

recorded are found in Clew Bay: the stalked jellyfish *Lucernariopsis cruxmelitensis*; the polychaetes *Anitides rosea*, *Clymenura clypeata*, *Pterosyllis formosa* and *Pionosyllis* sp. and the snail *Clypterea chinensis*.

Clew Bay is considered to have the most significant shingle reserves in the country, and has (on the islands) the only examples of incipient gravel barriers in Ireland. Associated with the shingle (and dunes) are good examples of annual vegetation of drift lines. Characteristic species found in these habitats include: Spear-leaved Orache (*Atriplex prostrata*), Red Fescue (*Festuca rubra*), Sea Sandwort (*Honkenya peploides*), Thrift (*Armeria maritima*), Common Scurvygrass (*Cochlearia officinalis*), Sea Mayweed (*Matricaria maritima*) and Sea Campion (*Silene vulgaris* subsp. *maritima*).

Lough Furnace is located at the north-eastern corner of Clew Bay. The lough is a good example of a deep, stratified, saline lake lagoon in a very natural state. Salinity levels can vary considerably here depending on rainfall and tides. The lake is one of the very few permanently stratified lakes known in Ireland and Britain. The lake is ringed by Common Reed (*Phragmites australis*) and Common Club-rush (*Scirpus lacustris*), with small patches of Great Fen-sedge (*Cladium mariscus*) and Bottle Sedge (*Carex rostrata*). Lough Furnace supports a relatively high faunal diversity (41 taxa recorded in the 1996 survey) including a number of important invertebrate species. The relict mysid species *Neomysis integer*, the isopods *Jaera albifrons*, *J. ischiosetosa* and *J. nordmanni*, and two rare amphipods (*Lembos longipes* and *Leptocheirus pilosus*) have all been recorded from the lake. Both Irish species of tasselweed (*Ruppia maritima* and *R. cirrhosa*) occur in the lagoon. Eel, Flounder and Mullet also occur in the lake waters. Mallard nest around the lough, while Saint's Island contains nesting Black-headed Gull.

At the north-western end of Lough Furnace lie two associated lakes, Lough Napransky and Lough Navroon. A stream drains from the latter into the main lake. The area contains flush and quaking-mire vegetation, which is of interest as Irish Heath (*Erica exigena*) is found there, with Bog Moss (*Sphagnum* spp.), Black Bog-rush (*Schoenus nigricans*), Bog Asphodel (*Narthecium ossifragum*), Common Cottongrass (*Eriophorum angustifolium*) and Round-leaved Sundew (*Drosera rotundifolia*). Bog Orchid (*Hammarbya paludosa*), a species listed in the Irish Red Data Book is also found in this area. Beyond the wet area there is a Hazel (*Corylus avellana*) dominated woodland growing over abandoned fields. Birch (*Betula pubescens*), Hawthorn (*Crataegus monogyna*) and Holly (*Ilex aquifolium*) are common, with occasional Oak (*Quercus petraea*). The ground flora contains such species as Bluebell (*Hyacinthoides non-scripta*), Sanicle (*Sanicula europaea*) and Wood-sorrel (*Oxalis acetosella*).

The Rosmurrevagh area in the north of Clew Bay displays a high diversity of habitats, from seashore to dunes and coastal grassland, as well as saltmarsh, bog and fen. The sandy beach on the seaward side grades into dunes of Marram (*Ammophila arenaria*). Adjacent to this, the saltmarsh vegetation, which is approximately 5 m wide, comprises Thrift, Common Scurvygrass, Common Saltmarsh-grass (*Puccinellia maritima*) and 'turf fucoids' (diminutive forms of brown algae). These plant species are typical of Atlantic salt meadows. Similar saltmarshes occur scattered around the entire shoreline of the bay. Next to the saltmarsh at

Rosmurrevagh is an area of coastal grassland with species such as Daisy (*Bellis perennis*), Ribwort Plantain (*Plantago lanceolata*), Dandelion (*Taraxacum officinale*), Heath Wood-rush (*Luzula multiflora*), Common Ragwort (*Senecio jacobaea*) and Yarrow (*Achillea millefolium*). Flushes introduce a species-rich bog/fen type vegetation. Yellow Iris (*Iris pseudacorus*), Soft Rush (*Juncus effusus*), Irish Heath, Bog Mosses, sedges, Water Mint (*Mentha aquatica*), Bog-myrtle (*Myrica gale*), Bog Asphodel and Cuckooflower (*Cardamine pratensis*) are found.

