pacific.

In European Atlantic waters, the *Sebastinae* are represented by 3 genera and 5 species (Table 1). An additional species, the Arcadian Rockfish (*Sebastes fasciatus*), which is common in inshore waters (70-592m) in the NW Atlantic (Canada & USA) has occasionally been captured in western Icelandic waters. In addition, two Pacific species have been recorded as rare vagrants/introductions in UK (1935) and Dutch (2009) waters: False Kelpfish (*Sebastiscus marmoratus*) and Korean Rockfish (*S. schlegelii*) respectively. The *Sebastinae* are characterised by internal fertilization and give birth to live young (viviparous) which have an extended pelagic phase. Many species have venomous spines and a few Pacific species are known to produce sound (soniferous).

Many species are commercially important but are vulnerable to over-exploitation due to their slow growth rate, late maturity and longevity. Many species are similar in appearance and are difficult to distinguish, and this has led to major problems with the management of individual stocks, compounded by introgressive hybridization between some species (e.g. *S. mentella* & *S. fasciatus* in Canadian waters). Indeed, most species are simply marketed as *"Redfish"* or *"Ocean Perch"* (*Sebastes* spp.). From a peak of 676,816 tonnes (62.0% taken by former USSR states) during 1976, global landings of *Sebastes* spp. collapsed by 91.0% to 60,351 tonnes in 2009 (Figure 1). Although a total of 29 countries targeted the species group during 2009, the top 6 countries accounted for 90.5% of total landings: Iceland, 24.9%; Canada, 20.1%; Portugal, 17.3%; Faroe Islands, 10.8%; Lithuania, 9.2%; and Spain, 8.2%. The combined quota for the North Atlantic during 2011 is 46,403 tonnes (the EU has 37.5% of the total quota but Ireland has none).

Blue-mouth Rockfish
(Helicolenus dactylopterus dactylopterus)

The Blue-mouth is a widespread bathy-demersal species, inhabiting continental shelves and upper slopes (50-1100m). In the Western Atlantic it extends from Nova Scotia (Canada) southwards to Venezuela. In the Eastern Atlantic it extends southwards from Iceland and Norway to the Mediterranean and South Africa. Unusually large numbers of juvenile Blue-mouth invaded the North Sea following an exceptional inflow of Atlantic water during 1991 but numbers have declined since 1997.

The Blue-mouth is relatively common off the west coast of Ireland where they are sometimes taken as a by-catch by commercial fishing vessels. The species is vulnerable to over-exploitation because of their slow growth rate (max. 47.0cm T.L.), late maturation (50% of males mature @ 26.0cm & age 15; 50% of females @ 23.0cm & age 13) and longevity (max. 43 years).

Courtesy Declan Macfarlane

Although the species has been subject to increasing commercial exploitation in European waters since the mid-1980s, it is worrying that there is still no specific quota (Figure 2). During 2009, global catches amounted to about 5.993 tonnes, 46% of which was taken by European countries (Spain accounted for c.35% while Ireland only accounted for 10 tonnes). Due to their relatively small size, it is estimated that only a small proportion of the catch is actually landed. Indeed, during the height of its exploitation in 1995 (8,848 tonnes landed) it was estimated that 413 tonnes, representing 7.5 million individuals, were discarded.

Since 2002, a growing number of pioneering anglers have been targeting Blue-mouth near offshore seamounts and reefs off the SW coast of Ireland. The largest specimen taken on rod & line in Irish waters, weighing 1.32kg, was captured off Co Kerry during July 2008 (the current Irish Specimen Fish Committee minimum specimen qualifying weight is 0.9kg). The UK record, weighing 1.431kg, was captured off Loch Shell, Stornoway (Outer Hebrides, Scotland) during 1976. The IFGA World Record, weighing 2.35kg, was captured off Norfolk Canyon, Virginia, USA during February 2009. Blue-mouth are daytime predators (9am to 3pm), feeding voraciously on a wide variety of benthic organisms for a short period and then remaining inactive. Specimen-size Blue-mouth were recently found to be feeding heavily on Dragonets (*Callionymus* spp.) off the SW coast of Ireland.

Golden Redfish
(Sebastes norvegicus) [= S. marinus]

The Golden Redfish is a benthopelagic (100-1000m) species which is found on both sides of the North Atlantic. In the Eastern Atlantic it extends northwards from SW Ireland

Courtesy Declan Quigley

(rarely) via the Kattegat to Spitsbergen, eastwards to Novaya Zemlya, and westwards to Iceland. In the Western Atlantic, it extends northwards from New Jersey (rarely) via SE Labrador (Canada) to Greenland. The species is long-lived (max. 60 years), can grow to a very large size (100.0cm TL & 15kg) and is commercially important in northern latitudes.

Golden Redfish have rarely been recorded in Irish waters. Indeed, its occurrence was only authenticated for the first time during 1968 and since then, only 7 juvenile specimens (10.0-18.5cm TL) have been reliably identified, all from depths <200m in the Dingle Bay area. It is possible that these juveniles were derived from the dispersal of planktonic larvae from more northern latitudes. A single specimen was reported from the Isle of Man (Irish Sea) during 1927.

Deepwater Redfish
(Sebastes mentella)

The Deepwater Redfish is a bathypelagic (300-1441m) species which is found on both sides of the North Atlantic. In the Eastern Atlantic the species ranges from SW Ireland

Courtesy Declan Quigley

northwards to the Arctic Ocean (Barents Sea, Spitsbergen & Iceland) and in the Western Atlantic from Baffin Bay southwards via Greenland to Nova Scotia (Canada). The species is long-lived (max. 75 years), can grow to a relatively large size (58.0cm TL) and is commercially important in northern latitudes. Quantities have occasionally been landed by vessels fishing in deep-water off the west coast of Ireland.

Small Redfish (Norway Haddock)
(Sebastes viviparus)

The Small Redfish (or Norway Haddock), as the name would suggest, is one of the smallest species of redfish (max. 35.0cm TL & 1.0kg) but it is also slow-growing and relatively long-lived (max. 40 years). The species is confined to the NE Atlantic, ranging from the southern North Sea (rarely) to northern Norway (Finnmark), Iceland and eastern Greenland. It is a demersal species, usually found in relatively shallow inshore waters (10-150m; max. 760m). The species is of limited, albeit growing economic importance in northern latitudes.

Courtesy Jonathan Reddy

There is only one recently authenticated record from Irish waters: a specimen weighing 340g was captured by an angler at the mouth of Larne Lough, Co Antrim in 1997. The UK rod & line record, weighing 836g, was captured off Southend-on-Sea (Essex) during 1975.

Spiny Scorpionfish
(Trachyscorpia cristulata echinata)

The Spiny Scorpionfish (subspecies *T. c. cristulata*) is a bathy-demersal (200-2500m) species, confined to the Eastern Atlantic, but ranges widely from the Rockall Bank southwards via the Western Mediterranean to Senegal (NW Africa). Despite its widespread distribution and relatively large size (max. 55.0cm TL), it does not appear to be commercially important and little is known

Courtesy R Ramon Diaz

about its biology. Nevertheless, it was estimated that more than 55,000 specimens were discarded by deep-water trawlers fishing in the Rockall Trough during 1995. A sub-species *T. c. cristulata* is recognised in the Western Atlantic, ranging from Massachusetts southwards to the northern Gulf of Mexico.

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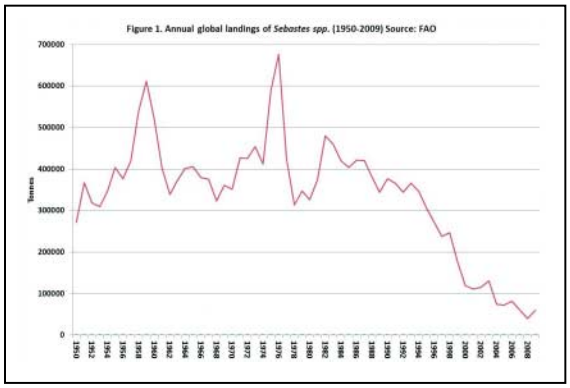

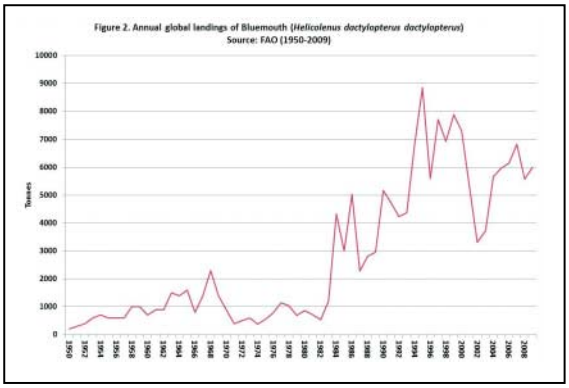

Table 1. Redfishes or Rockfishes (Family: *Scorpaenidae* ; Sub-Family: *Sebastinae*) in Irish & European Atlantic Waters

Tribe	Common Name	Scientific Name	Iceland	UK	Ireland	Holland	France	Spain	Portugal
Sebastinae	Blue-mouth (Blackbelly Rosefish)	*Helicolenus dactylopterus dactylopterus* (Delaroche, 1809)	√	√	√	√	√	√	√
Sebastinae	Golden Redfish	*Sebastes norvegicus* (Ascanius, 1772) [*S. marinus* (Linnaeus, 1758)]	√	√	√				
Sebastinae	Deepwater Redfish	*Sebastes mentella* Travin, 1951	√	√	√				
Sebastinae	Small Redfish (Norway Haddock)	*Sebastes viviparus* Krøyer, 1845	√	√	√				
Sebastinae	Acadian Redfish	*Sebastes fasciatus* Storer, 1854	√						
Sebastolobinae	Spiny Scorpionfish (Atlantic Thornyhead)	*Trachyscorpia cristulata echinata* (Koehler, 1896)		√	√		√	√	√
Sebastinae	Korean Rockfish	**Sebastes schlegelii* Hilgendorf, 1880				√			
Sebastinae	False Kelpfish	**Sebastiscus marmoratus* (Cuvier, 1829)		√					

* vagrants/introductions

BEWARE - Landgrabbers at Work

By Alex Kirby

QUESTION: how do you feed a hungry populace when you can't grow enough on your own territory (and don't want to declare war)? *Answer: you persuade a country poorer than yours to let you use some of its land instead as a huge market garden.* It's not an academic question, either. The UN's Food and Agriculture Organisation says world food prices rose to an all-time high in January, according to its Food Price Index, which measures the cost of a basket of basic food supplies – sugar, cereals, dairy, oils and fats and meat – across the globe. The index rose by 3.4% in the first month of 2011 – the seventh monthly increase in a row – to its highest level since records began in 1990.

