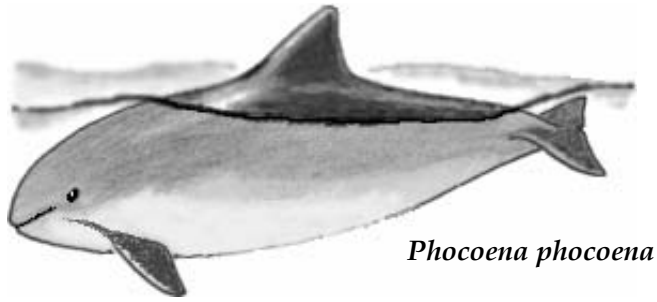
HELFORD
Voluntary Marine Conservation Area

Newsletter No. 30 Spring 2005

Cornish Dolphins, Past, Present and Future

Although cetaceans - dolphins, porpoises and whales - are very hard to count at sea, a surprising amount has been discovered about their populations and how they are doing.

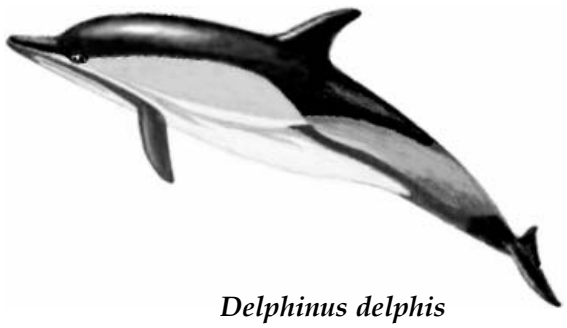
The harbour porpoise is our smallest, and is nearly the smallest cetacean on Earth (and everywhere else I guess!). Ten years ago the number in the Celtic Sea was measured as being around 36,000; seventy years ago River Boards on several Cornish rivers were paying for the cartridges of porpoise shooters, and twice as long ago a 'fishery' for porpoises was started in the Fal but failed because the porpoises had an uncanny ability to avoid the nets, even at night - their sonar was unknown at the time. Then, in the 1950s and 60s they became much rarer and it seems that organochlorine pollution, mainly agricultural pesticides, was responsible. These chemicals have diffused over the whole earth, even getting into penguins in the Antarctic. Before the organochlorine decline has had time to pass, gillnet bycatch has emerged with the widespread adoption of this fishing method in the 1970s.



Phocoena phocoena

One km of gillnet anchored to the seabed on the Celtic Shelf catches porpoises at an average rate of 7 per year. Nets are not in the water all the time, and the overall rate for Cornish and Irish offshore boats alone was measured ten years ago by the Cornwall Wildlife Trust as over 2000 per year. A subsequent study by the Sea Mammal Research Unit gave the same rate, but since then the type of offshore netting has partly changed and present rates are somewhat uncertain. There is also bycatch from small boats and boats from other states. Will they recover their numbers? My guess is that a partial recovery form the 'organochlorine low' is likely but the population will then be held artificially low by gillnet bycatch. So whether we will see them regularly in our rivers again is in doubt.

The common dolphin was never seen regularly in the Helford or other rivers, as it prefers deeper waters and we have no evidence of an 'organochlorine decline' for this offshore animal. The size of this population is less clear as they seem to make a seasonal movement eastwards across the Celtic Shelf in winter reaching Cornwall and beyond. The animals seen by fishermen and others offshore probably come from a north-east Atlantic population of perhaps a quarter of a million, and nothing is known of changes in numbers. Around 200 a year die in UK/Irish bottom set gillnets on the Celtic Shelf and a similar number in UK bass pair trawls in winter in the waters south of Cornwall-Dorset. Pair trawlers from France and those fishing for other species also catch common dolphins. These fisheries are the main source of dead dolphins on our beaches in winter, but in some years when the common dolphins are unusually close to the coast a substantial proportion are from gill nets.