A further dune system occurs at Bartraw in the south-west of the site. Here Marram and embryonic dunes occur along a shingle-ridge which links a small island where dunes also occur. Embryonic dunes, characterised by the presence of Sand Couch (*Elymus farctus*), also occur on some of the islands in the bay.

Important populations of Otter and Common Seal are found in Clew Bay. Both of these species are listed on Annex II of the E.U. Habitats Directive.

The Clew Bay Complex supports a good diversity of wintering waterfowl, with nationally important numbers of Red-breasted Merganser (average maximum of 70 in the winters 1995/96-1999/00) and Ringed Plover (average maximum of 142 in the winters 1995/96-1999/00). A population of Barnacle Geese (between 100 and 200 birds) frequents the islands during winter. Other species which occur in significant numbers include Great Northern Diver (14), Brent Goose (118), Shelduck (74), Wigeon (112), Teal (127), Mallard (64), Oystercatcher (250), Dunlin (450), Bar-tailed Godwit (73), Curlew (373), Redshank (172), Greenshank (10) and Turnstone (27) (all figures are average maxima for the winters 1995/95-1999/00). Species which breed in important numbers include Cormorant (115 pairs in 1985), Common Tern (20+ pairs in 2000/01), Arctic Tern (100+ pairs in 2000/01) and Little Tern (9 pairs in 2000). The various tern species, as well as Barnacle Goose, Great Northern Diver and Bar-tailed Godwit, are listed on Annex I of the E.U. Birds Directive.

The juxtaposition within Clew Bay of a wide variety of habitats, including seven listed on Annex I of the E.U. Habitats Directive, and the combination of important flora and fauna, including one Red Data Book plant and two mammals listed on Annex-II of the E.U. Habitats Directive, make this a site of considerable national and international importance.

25.10.2001

4 March 2004

Our Ref: DAU-G2003/794

Mr. Dermot Burke,
Project Manager,
TES Ltd.,
Block 4B,
Unit 5,
Blanchardstown Corporate Park,
Dublin 15.



Re: Proposed Sludge Hub Centre at Derrinnumera Landfill, Co. Mayo.

Dear Mr. Burke,

We refer again to your letter of 19 November 2003 with regard to the above scheme. Outlined below are the archaeological observations of the Heritage and Planning Division of the Department of Environment, Heritage and Local Government.

We recommend that topsoil stripping for the proposed development should be carried out as part of the overall programme of archaeological monitoring, associated with other developments at the site.

In addition, our nature conservation recommendations were forwarded to you on 19 January 2004.

Finally, this recommendation is based on the papers submitted to this Department on a pre-planning basis and is made without prejudice to any decision the Minister may take upon sight of a formal application or the submission of an Environmental Impact Statement.

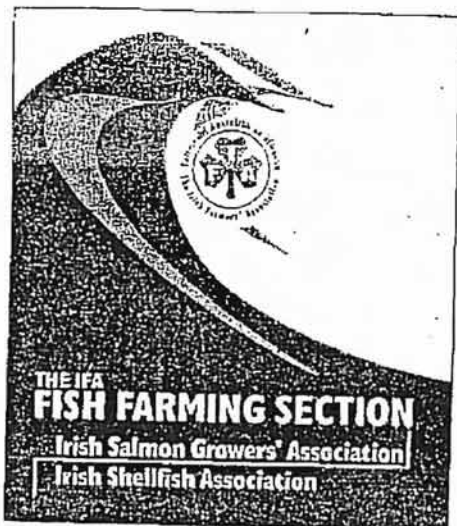
I trust the above is of assistance to you.

