INDEX

CENTRE PAGES:
Underwater World

EDITORIAL:
Hedges in Ireland
Land Under the Sea
Investors with a Green Conscience
The Hottest Trends in Tyre Recycling
Environmental Impact Study
Whooper Swans
Recent EPA Reports
Power Shifts to Sport Fishing
New Land, Ancient Breeds
From Cod to Sharks
National Monuments & Historic Properties
Marine Litter
Tourism in the Modern Age
Drawing the Lines
Pollution by Nitrates
St. Croix Estuary Project
Chlorine - The Good & The Bad
Stephenstown Pond
When the Well Runs Dry
Trigger Happy in Irish Waters?
Hedge Management
Publications of Interest
Junior Pages

The Common Sea-urchin
Photographer: Paul Kay

From the book: Ireland' s Marine Life. A World of Beauty
HEDGES IN IRELAND

EDITORIAL

By Matt Murphy

In the past 30 years we have seen the removal of hedgerows and stone walls from agricultural land throughout Ireland. Many older farmers were shocked at such destruction. They knew that these provided valuable shelter for stock during bad weather and acted as a windbreak for both stock and crops. Also, hedges and trees helped to remove surplus soil water. Recently many hedgerows and stone walls have received a new lease of life with the introduction of the EU funded Rural Environmental Protection Scheme (REPS).

Its objectives are:

* to establish farming practices and controlled production methods which reflect the increasing concern for conservation, landscape protection and wider environmental problems.
* to protect wildlife habitats and endangered species of flora and fauna.
* to produce quality food in an extensive and environmentally friendly manner.
* to provide recognition of farmers as guardians of the countryside.
* the scheme is designed to reward farmers for carrying out their farming activities in an environmentally friendly manner.

The uptake on this scheme throughout Ireland has been enormous and it’s contribution to the protection of the environment for future generations will be immense. Under REPS participants are required to maintain hedgerows and stone walls in the interest of wildlife and scenic appearance of the area. Care must be taken not to use herbicides, pesticides and artificial fertilizers near hedgerows and stone walls so as to protect the plant life and animals.

It is difficult to estimate the length of hedgerows and stone walls lost in Ireland in the past 30 years - a conservative estimate would be 30,000 miles. However, in Britain has lost 400,000 miles. (See figure “Life in the Hedgerows” for some of these.)

Surely the time has come for government here to take the initiative and issue guidelines for the protection of hedgerows and stone walls. Local authorities must look at how they care for roadsides. Much unnecessary damage is done in the cutting and trimming by machines. One realises there is a cost factor but surely the butchery must stop. One can find arguments as to why they should be included with the REPS scheme funded by the EU.

It is hoped that Brussels will increase the funding of REPS so that farmers receive extra payment for even more environmental care on their lands. Some urban dwellers may have a difficulty with farmers receiving grant aid from Brussels for protecting the environment. They may realise such payments are necessary because of the heavy cost factor in the upkeep of the following:

* hedgerows and stone walls
* peatlands
* woodlands
* lakes & ponds
* marshes
* historical and archaeological features.

All of us, whether rural or urban dwellers, benefit from the countryside. Therefore it is logical that we should, indirectly through taxes, pay for the privilege. Life would be meaningless without the wonderful features of our countryside.

A final thought - it would be helpful if Bord Faite and Birdlife Ireland took a more vocal role in getting government to put hedgerows and stone walls preservation and restoration higher up the priority list.

SUBSCRIPTION FORM

SHERKIN COMMENT is a quarterly publication of Sherkin Island Marine Station aiming to promote the awareness of our natural resources, their use and protection.

SUBSCRIPTION: to receive a year’s subscription to “Sherkin Comment”, please send a cheque or money order for IR£3.30 for Ireland and IR£5.50 for the U.K. (postage included); send IR£5.00 for all other countries (surface postage) - payable to Matt Murphy, Sherkin Island Marine Station, Sherkin Island, Co. Cork. Ireland. Tel: 028-20187 Fax: 028-20407 E-mail: sherkinmarine@tinet.ie

Please send me 1 year’s subscription - beginning with Issue No. .............

Please send me 2 years subscription - beginning with Issue No. .............

I enclose cheque/postal order to the sum of IR£......................

Name ..............................................................

Address ................................................................

Signature ..........................................................

Date ..................................................................

STAFF: Publisher, Matt Murphy; Editor, Matt Murphy; Editorial Assistant, Susan Murphy Wickens; Typography, Susan Murphy Wickens. ISSN 0791-2447 © 1997
The distance from the west Greenland, near London, to the distance from the west coast to the Netherlands. The greater part of this area is almost unexplored. We have a rough idea of the major features on the seabed. Oil and gas exploration companies have looked at some areas which are of interest to them. Academic institutes have looked at a number of small areas. A million square kilometres of territory about which we know almost nothing is an economic factor which we cannot continue to ignore. What could we use it for? It is under water, varying in depth down to 5,000 metres. In fact it may be as important to us as all the grassland in the world. Without the ability to deal with very large numbers of calculations quickly and cheaply, this was provided by the development of computers. It is now possible to sail along in a ship at a reasonable speed, always knowing exactly where you are and carrying an instrument which emits numerous acoustic beams which echo from the seabed. These return to the instrument, having rebounded from the bottom and can be analysed to tell you, not only the depth, but the type of bottom beneath.

In August 1996, an area of seabed approximately twice the size of the land area of Ireland was surveyed, using such an instrument. GLORIA means Geophysical Long Range Inclined Asdic. It was designed and built by the Institute for Oceanographic Sciences (now the Southampton Oceanographic Centre - SOCI) in England and was made available to Ireland under an E.U. programme. The Marine Institute provided funds for ship charter and other essentials. The Geological Survey of Ireland (GSB) and the Dublin Institute for Advanced Studies (DIAS) set up Government organisations to plan and run the project. At present two students are in Southampton undergoing training in processing the data which was obtained. Over the next year we hope to learn a lot about part of our underwater territory which we did not know before.

This is only a small part of the answer to the problems we face. There is a huge area which has yet to be surveyed at a reconnaissance scale. When this is completed, it will be possible to pick out the areas of most interest from various points of view and examine them more closely. This work, to be useful, will have to be combined with a number of other types of study, within the water column and under the seabed.
Urselmann, who works at the Ministry of Agriculture, projects had been certified as green. “Trees grow planted each year on agricultural land. wildlife habitats and the landscape are key features of the green scheme, investments in these areas are allowed to invest only in projects approved by the government. Up to now, these have mainly involved wind and solar energy and organic farming. But forestry, nature conservation, ecosystem-friendly technology and agritourism (the processing of agricultural products for non-consumptive purposes) projects are also eligible.

Companies have to meet a whole range of requirements to qualify for a “green certificate.” The money has to be invested in the Netherlands. The project must not be so profitable that it could be financed in the normal way. But it has to make a certain amount of profit, because the government is offering no guarantees. The banks bear the risks themselves. The projects also have to be technically innovative. Banks cannot slap a green sticker on any old project. They have to ensure that at least seventy per cent of the invested money is spent within two years on government-approved green projects. They are free to use the other thirty per cent as they see fit. They tend to use it for low-risk investments such as green mortgages on homes, so that they can cash them in quickly if necessary.

Over-optimistic

The environmental benefits have certainly started buzzing around the financial honey pot. Eight green fund investments were established in the first year, with 1.5 billion guilders’ worth of planned investments. More than 150 million guilders’ worth of projects have already been approved. Most of these investments will be spent on sustainable energy - wind turbines being the most popular - and organic farming. Forestry and nature conservation, sustainable housing and innovative environmental technology, the other projects eligible for a green label, have attracted little interest. “It’s not a box full of sustainable ideas, the banks have been very cautious,” says C. van Arendonk of ASN Bank, one of the six banks that have launched a green fund. “Most of the projects are a continuation of things that already exist. It might be that people who would really benefit don’t know about it yet. Another thing that wind energy has in its favour is that wind turbines are very tangible things. You see them up, and they work.”

Although forestry and the conservation of wildlife habitats and the landscape are key features of the green scheme, investments in these sectors are proving less popular. The idea was that 1200 hectares of extra woodland would be planted each year on agricultural land. However, by the end of last year only one forestry project and a few nature conservation projects had been certified as green. “Trees grow slowly and the return is low,” explains Jacques Usselmann, who works at the Ministry of Agriculture, Nature Management and Fisheries, which helped set up the scheme. “We were a little over-optimistic about the yield on forestry projects.” The green fund was to encourage farmers to convert their fields to woodland. This is not happening, because it would entail a great loss of wealth for farmers. On average, wooded land is worth a great deal less than agricultural land. Also, investments in forestry are often based on different, non-commercial considerations to investments in the rest of the economy. The availability of cheap loans has done little to change this.

Poorest countries

Foresters, environmental technologists and banks (who are struggling with a lack of green projects) are all calling for an expansion of the green certification scheme. The commercial banks would also like to see “pale green” (less environmentally friendly) investments included in the scheme. Pieter Hamelink of the Dutch environment ministry’s Environmental Investment Department is against this. “Then you might get a road tunnel underneath a wood being certified as green,” he warns. “After all, it wouldn’t damage the wood. But I don’t think that’s the point. We deliberately made a cautious start with certification to wait and see what happened. Now there’s scope for the green scheme to be applied on a broader basis, as long as it has a positive impact on green investment.

The ministry is thus more inclined to listen to the wishes of the environmental sector. A great many adjustments have been made to the tax scheme. Since 1 January 1996, foresters have been allowed to count grants and membership fees as profit. This is important because forests are often entirely dependent on government support. The agriculture ministry is considering including green market gardening companies and livestock farmers with low mineral emissions in the green scheme. Sustainable new housing was also included in the scheme recently. Here, too, the ministry is starting cautiously. For a trial period of two years, ten thousand new homes can be financed partly from green funds, under certain conditions. Green funding can be used for only part of the purchase price, and only for homes that cost no more than 700,000 guilders. People buying more expensive homes are expected to be able to pay for the environmental investment themselves.

The green scheme will soon no longer be restricted to the Netherlands. In December 1996, the Dutch Parliament proposed that it be expanded to cover the 28 poorest countries in the world (known as LLDCs). The proposal was adopted and the idea will be further elaborated. Most of the people in these countries use electricity at their fuel source, so there is great potential for solar energy. The minister is currently considering how the sustainability agreements concluded with Bhutan, Benin and Costa Rica can also be brought into the scheme.

Boost

The ultimate aim of the scheme is of course to encourage the use of sustainable technology. According to Hamelink, it’s still too early to say anything about its effects. “We’ve assessed the effects of grants in the past, but it’s always difficult to say whether things would have happened anyway without the scheme. But a number of projects have been given a major boost.”

One example is a project which uses residual heat from the Roka 3 electricity generating plant in Bleiswijk, South Holland, to heat a large area of greenhouse. “This project saves enough energy to power a town with 100,000 inhabitants,” says Hamelink. “But it is also technologically innovitive. The CO2 produced by the plant is used to promote plant growth in the greenhouses. And the heat exchanger developed for the project might also be useful to other countries, particularly former Eastern bloc countries where energy is still used highly inefficiently.”

For further information:
Peter Hamelink, Ministry of Housing, Spatial Planning and the Environment, PO Box 30502, 2500 GM The Hague, the Netherlands; tel: +31-70-3569333.
C. van Arendonk, ASN Bank, PO Box 30502, 2500 GM The Hague, the Netherlands; tel: +31-70-3569333.
As a rapidly maturing industry, tyre recycling is undergoing significant change. Tyre recyclers are proving as durable as the product they process. Even as some are making money and others are losing big dollars, huge volumes of tyres are disappearing from the American landscape, and recent industry trends point to even greater success ahead.

**Trend No. 1: TDF tyre-derived fuel to the top**

Fueling the growth in scrap tyre recycling is the fuel market, with the majority of scrap tyres being converted into tyre-derived chips for use in solid-fuel boilers. Currently, some 80 facilities in 34 states burn tyres to recover the fuel value of crumb rubber, cement kilns, paper mill boilers, electric utility boilers and industrial boilers. In addition, the Scrap Tire Management Council (Washington, D.C.) estimates that an additional 80 facilities are in various stages of permitting or testing. About 1.5 million tonnes of scrap tyres are used in these plants annually, reports STMC.

Although tyre-derived fuel (TDF) is the volume leader in recovered tyre uses, it is not an easy market to play. While other solid fuels are plentiful and cheap, as they have been for much of the 1990s, TDF producers suffer. For example, National Tyre Services (South Chicago Heights, Illinois), operator of seven scrap tyre processing facilities, filed for bankruptcy in January 1996. Waste Recovery (Dallas), the largest TDF producer, has only recently returned to profitability.

In addition to problems for some processors created by low prices, TDF users are encountering an emerging problem. The presence of zinc in boiler ash has raised the interest of federal and environmental regulators. The typical scrap tyre contains about 1.4 percent zinc in the form of zinc oxide, and federal regulations require the reporting of any chemical - including zinc oxide, and federal regulations require the reporting of any chemical - including zinc oxide, thus hurting the overall industry, and the conventional paving industry. As a result of these concerns, some tyre recyclers are considering adding a source of zinc oxide to compensate for the zinc in the boiler ash.

Waste Recovery generates 2,000 tons per month of tyre-derived fuel, and now five Alberta companies shred tyres, with the majority of scrap tyres used to make the crumb rubber (whole tyre rubber, tread rubber, tyre bales, etc.) at Waste Recovery (Dallas), the largest TDF producer, has only recently returned to profitability. Nonetheless, a number of states, including Arizona, California, Florida and Texas, are still using significant quantities of rubber-modified asphalt, reports Bob Winters, president of Atlas Rubber (Los Angeles). He estimates that the amount of crumb rubber-modified asphalt used in highway construction has increased about 5 percent from 1991 to 1996.

Tyre recycling is full of dreamers, schemers and wannabes. According to numerous industry participants, some of the recovered products made by some projects, a set of standard-setting committees are at work within the American Society of Testing and Materials (West Conshohocken, Pennsylvania).

A major impediment to expanded use of crumb rubber is the lack of a universally accepted specification for the material. That may change. ASTM members are working on a draft crumb rubber specification developed by a committee of rubber scientists, tyre reclaimers and crumb rubber users. The draft classification scheme will require crumb rubber processors to list the source of scrap tyres used to make the crumb rubber (whole tyre rubber, tread rubber, tyre bales, etc.), the size of the crumb rubber and its composition (including the amount of fibre, metal, aceton, ash, carbon black, natural rubber, etc.). A second ASTM standards will describe the preferred equipment and procedures to be used in testing crumb rubber. According to members of the ASTM committee, the development of widely accepted crumb rubber standards will greatly assist in moving this material to a commodity status. A second ASTM committee is working to develop draft specifications for tyre-chip use in civil engineering applications.

**Trend No. 2: Civil engineering applications are hot**

Scrap tyre chips have many properties that make them good candidates for use in construction projects.

Research by Dr. Dana Humphrey of the University of Maine shows that tyre chips are lightweight (one-third of one-half as heavy as gravel), have low lateral earth pressure (i.e., they won’t push walls over), provide good thermal insulation and offer good drainage (10 to 100 times better than loose soils). Thus, many contractors are using tyre chips as lightweight fill, for retaining wall backfill, as insulating layers and as drainage material.