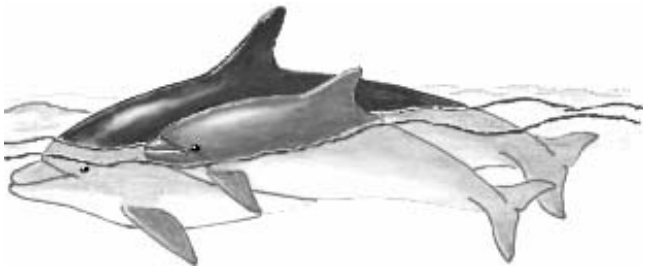


Delphinus delphis

Aim: To safeguard the marine life of the Helford River by any appropriate means within its status as a Voluntary Marine Conservation Area, to increase the diversity of its intertidal community and raise awareness of its marine interest and importance.
For further information relating to the Helford Voluntary Marine Conservation Area please contact
the *HVMCA Group Co-ordinator*: PE Tompsett, Awelon, Colborne Avenue, Illogan, Redruth, TR16 4EB. Tel: 01209842316
Chairman: David Muirhead *Co-ordinator*: Pamela Tompsett
Design: Sheila McCann, Cornwall Wildlife Trust *Illustration*: Sarah McCartney, Cornwall Wildlife Trust

Although they attract the most attention these common dolphin bycatches do not indicate the most threatened species, and unfortunately the 'at risk' order happens to be opposite to the 'strandings rate' order with the inshore bottlenose dolphin being most at risk.

Bottlenose dolphins were seen regularly around Cornwall until the 1970s, and had fascinating local feeding strategies in the Tamar Estuary as they do in many places in the world. The social complexity of bottlenose groups and their adaptive skills reflect their brain size which is actually larger than ours. Their disappearance here precedes gillnets and was probably due to organochlorines, and one juvenile that died in Cardigan Bay showed the staggeringly high level of pollution that arises as milk-feeding effectively pumps organochlorines from mother to suckling. Like otters they did show evidence of recolonising Cornish waters when a group moved in, maybe from the Irish Sea, in September 1991. But since then their progress has been poor. They have extended their range to include the whole Southwest coast but their numbers have not increased and appear to have dwindled progressively.



Tursiops truncatus

At numerous sites around the world bottlenose populations live among gillnets and bycatch is evident. My estimate is that we will not see these marvellous animals re-establish themselves in our waters which now appear to be the most net-infested in Britain. The Cornwall Sea Fisheries Committee, has declined* to take action on this on the basis of arguments ranging from 'nets do not catch dolphins' through 'regulation of gill nets is practically impossible' to 'all recruitment to the inshore fisheries would end'. The flower growing industry also predicted its demise and the loss of many jobs when action by the Wildlife Trust forced the end to use-under-derogation of organochlorines on bulb fields. Actually the industry grew in size, and, ironically, local fisheries may have been saved from organochlorine pollution of fish damaging their profitability. However fisheries management inshore is heavily dominated by the industry and remains unlikely to implement any difficult environmental measures that do not show short-term benefit to the industry. Neither the wider environment not the wider economy of Cornwall form a really functional element in the management of inshore fisheries and this does need to change.

Bottlenoses do enter the Helford, and one member of the present group was isolated in the Helford for a few days, became desperate for company and approached boats, squeaked at their occupants and rubbed itself against their anchor chains!

The Pilot Whale is the species best known for mass live strandings and one nearly happened in the Helford in 1961, but was averted by local people and visitors who entered the water and did their successful best to redirect the whales towards the open sea!

Nick Tregenza
(illustrations from Nick Tregenza)

****Note from Sam Davis, Senior Sea Fisheries Officer***
Cornwall Sea Fisheries Committee officers have been working closely with the Cornish Fish Producers' Organisation, local fishermen and Cornwall Wildlife Trust to develop voluntary codes of practice to reduce cetacean bycatch in nets in St Austell Bay and Mounts Bay. These codes were tested for the first time in winter 2004 and will be extended around the Cornish coast in 2005.

Cetacean by-catch: The fishermen's view

I think it only fair that I put the fishermen's point of view on this issue. I have worked every type of net, tangle net, trammel nets, sole nets, drift nets, wreck nets and all types of gill nets from the Dodman to Godrevy Island over the past 40 years and have never caught any type of cetacean.