Yours sincerely,


Treasa Langford
Development Applications Unit

TOBIN CONSULTING ENGINEERS CASTLEBAR		
PROJECT NO.		
FILE REF:		
Date Received	- 8 MAR 2004	
PASS TO	ACTION BY	DATE





THE IFA FISH FARMING SECTION

Incorporating
The Irish Salmon Growers' Association
The Irish Shellfish Association

Irish Farmers' Association
Irish Farm Centre, Bluebell, Dublin 12.
Telephone: (01) 4500266
Fax: (01) 4551043
E-Mail: richieflynn@ifa.ie
Web: www.ifa.ie

April 5th, 2004

Mr F Chambers MCC
Chairman Mayo Co Co

Mr D Mahon
County Manager

Mr J Beirne
Director of Services & Co Engineer

Mr P Connors
SEO Capital Works

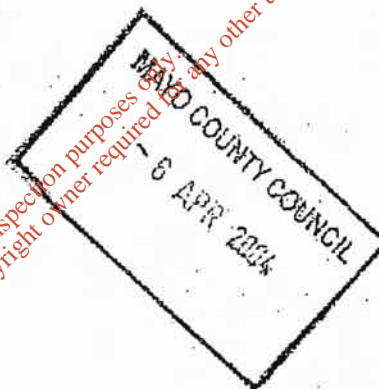
Mayo County Council,
Aras an Chontae,
Castlebar,
Co. Mayo.

Dear Sirs,

The Irish Shellfish Association, which represents the interests of Ireland's €40million farmed shellfish industry, wishes to oppose in the strongest possible terms the proposal by Mayo County Council to dispose of leachate from Derrinumerra landfill into Clew Bay at either Newport or Westport. We oppose this proposal on the following grounds:-

- This disposal poses an unacceptable risk to our members' shellfish stocks and businesses in Clew Bay,
- It creates a totally unacceptable risk to human health from the consumption of shellfish reared or collected downstream of such disposal;
- It fails to recognise the protection afforded to the Bay and its shellfish stocks under the EU Directive EC 79/923 Protection of Shellfish Waters and S.I. 200/1994
- Consultation with local industry has been totally inadequate, despite the fact that Mayo County Council recognizes both the Clew Bay Marine Forum and the CLAMS group in the bay.
- The current practice of disposal of the untreated leachate into sewage works is also unacceptable; sewage or wastewater treatment plants are not acceptable methods for the treatment of such toxic wastes.

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Shellfish farming and harvesting in Clew Bay produce 540 tonnes of oysters, 10 tonnes of native oysters and 400 tonnes of mussels annually, worth approximately € 1,500,000 to the local economy. These local, indigenous businesses depend on pristine waters for the quality and safety of the shellfish they produce. The proposal to dispose of treated leachate from a landfill into Newport Bay is unacceptable given that the local sewage system already has problems dealing with its current loading as evidenced by the recent downgrading by the Department of Communications, Marine & Natural Resources of inner Newport bay to "B" classification.

Equally unacceptable is any proposal to put the leachate through the Westport sewerage system due to the fact that it is unproven in its ability to treat this material and the fact that it also threatens to put our members out of business and destroy the good name of seafood produced in the nearby Murrisk area.

The provision of a wastewater treatment plant for Newport is to be welcomed and this should significantly improve water quality in the area, leading to an upgrading of the classification. Such an improvement in water quality is also a requirement under the EU Water Framework Directive for Transitional and Coastal Waters. The linking of the leachate disposal with the outfall from the WWTP in Newport is unacceptable and the provision of the WWTP should proceed independently of the inclusion of the leachate.

Clew Bay has been designated as an area for the special protection and monitoring of water quality for shellfish under Statutory Instrument 200 of 1994 which grants the bay protection under the 1979 Protection of Shellfish Waters Directive (EC79/923). You may be aware that this Association has recently won its first case in the European Court of Justice against the Irish Government for its failure to protect shellfish waters designated under EC79/923 from contamination. Mayo County Council must also respect this legal protection or face heavy fines from the Commission in turn.