For example, a number of landfill operators have put a layer of tyre chips on a capped fill for drainage purposes. Emanual Tire (Baltimore) has placed nearly 21,000 tons of wire-free tyre chips as a two- to four-inch layer on top of the sealed Garrett County, Maryland landfill. The tyre chips, with a soil layer atop, disperse water. Virginia Recycling (Providence Forge, Virginia) has completed several similar projects. The company shreds approximately 150,000 scrap tyres per year for use as landfill cover.

**Trend No. 3: Adding that value**

As with other high-volume recyclables, the push is on in the tyre recycling industry to produce higher value products. This change in the industry comes in the form of a surge in crumb rubber production and use.

The reason is simple. Tyre-derived fuel often garners just one or two cents (US$ per pound). Thus, the economics of TDF production are tip-top (scrap tyre suppliers need to be charged a fee to cover processing costs).

Ground rubber from old tyres, on the other hand, sells for eight to 50 cents per pound, depending on its size and quality. Thus, according to Will Ferretti, NRC’s executive director and former head of New York State’s recycling market development program in Albany, tyre reclaimers can move towards a market-based economy.

A number of crumb rubber producers jumped into the field after the passage of the federal interstate highway act in 1991. The law required state highway agencies to use rubber from scrap tyres in growing percentages as an asphalt modifier in federally funded highway construction. As subsequently reported a firestorm of protest from state officials and the conventional paving industry. To avoid a recession of the federal requirement. Nonetheless, a number of states, including Arizona, California, Florida and Texas, are still using significant quantities of rubber-modified asphalt, reports Bob Winters, president of Atlas Rubber (Los Angeles). He estimates that the amount of crumb rubber-modified asphalt used in highway construction has increased about 5 percent from 1991 to 1996.

Tyre recycling is full of dreamers, schemers and wannabes. According to numerous industry participants, some of the recovered products made by some projects, a set of standard-setting committees are at work within the American Society of Testing and Materials (West Conshohocken, Pennsylvania).

A major impediment to expanded use of crumb rubber is the lack of a universally accepted specification for the material. That may change. ASTM members are working on a draft crumb rubber specification developed by a committee of rubber scientists, tyre reclaimers and crumb rubber users. The draft classification scheme will require crumb rubber processors to list the source of scrap tyres used to make the crumb rubber (whole tyre rubber, tread rubber, tyre bales, etc.), the size of the crumb rubber and its composition (including the amount of fibre, metal, aceton, ash, carbon black, natural rubber, etc.). A second ASTM standards will describe the preferred equipment and procedures to be used in testing crumb rubber. According to members of the ASTM committee, the development of widely accepted crumb rubber standards will greatly assist in moving this material to a commodity status. A second ASTM committee is working to develop draft specifications for tyre-chip use in civil engineering applications.

**Conclusion**

According to numerous industry participants, scrap tyre use will continue to increase, with an industry shakeout expected as recovery systems enlarge and industry standards become widely used. As John Serungard, chairman of STMC concludes, “The contemporary tyre recycling industry isn’t yet a mature industry, though we might be approaching our teens.”

Jerry Powell is Editor of Resource Recycling, PO Box 10540, Portland, OR 97296-0540, USA. Tel: (503) 227-1319 Fax: (503) 227-6135 Email: recycle@nul.com. (Printed with Permission.)
Environmental Impact Study

By Brian Archer

EIS stands for Environmental Impact Study (or statement) and is required by law in certain cases where proposed developments may have potential for causing significant effects on the environment.

EIA or Environmental Impact Assessment is the process by which developers, regulatory bodies, the public, and particularly, the competent planning authorities, consider what the effects will be, whether positive, negative or neutral. This assessment ultimately leads to a decision to either permit, refuse or modify a project.

EIS and EIA are, therefore, primarily intended to lead to sound, informed decision making by bodies such as planning authorities, Bord Pleanála, The Environmental Protection Agency and Departments of State. They are also intended to inform the public of the likely consequences of such projects and to allow them to participate in the decision making process.

In this context sound and informed decisions are those which, to the maximum extent possible, protect the environment and are consistent with what is called “the proper planning and development of the area.”

All public bodies, including local authorities, are now required to prepare EIS’s in the case of certain large developments.

One very important point to note about EIA and EIS is that they are not primarily intended to be tools for the prevention of development. European Law (EC Directive 85/337/EEC) acknowledges that developments will take place which have significant environmental effects. However, it requires that these effects will be studied, predicted and that steps to minimize them will be built into the consent (planning) procedures. Irish Law requires that “...where significant adverse effects are identified ... (EIS should include) ... a description of the measures envisaged in order to avoid, redress or remedy these effects”. It does not require, where measures cannot avoid the stated significant adverse effects, that a project must be abandoned or be refused consent to proceed.

In fact, one of the main factors underlying and leading to the EC Directive had very little at all to do with environmental protection. The Council of the EU felt that, to ensure the proper “functioning of the common market ... it is necessary to approximate national laws in this field”. In other words, they sought harmonisation, cohesion and similarity of treatment of development projects and consent (planning) procedures throughout all the disparate member states.

The reason was in order to avoid “un-favourable competitive conditions” or competitive advantage for any one state over the other member states. An instance would be the case where an American or Japanese industrial investor, who wished to establish in the EU, might choose Portugal or Greece, for example, over Denmark or Germany, simply because the control and project assessment procedures in the former were perceived to be less onerous than in the latter states.

EIS and EIA are expressions which tend to scare a lot of people. Developers or proposers of projects are nervous that the requirements will involve them in high preparation costs. Interested parties and individual citizens sometimes feel intimidated by the sheer volume of information required (often highly technical) data through which it is necessary to delve. This latter is the case not withstanding the legal requirement that a summary in non-technical language should accompany any EIS.

It is also true that there is a problem in the early days of EIA in America. The process itself is extremely recent - being required by U.S. law only since 1970. In 1978 the federal agency (Council on Environmental Quality) put a limitation on the size of EISs.

The environmental controversies of 1988 and 1989 in this country, have given the impression that Ireland lagged behind the rest of the developed world in relation to EIA. In fact, EIA preparation has been a requirement of Irish Planning Law since 1976 (for certain industrial undertakings). This compares with France (1976), Luxemburg (1978) and the Netherlands (1986). Britain had no national statutory requirement for EIA before the EC Directive became applicable. However, the application of the EC Directive and the 1989 Regulations which translated the directive into domestic law, this country could be accused of an over enthusiastic use of the laws.

For example, between July, 1988 and December, 1990, the authorities in Great Britain required 166 EISs. In the same period, planning authorities in Ireland required the preparation of 28 EISs. Assuming a similar level of construction and development activity in both jurisdictions, it can be seen that in Ireland, the incidence of EIS relative to population was approximately 10 times as great as in Great Britain.

In Co. Cork 85 EISs have been submitted since July, 1988. 28 of these were required before the coming into force of the 1989 Regulations. So, while central government could be criticised for a certain lack of urgency in implementing the EC Directive (it was 1.5 years late), local government seems to have more than compensated by demanding EISs at a rate that has never been equalled since.

The EPA have published draft guidelines on the information to be contained in EISs. These have general application nationally. This is a comprehensive document but it is not intended to lead to overlong studies as occurred in the U.S. In fact it makes it clear that minimal topic coverage is advisable when no significant impacts are likely.

It is important to remember that the impacts which must be addressed in an EIS are the significant ones. A document in which the critically important considerations are lost in a morass of issues of minor insignificant effects is not helpful to the efficient assessment of the project and can, in fact, frustrate the interested individual or group who would wish to play a constructive part in the assessment process (whether in support of, or in opposition, to the project).

An EIS which includes well designed side- tracks leading to a cul-de-sac of red herrings is about as helpful to the assessment process as opposite, misrepresenting their case on the fact that the proposers were involved in environmental incidents in another country, in another time, using different processes and subject to outdated environmental controls.

The question of the exact details which an EIS should address, and the degree, has also been the cause of some controversy. As the law currently stands (arising from the Merrel-Dow case) the relevant planning authority is solely responsible for determining the adequacy of the EISs. (In the case of an application to the Environmental Protection Agency for an integrated pollution control licence, the EPA would presumably have the same responsibility.)

In practice, most proposers of large projects would have prior consultation with the relevant planning agencies to determine the issues to be considered in their EIS. A formalized scoping requirement for EISs is being considered at European level and may well become a statutory necessity in the future. A fundamental requirement of a good EIS is that it should have studied alternatives to the proposal being put forward. The most obvious alternatives are locational. For example, local authorities will always consider alternative routes for major bypasses of towns before opting for the preferred route. Another example would be the case of a high-tech industry which might make a locational decision based on the proximity of an Institute of Technology or a University Town as against, say, an area of high unemployment.

In many cases, locational alternatives do not apply. In the case of mining, for instance, there is often no choice other than the specific location of the mineral source. In this case, the appropriate alternatives to be studied would be methods, (whether open-case or underground) processes to be used in mining. The important issue is that an EIS should not simply be a study of the absolute impact of a development but must include an assessment of the impact vis-a-vis other alternatives considered. Without this relative dimension, the justification for deciding on one particular process (be it economic or technological) can be difficult to establish.

EIA and EIS are here to stay. It is hoped that they will, with the help of the EPA guidelines, become progressively more user friendly. It should not be forgotten that in this country there are always a minimum of three parties to the consideration of a development proposal. They are the proposer/developer, the Planning Authority or control agency and the receiving population - i.e. the people.

Draft guidelines on the information to be contained in environmental impact statements - EPA 1995.


Brian Archer, Planning Department, Cork County Council, County Hall, Cork, Ireland.

Heritage Publications produced by the Department of Arts, Culture and Gaeltacht dealing with general heritage, monuments, archaeological inventories and surveys, historic properties, national parks, wildlife publications, waterways, leaflets and posters.

The Government Publications Division of the Office of Public Works is also responsible for the sale of specialised technical, scientific and managerial publications dealing with the natural and built environment. These specialised publications are authorised by Government Departments in Ireland and by international organisations such as EU, OECD, WHO, etc.

GOVERNMENT PUBLICATIONS, 45 HARCOURT ROAD, DUBLIN 2.

Phone (01) 6613111 or Fax (01) 4752760.
Whooper Swans

By Oscar Merne

AS the last Swallows leave Ireland for southern Africa in the early days of October, the first Whooper Swans arrive here from their breeding grounds in Iceland. Lakes and lagoons in the north-west one day have a few local Mute Swans floating on them; the next day - particularly after a spell of cool north-westerlies and clear skies - the wetlands are alive with new arrivals, excitedly trumpeting their loud "whooping" calls. This is their signature tune and immediately distinguishes the Whoopers from the resident Mute Swans, which utter quiet, nasal snorts, hisses and whistles when excited. As their parents and this helps in their identification. Their bills are much less distinctive, but young Mutes tend to have quite brownish plumage, while young Whoopers are paler and greyer.

- More confusing in some areas are flocks of Bewick’s Swans, which are often mixed with Whoopers, and appear in small swarms. Bewick’s Swans are also lesser short bill, which is black in color, with yellow at the base. They come here from Siberia and are relatively scarce, occurring at fewer wetlands and tending to stay in smaller groups. In the mid-1970s it was estimated that there were only 5,000 to 7,000 Whooper Swans in Iceland, but since then there has been a major increase. A full winter census in Ireland and Iceland in January 1991 produced a grand total for the Icelandic population of 18,035 birds. A repeat census in January 1995 showed a decrease of 2,193 birds to 15,842. This decrease is explained by reduced breeding success in three years. In 1995 some 9,855 of the Whoopers were counted in Iceland. 5,016 in Britain and 971 in Iceland. From this it can be seen that Ireland, with 62% of the total population, is a very important wintering area for Icelandic Whoopers.

- In the past, when overall numbers were much lower, Whooper Swans were found wintering mainly on lakes and lagoons rich in aquatic vegetation, on turloughs and grassy flood-plains or callows, and sometimes on saltmarshes and intertidal areas with eelgrass (Zostera) beds. More recently, with greatly increased numbers and through adaptation (and perhaps these are interlinked), many Whooper Swan flocks are now found on agricultural lands. Particularly favoured are large flat fields close to water, where the swans feel secure from disturbance and predation, and where their limited flight range is not an encumbrance. Here they graze on the protein-rich new shoots of such species as perennial ryegrass and winter cereals. They will also feed on spilt grain in autumn stubbles, and on the leavings of harvested roots such as potatoes and beet. Where the swans are feeding on waste grain and roots there is usually no problem, but farmers are often anxious when large flocks of Whoopers graze their sprouting cereals and improved grass awards. Significant damage can occur in some situations, but such grazing can have beneficial effects too - for example nutrient recycling, tillering, removal of plant parts which would otherwise die back. Where damage is being done or perceived to be occurring, relief comes in the spring when the Whoopers set off again to their breeding grounds in Iceland.

Oscar Merne is a Wildlife Research Officer with the National Parks & Wildlife Service at the Dept. of Arts, Heritage, Gaeltacht and the Islands.

Photos: Oscar Merne

Many Whooper Swan flocks are now found on agricultural lands - particularly favoured are large flat fields close to water, where the swans feel secure from disturbance and predation.

Do your bit for conservation -

RECYCLE YOUR CANS

at your nearest bottle bank
IPC LICENSING AND CONTROL - ANNUAL REPORT PUBLISHED

The Agency has recently issued a report on IPC Licensing and Control for 1995. It includes a report on the performance of the first twenty-two industries which were granted an IPC Licence by the Agency. This is the first such report since the setting up of the Agency and covers the period from the receipt of the first applications for IPC licences in July 1994 to December 1995.

The report describes the licensing and control activities of the Agency which include IPC licensing, monitoring and enforcement.

Listed in the appendices of the report are details of submissions and objections received in relation to IPC applications, the distribution of IPC applications by county and class, monitoring visits to IPC facilities in 1995 and results of audits completed at licensed facilities.

Copies of the report entitled Report on IPC Licensing and Control 1995 (price £5) are available from: EPA Publications, St. Martin’s House, Waterloo Road, Dublin 4. (Tel.: 01-6602511; Fax: 01-6605848).

Further Information: Mr. Dara Lynott, EPA Headquarters, Ardcarne, Wexford. Tel.: 053-47120, Fax: 053-47119, Email: d.lynott@epa.ie

If you couldn’t give a toss about litter, fine.

ACTION AGAINST LITTER
It's our country, don't publish it.

Pesticides in Drinking Water Report

The Agency has recently completed the widest study to date of the occurrence of pesticide residues in drinking water in Ireland. It is generally accepted that the quantities of pesticides used in Ireland are relatively low in the European context. However, any assumption that there is no background contamination of Irish drinking waters by pesticide residues needed some experimental support.

Out of over 3,300 analytical results on the quality of drinking water, spread over 26 counties and serving 1.8 million consumers, only five were above the limit prescribed by European standards. A composite samples showing high results were retested and shown to be clear.

The report Pesticides in Drinking Water (Dec 1994 - Dec 1995), (price £5) includes details of all samples taken, summaries of the results for each compound and full results from each Sanitary Authority area. Copies of the report are available from: EPA Publications, St Martin’s House, Waterloo Road, Dublin 4. (Tel.: 01-6602511; Fax: 01-6605848).