It is important to consider different types of net. Fishermen have worked small mesh drift nets for pilchard, herring and mackerel for over 100 years. I have never heard of any cetaceans being caught. One has to consider how fish and mammals get caught; normally by getting their heads caught in the meshes of the nets. One would not therefore expect cetaceans to get caught in the types of nets worked for bass, pollack, cod and hake. I have spoken to Newlyn fishermen who over the years have hauled hundreds of miles of gill nets worked for these species. They have never caught a dolphin. There have been occasions when the dolphins have played around the nets when they are being set but with no dolphin by-catch. Fishermen think that in general they are too clever. Perhaps their sensitive radar systems pick up the nets quite easily. There have on rare occasion been catches of dolphins in large mesh tangle nets worked for ray, monk and turbot. These are laid close to the seabed and would not be such a large target for their defence systems. I have to stress that these catches are rare, probably only when there are large amounts of feed (pilchards, herring and mackerel) around. During this winter the Cadgwith fleet has pulled many miles of

tangle and gill nets: there have been no cetacean deaths. It does therefore appear that dolphin catches in the various types of gill type nets worked around the Cornish Coast are rare occurrences. Further to this, fishermen report seeing very large numbers of this species all along the South Cornish Coast over the last two winters.

Most regrettably, there has been a problem in the last couple of years with harbour porpoises, particularly in Mounts Bay and St Austell Bay. Last year, in particular, due to the large amount of feed, there were higher numbers than had ever been seen before in these areas. It does seem for some reason that harbour porpoises at times have problems with gill nets. It is mystifying to understand how they get caught. One fisherman who caught one last year and one this year said that they were not caught in the meshes of the net but appeared to have hit the net and not tried to get away. When they were brought to the surface they were just lying against the net.

The harbour porpoise problem has been acknowledged. Sam Davis reports that great efforts have been made to try to avoid this by a voluntary code of conduct. It is to be hoped that this will prove successful.

It must also be born in mind that the Cornwall Sea Fisheries Committee has already introduced legislation restricting the use of gill nets. In 1977 I proposed a byelaw preventing the use of small mesh gill nets in the Manacles and Runnelstone areas. These are areas where there tends to be a lot of feed and good bass fishing. It is likely that harbour porpoises would favour these areas.

In conclusion therefore I have to say that I consider that the problem of dolphin by-catch in static gear is exaggerated. It is conceded that in recent years there has been a problem with harbour porpoises. The Cornwall Sea Fisheries Committee working with the Cornish Fish Producers Organisation and Cornwall Wildlife Trust is making a big effort to address this problem.

David Muirhead, Chairman CSFC, HVMCA Group and Cadgwith, Helston & District Fishermen's Society

The Fal / Helford Special Area of Conservation designation 1st January 2005

When the European Commission formally adopted the Fal /Helford complex, the Isles of Scilly and the Tamar Estuary as Special Areas of Conservation on the 1st January 2005, the Helford VMCA took its place as part of an acknowledged marine site of particular importance in Cornwall.

Under the Habitats Directive agreed in 1992 there is a responsibility for the protection of wildlife taking into account the economic, cultural, social and recreational needs of local communities - aims mirrored by the HVMCA created in 1987 - Community, Commerce and Conservation working together !!

The habitat features for which the SAC was designated are large shallow inlets and bays, saltmarshes, intertidal mudflats and subtidal sandbanks; the biodiversity of the area will continue to receive attention.
Following this note, Stella Turk writes about one species of particular interest found at the mouth of the Helford VMCA, the fan mussel *Atrina fragilis* which is a protected species with a Biodiversity Action Plan of its own.

Pamela E Tompsett

Happy 80th Birthday Stella

A founder member of the Helford VMCA Group, Stella Turk MBE, is celebrating a significant birthday at Easter 2005. Readers will see from her contribution to this newsletter that Stella still plays a major part in the HVMCA activities. We all wish her a very Happy Birthday!

Ruth Williams - Marine Officer CWT and formerly HVMCA Education Ranger

Ruth will not be dancing on Helston Flora Day this year but is looking forward to an addition to the family !! Our very best wishes to her and to Jeremy - we shall look forward to seeing Ruth and junior on the shore later in the year.