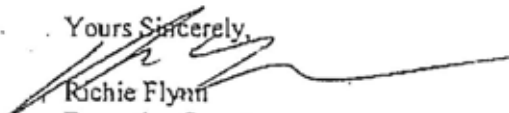
The Irish Shellfish Association insists that Mayo County Council immediately halts all plans to threaten our members' livelihoods and the health of the general public by the inappropriate disposal of leachate.

The Association is calling for a review of the Council's proposals in light of the '79 Directive, which will lead to a situation where no leachate is pumped into Clew Bay under any circumstances unless it can be independently shown that it poses no threat to those who consume shellfish or to the quality of water generally or to the livelihoods of those who make their living from farming and harvesting shellfish from Clew Bay. In addition to this independent risk assessment, there would also have to be put in place:

- An assessment of the leachate relative to the provisions of Directives EC 93/43 and EC 79/923 dealing with shellfish hygiene and the quality of shellfish waters.
- An assessment of the leachate against 'the list of priority chemicals and the list of other relevant pollutants' contained in the Water framework Directive.
- Provision of an agreed contingency plan in the event of leakage or other accidents.
- Agreed procedures for monitoring and immediate compensation to the shellfish industry in the bay (including consequential loss and loss of image in the marketplace) in the event of damage,

and any other steps which will need to be taken to protect our members. Until such time as these issues have been discussed and agreed with the Association and our members, not one litre of leachate should be disposed of through either Newport or Westport sewerage systems.

Yours Sincerely,


Richie Flynn
Executive Secretary
Irish Shellfish Association

c.c.

Minister John Browne TD

Maeve Mc Hugh, Environmental Protection Agency

David Lyons, Food Safety Authority of Ireland

~~Micheal O'Connell, Marine Institute~~

Dr Terence O'Carroll, BLM

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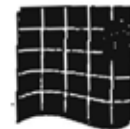
Mr. Joe Beirne,
Director of Services/ Co Engineer,
Mayo County Council,
The Mall,
Castlebar,
County Mayo.



Marine Institut
Furnac
Newport
Co. Mayo

telephone 353 98 42301
facsimile 353 98 42340
email newport.reception@marine.it
website www.marine.it

Cc Mr. D. McMahon
Dr. P. Heffernan



Marine Institute
Foras na Mara

10th June, 2004

Re: Newport Waste Water Treatment Plant

Marine Institute
Galway Technology Park
Parkmore
Galway

telephone 353 91 730 400
facsimile 353 91 730 470

Dear Mr. Beirne,

Firstly may I thank you and your colleagues for inviting us to meet you to discuss progress on the plans for the Newport Waste Water Treatment Plant and the treatment of leachate from Derrinnumera Dump. Attached are a number of questions not raised by us at this initial meeting due to time constraints. Also included are a number of additional issues that we feel should be included in the EIS.

Marine Institute
80 Harcourt Street
Dublin 2

telephone 353 1 476 6500
facsimile 353 1 478 4988

As you are aware, Clew Bay is a sensitive, complex and unique marine biotope which is afforded a range of protections under both national and international legislation. The Institute's primary concern in relation to the proposed development is to achieve an improvement in water quality in the Newport Bay area, through the construction of the WWTP and to avoid, at all costs, any reduction in water quality or damage to the aquatic environment, through the relocation of the effluent discharge from Newport to Burrishoole. The EU Directives are in place to guard against such eventualities.

Marine Institute
Snugboro Road
Abbotstown
Dublin 15

telephone 353 1 822 8200
facsimile 353 1 820 5078

We would very much welcome an opportunity to continue our dialogue with you and your partners and look forward to being able to reach an agreed solution regarding these challenging issues.

