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DRY STONE WALLS
Ireland's Heritage
A New Beginning for the Seafood Industry?

By Matt Murphy

In the summer of 2006 the Minister of Communications, Marine & Natural Resources, Mr. Noel Dempsey, TD, and the Minister of State, Mr. John Brown TD, announced an independent Strategy Group to make proposals for the development of a comprehensive integrated-led vision for the future of the Irish Seafood industry.

Dr. Noel Cawley, former Chief Executive of the Irish Dairy Board was appointed Chairman of the Review Group and the other members were Mr. Joe Murrin, for many years a major spokesperson for the fishermen and Mr. Raun O'Brac, former Chief Executive, Udaras na Gaeltacht. This proved to be the ideal mix as each had different expertise to offer.

The Strategy Group held four regional meetings in Donegal, Galway, Kerry and Waterford to meet stakeholders. Apart from the public consultation meetings the Strategy Group met on 21 occasions over the period of the review, which ran from July to November 2006. A number of those meetings were with the CEOs of the four major fishing organisations in the Republic. The outcome of the review was the publishing of the report “Steering a New Course”.

The most extraordinary aspect of the report is the publication of summaries of the submissions and issues raised at the regional meetings. They show the depth of interest and at times frustration that stakeholders feel. There is no doubt that people wanted the Strategy Group to understand the problems that the seafood industry is encountering.

The Strategy Group’s report is the most important analysis of the seafood industry ever undertaken because the Group consulted widely and above all has listened. If its recommendations are not brought to fruition then the industry will die in a very short time. Already we have seen the number of people in processing reduced by over 600 people, from its peak of 1,360 vessels of less than 12 metres, will die in a very short time. Already we have seen the number of people in processing reduced by over 600 people, between 2000 and 2005.

Twelve years ago there were up to 70 vessels landing into the port of Castlebay. With the whitefish renewal programme and decommissioning this number is now close to 20. This reduction has a knock on effect in the town and its surrounding areas. Castletownbere is but one port affected by overfishing and lack of conservation regulations at the fishing grounds.

Much has been made of Irish fishermen fishing above their quota - which must be condemned; but what about the Dutch, French, Spanish and other vessels fishing in our waters? They also overfish, but who is checking on them? Until they too are reined in, all the conservation regulations in the world will not see our fishing water protected and our fish stocks to survive.

The most important recommendation of the Strategy Group is that a committee under the Chairmanship of the Department of Communications, Marine and Natural Resources be established to coordinate state support for the industry. Minister Dempsey has gone further; he has asked Dr. Cawley to accept the Government’s request to Chair a high level group to oversee the implementation of all the recommendations set out in the report. This decision is of immense importance. It will mean the report will not gather dust on some shelf. Dr. Cawley accepted on condition that he got a separate secretariat, a request that the Minister agreed to. All stakeholders including state institutions and semi-state bodies must understand one thing. Dr. Cawley has an immense record for delivering when at the Irish Dairy Board. He will, I believe, do the same for the seafood industry and will not be fobbed off by anyone.

It is to be hoped that the Producers Organisations representing fishermen will continue to consolidate. They have already formed a Federation of Fishermen with a rotating chairman for six months from each of the four producers group CEOs. Frankly this is not enough; they must amalgamate the four Producers Organisations, coming together with one voice for the future of the fishing industry. It is important to encompass all those fishing offshore and especially inshore. Let us not forget that the inshore fleet comprises of 1,360 vessels of less than 12 metres, giving employment to over 2,300 people.

Surely few are members of any of the Producers Organisations. They must realise that if they cannot expect to achieve change without leadership and unity.

The Strategy Group highlights that the landings by Irish trawlers of fish in foreign ports in 2000 were 75,679 tons against 114,168 tonnes in 2005. This needs addressing to see if much of this tonnage can be landed in Ireland, resulting in extra employment on shore.

The pelagic fleet of vessels gets a mention but the Strategy Group did not make any recommendations except to state that needs restructuring, with the introduction of a quota management system etc. However it is believed the real reason it was not addressed is that the compensation required to decommission a number of these vessels would be too costly to the state.

The Strategy Group sees the huge potential for aquaculture and this is confirmed by Government who will invest over €100 million into the development of the industry. There is much wrong in the industry - the burden of regulations and in particular the licence regime. However the report is very positive regarding the prospect for this industry, which is worth €100 million annually should be developed more and it makes recommendations for change.

What we in Ireland have failed to realise is that 50% of fish production worldwide is now from aquaculture. We have failed to utilise the excellent quality of the waters around our coasts. We have a salmon industry that has never taken off. We should be farming 50-60,000 tonnes instead of 12-14,000 tonnes. Why? We have also invested much research funding into turbo, sea urchins and abalone and our success could be written on a postage stamp. The only bright lights are mussels and the impartment of the Marine is already under huge pressure from Chile where production of mussels is over 180,000 tonnes and will be up to 320,000 tonnes plus by 2010. They are now selling into the EU markets, along with the Irish aquaculture industry.

The Strategy Group made suggestions on the need for new facilities to be built e.g. fish ponds etc. However they did not elaborate. Surely the time has come to have a similar approach to the Irish Dairy industry. The same team who masterminded the Strategy Report should carry this out, because they now understand the needs of the industry. At present over 20 Irish institutions receive more than €60 million annually for research in the marine environment. It is interesting to note that only two of these made submissions to the Strategy Group.

On page 12 and 13 we have set out some of the main recommendations of the Strategy Group. I want to stress that the Irish Seafood Industry should be incredibly thankful to Dr. Cawley, Mr. Murrin and Mr. O’Brac for their independent report. The Government has accepted it in full and has committed over €334 million over the 2007-13 period for its development, which has to be a major boost to the industry. This is a golden opportunity for them and they will not get another one.

The industry cannot have all their demands met. They must compromise on some issues or else they will end up with nothing. The major issue hindering progress, which must be solved, is the distrust between the fishing industry and the Department of the Marine. If this is not sorted out then the Strategy Report can be put in the waste paper bin for recycling. Maybe the kernel of this problem is that the entire production of the Marine is under-funded and thus understaffed.

Dr. Cawley stated at one of the Regional meetings that in his years with the Irish Dairy Board the farming community and the Department of Agriculture had their differences but had a united front in Europe when the chips were down. Let us hope he is correct for the future of our industry under the carpet and are taken on board by all sides involved in the Seafood Industry. A report on marine resources in Ireland when some individual dies “His or her likes will not come again”. We will not have a report produced by a Strategy Group with such clarity and such urgency because if its recommendations are not carried out there will be no industry left to report on.
Seabirds Down Under

Part III

In New Zealand there are about a dozen breeding colonies, mainly on islands off North Island. Most of these are difficult to get to, but happily for us there are also two large mainland colonies. With limited time, we decided to visit the mainland colony at Muriwai Beach, which is on the western coast of North Island, less than an hour’s drive from central Auckland. There’s a car park and picnic area at the south end of the beach and from there it’s a short walk along a cliff path to a rocky headland and stacks where the Gannets are located. The colony is situated on a couple of mainland promontories and stacks and islands a little distance offshore. The mainland sections are reached by paths to viewing platforms, and in one place the Gannets sit quietly on their nests within a couple of metres of a viewing platform, seemingly quite unperturbed by the comings and goings of the human visitors. Here you can spend as little or as much time as you like observing the breeding activities of the dense colony, taking photographs, and gazing at the vastness of the Tasman Sea and the wonderful wilderness of the coastal beaches and headlands. When we were there, in late November, it was the middle of the breeding season and we could see all stages of the nesting cycle – courtship, nest building, incubation of eggs, feeding of chicks, and chicks at various stages of development from little naked and blind black things to large balls of snow-white down.

Here in Ireland we have Great Cormorants and Shags, but in New Zealand there are seven species on the three main islands – Great Cormorants (the same species as ours), Little Black Cormorants, Pied Cormorants, Little Pied Cormorants, New Zealand King Cormorants, Stewart Island Cormorants, and Spotted Shags. On islands away from the three main islands of New Zealand there are an additional four endemic cormorants – Chatham Island, Campbell Island, Auckland Island, and Bounty Island Cormorants. We didn’t manage to get to any of these far-flung islands, so failed to see any of the birds endemic to them. However, on North and South Islands we did encounter all seven species found there, three of which (New Zealand King Cormorant, Stewart Island Cormorant, and Spotted Shag) are endemic to New Zealand. Great Cormorants and Little Black Cormorants could be found nesting in trees on lake islands, while the others were mainly on coastal cliffs and headlands. The New Zealand King Cormorant is confined to the Queen Charlotte Sound at the north end of South Island, a 20 km fjord from which the interiorland ferry sails to Wellington. We went out on a dolphin-watching boat from Picton, but unfortunately could not get to the island at the mouth of the sound where the King Cormorants nest, due to rough seas. However, within the sound we had a brief view of one King Cormorant flying in and fishing.

Somewhat surprisingly, for an area with such a huge diversity of seabirds, New Zealand has only three gull species – Kelp (or Black-backed) Gull, Red-billed (or Silver) Gull, and Black-billed Gull. The Kelp Gull is rather similar to our Great Black-backed Gull and is found in the temperate and sub-Antarctic zones of the southern hemisphere; the Red-billed Gull is very common all around Australia and New Zealand. The Black-billed Gull is a New Zealand endemic, and is found mainly inland, while the similar Red-billed Gull is mainly a coastal species. All three species are common, and the two smaller ones are often quite tame.

Five species of terns breed in New Zealand. The Caspian Tern is found on the coasts of the main islands, and is also widely distributed in North and Central America, Africa, Eurasia and Australia. The Antarctic Tern breeds on islands south of South Island, and also on remote islands in the South Atlantic and southern Indian Oceans. In New Zealand the little white Fairy Tern is restricted to the northern peninsula and islands of North Island, and is also found on the coasts of Western and South Australia, Victoria, Tasmania and New Caledonia. White-fronted Terns are the most numerous terns on the New Zealand coast and are endemic to the region. In winter they wander as far as south-east Australia. The Black-fronted Tern is a New Zealand endemic and is confined to the South Island, where it is closely associated with the enormous gravel outwash plains and braided rivers east of the Southern Alps. We saw all these terns on our visit to New Zealand, although we ran out of time and were not able to explore the northern peninsula of North Island.

So, if you enjoy watching seabirds, New Zealand is the place to go, for its huge diversity of seabird species, its many endemic, spectacular colonies, and the wonderful experience of seeing albatrosses at one or two metres range off Kaikoura.

Photos: © Oscar Merne

Left: A view of part of the Australasian Gannet colony at Muriwai, North Island.
Below: A Group of Black-billed Gulls island on South Island.

Above: A Red-billed Gull on its nest.
Below: A group of Black-billed Gulls island on South Island.
Air Pollution
Threat to our Built Heritage

By Paul McMahon

ATMOSPHERIC pollution is now recognised as a global problem, and since the 1980s UNESCO has voiced its concern about the accelerating deterioration of the world’s architectural heritage due to the impact of acid rain. For many countries, including Ireland, whose tourist industries are based around their historical monuments this heritage represents a major economic resource. It is also now estimated that more than half of the financial capital of each European country is presently tied up in its building stock. There is Government commitment to sustainable development by encouraging the use, re-use, and maintenance of the existing building stock so that those buildings which have been in use for many decades, or even centuries, will continue in use for years to come.

The provisions in the Planning and Development Act 2000 for the protection of the architectural heritage reinforces this commitment. Conserving buildings depends on having a detailed knowledge of the environmental threats that exist, the ways different materials react to them, and the various techniques that exist to counteract damage. Accurate data on the buildings history, the materials and techniques used and what, if any, repair work has been carried out, is essential.

Rate of Decay

Many of today’s air pollutants form acids when in contact with atmospheric water; some of these acids are strong (e.g. sulphuric and nitric) while others are weak (e.g. carbolic). It is easy to prove that the presence of corrosive acids causes an increase in the rate of chemical attack on a range of building materials. Many traditional building materials including iron and stone, such as limestone and sandstone, with a high calcium content, such as are susceptible. Modern building materials like concrete and steel can also be affected. Unfortunately chemical attack is only one of various processes involved in the deterioration of porous and brittle materials which constitute the large majority of the exposed surfaces in our historic building stock. Processes that are mostly physical or mechanical in character (thermal expansion, water absorption, frost) are always active, independent of air pollution. It is therefore not possible to establish general mathematical damage functions for these materials, correlating rate of damage directly to pollutant concentration.

As an example of the complexity involved in evaluation of decay rates we can note that a single stone might have different surface features depending on its history. A wide range of climatic and technological factors (e.g. climate, carving, mechanical cleaning, structural loading) can cause surface failure and exposure to acid attack.

These surface features constitute the “memory” that the material retains of its previous experience and which has a great influence on its future behaviour. In other words it may be said that the rate of decay is higher for materials which have a history of natural deterioration or surface damage caused by people.