Royal apparel, ladies' gloves and the Fan Mussel

The fan mussel is the largest marine bivalve in Britain, reaching up to 12" (30 cm) in length, but it has interest in ancient and modern times well beyond a matter of size. Its names reveal something of its nature. Scientifically it is known as *Atrina fragilis* (although for many years it was called *Pinna fragilis*) emphasising the fragility of the shell. The French called it a 'jambon' because it resembled a small ham, whilst the Italians called it a 'cappa lunga' (long cloak), repeated by Plymouth fishermen as 'caper longer'. Pliny described it as 'the silk-worm of the sea, and its product was known to 'the ancients' as Pinna silk , Pinna wool and fish wool.

This species is adapted to live in fine sand or silt, with the point of the 'fan' at a depth that enables the other end of the shell valves to be just above substrate level to catch food particles. The shell is anchored by fine gold-coloured silken threads (collectively known as a byssus) spun by a special gland. The mussels (*Mytilus edulis* and *Mytilus galloprovincialis*), that cluster thickly on rocks around our shores, also moor themselves by byssal threads but these are coarse and wiry, suitable for attachment to a hard surfaces. The byssal threads of the fan mussel are so fine that they can be fixed to individual sand grains. This mussel is always gregarious so the combined strength of the interlacing mooring strands makes a single specimen difficult to detach; indeed one is more likely to break the shells with a grapple than pull it away from the sea bed.

Living fan mussel in sediment © Rohan Holt

Although *Atrina* species were once served as cutlets or made into soup by wealthier people in Mediterranean countries, it was prized above all for its gold-coloured 'silk'. This is very durable and does not lose its colour. It has been used in the manufacture of costly apparel used by royalty and it has been suggested that Henry VIII wore such a vestment during a famous battle in the 16th century rather than one of spun gold and silk, hence the site known as the Field of the Cloth of Gold.

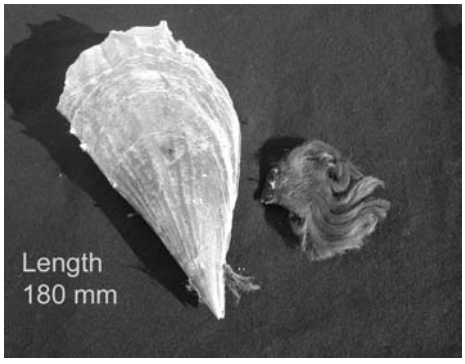
In more plebeian circumstances, a muff 'made in Cornwall' was shown in the 1851 Great Exhibition, and in the British Museum there is a pair of gloves knitted from this thread. Knowing that I was very keen to see a sample of this rare craft, my husband asked an Italian student if she could help, as we knew that in the 19th century the nuns of Tarentino had kept the skill alive by producing small examples. Once she was convinced that 'Pinna silk' really existed, she set about the task with commitment and sent a sample of the byssi combed and sewn on to a cloth base probably from the Mediterranean *Atrina nobilis*. Before being used in a combed or knitted form, the bysssi need washing, drying and combing, before either being sewn in tufts or spun.

Atrina fragilis has a southern distribution, reaching its northern limit on the British west coast, being found especially in the far south-west. However, it has never been common and is now positively very scarce. It is hard to believe that in the 1840s Jonathan Couch recorded it as 'in multitudes' off the Dodman (then called the Deadman). In the 1880s the Rev. R. W. J. Smart, Tresco Chaplain, who studied the local mollusc fauna, found it sparingly in the eel-grass beds at low water. In an undated collection (probably made over several years at the turn of the 19/20th century) by Miss Jenkinson, I saw a few dozen fine shells complete with their byssi. A few years ago, a fine large specimen was found in the mouth of the Helford River.

Atrina fragilis is currently the subject of one of English Nature's Biodiversity Action Plans. Perhaps warmer seas will increase spat fall, or its recovery might be helped by appropriate No Take Zones as it is particularly vulnerable to dredging with its brittle valves protruding just above the surface of the substrate.

Stella Turk

Editor PET: I understand that the very supple material is still produced in Italy not only for gloves but cloths for polishing delicate jewellery and a range of small articles for the tourist trade. In the film "The Ten Commandments" Moses says "this golden gown was spun from the beards of shellfish"…….!