Africa is a particular target of the landgrabbers, as they are known (they include both companies and governments). John Vidal wrote in the London *Observer* on 7 March 2010 of his visit to what was due to become Ethiopia's largest greenhouse, an initiative by a Saudi entrepreneur:

"The farm manager shows us millions of tomatoes, peppers and other vegetables being grown in 500m rows in computer controlled conditions… 1,000 women pick and pack 50 tonnes of food a day. Within 24 hours, it has been driven 200 miles to Addis Ababa and flown 1,000 miles to the shops and restaurants of Dubai, Jeddah and elsewhere in the Middle East. Ethiopia is one of the hungriest countries in the world with more than 13 million people needing food aid, but paradoxically the government is offering at least 3m hectares of its most fertile land to rich countries and some of the world's most wealthy individuals to export food for their own populations. The 1,000 hectares of land which contain the… greenhouses are leased for 99 years to a Saudi billionaire businessman… His Saudi Star company plans to spend up to $2bn acquiring and developing 500,000 hectares of land in Ethiopia in the next few years… An Observer *investigation estimates that up to 50m hectares of land – an area more than double the size of the UK – has been acquired in the last few years or is in the process of being negotiated by governments and wealthy investors working with state subsidies."*

It may help to put the Ethiopian scheme into perspective to know that Saudi Arabia made itself self-sufficient in wheat by using water from a fossil aquifer, which is not replenished. It has harvested close to three million tonnes a year, but in 2008 it said the aquifer was largely depleted. So its rulers face some stark choices, and no doubt remember the part that high food prices have played in upheavals in North Africa.

The lure of Africa for countries with shrinking domestic food supplies – and shortages of other goods deemed essential – is the subject of a report by the development agency Oxfam, *Africa: up for grabs*. This concentrates on the acquisition of land for growing crops to make agrofuels, but it also details a variety of other uses. The seeds of the jatropha plant can produce a high-quality biodiesel, and Oxfam says 23 million hectares (56.8 million acres) in Ethiopia have been identified as suitable for cultivating jatropha. The report's other findings include:

- Kenya – foreign companies eye up to 500,000 ha.
- Mozambique – investors plan to acquire 4.8m ha.
- Congo – Chinese company asks for 1m ha.
- Angola – 500,000 ha designated for agrofuels.
- Cameroon – part-foreign owned palm oil plantations expanding on 60-year lease.
- Benin – 300-400,000 ha of wetlands to be converted to oil palm cultivation.
- Ghana - 335,000 ha acquired by foreign companies, with contracts for 400,000 ha more.
- Sierra Leone – Swiss-based company acquires 26,000 ha for sugarcane.

You could say it makes good sense for countries with cash to spare to spend some of it on others with land to spare, to satisfy the needs of both. After all, it is a way of creating jobs and transferring money to people who have little, offering them the chance of development. And when you consider the role played by virtual water (the water contained in many of the crops exported from arid regions to the markets of the North, with their abundant and reliable rains), is it really any worse? It is a persuasive argument. So keen, in fact, are some of the host country governments on the arrangement that 15 African states have combined to set up what is called a Green OPEC. But Oxfam raises two questions: how far do the incomers go in seeking the consent of the local communities whose land they wish to exploit, and what are the consequences of their arrival for the environment? The days of colonialism are supposed to be history.

No doubt there are benefits to be derived when the scheme runs as it should. But there have been protests over landgrabbing in Tanzania, Madagascar and Ghana, and accusations that companies have given farmers misleading information and have ignored the environmental impact of what they are doing. Forests are felled to make way for biofuel crops: in Ethiopia, land inside an elephant sanctuary was cleared.

The most serious charge is that allowing foreign interests to control land can make food supplies for local people still more precarious. Even with jatropha, which is said to grow happily on marginal land, there is a risk that agrofuels in particular, and other foreign farming schemes, can simply increase food insecurity. There have been cases when food crops have been cleared to free land for jatropha, which needs pesticides and consumes scarce water.

Oxfam's recommendations for protecting Africa against the damage that can be caused by landgrabbing include the scrapping of the political targets that increase demand for biofuels, especially the European Union's mandatory target for increasing their use. It also suggests that African states should suspend further land acquisitions and investments in biofuels, giving priority instead to the development of food sovereignty. More widely, it argues for an energy revolution which would see a reduction in the energy used for transport, and investment in public transport and ways of encouraging walking and cycling.

It wants would-be landgrabbers to be required to prepare full environmental and social impact assessments before any sale or lease of land is agreed, with the involvement of local communities. Companies and investors, it says, should accept full legal liability for what they are doing, and they should obtain the free, prior and informed consent of local people. A certain minimum percentage of crops produced should be sold on the local market, and the fundamental human and labour rights of farm workers should be protected.

It all sounds necessary and right. But in a world with a growing population, with more people entering the middle class and able at last to indulge the appetites most of us in the developed world have for decades been able to satisfy, water, soil and the crops they produce will steadily become more potent symbols of wealth and security. Whether for energy or for food, bountiful harvests will give their owners growing control in a precarious world. And what price local communities then?

Alex Kirby is a former BBC News environment correspondent.

Control of Hottentot Fig on Howth Head

By Matthew Jebb & Noeleen Smyth

HOTTENTOT FIG (*Carpobrotus edulis*) is a popular garden plant from South Africa. Unfortunately it is also an aggressive invader of coastal habitats, forming vast mats to the exclusion of all other plants. On the Gower peninsula of Wales and along the Cornish and Devon coasts of Great Britain it has formed extensive colonies smothering many kilometres of coastal cliffs. On the drier eastern coasts of Ireland it poses a serious ecological threat.

The first record for *Carpobrotus edulis* in the wild in Ireland is from Howth Head, Co. Dublin, with an Atlas record for 1962 (Reynolds 2002). A further 11, or so records occur in Ireland in counties Cork, Waterford, Wexford, Wicklow and Down. None of these latter colonies is large, comprising single patches each of which could be removed, this work is planned for the summer and autumn of 2011. The largest colonies known are those on Rockabill and on Howth Head.

The plant has been present at Howth at a site called the Needles site since 1962, and in the intervening 47 years it has grown into patches up to 40 metres across – a steady 1 metre a year without hindrance. In addition numerous smaller patches, as well as its presence on each of the southern headlands (Drumleck Point, Lion's Head and Baily Lighthouse), demonstrated that it was actively spreading and establishing new colonies. Allowed to continue unchecked it would totally carpet the entire south face of Howth in the next 50 years. The greatest lesson to be learnt from tackling invasives species is not to delay, but to act early while populations are manageable. On Howth, where we had the biggest population of this species in Ireland, we were fast approaching a point at which we would pass that opportunity.

Nothing eats Hottentot Fig in Ireland, thus a colony not only displaces native plants, which are a food source for bees, butterflies and moths, but the dense carpets represent a dead zone in regard to insects, and thus the birds that feed on them (the only known beneficiary are rats, that eat the fruits). The consequence is that the cliffs are becoming a lifeless zone for insects, warblers, stonechats and other birds.

The National Botanic Gardens (which has expertise in alien plant removal and restoration of native vegetation) proposed the experimental removal of a number of the smaller patches to observe the effectiveness of chemicals for control of this species along with monitoring of the potential of the plant to re-establish. Physical removal was deemed costly, dangerous and since cut stems can be used by nesting seabirds such as shags and cormorants and incorporated into nests, exacerbating the spread of the plant. In addition, exposing bare surfaces can encourage erosion or germination of seeds. Chemical control was conducted following full EPA and SAC guidelines in relation to other wildlife and to adjacent waterbodies. An application to the Heritage Council under its Heritage Management Scheme was successful, and work began in 2010.

As the area affected by Hottentot fig (*Carpobrotus edulis*) on Howth Head lies within Howth Head SAC 000202 no experimental work or treatments could be carried out during nesting season March – September. The experiment chemical treatment and native species recruitment experiments planned were carried out at an alternative coastal site in Wicklow, the Breaches (ca. 6km South of Greystones, Co Wicklow). The Breaches comprises a set of lagoons on the inside of the railway track, and the only major break in the long shingle bank between Greystones and Wicklow, that forms the Murroughs.

The three chemicals trialled and their active ingredients are displayed in the table below.

The results were clear after 40 days the middle plot treated with 3 g/l glyphosate and 0.3g/l diquat had a greater than 95% kill.

The next challenge was to chemically treat the cliff side sites at Howth. A wheelbarrow power sprayer (KS, 120 litre tank, petrol motor) was wheeled to access points along the cliff path and the 30m hose extension to the tank meant that operators could access the Hottentot fig without having to wear a cumbersome knapsack sprayer. Knapsack sprayers (10 litre) were used at the sites near Sutton Sailing Club, Sea cottage and Lion's Head where it was safe for operators. Volunteer labour was used and the chemical (3 g/l glyphosate and 0.3g/l diquat) was mixed on site. Water was filled at Howth pier or brought along in drums and transported by wheelbarrow once on site. One of the most challenging sites where a large patch (width 30m, length 10m) existed was on the south-west face of the Baily Lighthouse and extended around to the eastern front of the lighthouse. The lighthouse keeper and his family were very generous and allowed access to the railings for ropes and water was provided on site. The sites on Howth were treated during September 2010. Andy Booth of Conservation Services and Ronan Mullen of the Adventure Agency in Wicklow abseiled down the rock on rope and the power sprayer reel was used to access and chemically treat the different patches.

The sites were revisited during March 2011 and the carpeting stems of *Carpobrotus edulis* were found to be withered and dead where chemical was applied. This was a great result, though expected from our pilot experiment in Wicklow. When a site as challenging as the cliffs on Howth were involved we had to make sure each "chemical hit" was a "kill". More excitingly seedlings of many native coastal cliff plants were seen to be establishing in the vicinity of the chemically treated shoots. Sea Campion, sea plantain and Scurvy grass were particularly noticeable. It is planned to do a full botanical survey of the sites during June 2011. Unfortunately some seed pods found on the treated stems were found to have viable seed which germinated at the National Botanic Gardens during April 2011 and many of the seed pods found on site had been chewed by rats. It will be interesting to see during the summer how many of these seeds will have found their way to the seed bank and are capable of germinating. Invasive species control is not a one stop shop, treatment is often required over many years to ensure that once a species is treated, a site can return to natural vegetation and not a second invasion. The botanic gardens will be monitoring the site at Howth over the long term ensuring the native species can find their rightful footholds once again.

The work outlined here was in large part supported by the Heritage Council under its Heritage Management Scheme, and we are extremely grateful for their support, which we hope has had a lasting impact in protecting Irish Biodiversity.