Further Information: Dr. Ciaran O’Donnell, EPA Regional Inspectorate, Pottery Road, Dun Laoghaire, Co. Dublin. Tel.: 01-2852122; Fax: 01-2851766.

OZONE MONITORING IN IRELAND FOR 1995

The Agency has published the results of ozone monitoring in Ireland for 1995. The main finding of the report is that, on a number of occasions during the hot summer of 1995, the ozone levels in Ireland exceeded the thresholds set down for the protection of human health or vegetation by the EU Directive on ozone. The levels also reached and indeed exceeded the level above which the public must be informed.

The highest readings were registered during the exceptionally hot periods when the temperature was greater than 25 degrees centigrade and anti-cyclonic conditions prevailed. In these conditions pollutants from the UK and mainland Europe, such as nitrogen oxides and hydrocarbons, move over the country. These pollutants, in conjunction with the high temperatures, cause an increase in ozone levels. However, the occurrence of this situation in Ireland is rare.

The threshold for the protection of human health is based on the average over 8 hours. This was exceeded on 35 days over the six sites in the monitoring network. The population information threshold above which the public should be informed, relates to hourly values and was exceeded for a total of 27 hours on 13 days at three sites.

The highest concentrations in 1995 were recorded at Glashaboy on the N.E. of Cork city. Overall the maximum levels measured during the summer of 1995 from the six stations, were the highest ever recorded in Ireland. However, these readings should be compared to much higher levels of ozone recorded in the worst affected parts of Europe where summer ozone levels may be up to three times as high as the highest recorded values in Ireland.

A detailed listing of all exceedances, as compiled for submission in accordance with the reporting requirements of the ozone Directive, is presented in the report. There were few exceedance events in respect of thresholds for hourly concentrations but significantly more in the case of the lower 8-hour means. The vegetation protection threshold of 65 mg/m3 over 24 hours was regularly exceeded at most monitoring sites but this is not surprising, as this particular threshold is close to the mean level for tropospheric ozone in northern mid-latitudes.

Data from a network of six monitoring stations were used in the compilation of this report. These are situated at Kilkitt, Co Monaghan; Pottery Road, Dun Laoghaire; Glashaboy, Cork; Kilkenny City; Avondale, Co Wicklow and Machead, Co Galway. These sites were representative of city suburbs, forests, agricultural areas and of the extreme Atlantic west coast.

A copy of this report price £10, is available from: EPA Publications, EPA Regional Inspectorate, St. Martin’s House, Waterloo Road, Dublin 4. Tel.: 01-6602511; Fax: 01-6605848.

Further Information: Mr. Michael McGurke, EPA Regional Inspectorate, St. Martin’s House, Waterloo Road, Dublin 4. Tel.: 01-6602511; Fax: 01-6605848.
By Bob Marshall

DURING his eight years as a state legislator, Randy Roach had seen some dramatic shifts in political power. But none compared with the sudden swing in 1995 that resulted in gill nets being banned from Louisiana waters.

In the course of one legislative session, the sport fishing lobby grew from minnow to whale.

For several years there was pretty much political parity on the issues between sports and commercial fishing interests,” said Roach, who represented Lake Charles in the House from 1988 to ’95. “Things went 50-50, or maybe 55-45, one way or the other. It was usually pretty close.

“But in 1995, the sports lobby came back and … Wham! Suddenly they were on top 90-10. They literally steamrolled the opposition on the gill net ban, something they had been only able to talk about for 10 years. "I mean, it was no contest. Sudden, complete dominance. That is a very rare thing in politics."

It was unheard-of for sport fishers in Louisiana and the Gulf. Since the early 1980s, when gill nets first sparked their political activism, recre-ational fishers had made plenty of noise, but won few political battles.

All that changed during a dramatic 18 months starting in November 1994, when Florida voters overwhelmingly approved a ban on gill nets in their waters.

Legislators in Louisiana, Alabama and Mississippi followed in the spring of 1995 with partial bans on the nets, which critics say are wasteful.

Louisiana’s sport fishers copped the turnaround early this year, when Jimmy Jenkins, president of the Gulf Coast Conservation Association — the sport fishers lobby — was named secretary of the state Department of Wildlife and Fisheries.

The changes are part of a larger trend that has shifted the balance of power from commercial fishers to sport fishing interests all across the Gulf of Mexico. It is a battle that could change the way fish are managed and regulations are written for years to come.

But while the sport fishers’ victories were dramatic, lawmakers and lobbyists say the turnaround had been building since the mid-1980s, and reflected two key factors for political success: numbers and organization.

The sport fishers have both; the commercial interests never did.

“Tuck it was a matter of time, because of the numbers; there are many more recreational than commercial,” said Mark Hilzim, executive director of the GCCA from 1986 to ’92. “Our job was getting the Legislature to recognize our economic impact."

Marine recreational fishing had been quietly building into a major economic power since the 1980s when the Gulf Coast began experiencing explosive growth. Studies credit sport fishing with at least half of the $5 billion to $6 billion generated by the Gulf fishing industry each year.

About 57,000 full-time jobs are directly connected to the region’s recreational fishing, and the American Sportfishing Association estimates that 4.6 million recreational anglers fish in the Gulf, a large voting bloc for lawmakers to consider.

But sport fishers say state agencies were slow to acknowledge them because saltwater species are generally considered a commercial commodity. Until recently, for example, biologists assigned to manage marine fisheries at the Louisiana Department of Wildlife and Fisheries worked in the “Seafood Division.”

“We never went to the Legislature as favorites,” Hilzim said. “Commercial fishing controlled the committees. We were always underdogs.”

That began to change in 1986, thanks to a reciprocal. Cajun chef Paul Prudhomme’s blackened redfish became a national craze, and in a few months what had been a relatively unimportant commercial species was fished to the brink of depletion.

Film of commercial boats netting so many of the fish that they had to throw away thousands enraged sport fishers.

The GCCA entered the political arena and, using the redfish as its logo, lobbied to have commercial fishing for the species closed. Commercial fishers responded by using their political clout to temporarily close recreational fishing as well, a move that galvanized sport fishers to action.

After two years of bitter debate, the Legislature finally agreed with the sport fishers, and in 1988 it designated redfish a game fish, making it off-limits to commercial fishers.

Roach considers that decision the beginning of the end for commercial fishing interests.

“That event really was the first time the Legislature said that a recreational fishery was more important than a commercial effort on the same species,” Roach said.

The vote was close, but the sport fishing lobby had established a beachhead.

Hilzim, who left the conservation association in 1992 to become executive director of the state Department of Wildlife and Fisheries, has watched the continued rise of sport fishing’s power with interest and insight, and pinpointed four keys to its current dominance.

“First, the commercial lost important allies on the key (natural resource) committees in the Legislature,” he said. “Many times we couldn’t get bills onto the floor because of those guys. By 1992, they were almost all gone.”

“Two, pure demographics. Politics is numbers. Eventually the sheer weight of the rec numbers — 600,000 of us to 1,500 netters — took its toll on the voting.”

“Three, the commercials hurt themselves by refusing to work with the recreational fishing people earlier. They had any number of opportunities to take the initiative. I think there were some commercial guys who knew that and wanted to change some things, but they weren’t listening to their leaders.”

“And, finally, the Florida vote.”

If redfish was the turning point for recreational fishing in Louisiana, Florida’s ban was the benchmark for the Gulf Coast.

“That was the catalyst for what happened in Louisiana,” Hilzim said. “Without that vote, I don’t think the GCCA would have had the success it had here last year.

Florida outlawed the nets with a 72 percent landslide in a vote of the people that provided powerful precedent. Texas had banned gill nets by government proclamation in 1988, but Florida’s public vote was a clear sign that things had changed.

“For a major state, with a seafood industry we can relate to, to take that kind of step was a major factor,” Roach said. “The Florida vote, in many people’s eyes, validated the GCCA’s position on gill nets here. People who weren’t that familiar with the issue saw the big margin and said, ‘Well, there must be something to the (sport fishers) complaint.’ ”

“Timing is everything. The GCCA was able to capitalize on the Florida vote. Plus it was an election year. Legislators — especially those from north Louisiana — were only hearing one thing from their constituents: Ban the nets.”

Like Hilzim, Roach said much of the sport fishers’ success was rooted in the commercial industry’s two major failings: lack of organization and resistance to change.

Unlike sport fishers, commercial fishers had no single umbrella group representing their interests. And the competitive and independent nature of the business fosters resistance to organization.

Most of us (legislators) who were trying to strike a balance could not get the attention of the commercial community and to the reality of the political winds that were blowing,” Roach said. “We were never successful in getting them to back off a little and be more realistic.”

A week after the Florida gill net vote, Carl Turner, director of the Louisiana Seafood Marketing and Promotion Board, announced a proposal by commercial fishers for dra- matic reforms, including a ban on set gill nets, closed seasons, limited entry and other ideas long championed by conservation groups.

When asked why the sudden change of heart, Turner said, “It’s amazing what you will do when you have a gun pointed at your head.”

But by then, the GCCA smelled blood, and it wasn’t willing to back down on the push for a total ban.

Six months later, the recreational fishing lobby flexed its newfound muscles and changed the landscape of Louisiana’s coastal fisheries politics.

“I don’t think commercial fishers ever faced reality,” Roach said, “until it was too late.”

Bob Marshall is staff writer with The Times-Picayune - New Orleans (US) only daily newspaper.

The Times-Picayune won the Pulitzer Prize for public service for its special eight-day series “Oceans of Trouble: Are the World’s Fisheries Doomed?” The project team - John McQuaid, Bob Marshall, Mark Schleifstein and Ted Jackson - under the direction of editor Tim Morris, worked for more than a year to produce the comprehensive report. The se- ries had previously been honoured by the Society of Professional Journalists, also in recognition of the newspaper’s service to the public.

Contact: The Times-Picayune, 3800 Howard Avenue, New Orleans, LA, USA 70140. (Printed with permission).
By Daphne Pochin Mould

ICELAND is a new land - new, geologically speaking. Built of volcanic rock it's still one of the most actively volcanic parts of the world. Eruptions happen about every five years, with land still being created. It's new too in human terms, being the last part of Europe to be settled - in the 9th century. It has no remote and misty prehistoric past as records were kept of who had settled where. People came from Norway, as well as other countries, with links to the Norse settlements in Britain and Ireland, who brought Irish wives and Irish slaves. These Viking adventurers and settlers, who were to go on to colonise Greenland and explore the coasts of North America, came in their fast, seaworthy longships, loaded not only with domestic gear but with their domestic animals - horses, cattle, sheep, goats, pigs and dogs. Till then, the only Icelandic mammal had been the Arctic fox and an occasional polar bear, swept in on floating ice to the north coast. Farmer fishermen, the Icelanders spent the long, nightless, summer days making hay for the winter feeding of their animals. Our word "hay" comes from the Scandinavian - Icelandic "heidi". They still make hay, but now use modern machines. The hay is rolled into bales and wrapped in white plastic, which dot the green fields like over-sized sheep. Later they are stacked at the farm animal houses, for the cattle and sheep are over-wintered indoors.

Because Iceland is a remote and large island (103 sq. km bigger than Ireland), these ancient breeds of animals have remained unchanged through the centuries. The pigs, however, have died out, though their presence is stamped on the landscape in placenames - including the word "svín", our word swine. The sheep are mostly white, but also black, grey and brown, and traditional Icelandic knitwear uses these natural colours to make patterned pullovers. It is a strong, springy wool, ideal for keeping out the cold and for sportswear.

The cows are great milkers but not good beef cattle. They come in all sorts of colours, including tiger stripes, and unlike in the past, today they are de-horned. Recently, under very careful supervision (for Iceland has been isolated from many animal diseases and the native breeds have no herd immunity against them), beef cattle have been introduced. Icelanders drink a lot of milk and eat the traditional "skyr", a thick form of yoghurt, which can be eaten as it is, with cream, with the wild blueberries of the hillsides, or with other fruit. Today, Iceland produces a range of yoghurts and cheeses, and very proud of its ice cream.

The Icelandic dog is a small version of the husky, and plays its part in the herding of sheep and cattle. Every sheep and cow has its Icelandic name. Careful farmers tag the lambs’ ears with the mother’s name, so selective breeding is possible. During summer sheep and lambs run free on the hills; in the autumn round-up the breeding animals are brought in, and the lambs for slaughter selected - it is not possible to house large flocks over winter. After a summer feeding on the grass and herbs of the hillsides, Icelandic lamb is claimed to be the best in the world, and probably is.

But the special glory of the Icelandic animal kingdom is the horse. The original Viking horse, immensely strong and immensely intelligent, with its five speeds (walk, trot, gallop, tolt and pace - "tolt" is fast, smooth running), is today an expensive and important export from Iceland. Till very recently, when the Icelanders, al-most overnight, jumped from horseback to cars and aircraft, the horse did everything on the farm and was the only transport to go anywhere in the country. In the 1960's, a popular postcard showed Icelanders riding onto the airfield to board an aircraft, and even then Icelandair’s old logo was the winged horse. However the Icelanders’ new horse was to become the aeroplane.

Today Iceland has riding schools for visitors who want to learn more of the special skills and charms of the Icelandic Viking horse. You can go on long, well organised treks across and around the whole country in summer time, or make shorter trips at any time of the year. Viking horses pick their own way over rough country - leave them to it and only giving them the general direction. They are very friendly, almost dog-like animals, and most unlikely to bite or kick you. No wonder horse lovers all over Europe and in America buy them. There is an international association of Icelandic horse owners, of which Ireland is a member. Its magazine, published in English and German, is called “Eidfaxi”, which according to the ancient account, was the name of the first foal to be born in Iceland.

The Icelandic horse is the only unchanged ancient European breed of horse - the one the Vikings rode and loved and carried with them on their voyages to new lands. Today you can get to know some of them here in Ireland, or better still go to Iceland and meet some of the 75,000 animals on their native hills.

SHOW TIME: A child competitor at the national Lansmot, 1994. (Horse show)

Riders herding sheep for shearing. The only farm work the Icelandic horse does these days is herding sheep and sometimes cows.

Remember to bring your

GLASS
BOTTLES

to your nearest
REHAB BOTTLE BANK

At present, only 21% of glass bottles are recycled in Ireland

Sponsored by
SmithKline Beecham (Mfg.) Ltd.
"Simply the Best" Healthcare Company
By Michael Ludwig

ABOUD four times a year we go to sea to sample fish stocks for data to run models for harvested species quota allocations. Each cruise samples the same general areas, but focuses on locations where fish congregate or some significant element of fish life occurs at the time of the cruise. At one such time, in the fall off the northern coast of Newfoundland, the big three species of groundfish—cod, haddock and pollock—are caught by a mistaken belief that the chemical was compounded by a firm at the company's premises and recycling of waste on unlicensed sites. Operations had since ceased at the company's premises and recycling of waste on unlicensed sites. Operations had since ceased at the company's premises and recycling of waste on unlicensed sites.