Yours sincerely,

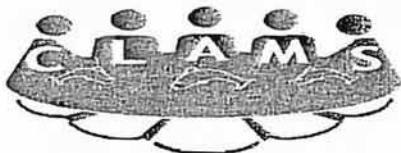
Dr. Russell Poole
Section Manager
Aquaculture & Catchment Management Services



CEA TO:
J. Doane, DCS
B. O'Reilly, SE
T. Doane, SEE
Paul Kelly
CEG, AHS



Bord Iascaigh Mhara
Irish Sea Fisheries Board



Marine Institute
Foras na Mara

Clew Bay CLAMS Group

C/o BIM Office
Carey Walsh Building
Georges Street
Newport
Co. Mayo

Phone/Fax: (098) 41477
Mobile: Mary Hannan (087) 2230602
hannan@bim.ie
Alan Drumm, MI Furnace (098) 41107
alan.drumm@marine.ie

6th July 2004

Mr. Pat Commons S.E.O.
Capital Works
Mayo County Council
Aras an Chontae
Castlebar
Co. Mayo.



Re: Proposed Development of Newport Waste Water Scheme and Derrinnumera Landfill Leachate Disposal

Dear Mr. Commons,

The Clew Bay CLAMS Group wish to thank Mayo County Council for the recent consultation meeting held on 26th May 2004 to discuss the preparation of Environmental Impact Statements for the proposed new Newport Sewerage Scheme and the Sludge Hub Centre and treatment of leachate at Derrinnumera Landfill. Given that there was a time constraint at the meeting, the Group would like the attached concerns and issues to be considered and included in the preparation of both the Newport EIS and Derrinnumera EIS that are being carried out by E.G. Pettit & Co. and P.J. Tobin & Co. Ltd. respectively.

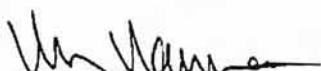
Aquaculture is an important industry in Clew Bay, involving the farming of finfish and shellfish species. The natural native flat oyster beds in Clew Bay, which are managed by the Clew Bay Oyster Co-operative Society Ltd., are of both national and international importance. As stated in earlier correspondence the Clew Bay CLAMS Group warmly welcomes the provision of a new waste water treatment plant and sewerage scheme for Newport but has grave concerns over the proposed disposal of the leachate from Derrinnumera Landfill into the waters of Newport Bay, including the interim disposal through the new treatment plant in Westport.

As you are aware S.I. No. 200 of 1994 Quality of Shellfish Waters Regulations (EU Directive 923 of 1979 The Quality required of Shellfish Waters) listed Clew Bay as an area of shellfish waters which is in need of protection or improvement in order to support shellfish life and growth. Mayo County Council must comply with the standards of these regulations and with the standards of the Dangerous Substances Regulations S.I. 12 of 2001.

The Clew Bay CLAMS Group look forward to further consultation and co-operation on this matter.

Thanking you

Yours sincerely


Mr. James Ryan, Chairman
Clew Bay CLAMS Group

Cc: E.G. Pettit & Co., Tobin Consulting Engineers, Clew Bay Marine Forum; Clew Bay Oyster Co-operative, Marine Institute Furnace.



Bord Iascaigh Mhara
Irish Sea Fisheries Board



Marine Institute
Foras na Mara

Clew Bay CLAMS Group

C/o BIM Office
Carey Walsh Building
Georges Street
Newport
Co. Mayo

Phone/Fax: (098) 41477
Mobile: Mary Hannan (087) 2230602
hannan@bim.ie
Alan Drumm, MI Furnace (098) 41107
alan.drumm@marine.ie

Date: 6th July 2004

Concerns and Questions regarding the:-

- a) Sludge Hub Centre and Marine Discharge of Treated Leachate from Derrinumera Landfill into Clew Bay.
- b) Proposed new Waste Water Treatment Plant (WWTP) in Newport and combined outfall pipe from Derrinumera and Newport WWTP.

a) **EIS - Sludge Hub Centre and Leachate Treatment Plant, Derrinumera Landfill Newport and disposal into Newport Bay.**