Conservation Policy

A conservation policy for historic building materials in a polluted environment may be established following two different approaches:

(a) Reduction of the climatic aggression including air pollution
(b) Improvement of maintenance practises

Reduction of the pollution level

The evidence collected to date indicates that, among the various pollutants, there is definitive proof of the influence on the deterioration process for sulphur oxides and the sulphuric acids they form. Attacks by this acid result in the formation of a black gypsum crust which are frequently found on the decayed surface of many of our heritage buildings. Due to the obvious and ugly visual effect of this “stone cancer” the less obvious effects of nitrogen emissions and naturally occurring carbon has often been neglected in the discussion on conservation policies.

In the case of nitrogen oxides recent research indicates that decay originates from biological processes (penetration of water or production of decay agents by bacteria). The impact of carbonic acid, while considered slower, can still be found on deteriorated surfaces.

A further complication is produced by the fact that the pollutant may be brought onto the surface by wet deposition (acid rain) or dry deposition (aerosols and dew).

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Different symptoms and rates of decay are produced by both (e.g. white eroded surfaces are formed on limestone by wet deposition and black crusts by dry deposition, involving mainly sheltered surfaces and local pollutant sources).

High concentrations of air pollution undoubtedly cause an increase in the decay rates of vulnerable historic building materials. Everybody agrees that the high oxide concentrations existing today must be reduced anyway because of the risk to human health and vegetation. When, however, an improved situation is reached in which, say, 80% of the Sulphur Dioxide has been removed (as in Dublin after the Clean Air Act) it is more difficult, and I would suggest perhaps not practical, to prove the case for further reduction.

Furthermore, one cannot say that if, for example, the sulphur dioxide concentration goes down to zero, the maintenance cost of our built heritage will also drop dramatically. As mentioned earlier, other deterioration processes exist, and, because of the “memory” factor, materials which have a past history of decay tend to undergo faster decay in the future. Actually it is in the protection of our new building stock that we could expect the largest economies.

Improvement of maintenance practises

Reduction of air pollution is not the only type of environmental control which may improve the conservation of historic building materials. Provisions aimed at reducing the impact of temperature variations, frost, moisture and other agents of decay are also of great importance. These measures, however, cannot be applied on the global scale of a region or a town, as in the case above, but only to a single building complex or the vulnerable parts of that complex.

They can therefore be classified as architectural provisions, as they coincide with the correct conservation practise derived from experience in the performance of historic building construction. The establishment of a preventive maintenance regime for a heritage property will identify the potential threats to the building. Where aggressive airborne acids are deposited on the structure’s surface appropriate cleaning methods and protective measures can be put in place. Protective measures can range from the simple, but often neglected, clearing of gutters, the use of modern technological interventions or the removal or sheltering of vulnerable material for its long term survival.

Conclusion

Conserving our built heritage depends on having a detailed knowledge of the environmental threats that exist, the ways different materials react to them, and the various techniques that exist to counteract damage. Whilst salinity, humidity, industrial pollution and traffic exhausts will all play their part we must not jump to conclusions.

City buildings continue to deteriorate despite a decrease in sulphur deposits over the last two decades. The cause now appears to be a synergistic one between several different pollutants. To be effective we need to establish interdisciplinary expert research which should aim to produce reliable information on the real exposure conditions that Ireland’s historic buildings face.

By Paul McMahon, Heritage Services, Office of Public Works, Dublin, Ireland. This paper was presented at the Sherkin Island Marine Station Annual Environmental Conference on “Air Pollution”
By Daphne Pochin Mould

SPRING 1951, walking across Galway dock to board the venerable “Dun Aengus”, I passed the Claddagh’s still working fleet of Galway Hookers. These black hulled, red sailed and engineless boats carried Connemara turf for Aran Island fires, and general goods all around the coast. On Inishmore a “car” meant one horsepower, or one donkey - no internal combustion engine had yet arrived. A rag and stick vessel; a canoe would take me across the turbulent sea between Inishmore and Inishmann and it was rough. We watched the sea, and the woman of the house then said “them canoes is dangerous”. The men said “lets go, if we listened to the women we’d never do anything”. So the little ship of wood and tarred flour bags was heaved into the sea and waited us across to Inishmann. Dun Conor towered above the thatched cottage where Synge stayed. Years later, I met an elderly man who remembered Synge and looked forward to the completion of the island’s airstrip and going flying. Synge, Robin Flower, the islanders themselves, have made the canoe, the currach into a wonder today enthusiasts build them anew and race them. Tim Severin built a skin boat, and took her across the Atlantic, the only such vessel ever to reconstructions of ancient vessels, and going flying. The inland, layers themselves, have made the canoe, the currach into a wonder ship. Today enthusiasts build them anew and race them. Tim Severin built a skin boat, and took her across the Atlantic, the only such vessel ever to complete the island’s airstrip and going flying. Synge, Robin Flower, the islanders themselves, have made the canoe, the currach into a wonder story. Icebergs, underset eruptions, whales, were all known at the time the Voyage romance was written. When Surtsey erupted off Iceland in November 1963, Icelandic geologists found the description of the island of demon smiths exactly like Surtsey in the first explosive phase. Surtsey today is stabilised with its own lighthouse.

Further, in the legend, Brendan fails to find the Land of Promise and calls on his foster mother, St. Ita. Being a practical woman, she tells him the Land of Promise cannot be reached in a ship in whose building blood has been split. Back to wood and iron, and you can go anywhere.

The skin boat has been around for a very long time. The Eskimo kayak, of skins, sewn by the wife for her man, is perhaps the most seafaring. You can do 360-degree rolls without taking water. For carrying cargo, the Inuit build an almost rectangular vessel of skins but it has to be dried out every two days. And the Inuit have nothing but sealskin to cover the framework of their vessels. They do not, could not, go trans-ocean.

How did boat building start? A floating log, just as a fallen tree may have given the idea of a bridge. Tie several together and you have a raft. Go further and hollow out your log, and you have the sturdy dugout canoe. Many turn up in our bogs and would be ideal for marsh and river travel. Today they are still wide but with motors to push them along. A skin boat is very easy to tear if dragged over rough ground. When some years ago, a dognut came out of Cummeatrush Lake, near Millstreet, Co. Cork, it was decided to conserve it in a trough of water some way off. The farm tractor was hitched to it and it bumped happily along over the rough moor without coming to harm. Remains of wooden, sea-going Bronze Age ships have turned up in mudflats in Britain, even one loaded with bronze vessels for probable export. Ireland then was a ship builders dream with its great forests of oaks, and the Irish went trading over to Wales bringing back big cargoes of slaves, among whom was St. Patrick. They may even have gone as far as continental Europe. There was no way skin boats could do it; further the country had not the resources to make them. It was cattle country, yes but leather was needed for hangings, clothes, shoes and horse harness and there was no chemist shop to supply drugs against insect damage. Tim Severin got the finest skin for his vessel, ancient Inland would not have it. Consider too the trouble making a skin boat involves - you had to hunt your animal, kill it, skin it and cure the skin. Wood is so much easier.

The Gaelic word, corach, means small boat. Sir Walter Scott who has a very good ear for dialect, had the Highlander tell the hero to wait for “Ta curragh” and when it arrived it was a big row boat with a sturdy crew of rowers. Adamnan’s life of Colm Cille of Iona has a number of names for different types of small vessels, and using a Latinisation of what may be from Gaelic corach, tells they were towing logs to Iona for work on the monastery and ship building. It was hard rowing, the wind was against them and they asked the saint for help. The wind veered and they raised sail and sped on. No skin boat, keelless and light, could do such work. These were heavy enough tugs with masts and sails.

So don’t believe stories of saints in skin boats scudding around the islands. Or hermits, on such places as the Skellig for modern research puts all the hermits on the mainland in quiet places in wood and marsh, often today marked by the place-name desert. And what of the rag and stick boats of the west? The Blasket Islanders had wooden boats, which were seized for rent, and they were forced to currachs, which Dinghe had just started using for lobstering. The western islands were very poor and making do was their way of life. Rag and stick needed very little timber, old flour bags and tar and you could go out to catch essential food. Yes, they were very good in wild seas in good hands but not so good that the riders to the sea might not return. “Them canoes is dangerous.”

"My dream is of an island place which distant seas keep lonely.
A little island on whose face the stars are watchers only."
Elizabeth Barrett Browning

“Them canoes is dangerous”
GIBRALTAR’S Haven for Nature

By John Akeroyd

THE Mediterranean Sea has endured a long, exciting history. Evidence of more turbulent times is numerous castles and fortified towns on rocks, cliffs and islands along the coasts. One of the most striking of these ancient strongholds is the Rock of Gibraltar, a 1398-foot, isolated limestone mountain guarding the entrance to the Mediterranean from the Atlantic. Seized from Spain in 1704 by an Anglo-Dutch force and ceded to Britain by the 1713 Treaty of Utrecht, town and Rock remain a British enclave. Gibraltar is in fact an outgoing cosmopolitan place, a Mediterranean seaport home to a multi-racial mix of British, Spanish, Moroccans, Genoese and others, not least Irish (one street is still called Irishtown). The Moors were here longer than the Spaniards, and indeed gave Gibraltar its name – Jebel al Tariq, after the Tariq who captured the Rock in 711. A Moorish castle survives amid extensive 18th century British fortifications and barracks, which bear witness to determined French and Spanish sieges, notably the Great SIEgs of 1779-82. High on the Rock, gun batteries look out to sea, huge iron rings bear witness to cannon hauled up to commanding positions and the limestone is riddled with defensive tunnels and galleries. For two centuries the harbour was a mighty naval base, invaluable during World War II.

The modern town, which in recent years has seen a frenzy of building, covers much of the western and northern sides of the Rock, but large areas of semi-natural vegetation and a remarkable range of habitats survive on the upper ridge, rocks and slopes, on the eastern sand-slope (a great prehistoric dune), and on cliffs here and there elsewhere. Planning is chaotic, property prices have gone through the roof, and poorly executed building projects encroach on surviving wild areas and their rich biodiversity. Yet, somehow, plants – some 600-plus native species – and animals persist and even thrive. The Upper Rock, a nature reserve, has fine stands of tall scrub and low woodland, dominated by characteristic Mediterranean trees and shrubs such as wild olive, buckthorn, lentisc, Oxyris, dwarf fan-palm and brooms. Vigorous climbers such as Simalus aepyeus, wild madder, Mediterranean honeysuckle, and two elegant winter-flowerers, Clematis cirrhosa and an Andalucian endemic Dutchman’s pipe (Aristolochia baetica), render dense vegetation quite impenetrable. Conversely, other habitats have all but disappeared, such as the sandy isthmus that links the Rock to Spain, destroyed by the construction of the airport, and residential and holiday developments creep down the east coast.

Several of the Rock’s most characteristic animal and plant inhabitants are more typical of North Africa, less than 15 km to the south: the famous ‘apes’ or Barbary Macaques, Barbary Partridge (similar to Red-legged Partridge), and two hummocky perennial plants, Gibraltar Mouse-eared Chickweed (Cerastium gibraltaricum) and the flesh-leaved white or pink-flowered Gibraltar Candytuft (Iberis gibraltarica) occur nowhere else in Europe. A few choice plants occur nowhere else, especially the handsome pink-flowered Gibraltar Catchfly (Silene tomentosa), once thought extinct; also a striking sub-shrubby variant of Yellow Sticky Restharrow (Ononis narvis var. romassissima), a dominant plant of the sand-slope, and a compact mossy saxifrage of high sheltered gullies, Saxifraga globulifera var. gibraltarica. All are now in cultivation at Gibraltar’s Alameda Botanic Gardens and have been reintroduced to the wild to restore or reinforce diminished native populations. New plants keep turning up on the Rock, from inconspicuous weeds like Fiddle Dock (Rumex pulcher) to showy bulbs such as autumn-flowering Mascati parviflora. Resident birds too are returning, with ravens and eagle owls breeding again in recent years. And each spring and autumn huge flocks of migrants pass the Rock as they navigate the Straits of Gibraltar.

In July 2006, the EU recognised the Upper Rock and sand-slope as an area of Special Conservation Interest, alongside coastal waters rich in dolphins and other marine life off the southern part of the Rock. The same year auspiciously marked the 190th anniversary of the Alameda, under the inspired directorship of Dr John Cortes both nerve centre of a comprehensive integrated conservation strategy for the Rock’s flora and headquarters for the Gibraltar Ornithological and Natural History Society (GONHS), which has published a Biodiversity Action Plan (2006) for...
Gibraltar. A major initiative co-ordinated by Dr Eric Shaw (whose main research is the macaques) has restored the sand-slope, covered for decades by a corrugated iron water catchment, adding 80 ha of habitat to the Rock – and the best displays of wildflowers in almost a century. Sown with local seed in the spring of 1997, within a year the slope held some 60 species and now more than 80 are present, including healthy populations of grasses. A 2005 fire caused little damage, although serving to eliminate invading alien Acacia, and insects, reptiles and birds, not least Barbary Partridge, are returning to the restored habitat.