CORAL reefs are one of the most diverse and biologically productive ecosystems on earth. Their high productivity is the result of efficient biological recycling and a high retention of nutrients in other otherwise nutrient-poor environment. Coral reefs are tropical, shallow-water ecosystems restricted to latitudes 25° to 30° north and south and year-round surface water temperatures of 25° to 30°C. Hermatypic corals (i.e. reef-building or stony corals) are multicellular animals which collectively secrete the hard external skeleton of calcium carbonate that forms the reef structures. These reefs provide habitats for a wide variety of marine organisms, such as fish, sea turtles, marine mammals, crustaceans and invertebrates. A critical aspect of reef-building corals is their symbiotic relationship with the unicellular algae, zooxanthellae. The algae live, conduct photosynthesis, and process the coral's waste products all within the cells of their host. The entire biological productivity of the coral reef ecosystem rests on this symbiotic relationship.

Corals have very specific requirements for light, temperature, water clarity, salinity and oxygen. Coral growth is relatively slow, especially in areas where sediments are regularly disturbed because silted substrates prevent larval settlement. If light penetration is decreased there is a reduction in photosynthesis by the zooxanthellae algae. Most corals, therefore, are restricted to depths of less than 30 metres. Their lack of mobility makes them vulnerable to environmental disturbances, such as oil spills, through smothering and oxygen depletion. Coral reefs in Hawaii are fairly well developed but display low species diversity because of Hawaii's extreme isolation and more northerly latitude. The best developed reefs in Hawaii are found on leeward (south and southwestern) coasts or in bays which are sheltered from wave action. Examples include the Kona Coast of Hawaii, the south coast of west Maui, the north coast of Lanai and Kauai, Kaneohe Bay, Hanuama Bay and Barber's Point, Oahu, and the lagoons of the Northwestern Hawaiian Islands. Source: Oil Spills at Sea: Potential Impacts on Rocky Reefs

FROM COD TO SHARKS

Twenty-five years of Fish Management

Michael Ludwig, NOAA, NMFS, Milford, CT 06460, U.S.A.

environmental court actions in britain

The court was told that the company made an application in April 1995 to register its scrap metal recycling facility as an extension under waste management licensing regulations. The Agency told the company that improvements were needed to meet the exception. But in December the same year, the application was refused because of lack of adequate concreting and sealed drainage and hazardous storage of scrap metal including lead acid batteries. It was warned on several occasions that it was acting illegally and action would be taken. In 1996, waste metal found that scrap metal was still being accepted on the premises and recycling activities continued.

A BRISTOL company which ignored warnings by the Environment Agency that it was acting illegally was ordered to pay over £51,000 in fines and costs. Recyclable Metal Services (Bristol) Ltd of Wilton Street, St. Paul's, admitted five offences of illegally depositing and keeping waste on unlicensed land. Bristol magistrates heard that operations had since ceased at the company's Wilson Street scrapyard and the company was about to go into liquidation.

The "Jaws" movies did more to de- morph sharks and encourage their slaughter than all the old salons' tales and even the worst of the true stories. It spawned Shark Derbies, where num- bers killed were valued, regardless of the threat poised by the captured species. Now we have added that problem by creating an appetite and value for shark and skate meat. It's even touted as a cancer cure! I re- member standing on the deck of a re- search vessel knee deep in sharks looking for a few "good" fish. Now my companions catch just three fish an hour and even the sharks and skates are gone.

Many of the sharks bear their young and deliver them allele rather than lay ing eggs and swimming away. Even the shark species that do not bear their young do not produce a lot of offspring during each reproductive cycle. B e- cause sharks and skates are top pred- ators, they need a lot of area in which to seek their supporting resources. Be- cause of this there are naturally fewer sharks and skates than there are flounder, cod or haddock. These basic differences in population size and re- production technique create tremen- dous problems for sustaining populations once they are pressured by human harvesting. If a shark only re- produces six young every year and we are catching them in large numbers; before they grow to full size and re- serve are caught while still car- ried by their parent, it is easy to over harvest them. Stocks of some shark species have been reduced by more than 80 percent. These sad truths have recently been revealed and managed throughout the U.S. have moved to sharply reduce shark landings. Have we acted fast enough? Only the future will tell. However, don't let anyone tell you that managing an ocean is easy!

environmental action

WHEN Matthew Cracker dumped car parts beside a road in St. Just, Cornwall, he was spotted by a member of the public. The concerned watcher noted Crocker's vehicle reg- istration number and reported him to the Environmental Agency on its flytipping hotline. That call resulted in the flytipping’s appearance be- fore Penwith magistrates at Penzance and he was fined £250 with £250 costs. Crocker, of Glen Leigh, Treleigh Estate, Redruth, admitted the offence.

(Court Action) Environment Action - Environmental Agency (UK.)

Environmental Court Actions in Britain

What is a Reef?

ROVER Group Limited has spent about £700,000 to prevent pollution and clear up the effects of a spillage that landed the company in court.

Sohull magistrates fined Rover Group £4,000 and ordered it to pay £500 costs when the company admitted chemical pollution of Elms- don Lake, an important local amenity. A "substantial" number of fish died when trichloro- ethylene, an industrial sol- vent used at the Land Rover works at Lode Lane, Soli- bull, contaminated the lake. The chemical is highly toxic to fish and potentially harmful to animals and peo- ple.

The court heard that En- vironment Agency officers were alerted following re- ports of dead fish in the lake. The contamination was traced to the Land Rover works. The error in spelling the chemical was compound was made by a mistaken belief that the spill had been contained within the site. The company accepted that a moni- toring system could have substantially reduced the impact the lake which had been “catastrophic” and had generated a substantial number of complaints. Prosecuting for the Agency, Mark Knowles said that to its credit, the company volunteered its help with the investigations and committed substantial staff and financial resources to clean up the effects of the discharge.

A company spokesman said believed the tank was empty, but when mov- ing it the contents had been spilled. Steps were taken to prevent the chemical entering the drainage system.

A BRISTOL company which ignored warnings by the Environment Agency that it was acting illegally was ordered to pay over £51,000 in fines and costs. Recyclable Metal Services (Bristol) Ltd of Wil- ton Street, St. Paul's, admitted five offences of il- legally depositing and keeping waste on unlicensed land. Bristol magistrates heard that operations had since ceased at the company's Wilson Street scrapyard and the company was about to go into liquidation.

The court was told that the company made an appli- cation in April 1995 to reg- ister its scrap metal recycling facility as an ex- tension under waste management licensing regu- lations.

The Agency told the com- pany that improvements were needed to meet the ex-ception. But in December the same year, the applica- tion was refused because of lack of adequate concreting and sealed drainage and hazardous storage of scrap metal including lead acid batteries.

It was warned on several occasions that it was acting illegally and action would be taken. In 1996, waste metal found that scrap metal was still being accepted on the premises and recycling activities continued.

The court was told that the company made an appli- cation in April 1995 to reg- ister its scrap metal recycling facility as an ex- extension under waste management licensing regu- lations.

The Agency told the com- pany that improvements were needed to meet the ex-ception. But in December the same year, the applica- tion was refused because of lack of adequate concreting and sealed drainage and hazardous storage of scrap metal including lead acid batteries.

It was warned on several occasions that it was acting illegally and action would be taken. In 1996, waste metal found that scrap metal was still being accepted on the premises and recycling activities continued.

The court was told that the company made an appli- cation in April 1995 to reg- ister its scrap metal recycling facility as an ex- extension under waste management licensing regu- lations.
National Monuments and Historic Properties

By Brendan Scully

Introduction

The purpose of this article is to outline the pivotal role the Heritage Service plays in the protection of Ireland’s built heritage. Up to recently we worked as part of the Office of Public Works in providing a conservation service to the State. Since 1996 full responsibility has transferred to the Department of Arts, Heritage, Gaeltacht and the Islands. The Heritage Service, as part of the Department, has three main areas of responsibility:

- protection of our natural heritage by the National Parks and Wildlife Service,
- management of the River Shannon, The Barrow Navigation and our canals by the Waterways Service,
- care of the built heritage by the National Monuments and Historic Properties Service.

The focus of this article is on the monuments and historic properties.

National Monuments

Our national monuments cover well-known structures such as the Rock of Cashel or Newgrange Tombs but also many less dramatic features such as standing stones. Generally they are pre-1700 constructions of architectural, archaeological or aesthetic importance. Of the 150,000 national monuments throughout the country over 700 sites are in State care. These are carefully conserved by our skilled workers and many are presented to the public to enjoy and appreciate.

Of course our archaeological heritage is far more extensive than the monuments in State care.

We have been carrying out inventories of the monuments on a county by county basis. The Sites and Monuments Records (SMR’s) of the 26 counties have been completed since 1992 and are now being updated. These are a paper survey of our archaeological heritage. They are followed by a more comprehensive survey (Archaeological Inventories) based on field inspections. 10 of these have been published in book form to date and a further 5 will issue this year. The use of aerial photography and modern surveying techniques has uncovered much more monuments than previously recorded. For example, in Co. Sligo the estimated number of monuments prior to the modern surveys was 2,000 sites. The SMR gave an estimate of 4,500 and when the field surveys were completed it was discovered that, in fact, there were 7,000 sites.

This rich heritage is given statutory protection in the various National Monuments Acts which cover not only the monuments on or under the land but also those under water such as ship wrecks.

Historic Properties

Our historic properties can cover a wide range of sites. They can be designed landscapes of cultural significance or sites associated with a historical event or person. We manage 15 historic properties ranging from the National Botanic Gardens in Dublin to the Great Blasket Island National Historic Park in Co. Kerry. Some of the properties are given formal legislative protection.

For example, the Phoenix Park in Dublin is governed by the Phoenix Park Act, 1925. Others rely entirely on State ownership or offer protection to them, an example being Kilkenny Castle and Park. Many of the finest gardens in Ireland are protected as historic properties - Inisfallen (Garrynlagh) in Co. Cork being one outstanding example.

Generally, given the size of historic properties, there is a lot of scope to encourage people to visit them. In all cases, however, access to sites is balanced with their conservation - protection takes precedence. If there is too much pressure on a property public access is managed in such a way as to avoid damage.

Capital Programmes

With the advent of EU support through the European Regional Development Fund (ERDF) we have managed to plan an 11 year capital development programme which would normally be done over a period of 30 years. Between 1989 and 1999 we will have spent over £80 million on conservation works to our national monuments and historic properties and on the provision of access facilities to them.

Part of this funding is provided by the EU with the balance provided by the Irish Exchequer. The criterion for such funding is that it must generate an economic benefit to Ireland in the form of increased tourism earnings. Given that our main responsibility is to protect our heritage not only now but for future generations to enjoy we had to ensure that any developments proposed were sympathetic to and in balance with the conservation of the site. So at Clonmacnoise in Co. Offaly, for example, we carefully sited a visitor centre to control the many thousands of people who wish to go to this unique monastic settlement.

Some of our proposals caused controversy where the fear was that the provision of facilities would lead to too much pressure on the sites. One such controversy related to the visitor centre at the Boyne Valley, Co. Meath, which is to act as a gateway to the internationally renowned tombs of Newgrange, Knowth and Dowth. In fact, visitor pressure at Newgrange has already reached saturation point and the new centre will actually draw pressure off the monuments and it is a model for heritage authorities in other countries to follow.

Much of the capital programme relates to conservation works to the sites themselves. The restoration of the Curvilinear Glasshouse in the National Botanic Gardens cost c£4M and the quality of the conservation work recently received recognition in the award of the prestigious Europea Nostra medal to the project. Other nationally significant conservation projects are in hands - one being the restoration of the First Norman castle in Ireland at Trim, Co. Meath.

People

We conserve our built heritage for people. We want Irish people to appreciate their heritage and to have them and visitors from abroad come and visit our national monuments and historic properties. In 1998 65,000 people visited 2 sites which were open to the public then. By the mid 1970’s we had 9 sites attracting 191,212 visitors. Last year this had increased to 52 sites seeing 2,126,744 people. This is not simply a direct result of the capital development programme but also arises from the fact that people care much more about their heritage today and wish to see it at first hand.

Not only have we made more sites accessible to the public but we also help visitors gain a deeper understanding of a site. We do this by providing information panels, exhibitions, literature and guides. We employ 320 guiding staff annually and market research shows that our visitors very much appreciate the service they get from them. Through this deeper understanding we gain greater commitment for the protection of our heritage and we also provide an economic spin-off for surrounding communities based on sustainable tourism.

The Future

Where do we go from here? The large capital development programme and the management of an increasing number of sites in State care to the highest standards is placing a huge burden on the dedicated staff in the Heritage Service. Although there will always be pressure to accept further properties into State care we will be less likely to expand our portfolio in the future as we do not wish to spread our scarce resources too thinly thereby not being able to properly maintain what we already have.

It will be important, therefore, to have adequate legislative provisions in place to ensure that private owners play their part in conserving the nation’s heritage. For example, at the moment we are carrying out a National Inventory of Architecture (NIA) on all post-1700 buildings in Ireland. This will cover 1 million buildings and it is a huge task which will take time to complete. The NIA will, however, form the backbone of an improved legislative system enabling local authorities to list and give better protection to buildings of architectural merit throughout the country.

We will, therefore continue to look after the national monuments and historic properties in our care for your benefit but we hope to develop a deeper partnership with local authorities to ensure that the wider built heritage is safeguarded.

Brendan Scully, Head of the Heritage Service, Department of Arts, Heritage, Gaeltacht and the Islands.
Marine Litter

By Edwin Derriman

LITTER in the marine environment comes from two sources. Naturally, boats and ships are the first potential source to be suspected in most instances, when litter is left stranded along the shoreline or left floating in the sea. Such litter consists of discarded netting from fishing vessels, cargo sheeting from merchant vessels and “domestic waste” from all vessels, particularly the increasing numbers of pleasure boats we see arrows and adjacent Islands of West Cork.”

Occasionally it has not been the exclusive fault of the vessel causing the problem. Port facilities range from excellent to the non-existent. Some ports and harbours have imposed charges so extortionate, that masters of vessels have preferred to dump at sea and face the consequences if caught, rather than face the wrath of their owners. In others, slips and bins are not emptied regularly or frequently enough. Further, the quantity of waste is sometimes enormous. In a recent survey however, British ports were thankfully seen to be keeping their seafronts clean.

The second and more significant source of marine litter is that originating from land. This source often causes severe problems with the environment, and is far more insidious than the unsightly collections of visible rubbish we see on the beaches and adjacent to the coast. It consists of swatches of plastic sheeting which possesses a negative buoyancy.
What will the tourist trade of the year 2000 be like? Who will be the tourists of the coming millennium? These are the questions which, faced with the extraordinary boom in tourism, experts, tour operators and politicians have repeatedly posed over the last fifteen years. These questions arise either because of the financial profits the tourist industry involves, or from the demands of consumers who show new awareness, habits and lifestyles. In the eighties, mass tourism gradually changed and people began to talk of "tourisms". Expressions such as cultural tourism, sports tourism, religious tourism, adventure tourism or ecotourism have become part of everyday language. In the past, the dominant practice was to take one long holiday to a single destination; today, people tend to distribute their holidays over different destinations and different times of the year.