Images courtesy of Matthew Jebb

Left: Hottentot Fig (*Carpobrotus edulis*); Top right: Andy booth at the bailey lighthouse population; Bottom right: *Carpobrotus edulis* treated with Resolva weedkiller after 37 days

Treatment Code	Chemical name	Active ingredient	Plots treated
W White bottle	*B&Q Lawn weedkiller*	0.358 g/l mecoprop-P and 0.191 g/l dichlorprop-P soluble	W1 & W2
B Blue Bottle	*Resolva weedkiller 2411 Action Westland garden health*	3 g/l glyphosate and 0.3g/l diquat	B1 & B2
G Green Bottle	*Monsanto, Fast action Roundup weedkiller*	7.2 g/l glyphosate acid, present as 9.7 g/l isopropylamine salt of glyphosate	G1 & G2

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JEWELLERY BOX

Ireland's Hidden Gems

"Jewellery Box – Ireland's Hidden Gems" is available to purchase for €19.95 (plus postage) at www.dulraphotography.com.

DARAGH MULDOWNEY is a renowned nature photographer. Since the Dublin Launch of Dúlra Photography in February 2003, he has exhibited his range of Nature images throughout Europe. Having started exhibiting his photography on Stephen's Green in Dublin, within a short space of time he was hailed as "an up and coming artist " (Irish Independent), and within a year as "a leading fine art photographer" (Art Ireland). His photography is simple and captures the elements as they present themselves naturally, without the use of artificial light or filters.

Daragh's interest in photography came about as a result of a Scuba Diving course that he completed in 1992. Shortly after this he bought a Canon AE-1 program camera, a 30 year old model he still uses today, and began to learn about photography. His love for nature broadened during his overseas travels and he began to focus entirely on Nature. His private collections include Ireland, UK, France, Holland, Belgium, South Africa, Hong Kong, Canada, USA, Australia and New Zealand.

The book "Jewellery Box – Ireland's Hidden Gems" features over thirty images focusing on the elements of nature found in rock pools all around Ireland, in the shape of periwinkles, anemones, urchins and seaweeds of all types. Daragh's photographs shows an instinctive ability to see colours, texture and patterns of nature translated into some amazing abstract works of art. As an inspiration for everyone interested in rock pooling, the photographs have brought back wonderful childhood memories for Daragh of exploring pools where tiny creatures in their own magical world kept him entertained for hours. Travelling around our beautiful island of Ireland in his campervan, gave him great insight into the variation of Ireland's landscape, geology and life of our seashores and he now looks forward to sharing these images with those that are interested in our shores.

MARINE FISHERIES

Tested to Destruction

By Edward Fahy

IN old God's time, when Matt Murphy was a boy, an American author, John Steinbeck, published a work of non-fiction "The log from the Sea of Cortez"; it recorded his six week voyage, along with others, one of them the biologist Ed Ricketts, to the Gulf of California inside the Baja peninsula. Copiously supplied with beer, the crew explored and delighted in the wonders of a tropical paradise whose fauna was largely undocumented. The book was an inspiration, particularly to one university Department of Zoology where its heady mix of beer and biology persuaded many to invest their undergraduate years in marine science; I was one of them.

In 1883 T.H. Huxley had declared "probably all the great sea fisheries are inexhaustible". The theory had a long run in Ireland where, in some administrative and trade lobby groups today, it is alive and thriving. The commercial fishing press of the late 1950s referred to fish stocks around our shores as "limitless". All one required was the technology to harvest them. But how to get the industry moving? Exports would have distributed the excess but a home market was a pre-requisite. Our per capita consumption of fish in the 1950s was approximately 5 kg per year and that included canned salmon – imported of course. The only market for fish was on Thursday, to satisfy the penitential requirements of the day after and Lent was the bonanza of the year. It was easy to oversupply that limited demand. An obstacle to reaching it was the lack of an effective distribution system. The solution to everything was a government agency and Bord Iascaigh Mhara (BIM) was formed to do the work in 1952. The nation had high expectations of BIM whose budget overshadowed all others' combined within the sector. There were so many tasks to be attended to that it rapidly assumed monopoly status, thereby creating resentments among groups and individuals with financial ambitions of their own. They were not slow in expressing their views.

In 1951 the Inland Fisheries Trust (IFT) – which eventually evolved into the Inland Fisheries Ireland - was set up to improve brown trout fishing in the Republic. Its agenda was research and management driven. Species which co-existed with brown trout were also drawn into investigation and, in time, the species list extended to marine fin-fish exploited by anglers. Although I had only passing associations with the IFT their enthusiasm for the work they did was infectious and impressive. Most of my working life, hitherto, has been spent in the public service, within the Department responsible for fisheries and its agencies, the largest employers of biologists in the country. It was not always an inspiring existence nor, necessarily, the best way to get value for money, something which may now be examined amid the ruins of our economy.

The 1960s was an idealistic decade. Science was the obvious solution for problems which would be solved if only one knew the right thing to do, an approach which proved excessively innocent. Man does not relish continual strife and economics was later added to the problem-solving mix in the hope that would do the trick. It did not. Problem solving requires hard work and tenacity and the public service of yesteryear was not sufficiently robust to maintain a resistant armour against the persuasive aggression of big business.

Of course, science had to be justified in commercial terms. Freshwater species whose biology was described by the IFT, might lure visitors and become a valued ingredient of tourism; marine fisheries could, it was argued, provide employment for 100,000 people, a figure which in reality was whittled down to 10% by depletion of fish stocks and technology creep – the improvement of fishing catching methods. Scientists found employment on all sides of what became complex value choices: on one hand the elucidation of species' ecology provided environmentalists with the knowledge to protect and rationally manage them but it also armed fishers with the information to harvest species more effectively and often destructively.

The appetite for seafood has universally increased for a number of reasons ranging from health concerns about meat to perceived benefits of eating fish and more affluent nations disproportionately increased the quantity of fish they consume. Emerging markets such as China and India with a growing middle class are already imposing enormous additional pressure on fish stocks. Bluefin tuna epitomises what is happening: eighty years ago bluefin fetched the equivalent of €0.15 per kg and the flesh was used for dog food. The first bluefin of 2011 sold on the Tokyo market, which handles 80% of worldwide sales, for €880 per kg, a rate of inflation of almost 6,000%; the fish, a 324 kg carcass, was destined for the sushi market. With financial rewards of this magnitude the possibility of sustainably managing this species is almost nil and, indeed, the illegal capture of bluefin has been compared with the drugs trade. Extinction is its almost certain fate.

If the case of bluefin appears remote from Sherkin Island, much of the same malaise affects all of our marine fisheries now. Species like whiting, which was the staple of domestic demand in mid-last century, yields less than one third of its peak landings today. Cod is commercially extinct in the Irish Sea, once its stronghold, and recovery plans devised by EU and national agencies, having received less than wholehearted co-operation from the industry, failed to resuscitate it. More recovery plans are envisaged for other sea areas. Even some of our invertebrate stocks which underwent a population explosion when their fin-fish predators were fished down, have shown signs of going in the same direction. The largest fishery for brown crab, our third most valuable species a handful of years ago, was pronounced "uneconomic" in 2010. Its collapse is attributable to over-fishing.

Ireland today staggers about in the wake of unregulated property boom orchestrated by big business. Less publicised is the fact that marine fisheries have suffered the same fate. An extraordinary recently published document, Ireland's "Response" to Brussels on the latest review of the Common Fisheries Policy, might have been written by the largest fishermen's lobby group, the Federation of Irish Fishermen (FIF). It proposes, among many other adjustments, that the FIF should manage our remnant fisheries, rather than the Department or its agencies.

Edward Fahy, formerly of the Marine Institute.

Trosc Teo – Ireland's First Cod Farm

By Paul Casburn

Introduction

Trosc Teo has pioneered the development of this wonderful new farmed species for Ireland, which is in high demand from both domestic and international customers. In its short six year history it has been shown that Cod farming has a future in Ireland and should become an integral part of the existing aquaculture industry in the West of Ireland. This has been an integrated programme of innovation between the private and state sectors. The support of NUI Galway (MRI Carna), Údaras na Gaeltachta, Marine Institute, WDC, BIM, local salmon farmers and the Department of the Marine has been key to the success of this project.

The Cod are being on grown on an old salmon farm site, based in Beirteraghbui Bay, Connemara in County Galway. The clean waters of the Galway Connemara coast are proving to be suitable in the rearing of Atlantic Cod. Temperatures range from a low of 7° degrees to a high of 17°. Based in Beirteraghbui bay between Carna and Roundstone, Trosc teo was established in 2005 when the first Cod were transferred to sea from the Ryan Institute Marine lab Carna. Since then Trosc has carried out feed trials, growth trials and examined the economics of Irish Cod farming. Trosc teo is also the commercial partner for the EIRCOD Cod broodstock project, administered by the Ryan Institute Marine Lab in Carna, owned by NUI Galway. It takes approximately 36 months for a Cod to grow from egg to 2.5kg minimum size while individuals of the same age can be 3.5kg. With selective breeding its hoped to bring this growth period down to about 32 months.

EIRCOD

EIRCOD is funded under the Sea Change Initiative of the Marine Institute and the Marine Research Sub-programme of the National Development Plan 2007-2013. This EIRCOD initiative represents a natural continuation and extension of earlier work and its overall objective is to design, establish and operate a Cod Broodstock and Breeding programme, customized for the Irish environment and underpinning the native fish farming industry. It will draw on the potential genetic reservoir of local cod populations and utilize the best available technologies, with necessary and appropriate International links, such that the emerging industry can gain maximum competitive advantage from using a customized cod farming stock that has enhanced performance capacity. While this concept is being exploited with cod in Norway, Canada and Iceland, this is the first occasion where a national breeding program has been employed in Ireland and it represents a significant step forward and a major support for the industry. The program aims to concentrate on juveniles that come from eggs collected in surveys of the Celtic Sea and was first initiated in March 2008. The juveniles were then on-reared at the Carna facility. The parentage of these fish is known and the growth performance of the different groups will be monitored up to market size with the better performing groups being selected for use in future breeding activities. Upon leaving the nursery in the MRI lab the fish are put to sea for Trosc teo to ongrow. Thus Trosc teo is an integral part of EIRCOD.

Trosc Current Cod Stocks

Trosc teo currently has 3 year classes (07-09) of Cod at sea. There is also 1 year class (2010) in the nursery of the Ryan Institute (RI) Carna and currently newly hatched out larvae from this year (2011), in the same facility. The first year class at sea are the 2007 year class which are being kept as broodstock. There are 75 fish and they are averaging approximately 4kg. This 07 year class is made up of a number of families from the Celtic sea. These fish have gone through a recent maturation where they were studied to assess the extent of maturation and weight loss and their eggs have been fed back into the hatchery.