Gibraltar is thus not only a classic example of a Mediterranean coastal town with rich habitats on its doorstep, but also demonstrates what can be done to conserve species and habitats in close proximity to human habitation. For more information, visit the GONHS website (www.gonhs.org).

Dr John Akeroyd has been working on botanical surveys at Sherkin Marine Station since 1990. Leslie Linares, who took the photographs, is a retired science teacher and co-author of The Flowers of Gibraltar (1996).
The Forest School

By Sharon Jones

FOREST SCHOOLS started in Sweden in the 1960's for disadvantaged children. They have demonstrated success with children of all ages who visit the same local woodlands on a regular basis and through play, learn about the natural environment, how to communicate skills. It is now accepted that children benefit from outdoor activities which are satisfying to the child, and their achievements greater.

St. John the Baptist Primary School

One of the schools involved is St John the Baptist Primary School in the village of Ruyton XI-Towns, Shropshire. After a very successful term of Forest School at an exemplar woodland we decided to develop our own sessions, starting with the school grounds. The project here is well under way, and so far has included training in Forest School leadership and enhancing the school grounds with a Forest Schools Area. This now has a shelter, fire area, and log seating, also a magnificent curved storytelling chair. The site has been further enhanced by a woven willow tree. The project has received a great boost because a nearby woodland has kindly been made available by a local farmer, Mr John Ginnis. This is currently being prepared and has involved some thinning of trees to create a relatively open area for children’s activities. As in the school grounds, there will be a shelter, fire area, and log seating.

All of this preparation has involved teachers, parents, school governors and others from the village, and local craftsmen and women. Most importantly, it has involved the children themselves, in all kinds of activities, such as planning, clearing brash from the woodland floor, helping to build a shelter, and weaving willow leaves.

How Does It Work Educationally?

A Forest School provides ways for meeting Foundation Stage/National Curriculum learning objectives whilst developing practical life skills and encouraging child initiated learning, which is observed and assessed. Many children benefit from and prefer a practical element to their learning, and achieve greater levels of success in this context than in a traditional classroom environment. All children benefit from opportunities to demonstrate a wider range of knowledge and expertise – especially important for those who do not often shine in the classroom. Their peers accord them and their achievements greater respect.

A Forest School is particularly successful in developing self-esteem and confidence, and motivating children who, for a range of reasons, struggle in a classroom environment. There are additional physical, social and health benefits for children and young people who are leading increasingly indoor lives, helping them to enjoy physical activity outdoors and mitigate obesity.

Children and young people become more confident in their own natural and made environments, and acquire a deeper understanding about environmental issues locally and globally. Parents, particularly fathers, are more likely to involve themselves in projects of this sort, and become engaged in their children’s education. Improved behaviour and motivation go back into the usual learning environment with the children, and have an impact on achievement.

The Vital Importance of Play

“Play is a generic term for a variety of activities which are satisfying to the child, creative for the child and freely chosen by the child” (The charter for children's play). There have been many studies about children’s play. It is now accepted that children learn through play and that play is essential to our overall development.

Play is natural and helps children to:

• Prepare for life
• Find out about their environment
• Develop confidence and self esteem
• Sort out choices
• Express themselves
• Develop the imagination
• Be creative
• Be energetic and boisterous
• Use social skills, like sharing and communication
• Have opportunities to learn about other cultures
• Take risks
• Resolve conflicts
• Negotiate
• Experiment
• Solve problems
• Reflect and contemplate
• Test out their knowledge and understanding
The Company's Credo

Janssen Pharmaceutical Ltd use the J&J Credo as their fundamental principle of operation. Originally written in 1943, but regularly reviewed and revised as necessary. The para-graph relating to responsibilities towards the community is as follows:

We are responsible to the communities in which we live and work and to the world community as well.

We must be good citizens – good works and charities and bear our fair share of taxes.

We must encourage civic improvements and better health and education.

We must maintain in good order the property we are privileged to use, protecting the environment and natural resources.

This Credo document guides each member of the J&J family and company to its stakeholders: shareholders, employees, neighbours, customers, suppliers, etc; to identify their needs, and to satisfy those needs. This single page is further elaborated into J&J global policies, (e.g. J&J Environmental pol- icy), procedures, (e.g. Business Conduct) and systems. In turn, Janssen Pharmaceutical Ltd have incorporated these into their local certi-fied management systems and policies.

The number one priority is to ensure that the organisation runs the right to exist with respect to it’s requirements relating to Health, Safety and Environmental Protection. It operates under an Integrated Pollution Prevention and Control (IPPC)licence (first issued in 1995) issued by the Environmental Protection Agency. This per-mits regulates all aspects of its site operations including emissions control, waste management and resource reduction (e.g. energy and water). Janssen Pharmaceutical Ltd. achieve consistent and resource reduction (e.g. energy and water).

**HSE Work Area Teams**

Work areas teams consisting of the Area Man-ager and area representatives are in place across the site (e.g. Production Plant areas (x3), Envi-ronment, QC, Admin, Warehouse and Engineering). Each work area team is responsi-ble for developing their own work area HSE Management Action Plan and reviewing their own HSE performance via the use of a scorecard.

**Developing a Strategic Focus**

An important element of any Environmental Management system is looking ahead, monitor-ing emerging issues and ensuring that robust processes exist to enable the early identification to systems in order to ensure changes to its systems to address the needs in a timely manner in order to ensure continued compli ance. Various mechanisms are used by the site HSE process to stay abreast of these changes. Quarterly reviews are conducted on all pend-ing Environmental legislation (Irish and EU) with action plans being developed where the need to change is identified; be it a need to amend a site procedure, policy or procedure. Membership of the Pharmaceutical Irish Environmental Network (PIE), an Environmental group and Comhar, the National Sustainable Development Council provide other means for an up to date and informed approach to legislative changes as well as providing a mechanism for commenting on draft legislation.

**Checking Environmental Performance**

As a requirement of its EPA IPPC licence the company must adhere to strict monitoring and measurement conditions relating to its opera-tions. Results of all monitoring activities are submitted to the EPA on an annual basis. The EPA also conduct monitoring on a frequent basis of both emissions to air and emissions to water. Audits of the facility are also routinely conducted by Agency personnel.

An extensive internal audit programme oper-ates each year. Personnel from across the site have been trained as Internal auditors and each year they conduct assessments of all operations against both the ISO 14001: 2004 Environmen-tal Management Standard and Corporate Sustainability policies.

Environmental Objectives are integrated into the overall objectives of the site HSE process. Monthly and quarterly performance assess-ments are conducted by the HSE Committees. **Business Benefits**

The company strongly believes that the develop-ment and maintenance of a robust and fully integrated environmental management system enables an organisation to ensure compliance with all Environmental requirements while at the same time yield clear business benefits.

• Integration has allowed all employees to un-derstand that Environmental management is not just the responsibility of the environ-mental function but that all employees, contrac-tors and visitors have a role to play.

• Costs associated with resource usage (e.g. Solvent) have been reduced in line with the % reduction in usage volumes at a mini-mum. The focus on campaign lengths and Process Excellence projects on Water and the Solvent usage associated with cleaning have led to significant cost avoidance.

**An Environmental Partnership**

Environmental Compliance can only be achieved via the engagement of all stakehold-ers (Employees, Suppliers, Community, Customers). Janssen uses a partnership approach between all key stakeholders to increase the level of awareness of the wider community on the importance of environmen-tal protection. The following are some examples on how this is applied.

**Employees**

• Employees are an integral part of the site HSE process and are invited to use the on-site Suggestion schemes and the hazard re-porting system in order to help identify opportunities for improvement.

• All employees and contractors receive En-vironmental Induction training on the com-mencement of employment. All contractors must participate in training and complete a ques-tionnaire prior to gaining access to the site.

• Employees are also trained as Environmental auditors, members of the site Emergency Response teams and as ‘Train the trainers’.

• An annual environmental audit is carried out to complete mandatory HSE training for all employees.

**Community**

Janssen were founder members of the Little Island Community & Industry Liaison Com-mittee (formally known as the Little Island Environmental Liaison Committee.) This group focuses on issues within the local area allowing the company to engage with the res-idents and the companies. Based on the significant success of having this partnership in place the local residents proposed that the group’s work would be expanded to take broader community based issues into account, moving away from environmental issues alone.

**Customers**

In preparation for the development of an Environmental and Social Responsibility report for 2002 Janssen sought the opinions of its stakeholders in determining the preferred content of the proposed report. A questionnaire was sent to representatives from each of the stakeholders: local residents, employ-ees, contractors, suppliers, local authorities. The company received 30 responses in the report and the responses have also been carried forward into the subsequent Values into Value reports now being produced on an annual basis.
Carangidae in Irish & Northern European Waters

By Declan T. Quigley

SCADS, horse-mackerels, jacks, crevalles, amberjacks, pompanos, threadfins, bumpers, trevallys, runners, leerfish, vadigo, derbio, permits, lookdowns and pilotfish belong to a large and diverse family (Carangidae) of mainly tropical and warm temperate marine fishes represented by 32 genera and 140 known species. However, only 25 species (representing 14 genera) have been recorded from the North-eastern Atlantic and the Mediterranean; 14 of these species (representing 9 genera) from European Atlantic waters and only 3-4 species (representing 3 genera) from Irish waters (Table 1). The family includes many valuable food and sporting fishes. The scad or horse mackerel (T. trachurus) is the only common member of the Carangid family in Northern European seas where it is heavily exploited as a valuable food fish. Between 1982 and 2005, landings of the Western European stock averaged 247,500 tonnes per annum, peaking during the mid-1990s at 400-500,000 tonnes before declining to a mean of around 150,000 tonnes in recent years. While the other Carangid species only occur as rare vagrants from warmer waters to the south, there has been a notable increase in the number of species occurring in UK, French and Mediterranean waters over the last half century and recent climatic changes, particularly thermal increases, have been suggested as a causative factor. For example, in French waters, the number of species increased by 100% from 5 in 1950 to 10 in 1987, while the number of species recorded in UK waters increased by 166% from 3 in 1951 to 8 in 2000. Over the same period, the number of species recorded in Irish waters increased by 100% (following the unconfirmed capture of a greater amberjack Seriola dumerili in 1990 off Kilkee and the first authenticated almaco amberjack S. rivoliana off Connomara in 2006).

Pilotfish (Naucrates ductor)

The pilotfish is primarily a pelagic oceanic species found worldwide in warm seas. Although it has been recorded on one occasion from Norwegian waters, it is generally regarded as an uncommon or rare wanderer in northern European waters (N of the English Channel). Nevertheless, the species has been recorded with increasing frequency in Irish waters since the late 1990s; about 90 specimens have been recorded to date. The species’ well known habit of accompanying floating objects such as seaweed, benthic (on outer reef slopes and driftwood and apparent semi-obligate commensal relationship with sharks, rays, turtles and jellyfish, may account for its wide spread distribution. Indeed, a significant number of the specimens recorded in Irish, UK and French waters were found in association with Leatherback turtles (Dermochelys coriacea). In tropical waters, they are often found in association with blue shark (Prionace glauca), but this has not been observed in Irish waters. Although pilotfish are rarely taken by anglers, a specimen weighing 29kg was captured on rod & line in the Towy Estuary, Carmarthen Bay, Wales during 1997.

Almaco Amberjack (Seriola rivoliana)

The almaco amberjack has a worldwide circum-tropical distribution, only entering temperate waters in some areas. Adults are pelagic and epibenthic (on outer reef slopes and offshore banks) and possibly more oceanic than other Seriolids; juveniles are pelagic and usually occur offshore, often under floating seaweed and debris, but occasionally close to the shore. The World Record rod & line caught (Atlantic) almaco amberjack weighing 35.38kg was captured off Argus Bank, Bermuda in 1990 while the Pacific record weighing 59.87kg was taken off La Paz, Baja California, Mexico in 1964.

Although the species is apparently rare in the NE Atlantic and Mediterranean, juveniles have been recorded with increasing frequency in Northern European waters since the mid-1980s. For example, since 1984, a total of 6 specimens have been recorded from UK waters and since 1987, a total of 10 specimens from French waters. The species was recorded for the first time in the Mediterranean in 2000 and from Irish waters in 2006.

It is interesting to note that over the same period other Carangids were recorded for the first time in Mediterranean [lessor amberjack S. fuscata (1993) and Guinean amberjack S. carpentieri (2000)], French [S. carpentieri (1985) and S. drumerili (1984)], UK [S. carpentieri (2000) and blue runner Caranx crysos (1992)] and Irish [S. drumerili (?) (1990)] waters.