Fan mussel and tassel of gold thread from A. nobilis © PET

Fal and Helford Oysters

Most locals will have seen the famous Falmouth Working Boats racing in the Fal Estuary or will have seen the many GRP Working Boats built as pleasure cruisers by Martin Heard's Tregatreath Boatyard at Mylor. Not all will be aware that traditionally they spend their winter dredging for native oysters on the Truro Oyster Fishery. The Truro Fishery represents the last oyster fleet in the world still working under sail and the fleet are now the only commercial sailing left in Europe. The Fishery operates under a Regulation Order issued by DEFRA, the administration of which was previously the responsibility of the Truro Corporation but was passed on to Carrick District Council when they amalgamated The Fishery is restricted under the Order and has strict rules that dredgermen must abide by.

The oyster season starts on the 1st November and closes on the 31st March, the working hours are 0900hrs to 1500hrs Monday to Friday and 0900hrs to 1300hrs on Saturday. The oysters are wild and propagate naturally, consequently the stock size fluctuates form season to season and in order to prevent over-fishing a minimum size of 67mm is imposed and the Carrick Council oyster bailiff is responsible for policing it. All dredgermen must be licensed but as it's an open Fishery as there's no restriction on the number of licences that can be issued.

The Truro Oyster Fishery has been worked for hundreds of years and many of the boats still working it were built locally for the Fishery during the late 1800's, remarkably the oldest still working is "Shadow" which was built at Point by Frank Hitchens in 1870 The fleet size has varied greatly from a peak of perhaps a few hundred during the 1800's to a current size of 10 to 25 boats according to how good the oyster season is, but there is no reason it can't grow again as long as the stock can sustain them.

In the past most oysters were sold young to merchants who fattened them before selling them direct to the restaurants, however after a disease called *Bonamia* closed the Fishery between 1982 and 1990 those markets were lost. The new markets had to adapt to an industry post-*Bonamia* where oysters can no longer be relaid so oysters had to be larger and ready for sale without relaying. Many of the oysters were bought by East Coast merchants from Kent & Essex, but a large number remained in Cornwall as the Hodges family who have run the Duchy Oyster Farm at Porth Navas have always been a large buyer of oysters from the Fal. From the Helford the oysters were sold to all the top markets in the UK as well as on the Continent.

The oysters we sell now are generally 3-4 years old as opposed to the 2 year old brood oysters that were sold for the old relay markets before *Bonamia*. The oysters on the Truro Fishery are the European Flat Oyster *Ostrea edulis* more commonly known as the Native Oyster. Summer is a close season when the oysters are breeding, the warm water triggers the spawn release and the young oyster larvae have a 10-12 day free swimming period at the end of which those that have survived the plankton-eating predators must settle on clean shell. Once a clean area for settlement is found the oyster attaches itself and never moves again unless moved by tide, waves or oyster dredgermen. During their lifetime they may change sex and even spend a period as hermaphrodites.

The oysters suffer a high mortality annually in part due to their weakness as a result of spawning, but there are other pressures on the oyster stock too. The biggest currently comes from the competitor the slipper limpet - *Crepidula fornicata* - which competes with the oyster for food. The slipper limpet usually wins the competition and may in a worst case scenario cover the Fishery to a depth of several feet smothering the oysters beneath in the process. Predators include starfish and oyster drills as well of course the oyster dredgermen themselves. A new oyster drill is becoming a nuisance on the Continent and has already started to spread in the UK. It is the *Ocinebrellus inornatus*, an inch long fast breeding oyster drill from Japan.