The second year-class from 2008 currently has an average size of approximately 2.2kg. Numbers in this cohort stand at 8000 fish. This 08 cohort are also of Celtic sea origin. The third year-class that Trosc has at sea, come from the 2009. They number 8200 fish and their average weight is 700g. Lice checks and temperature monitoring have been ongoing by staff from the Marine Institute. Most lice checks have been completely negative. When the odd louse has been detected its shown to be not a species that's caused problems for salmonids. DNA analysis and individual tagging of Cod takes place when fish are batch weighed. This is building the data base of Cod DNA which is again an integral part of EIRCOD. This DNA work is carried out by Dr. Luca Mirimin and his team based in the MRI lab Carna.

Quality of Fish

The Cod juvenile quality put to sea by Trosc teo has been very good. All juveniles were reared from egg in the Martin Ryan Lab Carna. The parentage was generally Irish sea origin though there was some Scottish eggs early in the trial. In the recent cohorts 07 and 08, the parentage has been totally wild Irish origin, stripped in the Celtic sea by the MRI and MI. Main issues that have cropped up in some poor egg batches include, skeletal deformities that can be found in marine fish hatcheries. The causes of these deformities are being investigated and Norway and Canada have seen significant decreases in percentages of deformities. These deformities are commonly referred to as stargazers, in the case of a deformed neck, or they may have a deformed tail. In Trosc teo's last harvest in October of 08 there was an 18% downgrade at harvesting due to deformities from extreme to mild. The flesh quality of the Cod is not affected at all.

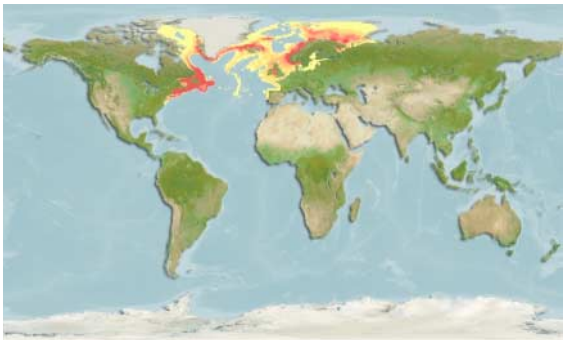
Performance Issues

The performance of the Irish Cod compared to the other farming countries of the world has been amazing to say the least. There is no doubt that Cod farmed in Ireland grow every bit as good as their Norwegian counterparts notwithstanding the fact that Norway has been putting to sea its best 35% juveniles compared to Ireland's total juvenile production. In other words Norway can select for their best fish, due to volume of production, while Ireland has used all standards of juveniles due to our low number of production to date. Ireland, based on temperature alone has significantly more degree days than Norway. Ireland does not get as hot in the summer as Norway nor as cold in the winter. Cod stop growing both when its too hot and too cold.

Harvesting

Harvesting Cod from Trosc teo first commenced in early 2007 when the first farmed cohort of fish was harvested. The fish were very well received in the market. The second harvest began in early 2008 but harvesting was suspended between April and October 08 due to a large amount of wild fish on the market. Trosc teo also wanted to see if the large 2kg+ fish could survive an Irish summer. All reports were that the larger the fish the more likely that temperature would affect them in a negative way. All these fears were allayed as the fish came through the with no problems. All the Cod were harvested in situ and iced immediately. The fish were then transferred to the Kilkerrin fish packing plant where they were gutted, graded, packed and sent out to customers. In total 9 individual harvests between 2007 and 2009, were carried out yielding 30.4 tons of Cod averaging 2.5kg whole weight have been harvested by Trosc teo. Since November 2010, up to ¼ ton of Cod per week has been harvested and sold on local markets, for prices of up to €4.50/kg head on gutted. This is a new strategy for Trosc harvesting small amounts more frequently.

Paul Casburn, Research Officer, Carna Research Station, The Ryan Institute, Environmental, Marine & Energy Research, The National University of Ireland Galway, Carna, Co. Galway, Ireland.



World map showing the distribution of Cod and their ranges in the Northern atlantic. Note that Ireland is at the Cod southern range of distribution. Red indicates high densities of cod stocks areas and yellow less dense areas of Cod stocks.

Cod broodstock being stripped and tagged *(photo courtesy of the MI)*

Taking a fin clip of a Cod for DNA analysis *(photo courtesy of the MI)*

Further points on Cod farming in Ireland and Trosc teo:

- Over 30 tons harvested so far. The product has been well received in the Market with interest for Organic Cod from mainland Europe and the Middle East.
- Irish seawater temperatures have shown not to be a hindrance to Cod culture and may be more suitable than those temperatures in Norway and other countries.
- No parasites/lice treatment required in six years farming, as monitored by the Marine Institute.
- The support of the local community has been evident from the inception of the company. All employees are local creating a skilled local workforce.

Challenges Ahead:

- The attraction of investment into cod farming and in particular Trosc teo.
- The identification of further suitable sites for Cod culture.
- The expanding of the sea cage operations to at least 250 tons nationally.

Images courtesy of Trosc Teo

Tagging, recording and DNA equipment used at Trosc teo *(photo courtesy of the MI)*

PUBLICATIONS OF INTEREST

The Otter

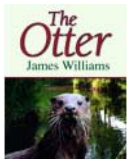
By James Williams

Merlin Unwin Books

www.merlinunwin.co.uk

ISBN: 978-1-906122-22-5

Price: £20.00stg/2010



There have been very few natural history books written about the otter. It may be that the otter is a nocturnal animal and few have seen them. This book is by James Williams who has spent years methodically recording and systematically surveying the otter.

His interest in otters began in the 1940s when he accompanied his father on his little autocycle to sabotage otter traps set by a local gamekeeper. Sometime later his father bought the estate where the gamekeeper was employed. The day he signed the purchase his father drove to the gamekeeper's house and fired him! The author brings us through his boyhood otter conservation, the vanishing of the otter in the 1970s, up to its return in the late 1980s. He tells of frequent signs of an otter using the stream that runs through his garden, but in 21 years at his house, he has only seen it twice. (Similarly biologists from the Station that have been studying the otter here on Sherkin and the Islands have recorded the presence of otters on most of the many islands in Roaringwater Bay but have rarely seen otters over the 20-year period.) In the book it is intriguing to learn of the life of the otter; about holts and spraints, new born cubs, night fishing and its diet. The author's lifetime work with otters is intertwined with beautiful personal experiences.

He is not afraid to address controversial issues. The section "Misusing otters for "nimby" purposes" gives a number of examples where "the killjoys" attempted to use the presence of otters to oppose certain developments. The worst case of this misuse of the otters was when an official of the Environment Agency in the UK rang him to enquire whether otters had returned to a river. The author told him they recently had. "Oh! good" he exclaimed "now we can oppose that bungalow". Readers might find it difficult that in his earlier years he participated in otter hunting. He gives a full chapter to it and explains his reasons in full. Throughout the book there are over 120 wonderful photographs of otters and their habitats. This book is a must, firstly for anyone that would like to know about the otter but more importantly it is the essential text book for decision makers, researchers and planners by a man who has given his lifetime to understanding otters. There are few like him in Britain and sadly no one in Ireland with such a length of experience. Most of this book is highly relevant to Irish otters. *(Matt Murphy) (MM)*

Burren Insight

www.burrenbeo.com

Price: €6.00 (plus postage)

The Burrenbeo Trust was set up to create a greater appreciation of the Burren's unique natural and cultural heritage. It achieves this through educational programmes, research and conservation projects and by producing informative publications and a website. For the past three years, Burrenbeo have published an annual magazine with articles on the Burren. The current issue has a continuous theme – the importance of the community. It gives an insight into how previous communities farmed and travelled in prehistoric times, about living in a ringfort based on Breton Law and about the first tourists to the Burren in the 12th century. Other articles include birds, bats and goats and researching forgotten uses of Burren plants. The previous issues, which are still available and are as interesting, fulfil the mission of Burrenbeo Trust and all have wonderful colour photographs. The newsletter costs Euro 6.00 (plus Euro 1.90 postage in Ireland & N. Ireland - Euro 4.50 elsewhere). For information write to Burrenbeo Trust, Main Street, Kinvara, Co. Galway. Info@burrenbeo.com www. Burrenbeo.com *(MM)*

Ireland's Animals
Myths, legends and folklore

By Niall Mac Coitir

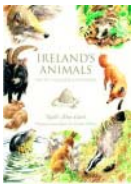
Original watercolours by Gordon D'Arcy

The Collins Press

www.collinspress.ie

ISBN: 978-1-84889-060-2 (hb)

Price: €27.99/2010



This book is about the animals that have shaped the landscape of Ireland. It is neither a book of natural history nor a livestock manual. It looks at another important aspect to animals - their place in folklore and myths. The book brings together stories and poems that exist in the Irish tradition.

The 28 animals in this book are arranged according to the classical elements of fire, earth, air and water. "Fiery" animals are those perceived to have a fierce and noble temperament. "Earthy" animals are perceived to have a passionate, sensual nature. "Airy" to have cold, intelligent and calculating temperaments. Lastly, "water" animals are those whose habitat is water or close by is.

Each animal is covered in a separate chapter under three headings: Folk Beliefs and Customs, Myths and Legends, Relations with Humans. There are wonderful paintings of the animals by Gordon D'Arcy, which alone is reason to buy this book. This is a most informative book and highly recommended. *(MM)*

Bird Songs and Calls

By Geoff Sample

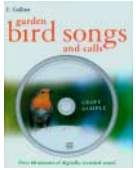
HarperCollins

www.harpercollins.co.uk

ISBN: 978-0007313297

Hardback 32pp CD 74 mins

Price £14.99stg/2009



'Bird Songs and Calls' is an excellent resource for any home or school. Being able to choose a particular habitat to focus on made using this book an easy experience. The songs and calls were so clear that even children can recognise many bird calls and can compare the sounds they hear. This is a very comprehensive guide and so is very suitable to both beginners and more knowledgeable bird enthusiasts alike. It gives clear and concise information on how birds sing and call out and also different accounts of how birds behave. Along with that there are beautiful photographs are available for many of birds. *(Audrey Murphy)*

Self Sufficiency
A practical guide for modern living

By Liz Wright

www.octopusbooks.co.uk

ISBN: 978-1-856-75313-5

Price: £20stg (hb) / 2010

Today more and more people are beginning to question how and where their food has been produced. Most want to grow their own fruit and vegetables and some want to keep their own animals and poultry. The reasons are many. They include:

- Reducing the costs of the household food bill
- Getting the freshest taste
- Enjoying healthy outdoor exercise that produces more than just a sweat
- Reconnecting with the land
- Growing organic food

This is a most up-to-date handbook and will guide one through every aspect of self-sufficiency. It is full of practical information and expert advice. It is ideal for the person who has a small garden and wants to grow vegetables, to the person that wishes to relocate to the countryside. The various sections include preparing vegetable plots, sowing, pest control, composting, timetable of planting and harvesting, and vegetable, fruit and herb directories. Each will help towards getting the very best from ones labour.