Table 1. Carangidae of the NE Atlantic & Mediterranean

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Common Name</th>
<th>Recorded in</th>
<th>Norway</th>
<th>Ireland</th>
<th>France</th>
<th>UK</th>
<th>T. mediterraneus</th>
<th>Almaco Amberjack</th>
<th>Almaco Amberjack</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. rivoliana</td>
<td>Almaco Amberjack</td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
</tr>
<tr>
<td>S. dumerili</td>
<td>Greater Amberjack</td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
</tr>
<tr>
<td>T. trachurus</td>
<td>Horse Mackerel</td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
<td><em>Yes</em></td>
</tr>
</tbody>
</table>

Conclusions

Although the total number of Carangids recorded from Irish waters is relatively small compared with those in French and UK waters this may only be a reflection of poorer recording effort. Indeed, it would not be surprising if the following species were to visit Irish waters, albeit infrequently, and both anglers and inshore commercial fishermen are more likely to encounter them; vadigo (Campogramma glaycos), C. crysos, S. carpentieri, S. drumerili and derbio (Trachinotus ovatus). Commercial landings of scad (T. trachurus), particularly from southern Irish waters, would also warrant more diligent investigation because the closely related Mediterranean horse mackerel (T. mediterraneus) is known to be relatively common nearby in the Bay of Biscay.

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BRYOZOANS
Notable inhabitants of Irish coastal waters

By Patrick N. Wyse Jackson

Walk along any shoreline in Ireland and you will find bryozoans. Although they are not widely known to most people they are in fact quite common and easily found. Pick up any piece of bladder wrack seaweed and almost certainly it will have small patches resembling a meshwork or net curtains encrusting the surface. These are bryozoans, and are best seen in the field using a X10 hand lens.

What are bryozoans?
Members of the Phylum Bryozoa are marine or freshwater colonial invertebrates. Marine bryozoans usually inhabit shallow environments in polar, temperate and tropical oceans. Bryozoans first appeared during the Ordovician period some 450 million years ago. Today 5,000 living species are known.

Bryozoan colonies
Like some sponges and corals, bryozoans form colonies of various shapes and sizes that are typically less than 10 cm in diameter (the largest colonies reach over 1 metre in diameter). Most are cemented to a substrate such as rocks, sand, grain or seaweed. Encrusting colonies may form a runner-like morphology, or may be composed of single or multi-layered sheets of zooids. These forms are frequently found on seaweeds or on shells (Figure 1). Many bryozoan colonies grow upwards into the seawater, which allows them to feed from clearer and faster flowing water above the sea floor. Branches may be cylindrical or flattened (Figure 2). Some bryozoans form a meshwork pattern of branches joined by crossbars (Figure 3).

The bryozoan animal
The individual bryozoan animal measures 1 mm or less in diameter and is called a zooid. Many thousands live in a colony and each zooid lives in a box-like or cylindrical chamber, which may open to the surface via an aperture (Figure 1). The feeding autozooids comprise a polyphyletic additional tissue, which secretes the skeleton that forms the colony. The polyplide has a tentacle-like structure called a lophophore, which is used to catch food. To feed it opens out through the aperture and can create inhalent water currents which carry food to the mouth, and exhalent currents, which carry waste away. Other zooids have other functions such as defending the colony from predators. Bryozoans reproduce sexually to produce larvae, which may be brooded in modified zooids called ovicells. When released into the water the larvae settle on a suitable substrate and the colony then grows by asselid budding.

Bryozoans in Irish waters
In 1991 I compiled a list of all the bryozoans found in Irish marine waters (P. N. Wyse Jackson, 1991, Bulletin of the Irish Biogeographical Society). In total 192 species had been reported by then, and since then a few additional species have been added to that number. Good identification guides by Peter Hayward and John Ryland are available from the Field Studies Council (www.field-studies-council.org/publications/synglosses).

Problems caused by bryozoans
Along with barnacles, bryozoans are major foulers (encrusters) of harbours, oil rigs, and the hulls of ships. A heavily encrusted ship will take more fuel to power it through the water due to the increased drag caused by encrustations, and so anti-fouling paints are used to deter settlement of larvae and thus growth of bryozoan colonies. Bryozoans frequently encrust polystyrene and plastic bottles.

Medically helpful bryozoans
Some bryozoans contain substances that inhibit cell growth. Bryostatins are one such substance and research is continuing to demonstrate their effectiveness in the fight against cancer.

Early Irish contributions to bryozoology
Bryozoology is the term used to refer to the study of bryozoans. While research continues to be carried out on both living and fossil bryozoans from Ireland, a number of researchers from or working in Ireland made fundamental findings when the study of these organisms was in its infancy (P.N. Wyse Jackson & M.E. Spencer Jones, Annals of Bryozoology, Dublin, 2002). John Ellis (1710–1776), who apparently was born in Ireland, was a London-based businessman who had trade connections with the American colonies. In 1755 he published one of the earliest treaties in English on corallines in which he described and illustrated taxa now known to be bryozoans. John Vaughan Thompson (1779–1847) who was an Army surgeon working in Cork erected the phylum Polyzoa in 1830 into which the American colonies. In 1755 he published one of the earliest treaties in English on corallines in which he described and illustrated taxa now known to be bryozoans.

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Steering a New Course

Strategy for a Restructured, Sustainable and Profitable Irish Seafood Industry 2007-2013

IN the following two pages, Matt Murphy summarises the main issues and recommendations in the strategy report “Steering a New Course: Strategy for a Restructured, Sustainable and Profitable Irish Seafood Industry 2007-2013”. The review was undertaken between July and November 2006 by Dr. Noel Cawley, Mr. Joey Murrin and Mr. Ruairí Ó Bricí at the request of Mr. Noel Dempsey, TD, Minister for Communications, Marine and Natural Resources and Mr. Mary Hanafin, Minister of State at the Department.

The Irish seafood industry is critical for the sustainable development of remote island and coastal areas which in turn is dependent on sustainable fish stocks and a healthy marine environment. Generating total annual revenue of over €700 million and providing direct employment of some 11,615 people, the Irish seafood industry is a vital indigenous industry making a significant contribution to the economy in terms of output, employment and export. The development of our marine resources is critical to the future prosperity of coastal areas where there are few alternative industries.

It is estimated that over half of all fish stocks internationally are fully exploited and a further quarter are either over-exploited. The total catch in the waters around Ireland in 2004 was 700,000 tonnes valued at €500 million, the greater proportion of which was taken by non-Irish vessels. (Editor’s note: values increase to at least €1 billion if the illegal catches of all countries fishing in our waters are included.) The scientific assessment is that over 75% of these stocks are outside safe biological limits with either low stock size or unsustainable levels of exploitation. Accordingly the Irish seafood industry is currently facing serious challenges to its survival and future development primarily related to declining stocks and quotas and consequent structural imbalances at catching and processing levels.

The Market for Seafood

The EU imports an estimate of 74% of seafood products to satisfy an increasing demand for European markets. Unlike the agriculture sector, there are little or no direct EU price supports for seafood and trade. There is growth demand for most other protein products, with significant scope for future growth. There are significant untapped opportunities to develop new seafood products and particularly fish-based functional food products.

Challenges that must be addressed

The Industry’s performance within the market place is well below what which exists in other sections of the Irish food industry. Its investment in the area of innovation/new product development is weak with only a few minor exceptions.

The Irish seafood processing sector can be described as highly fragmented, operating at significant over-capacity unable to maximise

demersal “pelagic

efficiencies and generating very little profit (loss making in many instances).

Issues to be addressed

1. Need for a more innovative market-focused strategy throughout the industry - aimed at achieving the maximum possible return for each tonne of fish landed.
2. Lack of profitability, fragmentation and uncertainty of supply within the processing sector.
3. Imbalance between catching capacity and resource availability - requiring significant but managed industry restructuring and rightsizing.
4. Need for stakeholder-supported, commercially-aware fisheries management policies and procedures, based on strict compliance with quotas and other National and EU regulations.
5. Need for a comprehensive industry development programme supported by an appropriate regulatory framework, to encourage market-led investment to expand the aquaculture sector.
6. Obstacles preventing the sustainable exploitation of inshore fisheries.
7. Inadequate fish conservation and fishing practices, including mis-reporting, high-grading and discarding (often the consequence of EU regulations) need to be addressed to achieve fish stock/environmental sustainability.
8. Need for a level playing pitch throughout the EU with respect to regulatory compliance and conservation practices.
10. Fragmented representation in a fragmented industry.

Details of the Issues

The industry to capitalise on the enormous potential offered by the market. The Group propose that a budget of €5 million be allocated for marketing over the 2007-13 period - which is 7.8 million annually compared with 2.5 million in previous years. Outside of the core EU markets significant research and development should be delivered by BIM on a cost benefit basis to the sector. Over 70% of Irish seafood exports are sold with five EU markets.

A new seafood identity should be established and promoted to strengthen Ireland’s market position and establish Irish seafood as a premium proposition with positive quality and environmental attributes.

BIM, Enterprise Ireland, Udaras na Gaeltachta and Teagasc should work more closely to align marketing and research. It is recommended that further examination is required to study the need for developing a seafood product research and development centre of excellence, mirroring the Dairy Products Research Centre in Moosarep, Cork. (Editor’s note: the obvious place to build this centre is Moosarep.)

Support for Investment

The recommendations:

• Support must be given to Irish Seafood processing businesses where there is good potential for the creation of sustainable long-term value.

• In light of strong demand and the positive future market potential for seafood a concerted effort should be made by BIM, Enterprise Ireland and Udaras na Gaeltachta to encourage and attract investment from the wider food processing industry.

• A benchmark study should be undertaken by BIM and Enterprise Ireland to establish clear targets for State supported investment in the processing sector and identify critical performance weaknesses impacting on competitiveness.

Fleet Reconstruction Development

Support must be given to extending and developing the current Decommissioning Programme to bring about a better alignment between fleet capacity and resource availability through the permanent removal of 45% of the capacity of the demersal fleet 18 metres in length and over, which has been partly (10%) achieved through the present decommissioning scheme. The report recommends:

• Establishing a Register of Commercial Sea Fishermen to be maintained by BIM. The provision of accurate and up-to-date information for the purpose of monitoring the Register should be a pre-requisite for eligibility for State support.

• Establishing a new and devolved fisheries management regime, together with an industry-based legal entity to oversee quota management.

Aquatuna Development

Currently the Irish aquaculture sector contributes 38% by value of total primary production and in this respect is lagging behind the world-wide trend where close on half of all fish supplies now emanate from farmed sources. The following recommendations are made with a view to enhancing this sector’s contributions to the income and welfare of coastal communities:

• A sustained fact based, communication programme run by State Development Agencies with industry support, should be undertaken to engender greater acceptance of aquaculture as a sustainable and legitimate activity by other stakeholders in the coastal zone. The overall objective of such an initiative would be to assist with the creation of an economic and regulatory climate conducive to increased flows of equity and capital investment.

• Review the current licensing and regulatory regime - with a view to strengthening current systems and procedures and delivering an improved service to suppliers.

• BIM in partnership with Udaras na Gaeltachta to implement an Aquaculture Industry Development Programme to include marketing and seafood processing. Also to have a broader focus dealing with key areas such as improving competitiveness, reducing environmental impact, encouraging farming of new species, applied R&D, quality assurance and environmental management systems with the aim of maximising the benefit of aquaculture to coastal and rural communities.

• There is a necessity to establish a Seed Capital Scheme, which would accelerate the evaluation of new species and adoption of new technologies.

• The review of mussel seed resources for the management of this critical resource.
The recommendations:

- The Fish Producers Organisations should set up a legal entity to administer the de- veloped quota management regime for whitefish and pelagic fish.
- The Minister should establish clear fisheries management objectives that:
  - Maximise the long-term return from fisheries resources to Ireland.
  - Protect the marine environment.
  - Promote better and more transparent decision making.
- Other issues to be included social, economic, safety and governance.
- Establishement of a new inshore fleet segment and designation special coastal areas with exclusive or priority access for inshore ports.
- Sustainable fishing or other opportunities must be found for registered fishing vessels displaced from the salmon drift net fishery.

Enhancing Competitiveness

The recommendations:

- Establish efficient landing and distribution infrastructures to enhance the competitiveness and attractiveness of landing fish in Irish ports.
- Significant operational infrastructure and cost issues need to be addressed to bring them into line with best-in-class competing ports.
- BIM to work with seafood companies to identify effective distribution for both the domestic and international markets.
- A drive should be made towards developing a greater degree of direct access to retail, food service and ingredient customers and reduce the industry’s dependence on intermediaries.
- Support for the pelagic sector’s proposal to establish a first-point-of-sale auction system modelled on the Norwegian system. Such a system should be initially established by the relevant Producer’s Organisations with EU/State support.
- The appointment of a Whitefish Marketing Co-ordinator by BIM to spearhead the consolidation of the current fragmented market- structure at first point of sale.
- BIM must develop a systematic approach to working with fisherfolk, fish farmers and processors to identify sustainable performance and improvement cost-reduction initiatives technology transfer opportunities.
- The industry should be encouraged to engage in long term succession planning and provide incentives to attract and retain new entrants into the industry as applies in other sectors of the economy.
- The Group recognises that the extension of the Seafarmers Tax Free Allowance already granted to Irish merchant seamen would be a very significant incentive for crew retention.
- Publish and adhere to a grant-aid decisions time-table.