From a socio-historical point of view, three types of tourist industry can be differentiated. In the case of the industrial tourist, for whom work is the centre of existence, the motivations for travelling can be summed up as rest and freedom from responsibilities. This type is gradually decreasing in number. The hedonistic tourist belongs to the generation that discovered entertainment and consumerism. They like to go on holiday to experiment, to explore the unknown, enjoy themselves, meet other people and relax in unspoilt natural surroundings. These are the majority today and will continue to be so. Finally, the modern age tourist, someone who tends to reduce the polarity between work and play. Not just work, but not just fun, either. Their reasons for travelling include broadening their personal horizons and getting back to simple things and nature, with a touch of creativity in the planning of their journey. These are gradually growing in number and in future will form an important segment of demand.

One characteristic in the expectations of the modern age tourist is the capacity to make a critical appraisal of the offer and to influence it. Producers should be more attentive and sensitive to the new demands and be flexible enough to cater for the tourist in search of higher quality. In the third millennium in fact, the concept of quality will have to take environmental aspects more into account. Recent forms of tourism point to a renewed interest in nature and a wish for quality tourism. So much so, that some tourist spots are reorganising their own offers in keeping with these trends. Quality is the result of a complex strategy which is organised day by day. The consumers, whose environmental awareness is constantly growing, will expect to identify, verify and be able to differentiate ecologically correct products from the imitations now invading the market.

The present millennium is coming to an end and is leaving Western countries with a high level of welfare and a large tourist demand to satisfy. Nevertheless, serious environmental problems also plague areas that receive a high influx of tourists. Tourists, tour operators, local authorities and the general public are therefore called on to find new forms of coexistence and the right solutions for themselves and for the survival of the planet.

Lorenzo Canova, ACTA (Associazione, Cultura, Turismo, Ambiente), Italy. (All of us) 15 - Environmental Education Dossiers.
If it weren't my job, I wouldn't come back to see what happens to those small streams and the forests that nurture them. Forests produce timber, a valuable commodity. I understand that. But I have a hard time squeezing the streams, the buckeleberries, the redwood violas and trillium, the juncoes and chickadees into a small corner of the big economic picture. Once I have spent some time in a patch of trees, it's hard to limit my view of the forest community to that of a cultured crop.

I slowly make my way down the side of a steep ravine. A thick tangle of salmonberry hides the slash and logging debris which seems to have the single-minded purpose of tripping me at every step. The bottom of the ravine is the home of a small stream where last spring I watched a little cutthroat trout trying to cross a log jam (I wrote one of these essays about that trout). I pull free of the tangle of salmonberry hides the slash and logging debris which usually in the latter form. I've spent a lot of time thinking about problems in fisheries management. I've thought about problems from behind a desk and from here on the banks of streams. If we are going to draw the lines in the correct places we need to know what kind of obstacle to productive fisheries we are dealing with. When I try to pick my way through the complicated landscape of fisheries problems, I have found it helpful to recognize three general types of obstacles to productive fisheries. I deal with each type of obstacle in a different way.

The first type exists when the actual productivity of a stream is less than its potential productivity. Something physically prevents a stream from realizing full productivity. When the population in a stream is overharvested, when riparian cover is removed and stream temperatures get too warm, when fine sediments smother eggs in the gravel, when rearing pools fill in with excessive gravel, when jams prevent migration; when these or other forms of degradation reduce the productivity of a stream, we are dealing with the first type of obstacle to productive fisheries. We tend to focus most or all of our attention and efforts at this level. The problems are tangible. Biologists and concerned citizens can roll up their sleeves, put on their hip boots and “fix” the problem. We like to “fix” broken streams. It's important to “fix” streams, but it's more important to keep them from breaking. To a large degree, degraded productivity in our streams is a direct outcome of the second type of obstacle to productive fisheries which exist when the potential productivity is less than our expectations. When we exceed the carrying capacity of stream through hatchery plants and end up replacing natural production with artificial propagation, when we accept the possibility of a 25 year rotation in our forests, when we assume that the pitifully thin riparian zones in clearcuts protect stream productivity, when harvest rates are based on over optimistic assumptions, we are in the second category of resource problem. When we let politically derived compromises set unrealistic expectations of productivity then let those expectations drive management, we set up the second type of obstacle to productive fisheries. Prolonged acceptance of this situation leads to the mining of renewable resources for short term goals.

Agencies that manage renewable resources are required in their legislative mandates to manage those resources for the benefit of present and future generations. Therefore, there is a reluctance to acknowledge management that mines the resource for short term goals. This reluctance leads to the third type of obstacle which exists when the stated resource management goals are not the true goals. When we put a positive spin on a bad compromise, when we overharvest wild coastal coho stocks under the banner of a re-building program, when we call a 25 year rotation “sustainable forestry” we are dealing with the third obstacle to productive fisheries. A close examination of the difference between public relations and reality will show that third level problems are more prevalent than we would hope.

If you are going to participate in an intelligent way in the management of your resources, you have to figure out where you are on the complicated landscape of fisheries problems. Then pick the appropriate strategy for the problem you are dealing with. Not all fisheries problems can be solved with a pair of hip boots and a strong back.

Jim Lichatowich is a fisheries biologist and conservation writer who lives in Sequim, Washington, U.S.A.
The **XANTHO INCISUS** is a crab which often has disproportionately large claws. It is found among sand, gravel and loose stones on the lower shore and in shallow water.

The **BLUE-RAYED LIMPET** is often found attached to kelp seaweeds. The shell is smooth and when young it has bright blue lines running from the top of the shell to the edge. These fade and disappear with age.

The **COAT-OF-MAIL** is a mollusc which has a shell of interlocking plates that allows it to roll up into a ball when threatened.

The **COMMONSTARFISH** gets its name from its star-like shape. It has five arms each have hundreds of tiny tube-feet that it uses for movement.

The **COMMONPRAWN** is often found in rockpools on the lower shore. Its transparency can make it hard to find in the water.

The **GREEN SEA-URCHIN** is particularly hard to find on the seashore as it is inclined to hide itself with gravel, shell, weed or other debris.

The **UNIDENTIFIED** is a mollusc which has a shell of interlocking plates that allows it to roll up into a ball when threatened.

The **BRYozoan** seen here with seaweed, is often found attached to help seaweeds. The shell is smooth and when young it has bright blue lines running from the top of the shell to the edge. These fade and disappear with age.
POLLUTION BY NITRATES

Code of Good Agricultural Practice to Protect Water

Purpose of the Code

The objective of the Code is to prevent the pollution of groundwaters and surface waters by nitrates from agricultural sources. The primary sources concerned are organic fertilisers such as animal slurries, dung and farmyard manures silage effluent, mushroom compost, soiled water and chemical fertilisers containing nitrogen.

Background to Preparation of the Code


What is in the Code?

The Code contains advice and recommendations on farm practices in relation to:

- storage of organic fertilisers,
- standards and specifications for construction of storage facilities,
- when to apply organic and chemical fertilisers to land,
- the appropriate rates of application, and
- precautions to be taken to avoid causing water pollution.

Where does the Code Apply?

The Code applies in all parts of the country and is intended to protect the quality of all surface waters i.e., rivers, streams, lakes and coastal and marine waters, as well as groundwater.

Status of the Code

This is a voluntary Code designed to promote sustainable farm practices while maintaining high water quality standards. However, should nitrate levels rise to unacceptable levels i.e. close to or above 50 mg/l, it will be necessary to designate the areas of land draining into the affected waters as vulnerable zones. Action Programmes containing more stringent requirements and controls on the management of organic and chemical fertilisers than are provided for in the Code should then be implemented in these zones, with implications for agricultural output and farmers’ incomes.

Concerns about Nitrate Pollution

High nitrate concentrations in drinking water supplies, i.e. in excess of 50 mg/l, have direct implications for public health, especially for infants up to six months old (Blue Baby syndrome). There are also concerns about their possible role in the promotion of cancers.

While nitrate pollution is not at present a feature of the Irish environment, nitrate levels in water sources are increasing here. They could reach unacceptable levels in the absence of more environmentally aware farming practices and responsible management arrangements for the collection and storage of slurries, silage effluent etc. and for the land application of these organic and chemical fertilisers.

A more immediate benefit of the Code is that the farm management practices recommended therein should contribute to a reduction in phosphorus inputs to waters, a nutrient which is an integral constituent of animal slurries, farmyard manure, silage effluent, etc. Phosphorus is primarily responsible for the increased incidence of slight and moderate pollution of Irish rivers (up from 21.5% of river channel length in 1987/90 to 28% in 1991/94) and to the eutrophication/algal bloom problem affecting certain lakes.

What are the Benefits for Farmers?

Aside from the important benefits for the environment, implementation of the Code should bring financial gains to many farmers through savings in the use of chemical fertilisers. Organic fertilisers such as animal slurries and silage effluent are valuable sources of nutrients which can play a vital role in meeting crop nutrient requirements for growth. These sources of nutrients should be applied to land before any consideration is given to the use of chemical fertilisers. Where the nutrients in the organic fertilisers are inadequate, chemical fertilisers may be used to supplement them and so supply the appropriate recommended rates of nutrients consistent with crop needs and the protection of water quality.

Recent studies have indicated that farmers nationally could reduce purchases of fertilisers by at least €25 million annually by using to best advantage the nutrients present in organic fertilisers and by tailoring overall fertiliser applications to crop requirements.

MEDICINAL REASONS FOR SAVING RAIN FORESTS

A new study provides a medicinal rationale for saving tropical rain forests. A study of Michael Balick, botanist from the Institute of Economic Botany in New York, and Robert Mendelsohn, an economist from Yale University, estimates the net income derivable from the harvest of medicinal plants from the rain forests of Belize. They estimated that the asset value of land harvested for pharmaceutical products was $4.150 per hectare (ha), and more than the $3,980/ha from logging and $425/hectare from farming of the cleared land. Forest plants form the basis of traditional medicine in Belize upon which 75% of the rural population depend. Many western pharmaceuticals are also derived from tropical plants. Source: Wildflower

Antarctic Fact-file

* Antarctica is a continent copped by an inland ice-sheet up to 4.8km thick, containing about 90% of the world’s fresh water. The ice-sheet is so heavy that it has pushed the land below sea-level in places. Because of the thickness of the ice sheet, Antarctica has the highest average altitude of any continent.

* Antarctica is a cold desert, with snowfall equivalent to only 150mm of water each year. This snow builds up gradually and flows towards the coast as huge glaciers. In many places, these extend out over the sea as massive ice-shelves.

* Only about 0.4% of the surface of Antarctica is free of snow and ice. The tops of mountain chains stick up through the ice, the highest is Mount Vinson, 4900m above sea-level.

* The Southern Ocean is a continuous belt of sea surrounding Antarctica. In winter, over half of the Southern Ocean freezes over. Although this seawater ice is only about 1mm thick, it has a significant effect on ocean and atmospheric circulation. Nearly all of the sea ice melts in summer.

* The South Pole is 1235km from the closest coastline, and is situated high on the polar plateau (height 2800m). Here it may be as cold as -75°C, but the world record lowest temperature is -89.2°C, set on 21 July 1983 at the Russian research station Vostok.

* There are no native peoples in Antarctica. Eighteen countries operate year-round scientific bases and laboratories, as many as 10,000 scientists and support staff work there, but only about 1,000 in winter.

* Tourists also visit Antarctica during the summer to enjoy the spectacular scenery and abundant wildlife - currently there are about 10,000 visitors per year.

* * Antarctica is a “continent for science”. All countries working in Antarctica carry out research, in a surprising range of physical and biological sciences, from the vastness of space to the minuscule scale of viruses.*

* Activities are regulated by the Antarctic Treaty, which has been in force since 1959 and is signed by all countries operating there. The Treaty reserves the continent for peaceful purposes, and all military and industrial activities are banned.

* Britain has played a major role in the exploration and study of Antarctica. Captain James Cook was the first person to circumnavigate the continent in the 1770s. Later expeditions were searching for commercial opportunities, usually hunting for seals or whales. At the start of the present century, Scott and Shackleton undertook purely scientific expeditions, a tradition which continues to the present.

* The early Greeks suggested that there was a southern land-mass. This remained unknown for several centuries, although “Terra Incognita Australis” - unknown southern land - appears on an immense but quite fanciful continent on a map published in 1531. Even 100 years ago, only small parts of Antarctica had been mapped, and there were several inaccuracies. Only recently have satellite pictures allowed us to build up a complete map of the continent.

Further information can be obtained from British Antarctic Survey publications: “British Exploration of Antarctica” and “The Antarctic Treaty”. The British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET, U.K.
THE ST. CROIX ESTUARY PROJECT: Citizen Action for Coastal Conservation

By Robert Rainer

ACROSS North America, there is widespread interest and involvement in community-based environmental conservation initiatives. At heart, these initiatives entail mobilizing local people and organizations to assume greater responsibility for the protection of air and water quality, the conservation of natural resources, and the development of social and economic opportunities related to healthy “natural capital.”

In the four Atlantic Canadian provinces (New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland), public support for community-based conservation has been advanced in the 1990s through the Atlantic Coastal Action Program (ACAP), a federal program conceived and administered by Environment Canada. Through this innovative program, core financial support has been provided in recent years to 13 non-profit, community-based organizations to help these groups tackle local and regional environment-development problems in primarily coastal settings.

One of these groups is the St. Croix Estuary Project (SCEP), based in the southwest New Brunswick seaside community of St. Andrews. Founded in early 1992, SCEP exists to “foster a community-based response to primarily local environmental challenges, towards maintaining or restoring ecosystems health and therefore community sustainability.”

Coastal waters, lands and communities served by SCEP are found within the “St. Croix Estuary Area,” an estuarine/marine area that straddles the international border between Canada and the United States. The St. Croix Estuary is the only international estuary on the eastern coast of North America and is part of the St. Croix International Waterway which forms the easternmost boundary between the two nations.

In mid-April, 1997, almost five years to the date of its founding, SCEP released St. Croix Estuary Area: A Profile and Caring for Our Coast: A Plan for Community Management of the St. Croix Estuary Area. These two documents culminate nearly two years of intensive effort to develop a broad physical, biological and socio-economic profile of the estuary area, and to derive a practical management plan that covers a comprehensive range of environment-development issues.

By Robert Rainer, Program Director, St. Croix Estuary Project, St. Andrews, New Brunswick, EOG 2X0, Canada.

Todd’s Point is a prominent part of the coastal landscape of the St. Croix area. Behind the point is Oak Bay where several major clam flats are found.

The St. Croix region was and remains the home of the Passamaquoddy people, one of several culturally-linked aboriginal groups stretching from the U.S. state of Maine to Cape Breton in Nova Scotia. The rich biological environment of this region, based on the highly productive waters of the Bay of Fundy, supported a pre-European aboriginal culture that existed for at least 3,000 and likely as long as 10,000 to 12,000 years.

With the arrival of French explorer Samuel de Champlain in 1604, the natural and socio-economic environment of the St. Croix region began to rapidly change. “White” settlement, particularly in the late 1700s in the aftermath of the American Revolution, when United Empire Loyalists fled north to colonize places such as St. Andrews and the upper towns of St. Stephen, New Brunswick and Calais, Maine, resulted in some displacement of the Passamaquoddy people and the beginning of profound ecological change. In the past 200 years, commercial and recreational fisheries have been depleted, many populations of various wildlife species have been reduced due to local, regional and global habitat loss, and the original Acadian forest with its mix of hardwood and softwood trees and massive white pines, has been largely replaced by a younger and less diverse forest.