For those that relocate there is a section on "Raising your own", which includes animals such as chickens, geese, turkeys, bees, pigs, goats, sheep, cows and horses. Yes, one can learn about a plan for backyard poultry keeping, what are suitable breeds of hen to keep and even the number of eggs they lay – up to 300 per year if the hens are well fed! In "From crop to kitchen" one learns about preserving, drying, freezing, jams and bottling. Yes, this book is highly recommended for one who wants to make a start on the road to self-sufficiency. It is the ideal starting point. *(MM)*

The Biobased Economy
Biofuels, Materials and Chemical in the Post-oil Era

Edited by Hans Langeveld, Johan Sanders and Marieke Meeusen

Earthscan: www.earthscan.co.uk

ISBN: 978-1-84407-770-0

Price: £65.00stg (hb)/2010

The main objective of this book is to explore the potential of a biobased economy and to determine how to steer its implementation in such a way that it leads to an optimal environmental, economic and social performance. The book is divided into four sections: the first, "Towards Sustainability" with six papers by various authors. They include "Transition Towards a Bio-based Economy", "Principles of Plant Production" and "Biomass Availability". Section 2: "Biomass Refining and Conversion" includes papers on Bio-refineries, Production of Chemicals in the Bio-based Economy, and Biogas.

Section 3, "Actor Involvement" which includes Policy-making, Bio-based Industrialisation and Public Debate and Sustainability of Biofuels. Finally section 4: Transition in Action includes four papers on Developments in Brazil, Germany, Canada and the Netherlands. The book is a very important contribution to a transition towards a bio-based economy. *(MM)*

The Wild Garden

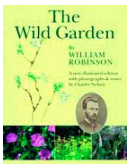
By William Robinson

The Collins Press

www.collinspress.ie

ISBN: 978-184889-03500 (Hb)

Price: €29.99/2010



William Robinson (1838–1933) remains one of the most influential garden writers of all time. His promotion of naturalistic and informal plantings, including use of native wildflowers alongside hardy exotics, as a reaction against the gaudy and laborious bedding prevalent in Victorian gardens, has had a lasting and valuable impact. Robinson left his native Ireland – although he would remain a frequent visitor – and within five years had abandoned professional gardening for journalism, writing and magazine publishing. He was hugely successful and so able to purchase Gravetye Manor in Sussex, where he created his own much-admired garden. Charles Nelson, in his latest enjoyable and erudite book on plants and gardens, presents Robinson's The Wild Garden (1870) to a 21st-century readership. He provides an introductory essay on an enigmatic writer, for whom we have few biographical details, and the various editions of this, his most famous book. Alongside a faithfully reprinted text, Nelson gives copious taxonomic and descriptive notes and a selection of his own photographs to illustrate species and plantings. He also adds a section on some suitable plants not listed by Robinson. He most ably brings an old book to life – and encourages the continuation of a style of gardening ideally suited to both the Irish climate and temperament. *(John Akeroyd)*

The Wildflowers of Offaly

By John Feehan

Offaly County Council

www.offaly.ie

ISBN: 978 1 85635 673 2

Price: €40.00/2009

Recent years have seen the publication of major new floristic works on Counties Cavan, Dublin, Cork, Waterford and NE Ireland. Now Co. Offaly has its own work – less a Flora than a book about wild flowers and botany within the context of the county. Dispensing with a conventional introduction, John Feehan launches straight into full-page accounts of individual species: each has a discursive mini-essay, colour photograph and, listed prominently, its names in Latin, English and Irish, its flowering period and frequency. Many species have an illustration gleaned from one of the classic botanical works, and some have diagrams of pollination mechanisms (an innovative and valuable feature) or identification notes to distinguish similar closely related plants. This book is a most welcome initiative from a County Council clearly concerned with the protection of biodiversity and landscape. The author and his collaborators are to be congratulated on raising awareness of these issues in a county that has not attracted as many botanical visitors as some other districts of Ireland.

(John Akeroyd)

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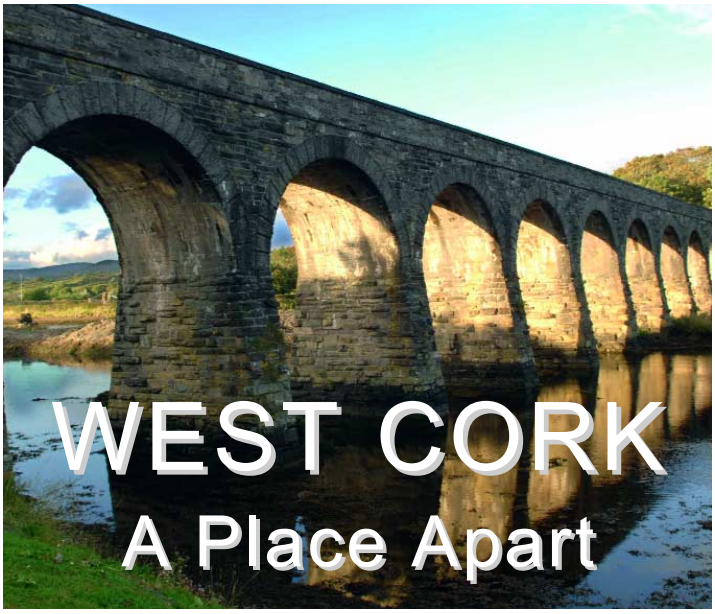


Ballydehob bridge.

Reviewed by Matt Murphy

WEST CORK is often only thought of as just a coastal region. The book "West Cork – A Place Apart" highlights not only its coastline, but its inland beauty as well. The text is by Jo Kerrigan, the journalist who writes regularly for the Irish Examiner and the Cork Evening Echo. Jo is daughter of the famous Joe Kerrigan, a wonderful outdoor adventurer of the 50s and 60s, who was a pioneer of canoeing and handgliding, and someone who motorcycled up Ireland's highest mountain Carrigtwohill. The stunning photographs are from the camera of Richard Mills, whose wildlife images has won him many international awards and whose landscape photography in this book is equally inspiring. Richard's many photographs – over 100 – present a visual story throughout the book, complimenting the text wonderfully.

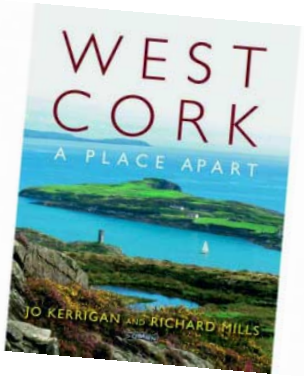
The book explores the region in four journeys, starting with the valley of the River Lee, which stretches due west from Cork City. To guide the reader, maps at the back of the book accompany the four chapters, helping one visualise each journey.

The first chapter, *True West*, gives one a choice of leaving Cork City from either the north or south roads bordering the Lee. Northwards the narrower quieter road meanders through Dripsey, once the home of prosperous woollen mills which produced fine rugs, blankets and tweeds, and then onwards to Coachford and Carrigadrohid, with its real showpiece castle. The south road takes one near Kilcrea Castle and friary and crosses the Lee at Dunisky causeway, constructed when the 1950s hydroelectric scheme was built. In the midst of the lake stands the bridge that once crossed the little Buingea River. Both roads bring one through Macroom, with its Castle in the town centre. Turning southwest just before Macroom on the south road one meets the Gearagh – a flooded forest, a lake, a haven for birdwatchers, botanists and nature lovers and now a protected nature reserve. This part of the journey is the highlight of the book for me as it brings back memories of stories I had heard about this area, prior to the hydro-electric scheme in the Lee, where moonshiners distilled the finest poteen, an illegal spirit! The journey continues to Inchigeelagh, Ballingeary and to Gougane Barra, where the River Lee is no more than a peaceful clear stream, and then eventually on to Keimaneigh and Bantry.

Chapter two *The Road Winds West* – explores the coast road via the Old Head of Kinsale, Garrettstown, Kilbrittan and Timoleague, with its ruined Abbey – once one of the largest and most important of the religious houses in Ireland. The journey continues around the Seven Head peninsula, which stretches through Timoleague around to Dunworley Bay, to the village of Ring and then to the town of Clonakilty. Clon was once the stronghold of that wonderful highly practical garment the West Cork Cloak, worn throughout the region in the 19th and early 20th centuries. In the Model Village on the outskirts of Clonakilty is a waxwork model of an old woman wearing just such a cloak. On the way to Skibbereen one can detour to Galley Head and its lighthouse and the two magnificent beaches of Red Strand and Long Strand. Jo includes a short interview with Carmel Brown, whose father was a lighthouse keeper at Galley Head. It depicts the simple life she and her fourteen siblings had growing up at the lighthouse. The journey continues on to Castlefreke woodlands and castle and Rosscarbery where St. Fachtna established a monastery in the sixth century and then to Castletownshend where Edit Somerville and her cousin Violet Martin lived and wrote, creating the unforgettable characters immortalised in the Irish RM hunting stories.

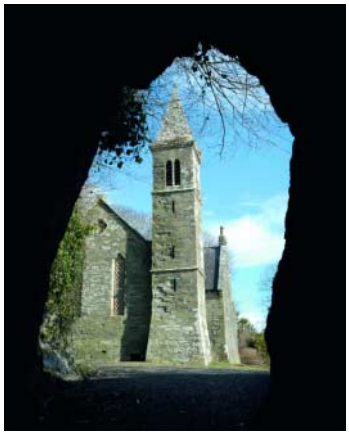
One can discover Blind Harbour, Toe Head and of course Lough Hyne, Ireland's only marine nature reserve. Inland is the town of Skibbereen, which hosts the Heritage Centre, a permanent Famine exhibition. Nine miles to the sea is the village of Baltimore and the departure point to the islands of Sherkin and Cape Clear. Again this chapter has many photographs of well known landmarks, of coastal views, as well as the annual horse racing on Courtmacsherry beach.