Fisheries Management

The long-term future of the seafood industry depends on a sensible and responsible approach to conservation and to the industry’s environmental performance. This, however requires positive action from all EU member states not just Ireland. It is with this in mind that the following recommendations are made:

- Increase awareness and response to environmental policies.
- The State sector must put in place structures to properly inform the industry of conservation and environmental issues as they arise.
- The two way interaction of fisheries and aquaculture with the environment should be paramount in considering the future development of the industry.
- Local area management strategies should be promoted for sensitive stocks (particularly inshore species).
- Promote the introduction of Environmental Management Systems by the industry.
- Promote the development of a good environmental and fuel-efficient fishing gear.
- The Irish fishing industry should take a lead role through the Regional Advisory Councils (introduced throughout the EU) to ensure that sensible conservation policies are developed and implemented across the EU that take account of the impact of fisheries on the environment.
- The Irish Government and industry should actively promote and lobby the EU to adopt management strategies and fish practices to avoid large catches of juvenile fish with the ultimate objective of moving to a full-scale discard ban system.
- A joint approach by the industry and the Department must be taken at EU level to ensure that EU regulations and control are strictly enforced through the Community.

Educational and Training

In supporting the significant industry developments envisaged, increase investment in training will be required to address profitability, efficiency, environmental responsibility and sustainability across all sectors of the seafood industry.

BIM aquaculture training provision needs to be significantly expanded. They should focus more training resources in support of competence, safety, sustainability and profitability in the inshore and coastal sectors. In view of the significantly higher rate of accidents and machinery failure on inshore and coastal vessels unqualified skippers and mechanics on these vessels should be required to hold formal Department of Transport certificates of proficiency or competency as deemed appropriate.

Industry Relations

The group recognises the very different issues and dynamics prevailing in the various industry sub-sectors. They believe there is a real need for the industry to speak with one clear and coherent voice. It recommends that all existing representative organisations should set up a new, single representative organisation. This would have its own Board and Chief Executive and be made up of distinct sectoral/regional interests to speak with a strong clear and coherent voice on behalf of the catching sector.

Given the onerous regulatory regime surrounding the seafood industry, serious commitment is required on the part of Government and senior officials to appropriately structure and resource its seafood administration, policy making and regulatory responsibilities. The adoption of a more respon-
2005 – An Bord Pleanála’s busiest year ever

Workload and Performance in 2005

The year 2005 was the busiest ever for An Bord Pleanála. The record intake of cases, which almost reached the 6,000 mark, was due to a number of factors – the continuing high demand for housing, the acceleration of infrastructure programmes, a large increase in employment and the phasing out of tax based incentives for certain kinds of development. Notwithstanding a 5% increase in cases determined, this resulted in a significant rise in the workload on hands at year end and a fall off in the Board’s performance in relation to the timeliness of its decision making.

An overview of the Board’s work load and performance in 2005 can be gauged from the following facts:

- intake of new cases 5,946 – up 13% on 2004.
- cases determined 5,387 – up 5%.
- workload on hands at year end 2,062 – up 37%.
- 18 week statutory objective met in 78% of cases, compared to 85% in 2004.
- average time to determine cases – 15 weeks, compared to 14 weeks in 2004.

Other noteworthy features in 2005

- The percentage of local authority planning decisions appealed to the Board showed a slight increase to 7.4% (from 6.9%* in 2004).
- The rate of reversal of local planning authority decisions appealed showed a slight decrease - 30% in 2005 compared to 32% in 2004.
- The large disparity between local authorities in the rate of reversal, apparent in previous years, continued.
- Just under half of planning appeals lodged with the Board came from third parties, a slight decrease on 2004.
- Invalid appeals constituted 17.3% (19.6% in 2004) of all appeals determined, with late appeals (5.4%), invalid fee (4.7%) and third party appeals with no acknowledgement (4.4%) being the main reasons. The Board took additional measures in 2005 to help people avoid making invalid appeals.
- There were 139 applications for leave to appeal by third parties of which 21% succeeded. All appeals for leave to appeal were decided within the statutory 4 week period.

Current Trends and Outlook

Although the early months of 2006 are showing a slight drop in the intake of cases, it is still very high by historical standards. This, together with the high workload on hands at the start of the year, is putting the Board under severe pressure in 2006 and performance in relation to its statutory 18 week timeliness objective has deteriorated significantly. Apart from work volumes, it is clear that the increased scale and complexity of projects and the more demanding legal context in which we operate are factors which make it more difficult to achieve our strategic target of determining 90% of cases within the 18-week period. To end May 2006 the target was achieved in 58% of cases disposed of. The Board regrets the delays that are occurring in the determination of appeals.

In response to its increasing workload the Board sought approval to employ additional staffing resources and on 31st December, 2005 received approval in principle from the Minister for the Environment, Heritage and Local Government to an additional 24 permanent staff, to be provided over a two year period. At present 11% of Board staff are seconded to the Environment and Local Government to assist in the assessment of strategic projects (12% in 2004). In 2005, more housing units are accorded priority status in the Board - in 2005 the volume of these appeals increased by 21%.

The Planning and Development (Strategic Infrastructure) Bill 2006

The Planning and Development (Strategic Infrastructure) Bill 2006, published in February 2006, will reform the consent process for a wide range of major infrastructure projects. It will have major significance for the Board both in terms of the scope of projects coming before it and the discharge of its mandate in relation to these projects. The Bill provides for the setting up of an Infrastructure Division in the Board to handle proposals from both public and private sectors relating to transport, environmental and energy projects which are considered by the Board to be of national or regional strategic importance. The Board will become the consent authority of first instance for these strategic projects. The procedures to be put in place by the Board to give effect to the statutory provisions in the Bill will have to ensure that the requirement to process applications efficiently and expeditiously is balanced by the need to facilitate meaningful participation by local communities and interested statutory and non-governmental organisations. Interested parties, from whatever angle they are concerned, will feel that their views are taken into account in the final decision. In accordance with the mandate given to it by the legislation, the Board is determined that all projects coming before it will continue to be assessed rigorously, based on the principles of proper planning and sustainable development. The Board is acutely aware of the importance of maintaining public confidence in the way it determines these strategic projects.

Public Confidence

The Board’s three core principles of independence, impartiality and openness are embedded in our Mission Statement and objectives and underpinned by legislation. We are always mindful that public confidence depends on the integrity and quality of our decision-making and the professionalism with which we carry out our functions. There is a statutory code of conduct for all Board members, staff and consultants, which places stringent obligations on members and employees of the Board to declare interests and conduct themselves generally in a way that reinforces public confidence. It is the Board’s policy to adopt the most open approach possible in its relations with the public and we operate a completely open file system once cases are determined.

Accounts

Expenditure increased from the restated figure of €17,731,540 in 2004 (€14,944,540 stated in the 2004 Restated Accounts) to €18,799,861 in 2005 due mainly to increased remuneration and operating costs associated with the increase in intake of cases. In 2005, fee income together with costs recouped from local authorities on infrastructure projects was €2,673,237 which represented 14% of the total costs of the Board’s operations (12% in 2004). In 2005, income amounted to €18,600,906 (which includes €3,190,000 to reflect the net additional superannuation costs arising under Financial Reporting Standard FRS 17) leaving a deficit for the year of €198,955. There was an incoming deficit of €187,464 which was balanced by a year end deficit of €11,111. (The deficit figures are unaffected by FRS 17).

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By Terry Farnell

IT’S strange to think that one of the most endearing features of the Irish landscape is a man-made construction and that most of these features were built within the last 150 years. Yet an Ireland without its patchwork pattern of dry stone walls would seem a poorer place indeed. And the walls have a story to tell.

Ireland has never been short of stone. In the Ceide Fields of Co. Mayo, men set about piling stones into barriers around 5000 years ago and these dry stone walls form part of the oldest known field system in the world. Subsequently, stone was used in various constructions, but it was not until the social and agrarian upheavals of the 19th century that the landscape of dry stone walls began to evolve into that which we see today.

During the famine years of the 19th century, one of the tasks of the work programmes, established by the Board of Works to provide employment, was land clearance and the building of dry stone walls. Evidence of these labours is still to be seen today, with some walls climbing across mountainsides to no apparent purpose. At the same time, the decrease in population and the eviction of tenants allowed landowners to extend and enclose their estates, with many of the dry stone walls built by workers on the programmes. To this day, some walls are still referred to as ‘famine walls’.

Towards the end of the 20th century, the declining art of dry stone walling experienced a resurgence and today there is a growing band of master craftsmen skilled at building dry stone walls and teaching the techniques to others. The reason for building a dry stone wall is as much for land clearance as for the demarcation of boundaries and the containment of stock. The design of a wall is often related to the underlying geology, with the shape of the stones dictating the way in which they may be fitted together. Walls constructed from rounded granite boulders will not have much in common with the appearance of a wall built from fissured limestone, so the genesis of the stone can account for the different characteristics of dry stone walls. The function of the wall has also to be considered. In many walls, larger stones are laid over small stones, which would seem to be contrary to good practice, but the small stones prove a greater barrier to rabbits than would the larger ones.

A properly built dry stone wall may be as stable as any wall built from bricks and mortar, but with added advantages. Many walls are on exposed sites, but the permeability of the dry stone technique is sufficient to reduce the force of the wind, without causing undue pressure on the windward side, or turbulence in the lee of the wall, whilst providing far more shelter for stock than a wire fence. Also, the unstable appearance of a dry stone wall is a deterrent to stock, so they are less likely to try jumping over it. Add to that, if a stone is dislodged, it’s a simple matter to replace it.

Even a careless glance will reveal the diversity of life that has made a home of a dry stone wall; the intricate lacework of lichens and the soft cushion of mosses compete with seasonal plant life to give a dry stone wall a unique character. Less obvious are the creatures that exploit the benefits offered by this ecological niche, which, despite its often exposed position, supplies a well-drained and sheltered haven for a diverse collection of species. The plants and the insects attract bird life, while the wall itself may provide shelter and act as an observation point for birds and other wild animals.

From simple land clearance, the story of dry stone walls has encompassed a diverse range of subjects, from social tragedy to aesthetic appreciation and from construction principles to wildlife habitat. Much of this accords with the last 150 years, but with the growing commitment to Ireland’s heritage, the sympathetic conservation of dry stone walls should assure their future.

Terry Farnell, Terry Farnell Photography, Sherkin Island, Co. Cork. www.sherkinphoto.com
DRYSTONEWALLS

Ireland’s Heritage

Left: Land clearance and enclosure has resulted in a pattern of dry stone walls across the landscape.

Above: An old entrance to a field, blocked by stones that could be easily removed.

Above: Lichens are a characteristic feature of dry stone walls.

Right: A wall offers this Peacock butterfly warmth and shelter.

Below: Birds often use a raised portion of wall for observation and territorial displays.

Left: Over time, walls are colonised by lichens and plants.

Right: At 8 ft high, this dry stone wall is a significant feature of the landscape.

Below: A style of wall building influenced by the available material.

Above left: The underlying geology can influence the building style of a wall.

Above right: Infilling with small stones at the base presents a barrier to small animals.

Photography by Terry Farnell
that it needs more money and greater influence within the UN system.

Illegal shot or trapped birds found on Malta

Migrating birds from 38 countries have been found by conservationists after being illegally shot or trapped on the island of Malta. A study by BirdLife Malta found the remains of 14 birds ringed in the UK among them, including cuckoo, goldfinch, spotted redshank, gannet, great skua and short-eared owl. About 16 aspmys ringed in Scandinavia were also found. Experts say the number of ringed birds from northern Europe found in the survey is probably only a tiny fraction of the number of migrating birds killed in Malta’s spring shooting season. Malta’s traditional indiscriminate killing of migrating birds nearly prevented its joining the European Union, but it managed to win last-minute concessions allowing some trapping until 2008. The island is believed to be the worst offender against the EU Birds Directive of all 27 member states.

Wildlife Trust call for Marine Bill to protect coastline

The Wildlife Trusts, a federation of 47 county organisations which care for habitats and species across the UK, says a Marine Bill could help prevent MSC Napoli-type environmental disasters. The vessel, a container ship, was under tow to a south coast port in a January storm, but was grounded in Lyme Bay off south Devon, leaking oil and shedding some of its containers. The Bay, known as the Jurassic Coast, is a World Heritage site renowned for its internationally important wintering birds. It also has wildlife-rich reefs, with over 300 species recorded so far. Among them are the seven species of coral, including the nationally protected pink seafan and the extremely rare sunset coral. The Trusts say a Marine Bill would introduce “a proper planning system for our seas”, which would mean potentially damaging activities could be sited further away from environmentally and economically valuable areas.

Changes in farming methods blamed for decline in UK bumble bee

Changing methods of farming appear largely to blame for the decline of the UK bumble bee, whose numbers have fallen by 60% since 1970. Researchers from several Irish universities say: “We suggest that the widespread replacement of hay with silage, which results in earlier and more frequent mowing and a reduction in late summer wildflowers, has played a major role in bumble bee declines.” Formerly common in clover, hedgerows and around the edges of fields, most of the 20 or so species of bumblebee are in decline, and two have become extinct. Traditional hay meadows were not cut until after the plants that attract bees had flowered. But with silage, grass is cut more frequently and early in the season so the plants cannot flower. The researchers’ study is reported in Biological Conservation.