On the positive side, water quality in the St. Croix River has improved greatly due to substantial investments in industrial and municipal pollution prevention and control. Where the lower river was, for decades, unfit to support many species of aquatic life, including the treasured Atlantic salmon, it is now much cleaner, and fish, shellfish and other aquatic species are not significantly impacted by contamination.

As identified in Caring for Our Coast, however, there are numerous issues requiring action. Indeed, the estuary management plan recommends 50 actions in relation to about 30 specific problems. Critical actions identified by SCEP include:

- reducing bacterial discharge from certain local wastewater treatment plants;
- developing a local contingency plan for oil spill response;
- conducting an educational and prevention-oriented campaign related to the introduction of non-indigenous aquatic species through ballast water discharge;
- establishing new public access points to coastal waters and shores;
- assessing the environmental impacts of salmon aquaculture in Passamaquoddy Bay;
- studying the environmental effects of scallop and urchin dragging; and
- completing a critical research program related to the environmental effects of harvesting the marine macroalgae Ascophyllum nodosum (popularly known as “rockweed”).

As a community-based organization, SCEP is determined to pursue funding to undertake many of the actions directly, and to continue to encourage other groups, both government and non-government, to assume the lead on other actions. Over time, the ongoing use of specific indicators of the ecological health of the St. Croix Estuary Area will provide an objective means of assessing whether progress is being made in relation to the management plan, and any subsequent, updated versions of the plan as a “living document.”

Within a broader context, the work of SCEP is linked to efforts by many other community-based and government organizations around the Bay of Fundy and the Gulf of Maine, the latter a massive land and water area encompassing most or parts of three U.S. states (Massachusetts, New Hampshire, and Maine) and two Canadian provinces (New Brunswick and Nova Scotia). In the past five to ten years, these efforts have been increasingly intense in the ecological health of the bay and gulf. Now, citizens, scientists, public officials and many other resource users are increasingly engaged in collaborative efforts to understand these waters and important trends and changes, and to formulate strategies to maintain and restore ecological health.

Community-based groups like SCEP remain at the forefront of this work. The great strength of the community-based approach to conservation is the ability of local groups to tap into local or “traditional” environmental knowledge and harness the volunteer energy of citizens who care passionately about their home waters and lands. In the St. Croix Estuary Area and around the Bay of Fundy and Gulf of Maine, citizen action for coastal conservation is making a difference.

ACQUACULTURE - sea's the opportunity

BIM provides advice and support to the developing Irish aquaculture industry which currently provides over 3,000 jobs. The pristine condition of Ireland’s fresh and marine water environments are ideally suited to the production of superior quality farmed fish and shellfish.

BIM continues to ensure fish farming and shellfish growing in Ireland provides valued employment in harmony with our natural environment.

Bord Iascaigh Mhara,
P.O. Box 12, Crofton Road,
Dun Laoghaire,
Co. Dublin.
Tel: 01-2841544
Fax: 01-2841123

Bord Iascaigh Mhara
Irish Sea Fisheries Board

AQUACULTURE - sea’s the opportunity

BIM provides advice and support to the developing Irish aquaculture industry which currently provides over 3,000 jobs. The pristine condition of Ireland’s fresh and marine water environments are ideally suited to the production of superior quality farmed fish and shellfish.

BIM continues to ensure fish farming and shellfish growing in Ireland provides valued employment in harmony with our natural environment.

Bord Iascaigh Mhara,
P.O. Box 12, Crofton Road,
Dun Laoghaire,
Co. Dublin.
Tel: 01-2841544
Fax: 01-2841123

AQUACULTURE - sea’s the opportunity

BIM provides advice and support to the developing Irish aquaculture industry which currently provides over 3,000 jobs. The pristine condition of Ireland’s fresh and marine water environments are ideally suited to the production of superior quality farmed fish and shellfish.

BIM continues to ensure fish farming and shellfish growing in Ireland provides valued employment in harmony with our natural environment.

Bord Iascaigh Mhara,
P.O. Box 12, Crofton Road,
Dun Laoghaire,
Co. Dublin.
Tel: 01-2841544
Fax: 01-2841123

AQUACULTURE - sea’s the opportunity

BIM provides advice and support to the developing Irish aquaculture industry which currently provides over 3,000 jobs. The pristine condition of Ireland’s fresh and marine water environments are ideally suited to the production of superior quality farmed fish and shellfish.

BIM continues to ensure fish farming and shellfish growing in Ireland provides valued employment in harmony with our natural environment.

Bord Iascaigh Mhara,
P.O. Box 12, Crofton Road,
Dun Laoghaire,
Co. Dublin.
Tel: 01-2841544
Fax: 01-2841123
Chlorine - The Good and The Bad

by M.A. Tools

Chlorine is the element of great benefit to mankind, it has also, directly or indirectly, brought many dangers. Though a deadly poison when pure, it is eaten by us all, in appreciable quantities every day. It has given us great advances in health and hygiene and has saved countless lives. It has also destroyed many lives. It has alleviated much pain and caused much suffering. It has proved indispensable to modern civilization, yet threatens us with an ecological disaster from which the earth may take decades to recover.

An extremely reactive, non-metallic element, chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

Discovered by the Swedish chemist, Karl Scheele, in 1774, it was named, in 1810, by Humphry Davy as a result of its colour. The choking toxicity of this dense, green gas was noticed by Davy, and chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

An extremely reactive, non-metallic element, chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

Discovered by the Swedish chemist, Karl Scheele, in 1774, it was named, in 1810, by Humphry Davy as a result of its colour. The choking toxicity of this dense, green gas was noticed by Davy, and chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

An extremely reactive, non-metallic element, chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

Discovered by the Swedish chemist, Karl Scheele, in 1774, it was named, in 1810, by Humphry Davy as a result of its colour. The choking toxicity of this dense, green gas was noticed by Davy, and chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

An extremely reactive, non-metallic element, chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

Discovered by the Swedish chemist, Karl Scheele, in 1774, it was named, in 1810, by Humphry Davy as a result of its colour. The choking toxicity of this dense, green gas was noticed by Davy, and chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

An extremely reactive, non-metallic element, chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

Discovered by the Swedish chemist, Karl Scheele, in 1774, it was named, in 1810, by Humphry Davy as a result of its colour. The choking toxicity of this dense, green gas was noticed by Davy, and chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

An extremely reactive, non-metallic element, chlorine belongs to a group, or “family” of similar substances known as the halogens. The other halogens are the even more nasty fluorine and bromine, the less troublesome iodine and the rare and radioactive astatine.

Discovery Ireland’s Woodlands: A Guide to Forest Parks, Picnic Sites and Woodland Walks” produced by Coillte Teoranta - The Irish Forestry Board, provides details of forest parks, picnic sites and forest walks. Portumna Forest Park is one of these forests. Price: £2.00.
**STEPHENSTOWN POND AND NATURE PARK**

By Louise Collier

A UNIQUE Community effort has restored a 5 acre derelict pond and woodland into a beautiful local amenity. Stephenstown Pond and Nature Park is outside the village of Knockbridge which is situated about 5 miles south-west of Dundalk.

History

The pond was originally built under contract by William Galt in 1817 for Matthew Fortescue, the landowner of Stephenstown Estate. The water was needed for the recently constructed garden and to drive the grinding mills in the farmyard. It was the golden age of tree planting in Ireland and William Galt (who was married to Agnes Burns, the sister of the famous Scottish poet Robert Burns) adorned the whole site with a bewildering array of trees and shrubs. He stocked the pond with a variety of coarse fish. The pond was originally built with the intention of renovating Stephenstown Pond. The main objective of the project was to develop the area into a core tourism product with emphasis on fishing, amenity and ecological interpretation. The Stephenstown Pond Trust Ltd was formed. The trust purchased the pond site in 1995 on behalf of the Knockbridge community and the daunting task of fund-raising began. Letters were sent out to everyone in the area offering a lifetimes fishing in exchange for a donation. Pub quizzes were organised and begging letters sent to just about every organisation imaginable. The end result of all this effort was an incredible £30,000 collected locally, £10,000 from the International Fund for Ireland (IFI) and a further £49,000 from the Louth County Council under the EU Rural Towns and Villages Programme. This made an amazing total of £89,000. The money was used to pay for contract workers, machinery and materials. Stone walls were built, sluice gates constructed, trees planted and areas of debris cleared. The bulk of the manual work was undertaken by students under the Summer Job Scheme and FAS Community Employment workers.

Stephenstown pond was officially opened on the 14th July 1996. The Knockbridge/Louth Village Community Employment Scheme, which incorporated the development of Stephenstown Pond, won the Environmental Category of the FAS Community Initiative Awards for the North East Region in 1996.

Ecology

Stephenstown Pond encompasses approximately 5 acres of woodland, willow copse, wild flower meadow, water meadow and pond habitats. The pond provides an oasis for a fascinating variety of wildlife. There are at least 88 wildflower species and some 57 species of tree and shrub present. These play host to more than 47 species of bird and other wildlife such as colourful butterflies, dragonflies and damselflies. The lake is once more stocked with a variety of coarse fish and is surrounded by a lovely varied wildlife habitat.

Stephenstown Pond is a very biodiverse environment with a variety of habitats. Woodland surrounds the outer drier areas of the pond. Beech copse dominates the roadside while wooded areas elsewhere around the pond are dominated by sycamore with a hawthorn understorey. The woodland floor is scattered with wild flowers such as wood garlic, herb robert and lesser celandine. On damper soils nearer the pond margin are scattered areas of willow copse. This habitat is dominated by willow species and alder trees. Bogbean dominates the ground flora. A great variety of ruderal (weed) species are found around the woodland and pond habitats. A wildflower meadow lies at the northern end of the pond. These areas are colourful and diverse. Along the pond margins are large areas of water meadow dominated by water lilies, with reeds and yellow irises at the waters edge giving way to sedges and rushes on drier slopes.

**Facilities**

Stephenstown Pond has been developed as a carp fishery, public amenity and site of ecological interpretation. There are two fishing stands at the pond, one accessible to people with disabilities. There are picnic and car-parking facilities. For those not interested in carp fishing, there is a lovely lake shore walk around the pond going through the various habitats. There are illustrated interpretative boards to enhance enjoyment and appreciation of the site. Nature booklets and brochures about the site ecology are also available.

Louise has written a booklet "Stephenstown Pond", which is available from Brodigan's Shop in Knockbridge, Co. Louth.

The Stephenstown Pond Trust Ltd, formed by a group of highly motivated and committed people from the Knockbridge area, purchased the pond site in 1995 on behalf of the Knockbridge community to develop the area into a core tourism product with emphasis on fishing, amenity and ecological interpretation.
Even the village drinking wells can also go down deeper and with the electric pumps, wells, tubewells is much cheaper. For drawing up water from which the government provides tubewells run on electricity, and animal-powered lifts, were believed that tube-wells, which Ramesh and Manorama be-again. They have already spent for irrigations to come to harvest, India. Their vegetable fields grew dry. But now, after spending so but their well is going dry none of them, including Ramesh and Manorama, have decreased the amount of water under their land, but they and their neighbours are all pumping from the same underground water table. So if Ramesh and Manorama don’t pump today, they can’t be sure all the water they need will be there tomorrow. And even if all the villagers agreed to cut back, farmers in other nearby villages could continue to deplete the source of underground water by using it indiscriminately.

Excessive use of water is lowering groundwater levels in the Middle East, North Africa, and South Asia including Ramesh and Manorama’s village in India. If the world’s supply of fresh water were evenly distributed and properly used, it would be adequate to meet people’s needs for the foreseeable future. But water is poorly distributed across regions, within countries, and across seasons. Virtually all developing countries, even those with adequate water overall, suffer from debilitating season- al and regional shortages. About 20 countries today are water scarce, with lack of water severely limiting their social and economic development and environmental quality. By 2020, the number of water-scarce countries could approach 35. With more than 200 bodies of water shared by two or more countries, competition for water is becoming more acute, increasing the potential for con- flicts between different groups of water users within countries and for water wars between countries.

“The world does not consider water the scarce resource that it is,” says Mark Rosengart, a re- search fellow at IFPRI who has studied water issues extensively. “Unless this changes, increasing water scarcity could make water one of the central polarising forces of the 21st century.”

The damning of rivers up-stream often creates conflicts with countries downstream. Tension is mounting between Turkey, Syria, and Iraq over Turkey’s Greater Anatolia Pro-ject, now under construction. The project, which will encompass 21 dams and 19 hydroelectric power plants, could cause Syria to lose up to 40 percent of its water from the Euphrates and Iraq to lose as much as 90 percent. Ethiopia is upriver of Egypt on the Nile River, and Egypt is totally dependent on the Nile for water. Although Ethiopia has never claimed the rights to use the water before they reach the vast reservoir behind Egypt’s Aswan High Dam, such a claim could threaten Egypt’s livelihood. India and Nepal want to exploit the Ganges-Brahmaputra basin’s huge hydroelectric power- generating potential, while Bangladesh wants the water managed in a way that will minimize flooding during monsoon months and water shortages during dry months. Of equal concern are water con- flicts between states in India that share river basins.

Excessive use water harms the environment. Between 0.3 and 1.5 million hectares of land are lost each year worldwide from waterlogging and saliniza- tion that result from overuse of water and leakage from irriga- tion canals. In Pakistan, saliniza- tion of soils makes some areas of once fertile land look like they are covered in snow. Because of the great costs in- volved in recovery of affected land, severe salinization is es- sentially irreversible.

Agriculture is the large user of water in developing coun- tries, accounting for an average of 80 percent of the water used. But most current government policies affecting water use en- courage waste. In many areas, urban and rural water users re- ceive massive subsidies. Water for irrigation, the largest use, is essentially free. With water provided by public systems at little or no cost to the user, there is little incentive to con- serve. As a result, water is waste and scarces results. Water scarcity could be pre- vented through water policy re- forms. Such reforms include establishing secure, legal rights to water use and transferring management and ownership of water from government to pri- vate associations made up of farmers. Creating water rights among water user associations encourages farmers to use only what they need and sell what they do not need. Adopting such an approach, Chile has completely turned over its water companies to private control.

What a marketing solution can make a great contribution to solving water scarcity in the future and can make investments in water infrastructure more cost-effective in the present,” says Renatio Gazmuri, former secretary of agriculture in Chile. “Farmers will not ap- prove unprofitable capital im- provements. Because of their increased water efficiency, Chilean farmers now irrigate 22 percent more land with the same amount of water as be- fore. An investment of about US$400 million in new irriga- tion infrastructure would have been required to ensure such water efficiency gains.”

A TRICKLE of water spurt- ers out of Ramesh and Manorama Patel’s well in Borvai village in Gujarat State, India. Their vegetable fields need at least two more good ir- rigations to come to harvest, but their well is going dry again. They have already spent all of their savings deepening the well twice, but the water table has continued to fall. Ramesh and Manorama believed that tube-wells, which decreased the amount of water under their land, but they and their neighbours are all pumping from the same underground water table. So if Ramesh and Manorama don’t pump today, they can’t be sure all the water they need will be there tomorrow. And even if all the villagers agreed to cut back, farmers in other nearby villages could continue to deplete the source of underground water by using it indiscriminately.