Chapter three *Of Smugglers and Shipwrecks*, charts a course around the Mizen Peninsula. Jo brings one from Kilcoe to Ballydehob, Schull, Goleen and Crookhaven, around Mizen Head and finally to Sheep's Head. With Richard's photography you glimpse Kilcoe Castle, restored by the actor Jeremy Irons, Long Island near Schull, the splendid twelve-arched bridge at Ballydehob, the Fastnet Rock lighthouse, and the Napoleonic tower on Rocky Island near Crookhaven's long headland. Ruined cottages in Brow Head are a reminder of the copper mining industry in the distant past and the spectacular photograph of the rugged cliffs of Mizen Head, shows off Ireland's most south-westerly point.



The final Chapter *At the World's End* explore the Beara Peninsula and there is so much to see. Just 15 minutes by ferry from Bantry is Whiddy Island – 5km long and 2.5km wide – an ideal visit for a few hours. Some 10km further on from Bantry is Glengarriff, West Cork's most famous tourist destination, which is noted for its lush greenery, magnificent trees and general abundance of vegetation. The real gem in the area is Garnish Island once as bare as the moorlands and mountains on the mainland. In 1910 Belfast born Annam Bryce purchased the island. He and his family created a garden on the island, transporting additional soil and humus from the mainland and blasting rocks to create better spaces to plant. Today horticulturists and lovers of trees and shrubs all round the world are familiar with the 37 acre island garden of rare beauty. Ferries operate between March and October from Glengarriff.

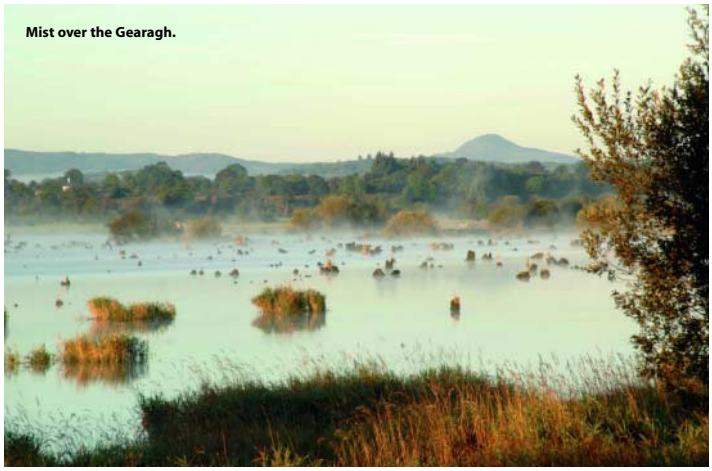
The final journey takes one to Castletownbere, Bere and Dursey Island and Allihies. The wonderful views of Bantry Bay to the left and the mountains to right must be taken in on a fine day so that one can enjoy the true beauty of the area. The cable car on its way to Dursey, with the angry sea below, is one of my favourite images from this book, closely followed by the Glengarriff River sweeping through lush woodlands with wild flowers abundant on its banks.



Glandore Church of Ireland.

The book is a real treat, as much for those who dream of visiting West Cork, as for those who know it well. I am delighted that Jo and Richard have combined their talents to produce this wonderful literary and photographic journey through a very special part of the world – West Cork.

West Cork - A Place Apart by Jo Kerrigan & Richard Mills. O'Brien Press www.obrien.ie
ISBN: 978-1-84717-166-5 Price: €24.99/2010



Mist over the Gearagh.

Cliffs at Mizen Head.

Images courtesy of Richard Mills

JUNIOR PAGES

Happy Mother's Day Mrs. Lobster

Marine animals, such as fish, crabs and starfish produce many thousands of eggs, just to make sure that at least some of their offspring survive in the harsh conditions of the sea.

In March this year a female ornate rock lobster (Latin name *Panulirus ornatus*) produced thousands of eggs that were all hatched out at the Australian Institute of Marine Science (AIMS) headquarters in Townsville. Because ornate rock lobsters are very difficult to breed in captivity, this was a great breakthrough. It paves the way not only for a farmed lobster industry in Australia, which will ease fishing pressure on the wild stock, but will also allow scientists to restock lobsters back into the wild.

Lobster restocking is already being investigated in Ireland, using the native species (*Homarus vulgaris*) at the Shellfish Research Laboratory of NUI Galway. Because our domestic lobsters tend to eat each other, each tiny lobster has to be raised separately until they are large enough to release into the wild. At this point they are delivered to the bottom by divers to protect them from being eaten by carnivorous fish on the way down.

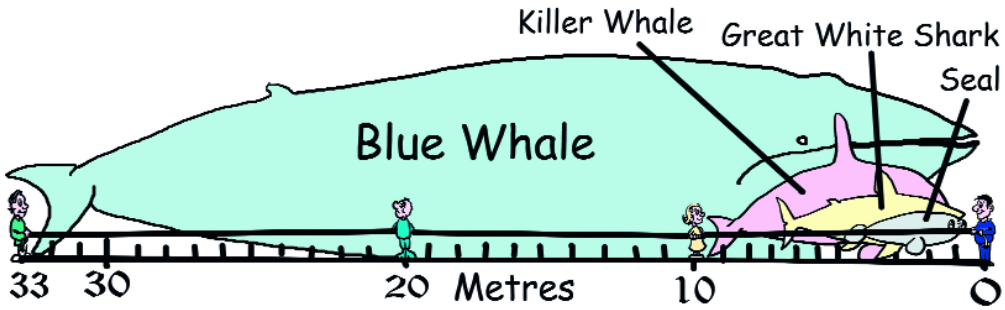
"The Love Life of Sea Horses"

Sea horses mate for life and perform a complicated courtship "dance" as part of their mating ritual. The dance takes place between a pair of sea horses for about an hour each day for about a week until, on the last day, a much longer dance of up to eight hours takes place. At the end of this dance the female sea horse places her eggs in a special pouch that the male has on his belly and he hatches them out. Tests have shown that if the male is taken away from the female after a day or so at the beginning of the week, she will happily accept another male to give her eggs to. But if that first male is brought back again and reintroduced to her later, she will not accept him. It is almost as if he "jilted her" and she is angry at having been "stood up" on a date.

Sea horses are under threat in Asia because their dried bodies are used in Chinese medicine and for the souvenir trade. This is why a number of projects all over the world are experimenting with ways of breeding them in captivity to provide live animals that might be restocked back into the wild or used as a substitute for wild sea horses in the future. You can learn more about these fascinating creatures on www.seahorseaquariums.com

"How Big is it?" Game

One way of understanding how big marine animals are is to take a long piece of clothes line and mark it off with tape as follows: 2 metres – seal / 6 metres - Great White Shark / 9 metres – Killer Whale / 33 metres – Blue Whale.
(Idea from Jim Wilson)



LEARNING BIRDSONG

the easy way!

with BirdWatch Ireland

THE lengthening days of Spring bring with them the uplifting sounds of birdsong. Yet however delightful the sounds of birdsong appear, many people find it extremely challenging to tell them apart. Even seasoned birdwatchers can find it hard to tell some species apart – so where does one start? In the garden of course!

Many of our best songsters are frequent garden visitors so it stands to reason that any bird you hear in your garden is very likely to be one of the following ten species

1. Song Thrush
2. Blackbird
3. Robin
4. Dunnock
5. Great Tit
6. Blue Tit
7. House Sparrow
8. Starling
9. Chaffinch
10. Wren

The best way to learn these birdsongs is to attend one of BirdWatch Ireland's Dawn Chorus events which are held nationwide during May each year (Visit www.birdwatchireland.ie for full details).

Alternatively buy a specialist CD or book & CD set to help you learn to identify the songs by listening to them (see publications page 24). As well as listening to the CD the key points to identifying the 10 species listed above are detailed below.

A wide selection of CD's and books are available at www.birdwatchireland.ie which will help you become more proficient in identifying the different species – Happy listening!

4 Key Points to Learning Birdsong

When?
Different birds sing during different months.
Where?
Many birds sing at a specific height or location.
Song
Each species has distinctive characteristics.
Habitat

SONG THRUSH

When - November – July.
Where - High up on trees.
Song - Loud, far carrying clear notes with repeated phrases.
Habitat - Gardens, parks and woodland.

BLACKBIRD

When - February – June.
Where - Medium height on trees and wires.
Song - Melodic, mellow far carrying fluting at slow tempo.
Habitat - Gardens, parks and woodland.

ROBIN

When - All year.
Where - Usually from a low branch.
Song - Slow, quiet phrases with long pauses. Wistful.
Habitat - Gardens, parks and woodland.

DUNNOCK

When - February – May.
Where - Tops of bushes.
Song - Loud and clear. A short 'squeaky trolly'.
Habitat - Gardens, parks and scrubland.

GREAT TIT

When - January – May.
Where - Low down in bushes and trees.
Song - Loud, ringing repetitive, varied two note song.
Habitat - Gardens, parks and woodland.

BLUE TIT

When - January – May.
Where - Low down in bushes and trees.
Song - High pitched 'light' trilling.
Habitat - Gardens and woodland.

HOUSE SPARROW

When - February – June.
Where - On buildings, gutters and low bushes.
Song - Monotonous 'cheeping'.
Habitat - Gardens and buildings.

STARLING

When - February – May.
Where - On buildings and wires, occasionally trees.
Song - noisy chattering, squeaks, whistles and mimicary.
Habitat - Gardens and buildings.

CHAFFINCH

When - February - May
Where - Medium height trees and bushes.
Song - fast decending song with a wolf whistle at the end.
Habitat - Gardens, parks and woodland.

WREN

When - All Year.
Where - Low down, in cover.
Song - Amazingly loud. Long rolling and trilling song.
Habitat - Gardens, parks and woodland.

Bird images courtesy of Robbie Murphy

Learn about birds with BirdWatch Ireland

Feeding Wild Birds Leaflet
Download this leaflet from the Learn about Birds section on BirdWatch Ireland's website at www.birdwatchireland.ie

Learn how to identify the birds in your garden with our **Free Garden Bird Charts**. Send a SAE to: *BirdWatch Ireland, P.O. Box 12, Greystones, Co. Wicklow.*

BirdWatch Ireland has over 10,000 members and has branches throughout the country which organise events and outings in your area. Why not get your school to join? Write to us or visit our website for details: www.birdwatchireland.ie

BirdWatch Ireland has two educational web sites, catering for learning about birds in schools.

- Visit the Working with Birds web site to learn about watching and feeding birds

Simply go to **www.birdwatchireland.ie** and go to the 'learn about birds' section

BirdWatch Ireland, P.O. Box 12, Greystones, Co. Wicklow.
Tel: 01-2819878 Fax: 01-2819763
Email: info@birdwatchireland.ie

Website: www.birdwatchireland.ie

The Lifeboat Crew

Ordinary people doing an extraordinary job. Lifeboat crews are mostly volunteers, who come from all walks of life, and give up their time and comfort to carry out rescues and save lives at sea on the lifeboats.