Climate change affecting Irish salmon stocks

Climate change appears to be affecting Irish salmon stocks, according to scientists on the river Bush in north Antrim. They say warmer winters are delaying migration. Believing spring has arrived, the juvenile fish are leaving the safety of the river too soon and heading out to the open sea, where many die. Richard Kennedy, one of the scientists at the Bush Salmon Station, says: “Ten years ago the first smolt that would have left the river Bush would have done so towards the middle of the end of April, but that’s been changing and now first departures can be as early as the beginning of March,” he says. Gulls and seals pick off the smolts as they head out into the Atlantic. Usually about a third of the young fish which leave the Bush return the following year to spawn. But now only six per cent are making it back to breed. Another result of the changing climate is high rainfall, which swells the river in winter and early spring, washing the delicate salmon fry away.

Switching to compact fluorescent bulbs

Australia is to ban incandescent light bulbs as a way of helping to cut greenhouse gas emissions. Malcolm Turnbull, the environment minister, said replacing the country’s incandescent bulbs could by 2015 prevent up to 4m tonnes of greenhouse gas emissions entering the atmosphere every year. He said the ban would also cut household lighting costs by 66%. Cuba introduced a similar ban two years ago, and Venezuela has followed suit. Incandescent light bulbs are very inefficient, converting only about 5% of the energy they consume into light, with the rest turned to heat. The incandescent bulbs are to be phased out within three years and replaced by more efficient compact fluorescent bulbs. Although they cost more, they can pay for themselves within twelve months. “If the whole world switches to these bulbs today, we would reduce our consumption of electricity by an amount equal to five times Australia’s annual consumption of electricity,” Mr Turnbull said.

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Urban Waste Water Discharges in Ireland

A Report for the Years 2004 and 2005

THE Environmental Protection Agency (EPA) is required under Section 61(3) of the Environmental Protection Agency Act, 1992, to report on a biennial basis on the quality of effluents being discharged from treatment plants, sewers or drainage pipes which are vested in, controlled or used by local authorities. This report provides an analysis of the treatment of waste water for all agglomerations (mainly cities, towns and villages) with a population equivalent over 500 during 2004 and 2005, the quality of discharges from waste water treatment plants and commentary on trends for the period 1998 to 2005. The report is based on information supplied by local authorities on an annual basis.

The end of the review period (31st December 2005) also coincided with a significant milestone in urban waste water treatment in Ireland, whereby secondary treatment was required for all agglomerations discharging to freshwaters and estuaries with population equivalents of 2,000 or greater and for agglomerations discharging to coastal waters with population equivalents of 10,000 or greater. The report includes a county-by-county analysis of the performance of secondary waste water treatment plants covering their compliance against the Urban Waste Water Regulations, 2001.

The main findings of the report are:

1. The overall level of treatment provided at 478 agglomerations, which collectively represent a total population equivalent (p.e.) of 5,627,456, was as follows:
   • 11% of waste water arisings received no treatment;
   • 5% of waste water arisings received preliminary treatment;
   • 2% of waste water arisings received primary treatment;
   • 70% of waste water arisings received secondary treatment; and,
   • 12% of waste water arisings received nutrient reduction in addition to secondary treatment.

2. There have been delays in providing the required treatment plants at a number of locations throughout the country. Of the 158 agglomerations requiring secondary treatment or higher by 31st December 2005, the required level of treatment was not in place at 30 of these agglomerations.

3. Large agglomerations which were required to have secondary treatment by 31st December 2000 but as yet has not been provided are: Bray, Howth/Baldoyle (Partial), Balbriggan, Killybegs, Shangannagh, Sligo Town, Tramore, and Waterford City.

4. The largest untreated discharge to a sensitive area is from Killybegs (Co. Donegal) with an estimated population equivalent of 400,000 p.e.

5. Secondary waste water treatment plants are now operational in the cities of Cork, Limerick and Galway and these plants are meeting the effluent quality standards set out in the Regulations.

6. Nutrient reduction, which is required for discharges to specified waters considered sensitive to the risk of eutrophication, has been provided for all agglomerations specified by the Regulations.

7. Compliance with discharge limits for the very large plants (i.e. >15,000 p.e.) has improved; however the majority of smaller treatment plants are not complying with these limits. The compliance rates based on monitoring results are summarised in Table 1.

8. Local authorities failed to take the required number of samples at 38% of waste water treatments plants with a population equivalent of 2,000 p.e. or over and where samples were taken, 43% of these were taken incorrectly (i.e. Flowproportional or time-based 24-hour samples were not taken).

9. 121,750 tonnes of dried sludge was produced nationally from wastewater treatment plants in the period 2004-2005. 76% of this went to agriculture and 17% went to landfill.

10. 75 waste water treatment plants were inspected by the EPA between 2004 and 2006. Recurring problems identified at waste water treatment plants visited during audits, which are in need of corrective action, include:
   • Inadequate collection systems for waste water (e.g. combined sewer overflows);
   • Inadequate screening of influent waste water and storm water overflows;
   • Insufficient treatment capacity;
   • Poor assimilative capacity for discharged effluent in some receiving waters; and,
   • Poor sludge management on site and incomplete sludge records.

In evaluating the causes of the non-compliance with the Regulations the EPA has concluded that many waste water treatment plants are under increasing pressure from development that has taken place throughout the country over the last number of years. The operation and management of some overloaded plants has proved difficult for some local authorities.

In order to achieve compliance with the requirements of the Regulations and secure improvements in the quality of effluents from urban waste water treatment plants the EPA makes the following recommendations:

1. The provision of adequate treatment at the 30th agglomerations that did not have the required level of treatment by December 31st 2005 should be progressed as a matter of urgency. Local authorities need to proceed swiftly with planned schemes in accordance with the Regulations.

2. Local authorities should ensure that all monitoring and analysis is carried out in accordance with the Regulations for all treatment plants including those that are managed and operated by third parties on behalf of the local authority.

3. The frequency and volume of storm overflows within each collection system should be assessed, mapped and ranked in order of polluting potential.

4. Where sludge is reused in Agriculture, Local authorities should ensure that the testing and management of the sludge is compliant with the requirements of the Regulations and in particular that a nutrient management plan is used.

Local authorities should prepare an odour management plan for each treatment plant operated by or on its behalf. The odour management plan should be a documented procedure available at the treatment plant all times.

Local authorities should determine whether all trade effluent discharges are appropriately licensed and should check the compliance of existing licences against their permitted discharge allowance. In particular local authorities should review the discharges from the growing number of food preparation outlets, which may be significant contributors of grease and fat loadings to sewer networks and municipal treatment plants.

Table 1: The compliance rates based on monitoring results.

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<td>&gt; 15,000 p.e</td>
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NOTES
1. “agglomeration” means an area where the population and/or economic activities are sufficiently concentrated for urban waste water to be collected and conducted to an urban waste water treatment plant or to a final discharge point.
3. Secondary treatment has recently been provided for two of these agglomerations (Dungarvan and Carrick-on-Suir).

Fox dens are often concealed in thick undergrowth and can be hard to locate, unlike badger sets, which are more obvious. Often all that is seen of the dens are runs through the undergrowth made by foxes traveling to and from the den. In urban areas dens are usually located in dense undergrowth or neglected gardens. Often urban dens may be located under sheds or other man-made features and occasionally they are located under or even inside houses! Fox den locations in Dublin have included: gardens, sheds, compost heaps, a church basement, a utility room of a private house (amongst the laundry?) and in a scrapyard in a junkyard!

How to tell if a den is in use...

• Stick your head into the entrance hole and have a good smell! If you get a sharp acrid ‘carnivore’ smell then the den has foxes in it.

• Look for food remains like bones and feathers spread out around the entrance. This could mean that there are young in the den.

• In good weather, foxes like to do a bit of sunbathing outside the den. Look for signs of trampled grass near the entrance.

• The droppings, urine and food remains left by foxes make for very conspicuous signs. Often a second non-breeding female will be found in elevated places such as walls or even in trees.

• The droppings, urine and food remain left by foxes make for very conspicuous signs. Often a second non-breeding female will be found in elevated places such as walls or even in trees. Occasionally a female fox will be seen moving from one place to another.

Feeding habits

Foxes are nocturnal creatures—that is, they are most active at night. If disturbed, they may be seen during the day as well. Foxes are omnivores. This means that they eat other animals as well as plants. Among the fox’s favourite foods are rabbits, eggs, hares, insects, and berries. Foxes include: rabbits, eggs, hares, insects, rats, worms, mace, fruit, hedgehogs, scraps and bones of larger animals.

When a fox eats a mouse or a small bird, it will often bring the remains of the meal away from the den. The prey is usually eaten from the ground. The only evidence of a kill will be the droppings, feathers or a few drops of blood. In the case of a bigger kill it can be equally difficult detective work. Depending on how hungry the fox is or how big the kill is, it may decide to take the contents range to the den, leaving very little trace above ground. More often than not the fox will eat the kill above ground, leaving hints such as droppings or paw prints. However, the bones of larger animals will be discarded outside the den when the meal is finished, so that would be a good place to look to see what your foxes have been eating. Some fox foods include: rabbits, eggs, hares, insects, rats, worms, mace, fruit, hedgehogs, scraps and bones of larger animals.

Tracks

A track is the footprint an animal leaves in the ground. Do you know that foxes have five toes on their front paws but only four on their hind paws? The fifth toe on the front paw is raised up, so it doesn’t actually show in the track. Unlike us the left and right sides of the foot prints are almost identical so it can be difficult to tell them apart if you only find one print. It is easier to tell the fore and hind paws apart, as the forepaw is slightly larger than the hind paw. When looking for fox tracks, be careful not to confuse fox tracks with those of other animals, as they are quite similar. Here is a table to help you tell the difference between them.

<table>
<thead>
<tr>
<th>Track</th>
<th>Description</th>
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<tbody>
<tr>
<td>Fox Track</td>
<td>Small pads (5cm in width approx.)</td>
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<td>Large paws (size variable)</td>
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Written by: John Rochford, Dept Of Zoology, TCD

Thanks to: Dougal Wall, Dept of Zoology, UCD & Dr John Rochford, Dept of Zoology, UCD

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Fox talk

Foxes have up to 20 different calls, 8 of which are just used by cubs. Foxes are actually quite quiet in that they will only call about once every five hours. Some of these calls are friendly and can be quite complex, whereas others are aggressive and much simpler. Here is a list of the 8 most commonly heard fox calls.

Barks/ yells: By far the most common calls. These are aggressive calls used to mark out territory.

Growls: Very like a dog’s growl and also a warning call when a fox is disturbed. A dog’s track is rounder and shorter than that of a fox.

Whines: Usually follow barks. Wow-wow barks! staccato barks: Many barks (3-6), which can be heard far away and are used for friendly communication.


Yell whines: Signifies intense submission to another fox.

Screams: Defensive or threat calls.

To identify a fox and its tracks on a particular page, a number of different methods may be used. The following is a table to help you tell the difference between them.

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Jewels in the Mud

By Catherine Dalton

LAKES are sparkling, reflective and spectacular features in the landscape. For an island nation we are particularly well populated with lakes (over 11,000 lakes) especially along the western coast. As well as providing an important landscape feature, a source of drinking water, amenity and recreation, what is perhaps less well known is that lakes provide us with an important archive of geographical information. A small but growing number of Irish researchers call themselves palaeolimnologists, or people who reconstruct past lake environments. This archive is essentially the lake muds that have accumulated in the bottom of lake basins. The misnomer that our lakes are bottomless has been well and truly dismissed by palaeolimnologists. The majority of lakes in Ireland have developed in the Holocene period (over the last 10,000 years) in hollows and depressions gouged out in the landscape by retreating glaciers. Profiling these geological basins is a relatively under-developed area in Irish research as is sedimentology. Much of the academic interest has centred on the water basin. What may appear as relatively homogeneous brown mud to some contains a wealth of information to palaeolimnologists. This information is extracted from mineral, plant and animal detritus that accumulate in the mud. Mineral fragments are explored in terms of their chemistry, isotope signals and general morphology. Biological fragments contain proxy material representing aquatic plants remains (pollen, macrofossils, fossil algae, algal pigments) insects (larval and adult stages). Some remains are intact and are visible to the naked eye, others are more fragmented or are so small that they require examination under a microscope with up to x1000 magnification. The technology used to analyze materials and glean clues about past environments has advanced at a spectacular rate in recent decades. Traces of past environments can show up in mineral, plant and animal form, providing important evidence for the palaeo-detectives. The location, abundance and condition point toward the environmental conditions under which these various life forms prospered. Palaeolimnologists assume that lake muds have accumulated over the history of the lakes existence. Surface sediment ‘cores’ samples are extracted using drilling devices that are lowered by gravity on a rope into surface sediments. More sophisticated rod-based corers are operated from rafts when longer Holocene lake sediment cores are required. This raises the question about the sediment accumulation rates and the depth of lake sediment archives. The sediment archive is potentially as old as the lake. The amount of sediment extracted depends on the accumulation rate in the lake and the type of coring device used to extract the sediment. A highly productive lake is estimated to accumulated 0.5 cm of sediment annually so a 1 m core is assumed to contain c. 50 year archive. When sediment cores are extracted layers are often visible, representing different environmental conditions over time. However in the majority of lakes the sediments are relatively homogenous and require more sophisticated laboratory procedures to extract information on the catchment-lake history.