Excessive use of water is lowering groundwater levels in the Middle East, North Africa, and South Asia including Ramesh and Manorama’s village in India. If the world’s supply of fresh water were evenly distributed and properly used, it would be adequate to meet people’s needs for the foreseeable future. But water is poorly distributed across regions, within countries, and across seasons. Virtually all developing countries, even those with adequate water overall, suffer from debilitating seasonal and regional shortages. About 20 countries today are water scarce, with lack of water severely limiting their social and economic development and environmental quality. By 2020, the number of water-scarce countries could approach 35. With more than 200 bodies of water shared by two or more countries, competition for water is becoming more acute, increasing the potential for conflicts between different groups of water users within countries and for water wars between countries.

“The world does not consider water the scarce resource that it is,” says Mark Rosengart, a research fellow at IFPRI who has studied water issues extensively. “Unless this changes, increasing water scarcity could make water one of the central polarising forces of the 21st century.”

The damning of rivers upstream often creates conflicts with countries downstream. Tension is mounting between Turkey, Syria, and Iraq over Turkey’s Greater Anatolia Project, now under construction. The project, which will encompass 21 dams and 19 hydroelectric power plants, could cause Syria to lose up to 40 percent of its water from the Euphrates and Iraq to lose as much as 90 percent. Ethiopia is upriver of Egypt on the Nile River, and Egypt is totally dependent on the Nile for water. Although Ethiopia has never claimed the rights to use the water before they reach the vast reservoir behind Egypt’s Aswan High Dam, such a claim could threaten Egypt’s livelihood. India and Nepal want to exploit the Ganges-Brahmaputra basin’s huge hydroelectric power-generating potential, while Bangladesh wants the water managed in a way that will minimize flooding during monsoon months and water shortages during dry months. Of equal concern are water conflicts between states in India that share river basins.

Excessive use water harms the environment. Between 0.3 and 1.5 million hectares of land are lost each year worldwide from waterlogging and salinization that result from overuse of water and leakage from irrigation canals. In Pakistan, salinization of soils makes some areas of once fertile land look like they are covered in snow. Because of the great costs involved in recovery of affected land, severe salinization is essentially irreversible.

Agriculture is the large user of water in developing countries, accounting for an average of 80 percent of the water used. But most current government policies affecting water use encourage waste. In many areas, urban and rural water users receive massive subsidies. Water for irrigation, the largest use, is essentially free. With water provided by public systems at little or no cost to the user, there is little incentive to conserve. As a result, water is waste and scarcity results. Water scarcity could be prevented through water policy reforms. Such reforms include establishing secure, legal rights to water use and transferring management and ownership of water from government to private associations made up of farmers. Creating water rights among water user associations encourages farmers to use only what they need and sell what they do not need. Adopting such an approach, Chile has completely turned over its water companies to private control.

What a marketing solution can make a great contribution to solving water scarcity in the future and can make investments in water infrastructure more cost-effective in the present,” says Renatio Gazmuri, former secretary of agriculture in Chile. “Farmers will not approve unprofitable capital improvements. Because of their increased water efficiency, Chilean farmers now irrigate 22 percent more land with the same amount of water as before. An investment of about US$400 million in new irrigation infrastructure would have been required to ensure such water efficiency gains.”

What Do the Poor Pay for Water?

SEVERAL studies show that the urban poor pay high prices for water supplies and spend a high proportion of their income on water. For example, in Port-au-Prince, Haiti, the poorest households sometimes spend 20 percent of their income on water; in Onitsha, Nigeria, the poor pay an estimated 18 percent of their income on water during the dry season compared with upper-income households, who spend a high proportion of their income on water; in Guatemala City, about 3 percent of households received water directly from the municipal system. Another 3 percent buy water from street vendors, who charge about $1.50 to $5.20 per cubic metre, depending on their distance from the public tap. In some cases households purchasing from vendors pay as much as twenty-five to fifty times more per unit of water than households connected to the municipal system. This phenomenon is also found in Karachi, Pakistan; Port-au-Prince, Jamaica; Nouakchott, Mauritania; Darca, Bangladesh; Tegucigalpa, Honduras; and Onitsha. Source: World Bank

What Do the Poor Pay for Water?

SEVERAL studies show that the urban poor pay high prices for water supplies and spend a high proportion of their income on water. For example, in Port-au-Prince, Haiti, the poorest households sometimes spend 20 percent of their income on water; in Onitsha, Nigeria, the poor pay an estimated 18 percent of their income on water during the dry season compared with upper-income households, who spend a high proportion of their income on water; in Guatemala City, about 3 percent of households received water directly from the municipal system. Another 3 percent buy water from street vendors, who charge about $1.50 to $5.20 per cubic metre, depending on their distance from the public tap. In some cases households purchasing from vendors pay as much as twenty-five to fifty times more per unit of water than households connected to the municipal system. This phenomenon is also found in Karachi, Pakistan; Port-au-Prince, Jamaica; Nouakchott, Mauritania; Darca, Bangladesh; Tegucigalpa, Honduras; and Onitsha. Source: World Bank
The trigger fish (Balistes capriscus) is normally found in tropical waters on both sides of the North and South Atlantic and in the Mediterranean Sea where it inhabits rocky outcrops and coral reefs. The species owes its name to the structure of the first dorsal fin which is supported by three strong spines. The first spine is exceptionally robust and is hollowed out behind to receive a bony knob at the base of the second spine. Once erect, the first spine remains immovable until the second, which acts like a trigger, is depressed. If it is threatened by predators, the trigger fish use its dorsal fin spines either in defence or to wedge itself securely amongst rocks.

For many years the trigger fish was regarded as rare in Irish waters. Indeed, between 1847 (when the species was reported) and 1958 only six specimens were recorded. However, since the late 1960’s increasing numbers of trigger fish have been appearing in Irish waters, culminating in a phenomenal influx during the early 1990’s. What caused this massive invasion of trigger fish and where did they come from?

Research has shown that the trigger fish has been gradually extending its range and abundance throughout the North and South Atlantic during recent decades. Prior to 1970 the species was regarded as relatively rare off the west coast of Africa. However, between 1971 and 1980 a huge increase in trigger fish abundance occurred sequentially from Ghana to Mauritania. Indeed, during the mid 1970’s it was estimated that the species accounted for over half of the total fish biomass on the continental shelf between Cape Verde (Senegal) and Nigeria. The dramatic proliferation in trigger fish was accompanied by an equally dramatic collapse in the west African sardine fishery. Both incidents are thought to be related and associated with significant changes in oceanographical conditions. During the same period, similar, albeit less dramatic increases in trigger fish abundance and range have been recorded off the coasts of North and South America.

The trigger fish is now regarded as a relatively frequent summertime visitor to North West European waters. The main influx occurs off the south west coast of Ireland during July/August and continues through to November. The species is now frequently sighted by SCUBA divers and is captured by anglers. There is no evidence, as yet, that the species breeds in European waters. Indeed, it is thought that the trigger fish probably dies at seawater temperatures <12°C. It currently is unclear where the Irish trigger fish originate from; they could be migrating from either side of the tropical Atlantic. Perhaps the recent exceptionally warm summers may have contributed to the phenomenal increase in trigger fish abundance. Whatever the case, it is becoming increasingly apparent that uncommon species, and particularly those on the edge of their distribution, can be essential indicators of environmental change. Fish, more than their terrestrial counterparts, can move more freely in response to changes in environmental conditions.

Declan T. Quigley, Gaelic Seafoods (Ireland) Ltd., Derryclare Hatchery, Recess, Co. Galway.
HEDGES are important to agriculture, the conservation of wildlife and the scenic quality of the countryside. On the farm, hedges provide stock-proof barriers, deterrents to trespass, and shelter for stock and crops. Hedges need good management to maintain these functions, especially on farm boundaries.

To help in the cost-effective management of hedges for the benefit of farms, wildlife and landscape conservation, this leaflet deals with:

* The benefits of hedges;
* The management of hedges;
* Considerations on hedge renewal;
* Costs.

Why have hedges?

It is often said that hedges waste land and impede mechanisation, and that farm efficiency requires large fields. However, the shelter provided by hedges can, in some cases, increase yields of livestock and cereals by up to 20% by increasing soil temperatures and reducing evapo-transpiration, which lead to the earlier growth of grass and crops. Hedgerow trees also help to remove excess soil moisture and can provide a source of domestic fuel.

Wild birds are the most efficient ‘insecticide’ we have, and two-thirds of our birds breed in hedges. As hedges occupy more land than all our nature reserves and national parks put together, it can be seen that hedges are a vital wildlife habitat. Well-managed hedges contribute to the scenic character of the countryside and, as such, benefit tourism and, in contrast to neglected hedges, enhance the value of farms.

How to manage hedges

There are three main methods of trimming a hedge:

* The reciprocating cutter bar is most suitable for soft growth on hedges which are trimmed annually, and for clearing out hedge bottoms.

* The flail cutter is very efficient for slightly heavier work involving two or three years’ growth. When used correctly, it will leave an excellent result with mulched cuttings. Too often, however, flails are used on heavy wood growth resulting in an unsightly and ultimately useless hedge which is open to decay through the frayed branches.

* The circular shape saw should be used instead of a flail on heavy growth, and is ideal for shaping up overgrown hedges or for coppicing.

The traditional practice of hedge laying by hand has almost disappeared because of the time and labour involved. Once a hedge has been laid, however, it can remain stock-proof for 15 years with only occasional trimming.

What is the best shape and size?

To be an effective stock-proof barrier, a hedge should be at least 1.3m (4ft) high. Hedges should ideally have good growth at the bottom to provide cover for wildlife and adequate shelter for stock. A tall, thin, gappy hedge is undesirable for farming and wildlife.

When is the best time to cut?

* Trim during winter to fill slack periods of farm work.
* Avoid disturbing nesting birds by not trimming during spring or early summer. Autumn trimming can destroy birds’ winter food supplies such as berries.
* For the best economy and least wildlife disturbance, trim only every three years.
* By trimming hedges in rotation around the farm (i.e. always some uncut) trimming can take place from late August to February with minimal wildlife disturbance.

How to deal with neglected hedges

Hedges can grow too tall and wide, and so waste land and cast excessive shade. Neglected hedges can also become thin and gappy at the base, with bare, exposed banks. The main methods of rejuvenating neglected hedges are:

* Trimming - If the hedge has value for shelter, it can be sidetrimmed with a circular shape saw. It may need planting or further trimming to encourage thickening.

* Coppicing - All growth is cut down to 75 mm (3 in) above ground level and left to re-grow. Coppicing on a 6-10 year rotation is an effective and economic method of hedge management in arable areas and provides a valuable source of firewood.

* Gapping Up - A hedge will deteriorate over time if gaps are not replaced. Gaps should be cleared out and cut back to healthy vegetation. Dig in well-rotted manure, otherwise hawthorn plants will not grow in an old hawthorn hedge. Plant staggered rows, 500 mm (18 in) spacings, of hawthorn, blackthorn or beech. Young plants should be weeded and protected from stock by a temporary fence.

* Protective Fencing - Where a hedge bank has been exposed through excessive transplating and grazing by stock, a temporary fence, such as an electric fence, can be erected to restrict bank vegetation to regenerate.

Removing hedges

Some hedges may still need to be removed if of very small size. When deciding which hedges to take out, consider the effects on shelter, game, wildlife and the landscape. Remember that hedges which run north-south have a minimal crop-shading effect, yet provide maximum shelter from prevailing winds. A large hedge, effective as a windbreak, compensates for the space it occupies by its positive effects, whereas a small hedge with many gaps may serve no purpose at all, the area it occupies being wasted.

Hedgerows are important corridors for the movement of game and wildlife. Retain hedges which join woods, wetlands, or other areas of value of wildlife. If hedges must be removed, it may be an idea to plant up areas which are awkward to cultivate, such as field corners or steep slopes.

Hedgerow trees

Allowing hedgerow saplings to mature is a source of ‘free’ trees which are already well established. They need minimal maintenance and can provide useful source of timber as well as contributing to the character of the landscape. Space at 10 metre intervals they can eventually act as narrow shelterbelts. Good straight saplings can be tagged with a strip of fertiliser to warn the hedge cutter operator; the vegetation around these saplings can be cleared with a hedge tool.

Hazards to hedges

Weed infestation, especially by scutch grass, may be a problem. Spraying the hedge bottom with weed-killer is not the answer as it offers only temporary solution. It also destroys many plants which are used as feed by game birds and crop-pollinating insects. If sprain is a problem, keep a 2 metre strip regularly cultivated near the hedge.

Straw-burning can cause severe damage to hedges, and great care must be taken to avoid accidental damage. Before burning, plough a 2 metre strip near the hedge, do not burn on a windy day and never leave fires unattended.

References

British Trust for Conservation Volunteers, Hedging - A Practical Conservation Handbook. BTCV, 36 St. Mary’s Street, Wallingford, Oxfordshire, OX10 5EJ, UK.

ENFO Briefing Sheet 10 Hedgerows

Further Information

An Taisce, Tailors Hall, Buck Lane, Dublin 8.
Irish Wildlife Federation, 132A East Wall Road, Dublin 3. Irish Wildlife Conservation, 8 Longford Street, Monkstown, Co. Dublin.

Issued by ENFO - The Environmental Information Service, 17 St. Andrew Street, Dublin 2. Tel. 01-679 3144 Fax 01-679 5204.
**Paradise on Earth**

ISBN: 0-646-15977-X.

For its beautiful animal photography alone this book is fascinating. My favourite is a keep-

ard savouring its prey in a tree in Zain's Gammar National Park, followed closely by a picture of two young penguins in Khione National Park, Alaska.

This book is a journey of discovery and won-
to see some of the world's National Parks in

25 countries. Nanda Devi Na-

ional Park in India is one of the

25 parks in this book, and

berly, it is not an unusual species, it is

alone is great and we live in a world

the International conference of the same

on a number of sites throughout the world.

fairs and an excellent place to visit

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!

for their mums and dads!
Join "Storm Force", the RNLI's club for young people, and you will be sent an exciting members' pack filled with lots of goodies. Four times a year you will receive the action-packed Storm Force News magazine full of exciting stories, paintings, ideas or jokes to Storm Force headquarters.

To join just send your name and address, with a cheque/P.O. for £5.00 to Storm Force HQ, RNLI, 15 Windsor Terrace, Dun Laoghaire, Co. Dublin.

The following game has been reproduced from "Storm Force News".

Saved
I went to sea in a small fishing boat, wrapped up in warm clothes and a waterproof coat. With howling winds and crashing waves, I spotted some rocks on a beach by some caves. I tried to turn back, but the waves were too strong; I got thrown on the rocks, and before too long my boat had a leak, the water poured in. It filled up my small boat, right up to the brim. I spotted a blue light, heading my way; there was a lifeboat to save the day. They saw me there and took me on board; I'm only alive 'cause of them, thank the Lord.

By Paul Stevens (10) of Cowes, UK. In "Storm Force News".
HALF WAY

Write your answers Across in the grid. Each answer is a word of four letters of which the last two letters form the first two of the next word. Answers below.

an extinct bird
an amount of medicine
reproductive germs of flowers
the cutting side of a blade
tackle; tools; equipment
parched or dry
a thought in the mind
direction of sunrise
celestial body
a curved structure in a building
to sear or burn
an open space
everyone taken separately

SQUARE ROUTE

All of these letters will fit into the squares provided. The words will read the same down and across:

HALFWAY:
1. dodo
2. dose
3. seed
4. edge
5. gear
6. arid
7. idea
8. east
9. star
10. arch
11. char
12. area
13. each

WHICH IS?