As for the Fishery itself, it extends North from a line between Falmouth Docks and St Mawes Castle. The sailboats work the main banks in the Carrick Roads which are East Bank, Mylor Bank, Parsons Bank and North Bank whilst the punts work in the River Fal up as far as Malpas. In fine weather punts will work in the Roads too but generally stay up in the River where the weather is better. The Fishery has survived many problems over the last few years, the SW Water attempt to pollute Carrick Roads with untreated sewage was defeated, the container port scheme was beaten too and the Fishery has survived *Bonamia*, the TBT from anti-fouling as well as run off from the farms which increasingly use "oyster unfriendly" chemicals. However, the greatest threat now is the increase of moorings placed on the Fishery by Carrick District Council which gets dramatically more income from moorings than oyster licence fees. Carrick DC, like all other local councils, suffers from inadequate funding from central Government which in turn puts more pressure on it to take the easy option for revenue - namely moorings on the Oyster Fishery as well as cutting back policing to the point of non-existence. The dredgermen fear that the Fishery is at a crossroads as currently, with difficult markets and low stocks levels, the return is poor, so few younger men are working it. A 60% increase in licence fees has been applied for by Carrick and this could push the last few men over the edge and if the numbers of men working the Fishery drop any further it may well prove fatal.

Alun Davies, Fal Oysterman

Counting Cornwall's Crustaceans: the first 12 months

Since June 2003, Cornwall Sea Fisheries Committee (CSFC) has been undertaking a survey of crustacean shellfish around the coast of Cornwall, supported by funding from Objective One and Cornwall County Council. The work is carried out by fishery officers aboard 7 inshore potting vessels, sampling normal fishing activity once a month throughout the year.

In the first 12 months of the survey, I collected the following fascinating facts:

Number of trips made: 54, during which the following was consumed: 54 litres of tea, 108 litres of water, 108 apples and satsumas, dozens of homemade chocolate brownies and one sea urchin (not very tasty);

Number of pot hauls observed: 13,352, of which 6,011 were sampled and their contents measured;

Number of measuring gauges lost: 1 (somewhere in Mounts Bay, the crabs can measure themselves);

Number of crustaceans measured: 23,363, each carapace (shell) was measured to the nearest mm and the animal sexed and examined for eggs, disease, damage and moulting state;

Number of brown crabs measured: 17,738, approximately 75% of the overall total, ranging in carapace size from 50 mm to 245 mm (any larger and I'd need a bigger gauge or maybe a metre rule!);

Number of spider crabs measured: 3616, predominantly on the north coast;

Number of lobsters measured: 2008, ranging in carapace size from 53 mm to 135 mm;

Number of crayfish measured: 1;

Number of fingers remaining: 10, miraculously;

Number of dolphins and porpoises observed: at least 100.

Analysis of the huge volumes of data and observations has just started but already it is illustrating both the similarities and the differences between these vessels and the ways in which they target crustaceans. Equally, there appears to be differences in the stocks themselves, for example, in the numbers of berried (egg bearing) lobsters caught. The presence of eggs was observed throughout the year in at least one location but in some areas, fewer than 3% of female

lobsters observed were berried whilst in other areas, this rose to 6%. Whether this indicates differences in the lobster populations between these areas or subtle differences in the grounds fished and hence their suitability for berried lobsters is obviously difficult to conclude at this stage. However, what it does show is that a considerable number of berried lobsters are being returned to the grounds to release their eggs, which will hopefully benefit these inshore fisheries.

The survey work is also providing valuable samples for a PhD study at Plymouth University into bacterial diseases of crustacean eggs. In addition to egg samples, small amounts of antennae are being taken, to enable genetic finger printing of the lobster stocks around the coast. In time, this may help shed some light on whether there are distinct stocks present around our coast.

Information from the data loggers attached to several strings of pots has shown temperature ranges of 8°C to 17°C even at depths of 30 m. The graphs produced by these loggers show a distinctive diurnal (twice daily) fluctuation in temperature of up to 2°C, which presumably relates to changes caused by the tides. Recording this data will be useful as changing temperatures affect crustacean behaviour, for example, falling temperatures reduce crab and lobster catches quite markedly whilst at least one bacterial disease of brown crabs can only survive at temperatures below 12°C.

From my point of view, one of the most important aspects of this work is the involvement of the skippers and crew in the survey. Their good humour and patience is endless and the insight that they give into the whole fishing process will be essential to the overall conclusions of the work.

Sam Davis
Senior Fisheries Officer, CSFC

Update on oil protection by Falmouth Oil Services Ltd

We are twelve months into our bunker supply contract with Tramp Oil and bunker call vessels are steadily increasing although not to the extent of that experienced when Chevron-Texaco were involved. The bunkering tanker "Whitstar" is now a familiar sight around the port and I am pleased to say that the crew operate the vessel in a truly professional manner and they all enjoy working in Falmouth.