Diatoms are of particular interest to this author. Diatoms have been called ‘plants with a touch of glass’. These microscopic plants are found in all lakes as well as the sea and make up about 1% of all plant life. Their uniquely patterned siliceous skeletons enable their preservation as ‘jewels in the [lake] mud’. A Victorian hobby arranged the cells in artistic assemblages on microscope slides. The study of lake mud had an auspicious start in Ulster with the appointment of Frank Oldfield as Professor of Geography and Dean of the School of Biological and Environmental Studies at the New University of Ulster in 1967. Frank went on to become, among other things, Executive Director of IGBP Past Global Changes (PAGES). Among his many students at Coleraine was Rick Llantearbe, who now heads up a large group of limnologists and palaeolimnologists at the Environmental Change Research Centre in University College London. The tradition of examining lake sediments was pioneered in the south with Declan Murray in University College Dublin. More recently examination of lake sediments has been recommended as a methodology under the EU Water Framework Directive to reconstruct past chemical and biological conditions as a means of supplementing gaps in instrumental records. This recent development has fostered a wealth of research projects in the last 5 years quadrupling the number of palaeolimnologists working in Ireland.

For more information see www.palaeolim.ie.

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Wild Melbourne

WITH a population of some 3.3 million, Melbourne is a sprawling city. Its Central Business District is quite compact, and has been referred to as a Golden Mile. The residential area, however, hemmed in by Port Phillip Bay to the south, extends for twenty kilometres to the west and north and double that to the east. Though there are more than a dozen National and State Parks within a morning’s drive of the suburbs, some of the most important work toward the protection of wildlife is done much closer to the city, and even within its boundaries.

At Werribee, on the south-western edge of the city, and covering an area of 11,000 hectares on the Port Phillip Bay coast, lies the Western Treatment Plant. This huge area was set aside in the 1890s to handle the sewage of the rapidly growing conurbation. Even today it treats the effluent of more than half Melbourne, including that of the 1.6 million inhabitants of the west, north and central suburbs and most of the city’s industrial waste. Much of this is cleaned by passage through a series of lagoons, in which solids progressively settle, and bacteria, helped by aeration and sunlight, purify the water before its discharge into the bay.

The lagoon system is being expanded. The emphasis has changed, which feed a large invertebrate population. This, in turn, has attracted huge numbers of birds to Werribee, with the result that in 2001, the wetlands were listed under the Ramsar Treaty as of international importance.

More than 270 species of bird have been recorded at Werribee and its smaller satellite protected areas, Point Cook and Cheorham wetlands. This is almost as many as in the world famous Kakadu National Park in the Northern Territory. Bird watching and fishing are allowed all year round, but only by permit. With little human interference and no shooting, this has become a wildlife haven.

Upward of 60,000 birds arrive here in the autumn, including up to 20,000 waders. Many have migrated from Alaska, Siberia, Japan and China. Records show that some ringed birds have made the journey at least ten times. Large numbers of Australian teal, shoveler and shelduck winter here along with grebes, coots, pelicans, black swans and white ibises. Waders include red-necked avocet, pied stilt and the much rarer Cox’s sandpiper, buff-breasted sandpiper and Asian dowitcher. 700 pairs of pied cormorant migrate to Werribee from Tasmania for the winter. This is an extremely endangered bird, with an estimated total of 150 surviving in the wild.

Werribee is no longer the sole treatment plant for Melbourne, though it remains the largest. As the city expands, there are new housing developments in the surrounding area. These have necessitated changes in sewage handling. Odours need to be eliminated. The lagoon system is being expanded. The emphasis has moved toward recycling rather than discharge. These plans include measures to conserve the flora and fauna of the wetlands, and make Werribee a world leader in this field.

The Western Treatment Plant was originally set up to divert sewage from the Yarra River. Melbourne’s main watercourse, which flows into the city from the north-east. The several wooded parks that line the riverbanks from the suburb of Warrandyte almost 24 kilometres from the city centre. Scattered around its slopes are relics of Victoria’s gold rush, which began here in 1851. Mining continued into the early 20th Century, by which time around 250 miners were employed here. At Pound Bend, a tunnel was dug to divert the river and so expose its bed for mining. At the same time, the hills were completely denuded of trees. Since the closure of the mines, the area has reverted to its natural appearance and fast-growing manna gum trees have recolonised the riverbanks and hillsides. Many of Australia’s iconic animals, kangaroos, wallabies, wombats and platypuses have returned.

At Pound Bend, a reserve within the park has been created specifically for koalas. There are footpaths through the forest, and though the koalas may at first be difficult to spot, they can more readily be seen when one knows what to look for. The trees are very tall, and the animals, even at their most active, are almost immobile. Nevertheless, they usually appear as incongruous swellings among the higher branches of the eucalyptus.

A short distance to the west of Pound Bend is a tiny, and even more specialised protected area, the Pauline Toner Butterfly Reserve. The Eltham Copper butterfly was first recorded in 1938. Twenty years later, it was presumed extinct, but a small number were rediscovered in 1987. It is now known to be present at fewer than twenty sites at three widely separated localities in Victoria.

The numbers of this very rare butterfly are low because of the isolation of its populations, the loss of habitats and its unusual life cycle. The adults lay their eggs only on the Sweet Bursaria plant, on which the caterpillars depend for their food. In
their nocturnal foraging, they are accompanied by Notoncus ants, which feed on sugar secretions on the caterpillars’ skins. In return, the ants protect the caterpillars from insect predators.

The Pauline Toner reserve is named after Victoria’s first woman cabinet minister, who was an active campaigner for the butterfly. Volunteers carry out conservation work, such as revegetation, protection of habitat and track management, with financial support from Victoria’s Department of Sustainability and the Environment.

As everywhere in Australia, the Aboriginal names have been overlaid with later appellations that reflect the origins of the European settlers. So the Yarra snakes its way between the suburbs of Doncaster and Heidelberg, and past an almost unbroken series of parks and reserves, before it comes to the Yarra Bend Park, where a unique and highly successful experiment has been carried out.

For two decades, fruit bats, also known as flying foxes, inhabited the Royal Botanical Gardens in the centre of Melbourne. As their numbers approached 30,000, the damage they did to the trees became devastating. As the species, on a national scale is threatened, culling was not an option. Relocation was the only solution. In an operation that was the first of its kind in the world, the bats were moved to a site at Horseshoe Bend, farther up the Yarra. When they tried to return, or invade nearby residential gardens, they were subjected to noises which drove them back.

Over a six-month period, they moved five kilometres downstream and eventually settled at Yarra Bend.

An area of 26 hectares has now been allocated as a flying fox reserve, and the vegetation there will be continually regenerated until it, and the bats reach a sustainable level.

An almost identical problem has arisen in Sydney, so the pioneering work in Melbourne is now being seen as offering a possible solution.

M.A. Toole, 65, Cheviot Drive, Gosforth, Newcastle upon Tyne, NE3 5DW, U.K.
WHEN will most people realise that just a few miles from their home the world of nature is waiting for them? There is no doubt that quite a few residents of Limerick city and county do not realise the true beauty of their own county - and indeed this can be said about residents of every other county in Ireland. The saying “far away hills are greener” would sum up the insane rush to foreign parts for holidays. But there is real beauty waiting just outside our doorsteps and this book shows us just a fraction of it.

It describes 35 nature walks within the boundaries of County Limerick. They include the Barnagh Tunnel, Foynes Wood and Murroe Woodland. A map is provided for each walk, giving its location within the county, the distance of the walk, the best place to begin and how long it would take - based on a person walking 4km per hour. Within each walk description, the author mentions various species of animals and plants that the walker should be on the look out for. The final section of the book has lists of birds, butterflies and dragonfly species that were recorded in Limerick. The wildlife photographs in the book are wonderful and the colour maps for each walk are superb.

This is a wonderful book and it should be a must for every school in Limerick County and beyond. By getting children interested in these walks they can, as only children can, get their parents out and about. Limerick Nature Walks is a template for a similar book for each county in Ireland.

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Calling all Radio Officers

THE RADIO OFFICER, known to generations of seafarers as “Sparks”, was an integral part of life on board ships in the days before satellite communications rendered the job obsolete.

Guglielmo Marconi - the first Radio Officer, was the originator of the wireless communication system.

On board ship, he or she had to operate the radio transmitter, direction finder, echo sounder and radar, and quickly repair anything that went wrong with this equipment.

Radio Officers first went to sea in merchant ships in 1900 and for almost a century they provided a vital link between ship and shore. The Radio Officer became recognised as an indispensable part of ensuring the safety of life at sea following the Titanic disaster of 1912.

The Radio Officer continued to provide safety and commercial radio communications and radio, radar and electronic maintenance duties onboard merchant ships until late 1990’s but the advent of satellite GMDSS (the automated Global Marine Distress and Safety System) ensured that the demise of the specialist officer for communication was inevitable.

Radio Officers’ Association

The main purpose of the Radio Officers’ Association is to ensure that the work, life and times of the Marine, Aeronautical, Coastal Stations and Clandestine Radio Officer are not forgotten.

In slightly less than 100 years the marine Radio Officer came and went but during that time many thousands of men and women enjoyed a challenging, enjoyable and truly unique profession. The Radio Officers’ Association was formed in 1995 to ensure that these experiences are not forgotten.

This contribution to life at sea is being recorded for posterity and the Association does so in an exemplary way.

The Association publishes a quarterly newsletter called QSO, which generally comprises of a booklet of information about past and forthcoming events, sea stories and memories together with details of current communication systems. It also includes an update of association documents, former Wireless College news, book reviews, letters to the editor and much more.

Membership of the Radio Officers’ Association is open to suitable qualified serving or former Radio Officers of the Merchant, Coast Station, Civil Aeronautical or Covert services. Tom Frawley and Colman Shaughnessy would like to make contact with former Merchant Navy Radio Officer and any other Irish Radio Officers.

Website: www.roas.org Email: tom.frawley@gmit.ie shaughnessy@eircom.net

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(Matt Murphy)

Planning a Seashore Safari . . .

A Trip to the Seashore

The rocky seashores around our coast offer a chance to see a dazzling variety of animals and plants to those who will only take the time to look. The seashore is also full of examples of how animals and plants adapt to a wide range of changing conditions as the tides come in and out.

Teachers will also find a number of excellent printed guides and websites devoted to making seashore ecology simple and interesting to teach. So that a trip to the seashore can fit perfectly as an example of "local habitat" when teaching the SUSE curriculum.

Over the next few issues of Sherkin Comment I will give you an outline of what you need to know, either as a teacher, pupil or simply a person interested in a fascinating day out on the seashore.

When to go

The best time to visit the seashore is an hour before the low Spring Tide. Spring tides occur every two weeks and bring with them the lowest low tides, exposing as much of the shore as possible. Their time and dates can be determined from tide tables published in local newspapers or purchased on angling and yachting shops. By visiting the shore an hour before Low Spring Tide you will experience the water dropping to low tide, turning and rising again, making the best use of your time on the shore.

Planning for Safety on the Shore

You will need waterproof boots and warm clothing in winter or old shoes that can get wet in summer. Teachers will need a whistle to call their class together and need to observe the standard pupil/teacher ratio for a field trip. A mobile phone is also a useful safety item.

Finally you will need a wooden frame of standard size to compare the number of animals and plants up and down the beach, note paper, buckets, nets and a simple magnifying glass.

Books and websites:

A Beginner’s Guide to Ireland’s Seashore From Sherkin Island Marine Station In local bookshops or online from: www.shedkoinisland.ie

Also, the DVD “On the Water’s Edge” Features animals, plants and a guide to the seashore, also available from Sherkin.

Seaweeds

The most obvious living things on the seashore are plants, which range from land plants like Sea Holly and Sea Pinks at the top of the shore, through lichens (a cross between an algae and a fungus), down to the true algae – Wrack, Kelps and red seaweeds at the bottom of the shore.

Make a note of which types grow where on the shore, or make an accurate count from low tide to high tide using your standard frame and a measuring tape.
Summer Migrants

By Declan Murphy

NOW that the long days of summer are with us we can enjoy many different species of birds that migrate from Africa to spend the summer months here in Ireland. Our best known summer visitor is undoubtedly the Swallow, but there are many other birds that make the long journey to Africa and back. The reason so many birds make these long and dangerous journeys is food. Birds like Swallows, Swifts, Warblers and Wheatears are all insect feeders and although there is food in abundance during the summer months, there are far fewer insects around in the harsh months of winter.