- The EIS should look at the Best Available Technologies available for the treatment of leachate not only in Europe but also in the USA, Canada and other parts of the world to comply with the standards set down in EU and Irish regulations – Quality of Shellfish Waters Regulations S.I. No. 200 of 1994; Dangerous Substances Regulations S.I. 12 of 2001; etc.
- In evaluating available leachate treatment systems the EIS should take into account Derrinumera Landfill site-specific conditions such as rainfall levels over the past 20 year.
- The composition and quantity of leachate is subject to seasonal, and even daily fluctuations, which significantly impacts the design of leachate treatment plants. PH greatly influences the chemical solubility of certain materials. The solubility of many metals increases as pH increases.
- A full analysis of the Derrinumera leachate should be carried out. The CLAMS Group and others are particularly concerned about the possible inclusion in leachate of bacterial and viral contaminants, toxins, dioxins, heavy metals, PCBs and endocrine disrupters. It will be necessary to determine the chemical and physical characteristics of the leachate and predict variations in leachate characteristics over time when selecting the method or methods of treatment. Leachate characteristics and treatability may be affected by landfill expansion and by final closure of cells. Consequently any planned treatment systems should be highly adaptable to accommodate variable chemical and hydraulic loading.
- The EIS should address the annual mass emission per year for many of the substances found in leachate such as metals, PCBs, etc.
- Preferred treatment methods are those that reduce the contaminants in the leachate rather than transferring the environmental problem to another medium.
- The levels of faecal and total coliforms listed on the lab results for the leachate at Derrinumera and for the treated wastewater results at the Castlebar WWTP show very high maximum levels which are unacceptable for discharge into shellfish waters (ref: Tobins Consulting Engineers lab results presented at consultation meeting 26/6/04 - draft table 1A & 1B – Job No. 1134) . How is it that Mayo County Council are improving the water quality in Newport Bay by the installation of the new sewerage scheme

- in Newport but on the other hand they will be reducing water quality with the disposal of treated leachate with high levels of coliforms which may also contain viral contaminants?.
- The lab results for Derrinnumera untreated leachate and for the treated wastewater at Castlebar also showed very high levels for BOD, COD, Suspended Solids, all above the wastewater treatment standards.
 - In selecting a treatment system Mayo County Council should base the decision upon treatability studies either in an approved laboratory or pilot scale using the actual leachate from Derrinnumera Landfill. Leachate may not behave like other wastewaters and its compositions vary with age of landfill, thus affecting design and operating criteria (e.g. chemical dosage requirements). The EIS should cover future plans for Derrinnumera Landfill and of the proposed Sludge Hub Centre.
 - Detailed contingency plans and back up systems for leachate control and its treatment should be put in place, to rule out the possibility of any seepage or discharge of any untreated leachate to local groundwaters, to local freshwater rivers and/or to the marine environment of Clew Bay.
 - The Leachate from Derrinnumera Dump must be rendered as clean as best current technology permits before dispatch from Derrinnumera Landfill to either Westport or Newport. Further cleaning of the leachate by filtration and active chemical treatment must take place at Derrinnumera and the material must be removed from the leachate before dispatch and remain in a closed waste cell at the Derrinnumera site.
 - Monitoring of the leachate, identifying all constituents must be carried out on an ongoing basis and must be thorough and transparent, with results being available to the public in particular the Clew Bay Marine Forum, the Clew Bay Oyster Co-operative and the Clew Bay CLAMS Group.

(b) EIS - Proposed new Waste Water Treatment Plant (WWTP) and Sewerage Scheme in Newport and combined outfall from Derrinnumera and Newport WWTP.