FOS have chartered a barge called "Falmouth Jubilee" and have converted it to handle all grades of oil slops and ships tank washings from heavy oils to Crude oil and Petrol. This vessel is also approved for bunkering and is fitted with quick deployment oil retention booms. This barge is also a useful asset in the port's growing arsenal of oil pollution response equipment and can be used as an offshore oil recovery skimming vessel. This role was recently exercised in the recent Carrick Roads booming trials which was initiated by the Falmouth harbourmaster and Cornwall County Council Emergency planning.
The terminal still handles the import of diesel and heating oil on behalf of Texaco to the tune of 80,000 tonnes per year. This is recognised as playing a crucial role in reducing distribution vehicle movements from Cornish roads.

Paul Denmead, Terminal Manager

Tikhoretsk and Jubilee © David Randle

Tambov and Whitstar © David Randle

University of Exeter study on the Helford Catchment

Diffuse pollution means pollution from widespread activities such as leaching of nutrients from land and run-off from car-parks and roads, as opposed to one discrete source. There is very little information available on diffuse pollution entering the Helford River. The Helford has an important shell-fishery and it is important to know what fine sediment (silt and clay) is entering the river and what potential there is for the transfer of microbial pathogens from animal, human or bird sources.

This project will find out and explain how this fine sediment that enters the river plays a part in delivering micro-organisms from the land, via the river network, to the Helford estuary. The impact of these micro-organisms on the water quality at the shell-fishery will be looked at.

At the moment, when water quality is assessed, only the number or indicator organisms in a water sample are looked at. The amount of suspended fine sediment, which may be harbouring some of the bacteria, is not examined.

The new work is being carried out within the Department of Geography at the University of Exeter to find out what the sediment budget for the Helford catchment is i.e. what goes in and what come out. During 2005/6 they will collect samples of sediment 1) deposited in the river 2) in transit in the river 3) from soil samples on the land. This will allow a map to be built up to show the main sediment sources and so trace the movement of the sediment through the river network.

Sediment taken from these 3 sampling areas will be looked at for their microbiological content, to find out how the sediment and bacteria are linked, compared with open water samples. Earlier work carried out on the Exe estuary will be used to help find out the origin of bacteria from the sediment i.e. human, animal or birds. All the information will then be studied to find out if it could be used to predict the transport characteristics of bacteria in different types of sediment.

The two University researchers working on the project are physical geographer Dr. Richard Grayson and microbiologist Dr. Rob Bonsor who have already met with owners of river banks in the catchment to obtain permission to install a range of sediment traps in Helford tributaries. The traps will be tested over the next few months, and regular sampling will start in April for 15 months. Next, with the help of Annabel Keast, they will meet with catchment landowners to discuss opportunities for collecting a number of soil samples to match with river sediment samples. This will help them to determine where the sediments are coming from and also whether there is any link between the type of sediment and the micro-organisms associated with it.

The entire data set will be used to inform best practice in developing microbiological budgets for a river catchment. This in turn will help inform estuary management policy and strategy.

Sangeeta Taylor

Joana Doyle

Joana Doyle will be taking over from Ruth Williams as Marine Conservation Officer for the Cornwall Wildlife Trust while Ruth is on maternity leave and we welcome her to Cornwall and all hope to meet her soon.

Joana graduated from Trinity University, Dublin in 1999 with an honours degree in Natural Science. She then spent a year travelling and volunteering on marine conservation projects around Asia and Australia. She then attained an MSc in Marine Environmental Protection from the University of Wales, Bangor in 2002. Following this, she worked as Project Scientist on a marine conservation project in the Philippines, where she developed an integrated coastal zone management plan for the area and initiated marine education schemes. Joana then worked as Biodiversity Projects Officer for the Marine Conservation Society, where she coordinated the Basking Shark Watch project and working on other Biodiversity Action Species' projects. She is a keen diver and looks forward to having the opportunity to spend more time in the sea!

Helford Events 2005

There is a full programme of events for the coming months - please ask for diary leaflets for yourself and your friends. 01209 842316 or 01326 341181.