With over 3,300 lifeboat crew members in the United Kingdom and 1,500 in the Republic of Ireland (of which over 340 of the total are women), lifeboat crews are dedicated and make a major commitment – which could ultimately include risking their life. They respond at a moment's notice, no matter where they are or what they are doing when the pager goes off. Crews are regularly called away from their families, their beds and their work, 24 hours a day, 365 days a year. Often they'll leave a place of comfort to brave the cold and wet in situations that test their skill, strength and courage. Their lifesaving work is essential, often difficult and sometimes dangerous.

Valentia Lifeboat – image courtesy of Robbie Murphy

Crew Members

Crew members on all weather and inshore lifeboats are all volunteers. Anybody can become a crew member providing they are physically fit, can learn the necessary skills and can work as part of a team. They work with the coxswain or helmsman and carry out duties to operate the lifeboat during rescues and also ensure the safety of the people that have been rescued.

The commitment of crew members isn't only measured in the time spent involved in rescues. Increasingly, new equipment and faster boats also means that regular training programmes account for much of the time. This training includes boat handling, radio communications, first aid, navigation and radar training.

The number of crew on a lifeboat varies according to the type of lifeboat; generally three on an inshore lifeboat and six on an all weather lifeboat, including the coxswain or helmsman.

Coxswain

The coxswain is in charge of the all weather lifeboat and is in command when at sea. He/she is responsible for all the operations connected with launching the lifeboat, ensuring the safety of all the lifeboat crew on board, and it is the coxswain's duty to use every effort to safeguard and rescue the lives of those in danger. At the end of a rescue the coxswain ensures that the lifeboat is ready for service and that the equipment is all in order.

Most coxswains are volunteers although there are a few full-time coxswains. The all weather lifeboat has a second coxswain who acts as a deputy if the coxswain is not available.

New Crew Needed!

Discover the exciting world of lifeboats and lifeguards with **Storm Force**, the RNLI's club for young people. Do you know a youngster who would enjoy being part of Stormy Stan's crew? **Storm Force** membership is ideal for children aged 5-11 years and, at just £7.50/€10.50 a year, it makes a fun and educational gift that lasts.

Members receive:

- a Membership pack containing exclusive 'crew' bag, pencil tin and contents, stickers, map and colouring poster, postcards and a bumper activity booklet
- four issues of **Storm Force** magazine a year; packed with rescue stories, news, activities, comic strips, water safety advice, educational articles and competitions with cool prizes
- a Membership card with unique membership number and a shiny new badge for every year of membership.

Club mascot Stormy Stan replies to each and every letter, drawing, photo or joke submitted and there are special gifts for those published in the magazine too.

FOR MORE INFORMATION:
http://www.rnli.org.uk/how_to_support_us/membership/storm-force

Lifeboats

All text and images courtesy of RNLI (Royal National Lifeboat Institution). www.rnli.co.uk

Helmsman

The helmsman is a volunteer who is in charge of the inshore lifeboat during launching, at sea and when it is being recovered to make sure it is ready for the next rescue. The helmsman is responsible for the safety of the crew on board and for everything that happens during a rescue. At inshore lifeboat stations the engines and machinery are maintained by the volunteer crew members.

Hovercraft Commander

The inshore rescue hovercraft (IRH) commander is a volunteer who is in charge of the hovercraft during launching, when at sea and also at the end of a rescue when the hovercraft is being recovered to make sure it is ready for the next rescue. The duties of a commander are the same as for a helmsman at an inshore lifeboat station. (There are no hovercrafts in the Irish branch of the RNLI.)

Mechanic

Every all weather lifeboat station has a full-time mechanic who is responsible for maintaining the lifeboat's engines and all the machinery at an all weather lifeboat station. The mechanic has a detailed planned maintenance programme to carry out; over a period of time every piece of machinery is checked and maintained. At sea the mechanic checks that the engines and other machinery are all working properly.

All weather lifeboat stations also have assistant mechanics to take over when the mechanic is not available.

ANSWERS TO LIFEBOAT WORDSEARCH – (Over,Down,Direction): all weather lifeboat (2,18,NE); boat handling (20,1,S); brave (14,18,W); cold (13,15,NE); communication (3,3,E); coxswain (19,3,S); crew member (19,3,SW); dangerous (18,18,N); difficult (6,20,NE); first aid (18,1,SW); helmsman (9,11,W); hovercraft commander (1,19,N); inshore (13,8,NE); launching (9,19,E); lifeboat (9,20,NW); lifesaving (17,16,W); mechanic (9,9,N); navigation (11,20,NW); pager (6,9,NW); radar training (2,3,SE); radio (19,20,N); rescue (16,8,SW); sea (9,1,SE); station (2,10,E); team (4,12,E); volunteer (3,2,SE); weather (20,13,S); wet (12,1,S).

LIFEBOAT Wordsearch

All these words below are connected to the work of RNLI Lifeboats. Can you find them in the grid?
(Answers on page 28)

ALL WEATHER LIFEBOAT
BOAT HANDLING
BRAVE
COLD
COMMUNICATION
COXSWAIN
CREW MEMBER
DANGEROUS
DIFFICULT
FIRST AID
HELMSMAN
HOVERCRAFT COMMANDER
INSHORE LIFEBOAT
LAUNCHING
LIFESAVING
MECHANIC
NAVIGATION
PAGER
RADAR TRAINING
RADIO
RESCUE
SEA
STATION
TEAM
VOLUNTEER
WEATHER
WET

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

Gaisce – The President's Award

5 Day Charity Relay Cycle Mizen 2 Malin

By Majella Killeen

"5 Days 35 stops 12 Counties, over 400 participants and over 15,000 euro for Charity"

So the song goes..."I like to Ride my Bicycle, my Bicycle"...As Gaisce-The President's Award staff reviewed the events to celebrate our silver jubilee, the relay cycle from Mizen Head in Cork to Malin Head in Donegal, was considered one of the events of the year.

The intrepid development officer team of Stephen Peers, Mary Yore, Michael Collins and Majella Killeen invited participants through their PALs to help us complete a relay cycle from Mizen Head to Malin Head by cycling a maximum of 20km per group. The invitation also asked each group to consider raising some much needed funds for our nominated charities which were the friends of St Luke's Hospital and Order of Malta Ireland, Bethlehem Maternity Hospital or a local charity of their choice. As usual our PALs did not disappoint, the response saw over 40 groups with over 400 participants volunteering for the challenge. This is my personal reflection on the event.

8am on a beautiful windswept October morning as I stood on Mizen Head at the start of stage one of our challenge, the uninterrupted beauty of the area around me, answered my question as to what I was doing here at this hour of the morning. The convoy lined up as we started out on our journey, a journey that would take us through the Island of Ireland travelling near on 1000km to finish on Malin Head late on Friday evening.

Day one we travelled through the highways and byways of Cork in beautiful sunshine, despite the October day. Joined by Alan "the biker" Waters and the Order of Malta there were no casualties to report, except for Stephen getting a puncture before we started this morning!!

Day two saw us leave the Rebel county with an early start to avoid the rush hour traffic, and travel through Tipperary, Limerick, Clare and finishing in Offaly. Yet again we had a fine day and were boosted by our national coverage on "AA Roadwatch" and the good will of the participants, their PALs and parents as we travelled through the country.

Day three we travelled from Offaly to Galway and finished in Longford. Today I found myself reflecting back on the journey to date as we had passed the half way stage of our challenge. The ethos of the award is development through personal challenge. I had observed this at every stage of the journey, from the parents and principals of schools arranging the pickup of the bikes at the finish, to the PALs cycling with the students and encouraging them as they completed their personal journey of the relay - all creating a very positive experience for those of us driving and organising the event.

Day four we were in Yeats County where we had the local press and radio waiting to interview and chat about our experience to date. With the Order of Malta wanting casualties, I thought I would give them something to do by getting on the bike for a stage of the relay, but alas, I managed with the encouragement of the young participants to complete the stage. Remarkable really considering I hadn't being on a bike in years!!

Day five the end of the journey was in sight, one that started in bright sunshine, ended in rain, but it could not dampen our spirits as we broached the last twelve miles up-hill to Malin Head. The delight of the team was palpable; we had completed the challenge, with the support and encouragement of our network of volunteers from Cork to Donegal.

I write this as a PAL no longer employed by Gaisce. I cherish the memories of that week – Alan Waters and Michéal Maguire on their motorbikes patrolling the convoy to ensure the safety of the participants, fixing punctures and replacing car bulbs.

Mary Yore co-ordinating the press and contacting the local media throughout the Country, a PR guru in the making!!

Michael Collins ensuring we left each stage on time in the lead car, joined in the latter half of the challenge by his wife Mary.

Stephen Peers, not just organising the event, but cycling some of the journey as well as coordinating the groups ensuring their bikes were in order and all participants were wearing their helmets and hi-vis jackets.

Germanus Whittington, accompanied by his brother Charles assisted tremendously on the event. Germanus and his family are avid fundraisers for the Friends of Saint Luke's.

The network of members from Order of Malta Ireland who volunteered their time and ambulances to ensure the safety of the participants throughout the challenge.

Last but by no means least, all the PALs, participants, parents, supporters, and sponsors take a bow, your enthusiasm, goodwill, friendship and support of one another and the Gaisce team will be my treasured memory of the Mizen 2 Malin Charity Relay Cycle 2010. I conclude this piece with the words of our Patron President Mary McAleese spoken at a recent Gold ceremony. *"Gaisce's individuals are young men and women who have a highly developed sense of belonging to family and community, they can be community builders, leaders, sources of strength, "can-do" people, team players, steeped in values of generosity and voluntarism. Here are the very best of Ireland's young citizens. Today we salute them, tell them how much we admire and respect them and thank them for taking on the Gaisce challenge and for seeing it through all the way. Whatever the role you have played to arrive here today thank you for being a light, a much-needed, much appreciated light in a place where there is much cursing of the darkness."*

Majella Killeen, Gaisce President's Award Leader, Gaisce Gold Award Holder and recipient of a Gaisce Hillery Medal in 2010.