- It should be noted that with the initial scoping documents for the Newport WWTP did not mention the possible disposal of the leachate through the plant's outfall.
- Is the provision of the Newport sewerage scheme dependant on providing a discharge point for treated leachate from Derrinnumera Landfill?.
- Is the proposed combined outfall pipe at Rosmore required to give the dilution factor for the leachate by the wastewater from Newport WWTP ?.
- Concern has also been expressed that no U.V. treatment equipment is to be installed in the new Newport WWTP. As bacterial and viral contamination in shellfish poses a clear risk to human health the Group request that U.V. equipment be installed in the Newport plant to further reduce final concentrations of faecal coliforms and viruses in the discharge. The Group will request the Department of Communications, Marine & Natural Resources to include the installation of a UV treatment system in Newport WWTP as part of the conditions of the foreshore licence for the outfall pipe.
- Will the EIS investigate higher treatment methods for wastewater such as tertiary treatment systems, as Clew Bay is designated as an area for shellfish production?.
- Will the design of the new WWTP take into account future population growth over the next 20 years or more in the Newport area also taking into account new developments in the town such as the new hotel?.
- Will the new treatment plant have sufficient volume in the holding tanks to deal with storm overflows?.
- Will a system or a notification procedure be put in place by Mayo County Council to inform shellfish producers of storm overflows?.
- The EIS should address the number of storm overflows per year and look at the past 20 years rainfall records.
- Is there going to be a separate drainage system for runoffs from road / street for rainwater to reduce storm overflows through the proposed new Newport sewerage scheme ?.
- The present location for sewage outfall at Newport would be preferable due its distance from shellfish beds.
- From the lab results shown by Tobins Consultant Engineers at the consultation meeting 26/6/04 it appears that the levels of faecal and total coliforms in the leachate from Derrinnumera and in the treated wastewater at Castlebar WWTP are very high. The EIS should address the effective treatment of bacterial and viral

contaminants at Derrinnumera to ensure that there will be no deterioration in water quality in Newport Bay and Clew Bay given that there will be a new wastewater treatment plant in Newport.

- It should be noted that shellfish and seaweeds are “bio-accumulators” and take up and fix contaminants in their tissues for as long as the contaminants are present in the marine environment. There is a high risk that toxic contaminants from the leachate would accumulate in shellfish and seaweed and enter the human food chain and therefore result in them being unfit for human consumption. In addition there is a risk over time that contamination will affect growth and reproduction, and this is unacceptable to producers particularly the Clew Bay Oyster Co-operative.
- The EIS should take into account seasonal factors for flora and fauna, such as larval counts for the different shellfish and fish species including migratory species of fish and birds.
- EIS should include toxicity testing on marine species. Toxicity limits are equivalent to emission limit values for chemical and physical parameters.
- Baseline studies and a full environmental impact assessment of the receiving waters are required to establish current state of the marine environment before any effluent or leachate material is discharged. The EIA should assess and identify the potential risks to the marine environment from the discharge of leachate and that the marine environment will not be put at risk from any additional loadings from the effluent and leachate.

What procedures will be put in place to monitor the effects of both discharges?

- The Group is opposed to the proposal that leachate from Derrinnumera would be transported to the new treatment plant in Westport on a temporary basis until such time that the new plant in Newport is up and running and pipeline to it from landfill is complete. The disposal of leachate at Westport was not explored in the initial EIA and the plant was not designed to receive leachate. Further studies are necessary to ensure that the marine environment is not affected and that the S.I. No. 200/1994 is not contravened.

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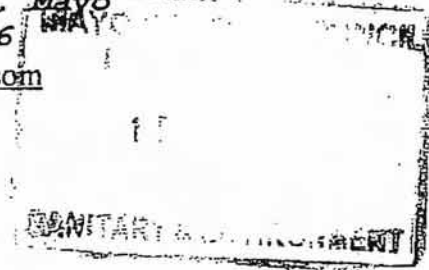


Clew Bay Marine Forum Ltd.

Knockbreaga, Newport, Co. Mayo

Tel/fax: (098) 41616

E-mail innishoo@hotmail.com



Mr. Pat Commons,
SEO, Capital Works,
Mayo County Council,
Aras an Chantae,
Castlebar,
Co. Mayo.

14th July 2004

Dear Sir,

Newport Sewerage Scheme and proposed Derrinumera Sludge Hub Centre & Landfill Leachate outflow to Newport Bay

The members of the Clew Bay Marine Forum (CBMF) wish to thank Mayo County Council for the May 26th consultation regarding the proposals for a sewage treatment plant in Newport and the proposals for an outflow of treated Leachate from the Landfill site and 'Sludge Hub Centre at Derrinumera. Unfortunately, time constraints made it difficult to discuss the proposals fully, so we have set out our comments and concerns below and we request that all of these be addressed in the EIS's under preparation for these proposals.