1. Which is the third farthest planet from the sun?

2. Which island is the largest in the world?

3. Which is the longest river in the world?
a. Nile; b. Yangtze; c. Liffey; d. Amazon.

4. Which is the largest ocean in the world?
a. Atlantic; b. Indian; c. Arctic; d. Pacific.

5. Which is the largest lake in the world?

6. Which mountain is volcanic?

7. Which is the longest river in Europe?

8. Which rock is the molten rock below the Earth’s crust?
a. magma; b. granite; c. limestone; d. clay.

9. Which scientist measures earthquakes?
a. zoologist; b. chemist; c. seismologist; d. geologist.

10. Which is the biggest continent?
a. Europe; b. Asia; c. Antarctic; d. Australia.

ANSWERS: WHICH IS? 1. b; 2. b; 3. a; 4. d; 5. c; 6. c; 7. b; 8. a; 9. c; 10. b.

LITTER POLLUTION ACT 1997

If you couldn't give a toss about Litter -

FINE!

£1500

From now on you’re going to pay. Committ an offence under the New Litter Pollution Act & you could face paying a maximum fine of £1500 to your Local Authority along with costs.

Remember - £1500 plus costs
BALLYTEIGE BURROW
NATURE RESERVE
Co. Wexford

THIS is the first in a series of articles on Ireland’s 76 nature reserves, where areas of natural importance are given protection by the Heritage Service under the Wildlife Act. Some of our nature reserves are well known - such as Lough Hyne, near Skibbereen in Co. Cork. The articles feature the lesser known reserves, starting with Ballyteige Burrow in Co. Wexford.

The reserve, near Kilmore Quay, covers almost 530 hectares of dunes and estuary and is 9 kilometres long. This is the remnant of a large estuary reclaimed over 100 years ago. The influence of man goes back much further than this. For example, in the middle ages, the monks at the nearby Tintern Abbey established a rabbit warren at Ballyteige and they harvested up to 4,000 rabbits annually there.

Ballyteige Burrow has great physical diversity - some of the dunes are up to 20 metres high and the developing acid heath there is unusual in Ireland. It supports internationally important numbers of birds such as Brent Geese and Bewick Swans and it is the main location in Europe for Wild Asparagus. Its importance was recognised when it was declared a nature reserve in 1987.

Ballyteige Burrow is the main location in Europe for Wild Asparagus.

The main aim in looking after the reserve is to maintain the diversity of nature at the site. This does not mean excluding human activity. Cattle grazing is necessary to maintain the rich variety of wild flowers there - without such grazing the reserve would be dominated by a lesser variety of plants. So the task is to balance our activity with nature; the level of cattle grazing is controlled, horse training which occurred at the reserve has been discontinued but people are still welcome to walk and enjoy the splendid wildness of the reserve.

One of the more novel projects at Ballyteige Burrow is the creation of ponds to see if the Natterjack Toad can be introduced there. The Natterjack is rare in Ireland being confined to parts of Co. Kerry. The experiment is aimed at spreading the toad population so that it is less vulnerable to extinction.

If you want to know more about Ballyteige write to the local ranger, Eugene Wallace, Ross Road, Taghmon, Co. Wexford, who will be glad to help you.

Lemon-scented Salmon Burgers

These burgers with a difference are a tasty treat for kids - but they are good enough to appeal to adult taste buds too. Cook them outdoors on a barbecue for a Hallowe’en bonfire party, indoors on the pan for a substantial, delicious T.V. snack.

Ingredients:
- 1lb/450g salmon fresh - minced
- 4ozs/110g breadcrumbs
- 1 spring onion - finely chopped
- 1 clove garlic - finely chopped
- Grated zest and juice of 1 small lemon
- Salt and pepper
- Little oil and butter to fry

To serve
- 4 burger buns
- Shredded lettuce
- Sliced tomato
- 4 tablesps. crème fraîche with lemon zest added
- Chopped chives

Method
✦ Add breadcrumbs, spring onion and garlic to salmon.
✦ Season and moisten with lemon juice.
✦ Form into patties. Chill for at least 1 hour.
✦ Fry burgers in oil and butter mixture or if preferred cook on barbecue.
✦ Place on toasted buns with lettuce and tomato.
✦ Top with a spoonful of crème fraîche and sprinkle with chopped chives.
✦ Serve with salad or baked potato.
Parrotfish

Several kinds of parrotfish, the largest water around coral reefs. There are special mouths and see how they use be different in the way it feeds is its available resources. Feeding differs in an area to survive, they must share the supply has its limits. (species) of fishes living in the same that is very important: No two kinds think of many other differences among the open ocean. Some are good-looking and others are ugly. You can probably special harder. That is quite a feat, one that would be possible if the parrotfish had or- dinary fish teeth. Coral, as you probably know, is the hard stuff that gradually builds up to form coral reefs. It is produced by millions and millions of tiny animals called polyps (pronounced pol-ips). Imagine yourself trying to bite off a piece of coral. It would be like trying to bite off a piece of a concrete sidewalk.

Scientists aren’t sure whether the parrotfish bites off coral to eat the coral polyps in it, or to eat algae (algae) - a form of plant life - that grows among the polyps. It doesn’t really matter which of these the parrotfish is after because each is food. After the coral has been bitten off, it passes through a set of special grinding plates at the back of this fish’s mouth. By the time the coral has passed through the parrotfish’s insides and is passed off as waste, it has been made into fine sand. In fact, it is estimated that in every acre of reef, about 1 ton of coral a day is turned into sand each year by this beaked fish. With its special mouth, this fish not only feeds in an unusual way; it also contributes to the building of sandy tropical beaches! Incidentally, the parrotfish is a noisy eater. If you are in the water near a feeding parrotfish, you can hear its beak crunching on the coral!

Mackerel

The mackerel lives in the open sea. You may have seen this fish in fish markets. It is a plump, cylindrical fish between 14 and 18 inches long. Wavy black bars cross its back, and its sides and belly are white. The mackerel’s scales are so small its skin feels smooth to the touch. This species has an ordinary-looking fish mouth filled with small, slender teeth. What is special about the mackerel is that it can feed in two rather different ways.

Goatfish

The goatfish, another tropical species, is something like the freshwater bullhead! Members of the goatfish family are bottom-feeders. They have a pair of long whiskers - called barbels (bar-bulls) - under their chin. With these sensitive organs they feel their way over the sea floor, detecting bits of food and tiny organisms in the sand. The goatfish’s mouth is well positioned for bottom-feeding. Finding food, this fish sucks it up - along with a mouthful of sand! Yuck! This is no problem, however. The goatfish keeps the food it takes in and gets rid of the sand by puffing it out through its gills.

Sharing Resources

No one of these special mouths is better than any other. Each serves its owner quite well. The point, again, is that a special mouth allows a fish to eat food that is not available to most other fishes. I’ll eat what you can’t eat, and you eat what I can’t eat. This is sharing. This system helps ensure that there is enough food for everybody. It is important to realise, however, that special mouths play only a part in the sharing of resources among sea creatures. Other things help to bring this about, too. For example, many fishes may eat the same kinds of prey, but they eat them at different times, and in different places. Most fishes, furthermore, can eat a wide variety of foods. In other words, they live on a mixed diet. And the mixed diet of one fish is not exactly the mixed diet of another fish. This, too, spreads food sources among all species. Another thing that ensures sharing is that some fishes feed at night, on certain kinds of prey, while other fishes feed in the day, on other kinds of prey. Many things contribute the sharing of resources in the sea.

Special mouths is just one of them.
Make a Mobile

HERE'S a chance for you to make a mobile for your bedroom. You can use these drawings or other pictures you like from magazines (make sure you ask your parents first before you cut up anything!).

YOU WILL NEED:
- A scissor
- Cardboard (perhaps a cornflake box)
- Glue
- String
- 2 wire clothes hangers
- Cellotape

1. Roughly cut out the drawings and glue them to the cardboard to make them stronger.
2. Now that they are glued onto the board you can cut around the pictures more carefully.
3. Make a hole in the picture where it's marked.
4. Cut five pieces of string, each 18 inches long. Tie a big knot at the end of each piece of string and thread one through the hole in each picture.
5. Hook one of the hangers onto the bottom of the other hanger and squeeze the hook closed. (You might need a strong person to help you.) Make sure that the bottom hanger is at a right-angle to the top one. (If you looked from above they would be shaped like a cross.) Use a piece of cellotape to hold the bottom hanger in place in the middle of the top hanger.
6. Tie a picture to each end of the hangers and then the last one in the middle of the bottom hanger. You are then ready to hang up your mobile.

CORK CITY GAOL
SUNDAY'S WELL
021-305022

Visit this majestic building and follow in the footsteps of 19th Century prisoners. Furnished cells, amazingly life-like characters and sound effects. Spectacular AV, showing contrasting lifestyles and social history of Cork City in the 1800s.
OPEN DAILY 09.30-18.00 hours
OPENING WINTER 1997: Radio Museum Experience
Situated in original 6CK broadcasting studio, this interactive exhibition deals with Marconi; Birth of Radio and notable Irish and world events.
HENRY was mad about animals. It was Jenny's dream to have a dolphin for a friend, and when she walked along the shore she always had her eye on the horizon hoping to see one. But she hadn't... not yet!

Their parents blamed these wild ideas on Jenny and William's grandfather - Captain Horatio Nelson Cockle - the famous submarine inventor and adventurer, who had built a large powered can opener which had exploded on television, covering a well known beach in beans.

Captain Cockle had met his wife Catherine many years before, when she had been a doctor in the Navy, and they both lived in a lighthouse many years before, when she had been a doctor in the Navy, and they both lived in a lighthouse... and just before Jenny was twelve.

One evening on the television, news came through of a terrible accident in the North Sea. Two divers had been trying to blow up an old drilling platform, when it had collapsed on top of their submarine Deepstar, burying them under hundreds of tonnes of steel. The men inside had just over a day's air to breathe, and there was at least one other unexploded charge left, ticking somewhere in the wreckage.

Captain Cockle was unusually silent all through the meal. He didn't even notice was his grandfather, staring at him with the same guilty expression William himself had when he was caught doing something he shouldn't.

Captain Cockle explained he had discovered a way to pack enough electricity to power a small town, into a single battery the size of a pocket torch. This had made the super secret submarine Cormorant possible. Captain Cockle was going to use it that night to rescue the two trapped divers, and William could come too - as long as he didn't tell a soul.

"Especially your grandmother," said Captain Cockle. "She'd only worry!"

But as they tried to sneak out of the house that night, who should flick on the light switch but Dr. Cockle. "Men!" said Dr. Cockle to Jenny. "I bet those two haven't even thought to pack any medical supplies for those poor divers they hope to save. Let alone for themselves!"

"As a matter of fact..." began Captain Cockle. "But of course, he hadn't."

So Captain Cockle, Dr. Cockle, Jenny and William climbed aboard the Cormorant and dived down along the secret tunnel leading to the sea. They had just surfaced in the moonlight, when Dr. Cockle had a thought.

"We're hundreds of miles away from those poor men," she said. "Their air is bound to run out before we can sail round to them in this submarine!"

Captain Cockle smiled and reached for a big blue lever.

"Now it's time to show you why I called her the Cormorant, my dear!" he said.

There was a whirring noise behind the conning tower, and the back of the submarine split open like a pea pod. Long rotor blades folded out like dragonfly wings, and the good ship Cormorant pulled herself up out of the water in a cloud of spray, soaring into the clear night sky towards the moon.

"The Cormorant's no ordinary submarine," said Captain Cockle. "You'll be amazed at the things she can do..."

And you'll be amazed too... in the next episode - Monsters from the Deep - in only in Sherkin Comment.

Abridged by the author from "Captain Cockle and the Cormorant" - published in Ireland by Poolbeg Press and available in all good book shops, price £3.99

Check out Captain Cockle on the Web at the Captain Cockle Home Page on: http://www.cockle.com
Trans-Pacific Voyage in a Solar-powered Boat Built of Recycled Aluminium

By the CADDDET Japanese National Team

Introduction

The first solo crossing of the Pacific was made in 1962 by Mr. Kenichi Horie in a tiny boat called “Malt’s Mermaid”. In 1996, Mr. Horie made the first solo, non-stop, trans-Pacific voyage in a solar-powered boat made of recycled aluminium. The boat, called “Malt’s Mermaid”, sailed 16,000km from Ecuador to Tokyo in 138 days. The themes of the project were preserving the environment and using resources efficiently.

Malt’s Mermaid

The “Malt’s Mermaid” is shaped like a cigar, and has an overall length of 9.47m, a width of 1.64m and a displacement of 900kg. The shape of the boat was selected to ensure its stability for maximum speed of the boat is 3 knots. The amount of five blocks, weigh about 170kg in total and also act as ballast. When fully charged, the motor power system, rated at 6.6kW (11V x 130Ah x 4), will run a 200W motor for 24 hours. The average service speed of the boat is 3 knots. The battery system that supports the living area supplies power for equipment such as a small refrigerator, lights, radio communication and video systems.

Solar Power System

The deck of the solar-powered boat, is covered by 12m² of crystalline silicon photovoltaic modules which have power output of 1.5kWP. The boat was designed by Mr. Osamu Takai, and built by Gokiki Shipyard Co. Ltd., which had already constructed more than 50 aluminium vessels.

Mr. Tony O’Mahony

I had great pleasure in presenting the Sherkin Island Marine Station Environmental Award for 1996 to one of Ireland’s finest botanists - Tony O’Mahony. Tony is the greatest authority on wild plants in Cork County and I do not make that statement lightly. He has amassed more data in 30 years on County Cork flora than anyone else in the past 150 years.

What must be realised is that wild plants are his hobby and not his fulltime occupation. In this he follows in the footsteps of the great Irish botanists - Colgan, Hart, Praeger and Scully. Tony’s life long interest in Irish wild flowers developed in early childhood and by 1966 he became joint botanical recorder for County Cork with Maura Scannell, who was then in charge of the National Herbarium at Glasnevin Botanic Gardens. This on going, time consuming work has entailed the collation of data on the distribution and frequency of native and naturalised plants.

In 1986 he contributed 18 years of ecological/botanical data to Cork County Council for inclusion in the County Development Plan. Upto 1996 he has written 24 papers dealing with Irish Botany. His major task at present is to put into the public arena all the data he has gathered in over 30 years on Cork flora.

Tony’s work has never received the recognition he deserves. I have no doubt if he received rapt on the catapult things would be different but a prophet is rarely recognised in his hometown. If Tony had the benefit of state funding we would now have a flora book on the County Cork flora. This may be difficult for people to understand but we in Ireland have only a flora for a dozen of our counties and most of these were written in the 19th and early 20th century.

I have known over the years the dedication and the financial sacrifices that Tony has to make to fulfil his lifetime commitment to recording the wild plants of County Cork. In 100 years his work will still be a major reference on Ireland’s flora, along with Colgan, Hart, Praeger and Scully. That statement can be made about very few people that pass through life.