Gaisce Mizen 2 Malin
Charity Relay Cycle Schools/Clubs List

Abbey Vocational School, Donegal
Banagher College, Co Offaly
Borrisokane Community College, Co Kilkenny
Carndonagh Community School, Co Donegal
Carrigaline Community School, Co Cork
Carrick-on-Shannon Vocational, School
Colaiste Ailigh, Letterkenny, Co Donegal
Colaiste Daibhead, Cork
Coola Post Primary School, Sligo
Crana College, Buncrana, Co Donegal
Dunmore Community School, Galway
Errigal College, Letterkenny, Co. Donegal
Finn Valley, Stranorlar, Co Donegal
Gairmscoil Mhuire, Athenry Vocational School.Galway
Glenties Comprehensive School, Co. Donegal
Gold Award Participants: Paddy Clarke, Kathleen Fitzgerald, Amy Roddy, Christine Hickey and Emmet Ryan
Grange Post Primary School, Sligo
Hazelwood College, Dromcollogher, Limerick
Jesus & Mary Secondary School, Sligo
Loreto Secondary .School, Letterkenny, Co Donegal
LYIT Society, Letterkenny Institute of Technology, Co Donegal
Magh Ene College, Bundoran, Co Donegal
Marist College, Athlone
Mercy College, Sligo
Mercy Secondary School, Ballymahon, Co Longford
Mohill Community School, Co Leitrim
Moville Community College, Co Donegal
Oldcastle Post Primary School. Co Meath
PCC Falcarragh, Co Donegal
Rosses Community School, Dungloe, Co Donegal
Saint Christopher's School, Longford
Saint.Attracta's Community School, Sligo
Saint.Brendan's Community School, Birr, Co Offaly
Saint.Columba's College, Stranorlar, Co Donegal
Saint.Eunan's,Letterkenny, Co Donegal
Saint.Jarlath's Vocational School, Tuam, Galway
SaintMuredach's College, Ballina, Co Mayo
Scoil Mhuire, Buncrana, Donegal
Sligo Grammar School, Sligo
Summerhill College, Sligo
Swanlinbar Cycling Club, Co Cavan
Ursuline College , Sligo
Wilson's Hospital School, Multyfarnham, Co Westmeath
Youthreach, Gortahork, Co Donegal

Images courtesy of Gaisce

Left to Right: Deirdre Hughes, Appeals Director, Friends of St. Luke's Hospital, Anna Whittington, Séamus Whittington, Mary Yore Gaisce, Manus Whittington Stephen Peers Gaisce, Michael Collins Gaisce, Charles Whittington, Comdt. Edward Matthews Order of Malta Ireland, Majella Killeen Gaisce & Barney Callaghan, Chief Executive, Gaisce - The President's Award.

"This downhill bit is easy!"

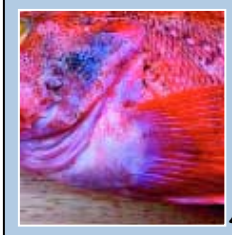
Majella Killeen with her fantastic Order of Malta friends.

Test Quiz


1


2


3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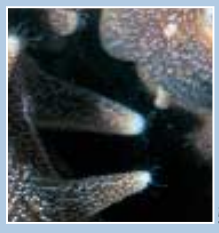

5


6

7


8


9

This quiz will testing your observational skills. Can you match up the images with their correct title below? All these images appear in this issue of *Sherkin Comment*. Some are a little tricky as their names can be a little misleading!

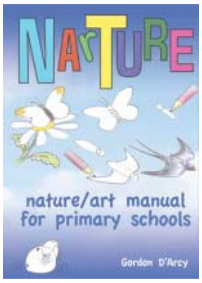
a. Monastic Site
b. Hotteton Fig
c. Common Starfish
d. Tagging Cod
e. Ragged Robin
f. Copeland Islands
g. Great Tit
h. Mizen Head
i. Blue-mouthed Rockfish

Answer: a=9; b=3; c=5; d=6; e=8; f=7; g=1; h=2; i=4.

Draw a Dolphin

The dolphin, of all the wild creatures, is the one that most captures the imagination of young children. It has so many things going for it: intelligence; friendliness towards people, atheltic behaviour; "smiling" face. It is easy to see why children love it.

To draw a dolphin successfully is quite simple provide you give it life. This best achieved by drawing it as jumping out of the water.



Narture is available from Gordon D'Arcy, Killeenaran, Kilcolgan, Co. Galway, Ireland. It costs €25.00 per copy (plus €3.50 p&p per copy). For further information contact Gordon D'Arcy directly at gordondarcy1@eircom.net

Sketch © Gordon D'Arcy

Ideal Gifts

A Beginner's Guide to Ireland's Wild Flowers

Have you ever wanted to put a name to the wild flowers you see about you every day, or while on a walk, or on holiday? With the help of this pocket-sized guide, you will be able to do just that. Beginners of all ages will be introduced to the many common wild flowers found around Ireland.

Published by Sherkin Island Marine Station

Price: €7.50 plus €1.00 p&p ISBN-13: 978-1-870492-23-2 Softback: size 140mm x 100mm 208pp

A Beginner's Guide to Ireland's Seashore

A pocket-sized guide, suitable for beginners of all ages. With the help of this book you will be able to explore the wonders of marine life on the shores around Ireland.

Published by Sherkin Island Marine Station

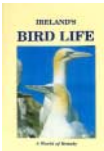
Price: €7.00 plus €1.00 p&p ISBN-10: 1-870492-96-X ISBN-13: 978-1-870492-96-6 Softback: size 140mm x 100mm 208pp

The Natural History of Sherkin Island, West Cork - An Introduction

Perhaps you haven't been to Sherkin Island before, or maybe you're coming back again, as many people do. This book will introduce you to some of the wonderful wildlife and flowers on this beautiful and peaceful island, which lies just 10 minutes by ferry across the busy little harbour of Baltimore, West Cork. *Published by Sherkin Island Marine Station*

Price: €4.95 plus €1.00 p&p ISBN-13: 978-1-870492-38-6
Softback: size 208 mm x 98 mm - 72 pp

Ireland's Bird Life. A World of Beauty



Ireland's Bird Life - A World of Beauty contains photographs from the vast collection of Richard Mills, who is recognised as one of Europe's finest photographers. The book contains 200 colour photographs from his vast collection which show the great talent of a man who is a craftsman with his camera. *Published by Sherkin Island Marine Station*

Price: €12.00 plus €1.00 p&p. ISBN-10: 1 870492 80 3 ISBN-13: 978-1-870492-80-5 Softback A4 160pp

Available from: **Sherkin Island Marine Station, Sherkin Island, Co Cork**
Tel: 028-20187 Fax: 028-20407 sherkinmarine@eircom.net www.sherkinmarine.ie
Books can now be purchased using Paypal.

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Fish, Tyres and the Environment

By Mike Ludwig

Image courtesy of US Navy

Osborne Reef, an artificial reef off the coast of Fort Lauderdale, Florida

EARLY fishermen probably recognized that many aquatic species liked to be near structures. Because so much of the ocean and seafloor are without features, adding something that changes the topography or currents attracts aquatic species. Fish, crabs and even some shellfish tend to congregate around structures. And, it is not just the bottom (benthic) species; more than 300 species of fish that live between the bottom and the surface (pelagic species) appear to like some structure in their lives.

Some fishermen take advantage of this attraction and carry stuff offshore to improve their catches. Instead of chasing the fish, they lure species to congregate around the structures. These floating "fish aggregating (or aggregation) devices" (FAD) and their seafloor counterpart, artificial reefs, have a purpose; making it easier to catch fish. But, not everyone likes these structures or their purpose. Conflicts are created by different groups targeting different species or just fishing in similar areas. Often, structures are left at sea creating other problems. Hitting an unmarked FAD floating 200 miles offshore can be exciting or deadly depending on what you are driving. Then there are the things dumped on the bottom. Some recreational fishermen dumped old cars into the Gulf of Mexico to improve fishing. Unfortunately, storms dispersed the cars across the seafloor. Shrimp fishermen catching those cars rather than the valuable shrimp they sought were not happy. Trust me, getting a 1948 Ford out of a shrimp net is not easy. Seeing these problems, regulatory agencies created programmes to manage artificial reefs. One of the first requirements was that the reefs be made of appropriate materials. That created some interesting problems itself.

One of the approved materials was worn out tyres. It is said that Americans wear out one vehicle tyre for every resident, every year. Most worn out tyres cannot be reused. By the 1970s, tyre dumps were running out of space. On occasion and either by accident or design, some of those tyre piles caught on fire. Mountains of burning tyres proved virtually impossible to extinguish. A burning tyre gives off large amounts of black smoke and nasty odours (making them protestors' "tool" of choice). Enter the recycle wizards.

Floating breakwaters were the oceanographic darling of the moment back then. Tyres became the material of choice for those breakwaters (cheap and available). And, they could be a FAD. Unfortunately, tyre breakwaters tend to break apart and drift onto shorelines. Removing tyres from someone's beach is difficult and costly. Floating tyre breakwater construction died pretty quickly, but some were successful and continue to function today. The breakwater problems were a warning that tyres and water should not be mixed, but the warning was missed. The next tyre recycling idea was pure genius; use tyres for artificial reef construction material! Artificial reef proponents were always looking for construction material. Here was an unlimited supply of material that solved the tyre disposal problem in an environmentally friendly manner. While the tyre reef idea may not have originated in Florida, it was at the Osborne Artificial Reef in Broward County, Florida that it reached its highest use. That reef was started in 1972 but was really expanded by placing about two million tyres at the site. The effort even had a Tyre Company dump a gold painted tyre into the waters off Fort Lauderdale from their Blimp. Local support groups watched the event then tossed their cargoes of reef creating tyre "habitats" from their own boats. The reef would "grow" to cover more than 36 acres of Gulf of Mexico bottomland.

Securing tyres to the seafloor is difficult so, it was no surprise that the anchoring "solutions" poured forth as fast as the tyres rolled into the preparation sites. Hey, we were creating new habitat for fish, improving recreational fishing opportunities, and using an environmentally friendly recycling programme to get rid of old tyres! Tyres were holed, split, inverted, banded, cabled, secured to and embedded in concrete, tied to anchors, fitted with old concrete test samples to be made into configurations and shapes on the seafloor. Skeptics required that all tyres headed for a reef be marked with the owner's name and placed in water depths below the wave energy zone, or so it was thought. When other tyre recycling options were precluded by changes in environmental regulations, recyclers scrambled to get their tyres to sea and pocket the money they received from tyre dealers. Tyre reefs were quickly proposed everywhere. Then the tyres started coming loose from where they were placed and crashing into natural reefs and coming ashore. These problems were compounded by the discovery that tyres are not very good aquatic habitat. Today, every time there is a storm, a waterfront property owner may get another pile of reef tyres and maybe there is a phone number to call for their removal. Florida is removing Osborne Reef but it is likely to take more than eight years. Since 2007 they have removed about 100,000 of the approximately 2,000,000 out there. In the Northeast a lot of the tyres on reefs sank into the seafloor and are no longer habitat or visible. And, we went back to burning old tyres only this time, cleanly and for making energy.

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