One of the first birds to arrive here from Africa to spend the summer with us is the Wheatear. This is a small bird, quite like a Robin in shape, with a black mask on its face and a distinctive white rump visible when they fly. The males usually arrive first, from mid-March onwards, and are a lovely sight with their slate grey backs, peach coloured under-parts and black face mask. When they have refuelled after their long journey, they fly on to their mountain breeding grounds and set up territory before the females arrive a few weeks later.

Shortly after the Wheatears arrive, Sand Martins, Swallows, House Martins, Swifts and a host of warblers all fly on to their mountain breeding grounds and set up territory before the females arrive a few weeks later.

The Swallow usually arrives here in Ireland in the first few weeks of April, however there are often early individuals which are seen in February or March. There are even sightings in December. The well known saying "One Swallow doesn't make a Summer" is certainly a very correct one! Swallows can be easily identified by their deeply forked tails, iridescent blue upperparts and white underparts. When seen at close range the reddish coloured face can often be seen. They have a fast, dashing flight and make a lovely sight as they feed low over fields and waterways. The male sings from a perch close to the chosen nest site and the long twittering song is one of the most beautiful sounds of the summer. Swallows feed exclusively on the wing and take a wide range of flying insects, travelling huge distances each day to collect enough food for itself and it's young. The nest, which is always located in a shed or building is cup shaped and built from mud and lined with feathers and grass. 3-6 eggs are laid which hatch after two weeks and the young fly after a further three weeks. There are usually two, sometimes three, broods. This means that a single pair of Swallows can produce up to 15 offspring! However, many of these will perish on the long journey to Africa and back, even so enough birds always survive to ensure that our harbinger of the summer months is always here to keep us company.

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By Des Chew

THERE was great excitement in Mulhuddart National School and Scoil Ollibhearn primary school recently as both Dublin schools took part in the DAI (Dublin Angling Initiative) ‘Trout in the Classroom’ project. This special project allows children, under supervision, to rear trout eggs in their school. The practical nature of this project brings the subject to life for children and they all have a role to play in ensuring the eggs reach maturity and are released into the wild.

Trout farming and egg rearing is a complex process, for even the most experienced fish farmer. In order to ensure success, the water temperature must be regularly monitored, the eggs (or ova) must be protected from natural light, a constant flow of water and oxygen and the continuous removal of dead eggs and any debris which may encourage fungal growth and destroy the eggs must be carried out.

In spite of these challenges, the children in both schools managed to rear over 600 trout fry successfully with very few casualties. The eggs were donated by the Central Fisheries Board and were delivered to the schools in late November 2006 by Des Chew of the Dublin Angling Initiative. The aquariums were dug out to improve the trout habitat. This work was carried out by Fingal Environment Department and Voluntary Community Groups.

Dublin schools took part in the DAI Education Project area are already booked to benefit from major spawning enhancement projects. Last year, this section of the river benefited from 10 Blue Flag Beaches. These awards reflect the environmental education projects carried out by the Eastern Regional Fisheries Board, please visit www.fishingireland.net

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2007 International Blue Flag Beaches in County Cork

The Blue Flag is a recognition of the highest standard of environment and management achieved by Irish beaches. The Blue Flag is awarded annually to beaches which meet the required standards of environmental quality and management. These standards cover a wide range of criteria including water quality, litter, safety, services, environmental education and public information. The Blue Flag award has benefits to the local community, whose amenities and environment are enhanced and a shared responsibility for the beach and the local environment is emphasised. These awards also have a positive knock on effect for tourism in the County. The findings of this initiative are fully reported in the Dublin Angling Initiative. It’s a great day to be at the beach!
The Water Cycle

The sun heats up water in rivers, lakes and oceans, turning water into steam or vapour. This steam rises and goes up into the air.

When rising water vapour hits the cold air in the sky, the vapour turns into liquid, forming clouds. This is called condensation.

Precipitation occurs when so much liquid has collected in the clouds that the air cannot hold it any longer. The water falls back to earth in the form of rain, hail, sleet or snow.

Water from the clouds may fall back into rivers, lakes and oceans, or fall on land where it soaks into the earth and collects under the ground. This water may seep into rivers, lakes and oceans, beginning the water cycle again.

Can you put the correct number in each box on the right?

1. The farmer cut the wheat in the field.
2. I met Laura in the restaurant.
3. A pantomime is a show in December.
4. From the attic loud noises could be heard.
5. The weather seems unusual at present.
6. Mary put new arm patches on my sweater.
7. My brother made waves in the swimming pool.
8. I celebrate my birthday in May.
9. The room is too stuffy.
10. The gruff ogre live alone in the castle.
11. The dog is lost or maybe it is just hiding?

WEATHER QUIZ

Each sentence below contains a hidden word, one of which is shown. Fill these words into the grid on the right and then unscramble the highlighted letters to reveal an item that takes advantage of fine weather!

1. heat
2. rain
3. wind
4. cloud
5. sun
6. warm
7. dew
8. ice
9. mist
10. fog
11. storm

Item: Washing Line.

Which silhouette matches the picture in box 1? (Answer below)
By Eunan McEntee

Why I decided to take part in Gaisce - The President's Award?

WHEN you start college in first year you immediately get caught up in the social way of life, which takes up a huge amount of your time. When I got as far as third and fourth year I started to realise the opportunities I had missed out on in my first years at college. You have an amazing opportunity to experience different things in college.

After talking to Letterkenny Institute of Technology (LYIT) Gaisce leader Hannah Glackin, I decided to join the Gaisce society. The Presidents Award was set up in 1985 for young people between the ages of 15-25. Each participant has to complete tasks of their choice in four different categories; Personal Skill, Physical Recreation, Community Involvement and Adventure. You choose from three award levels Bronze, Silver or Gold. I had already completed my Bronze award in school so I decide to do my Gold award.

Adventure

I went with eleven students from Letterkenny IT on a voluntary trip to Thailand. Over the sixteen days, the group was invited to work with people suffering from HIV and Aids. In Thailand, these people are often left homeless and lacking adequate care due to a lack of knowledge about the condition. Upon landing in Thailand, the group was brought to 'The Camlain Centre', where they were given a tour of the facility by Father Giovanni who has worked tirelessly to improve the living conditions of the local people. This is one of three rehabilitation centres he has set up in the region of Rangong. During the trip, the eleven students were divided into two groups. One group assisted with the construction of accommodation while the other was responsible for educating the local people on how to preserve their dwellings. The construction group built a flight of steps leading down to a lake, which acts as an aquarium. They also built a pigsty in order to house more pigs for meat for the people and also for selling on.

Overall, the group found their time in Thailand to be a truly enjoyable and life-changing experience. They would like to pay tribute to all those who supported them and worked hard behind the scenes, in particular Dolores Carwick. Due to public generosity, the group was able to donate €1500 to the housing project, €3000 for the 'Jack and Jill Foundation' and €1000 to Father Giovanni to cover the cost of medication in his rehabilitation centres.

Physical Activity

I took up canoeing and surfing for this section of the Award. It took a lot of hard work and commitment to get to a level where I could actually enjoy the sport. Now I often go out surfing and canoeing trips around Donegal, mighty craic!

Community Involvement

I was a member of the Students Union in LYIT and it was my mission to make clubs and societies a real success by creating a wider spectrum of activity to attract students that wouldn't usually get involved. I believed that retention could also be tackled by getting people involved in different aspects of college life. First year students are less likely to drop out if they were involved in a club or society.

To sum up the Gaisce society has in a way changed my life giving me the opportunity to take up new hobbies and experience new things, a life changing experience, what more can I say. Thanks. Get involved with Gaisce if you get the opportunity.

More information from: Gaisce - The President's Award, The State Apartments, Dublin Castle, Dublin 2. Tel: 014758746
Web site: www.p-award.net or www.gaisce.ie
E-mail: mail@p-award.net or info@gaisce.ie
The RNLI has been making rescues like this since 1824, and over the years the lifeboats have saved more than 137,000 lives. The RNLI is a charity and therefore relies on generous donations and people raising money to make sure the lifeboats can keep saving lives.

And they will know that those RNLI volunteers saved their lives.

The RNLI's brave and selfless crews are prepared to risk their lives every time they get a shout. The call can come day or night and they have to be ready, 24 hours a day, to drop everything and head to the lifeboat station.

The lifeboat service

- In 2004 the lifeboats launched 7,656 times - that's about 21 times every day.
- That's 21 dads, mums and children who were rescued and brought back safe and sound to worried families.

Who do they rescue?

- People on powerboats and yachts, kitesurfers, jet skiers, windsurfers, fisherman, sailors on merchant vessels like cargo ships.

Crew training - train one, save many

- Did you know that more than 90% of new RNLI volunteers don't come from sailing backgrounds?
- RNLI crew members come from all walks of life - doctors, metal workers, shop assistants, graphic designers, firefighters, translators, hairdressers and librarians...
- But what RNLI crew members all share is the willingness to risk their life to save someone who's in danger.
- It's only training that turns someone who wants to save lives into someone who can.
- The RNLI believes their crew members deserve the very best training.

Teamwork

The RNLI depends on people who offer their time and energy for free. As well as the lifeboat crews, there are shore helpers who help launch the lifeboat and take it back to the station. There are people who look after the lifeboat stations and others who help raise money.

Why we need your help

Training for one crew member costs £1,000

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- Boots £40
- Trousers £220
- Jacket £235
- Safety helmet £180
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Find out more at www.rnli.ie
Buddy, can you spare a glass of water?

By Mike Ludwig

THE availability of water regulates where populations inhabit the land. Unfortunately, water is limited by nature and geology. In fact, the United Nations has deemed the need for drinking water the 21st Century’s most pressing problem. Whether it is the US, Europe, Egypt or China, obtaining water has created unexpected consequences for humans and our environment. In fact, the Rio Grande / Rio Bravo del Norte Watershed that forms the southwestern border between the US and Mexico is so used that the Cities of Brownsville and Matamoros on the Gulf of Mexico cannot rely on the River for drinking water (In 2001, the flow petered out before reaching the Gulf!). No longer can these Cities get drinking water but must instead pay to drill wells or install desalination plants. In Egypt, the construction of the Aswan High Dam has altered agriculture practices, increased disease occurrence and altered the quality of life of people above and below the dam. While these “water rights” conflicts are between humans, what of the environmental “costs” associated with redirecting water from natural systems to ones designed for human use? In the Pacific Northwest of the US the use of Columbia River water for irrigation has been curtailed in favour of providing humans and fish with sufficient flows to meet their needs. Crops are damaged by the lack of water. In parts of Europe, water use has been regulated for fish protection but now human needs and wastewater dilution are causing stresses that threaten those practices. Will the fish survive? As humans need and use more water, we are seeing that the water can actually be cleaner at release but it is being put in places where aquatic resources don’t benefit and may even be harmed by the discharges.

One of the easiest solutions to water shortages is redirection from one location to another. The Romans left some of the earliest evidence of this practice with their viaducts and other plumbing devices that redirected water to Rome. Today, virtually every large City imports water from varying distances and sources. But, as the saying goes, it’s not nice to fool Mother Nature. Perhaps one of the most troubling consequences of our increasing reliance on water from outside a watershed is the impacts to the natural systems. Water relocations have a variety of impacts but at the largest scale it is the effect on flows in the donating and receiving waterways that are the most troubling. Reduced water flows in the drained system mean its characteristics are changed and at its mouth, the estuary diminished. One of the worst consequences can be an increased encroachment of salt water and an altered mixing zone. Those changes, in turn, can alter sediment and pollutant deposition or erosion, habitat types and availability (functions and values), flushing, and salt-water intrusion to upriver water supplies. Conversely, the addition of large volumes of used freshwater to otherwise established estuaries can alter mixing characteristics and the length of river in which the natural estuarine processes occur. The daily, 1.8 Billion gallons of wastewater discharged from New York City is taken from rivers throughout the State and even the Delaware River in Pennsylvania. The concentrated discharge of so much tainted freshwater in such a short reach of waterways interrupts the natural estuarine mixing processes and destroys valuable habitat for aquatic resources. These impacts have damaged the way aquatic resources live in the rivers. Clearly, the tainted wastewater diminishes habitat functions and values but a City of sixteen million people has sanitation needs.

What to do? (1) In the US, before relocating water, conservation and plugging leaks have saved billions of dollars. 2) Withdrawals are timed to periods when flows of freshwater are at their peak. In New York they use “High flow skimmers” to take fresh water from rivers during heavy winter and spring rainfalls. Since the excess water would simply flow to the sea, the removals can be a small percentage of the total flow and impacts are minimised. 3) They use natural conditions to set limits on the volume of water removed and 4) If none of the above do the job, New York taps as many waterways as possible and takes as little as possible from each river. Even with all these measures, New York is experiencing water rationing and the problems will worsen as global climate change advances. New York’s problems are representative of those in Los Angeles, Seattle, Miami, New Orleans and Cleveland.

Whatever the choices, take the time to invoke all the water conservation options and address the potential adverse impacts of water relocations. Those steps can do much to maintain healthy ecosystems.

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