We are extremely concerned that the marine industries in Clew Bay will be adversely affected should these proposals go ahead. Whilst the provision of a WWTP in Newport offers some improvement to water quality, the treatment and discharge of leachate from the landfill and the sludge hub centre are separate proposals and threaten to reduce water quality considerably. Contrary to the benefits to be derived from the treatment of sewage currently being discharged in a raw state into the bay, the introduction of landfill and 'sludge hub centre' leachate treatment and discharge offers no benefits to human beings, flora and fauna, or in material assets to Newport's maritime activities. In fact, leachate discharge will reduce water quality in Newport Bay unless full treatment can be provided onsite at Derrinumera for bacterial, viral, chemical contaminants, endocrine disruptors and if applicable, radiological contamination.

Newport WWTP

CBMF welcomes the proposal for a sewage treatment plant in Newport due to the improvement to the water quality of Clew Bay. However the members would prefer the discharge, including the storm outflow to remain in its current position in Newport and for UV treatment to be installed and used and we will request the Dept of Communications, Marine & Natural

Resources to include UV treatment as part of the conditions for the foreshore license.

WWTP Discharge Location

Bacterial sampling and analysis currently being carried out in Newport estuary indicates that there is a considerable reduction in e-coli levels by the time the effluent from the local population reaches the native oyster beds closest to the existing discharge and we would expect that the WWTP should safeguard and improve this area's classification. However, discharge at the proposed site in Rosmore is too close to the oyster beds and poses an additional threat to Lough Furnace. It is clear from the Westport WWTP that depth of water / navigation is not an absolute requirement for a WWTP discharge. If depth is required for additional dilution of the landfill / sludge hub centre leachate, then a higher level of treatment than is currently being considered for this discharge is needed.

Chemical and heavy metal contamination

Chemical and heavy metal contamination in the food chain has become a global problem. The discharge into Newport Bays shellfish production area of landfill leachate carrying elevated levels of chemical and heavy metal contamination increases the risk of higher than background levels being present in shellfish and other produce. Dilution of bioaccumulative contaminants with waste water and after discharge may hide the pollution by transferring it to another medium, but it does not reduce the contamination risks to shellfish. Substances with the ability to bioaccumulate, such as heavy metals, PCB's, dioxins, furans, priority substances and other relevant pollutants must be identified and removed prior to discharge.

International Standards

Clew Bays produce is marketed primarily in mainland Europe, it is therefore imperative that the treatment of leachate conforms to the highest European expectations to prevent a reduction in market value and perception. There should be a full review of available treatments with a full assessment of alternatives worldwide with references to international examples of discharges to shellfish waters.

Sludge Hub Centre

The creation of a commercial sludge hub centre at Derrynumera, with sewage wastes imported from all of Mayo and other counties introduces many additional risks. Sewage wastes contain bacterial and viral contaminants. At present, classification is directly related to e-coli and faecal coliform levels in shellfish flesh and for 'A' classification must be lower than 230 e-coli or 300 faecal coliform per 100g. Indicative water levels of e-coli to achieve 'A' classification are less than 1 per 100ml. The proposal to discharge faecal coliform levels of 2000 per 100ml puts Clew Bay North in danger of being declassified to 'C' or worse still, unfit for shellfish production. The method of determining classification may change in the future with more emphasis on viral contamination. Since Newport already has areas that are struggling to conform to 'A' classification, it is essential that bacterial and viral contaminants are eradicated at the treatment works at Derrynumera. Shellfish production relies on pristine water quality,

without which expensive depuration is required to market produce. It is not reasonable to expect local people and businesses to pay the price of the commercial discharge of any additional levels of contamination from other areas and effective treatment must be put in place to protect local industry.

Endocrine Disruptors

Sewage wastes contain endocrine disruptors. Studies show that use of the female contraceptive pill is causing sewage wastes to contain high levels of female hormones. These hormones have been shown to have an effect on shellfish and fish reproduction in some cases causing sterility and even sex change. Oysters are particularly susceptible to the effects of these hormones and the reproductive cycles of the native oyster and other species will be put at risk, from the importation of sludge, if endocrine disruptors are unable to be removed prior to discharge.

Newly Emerging Contaminants

Recent studies show that sewage contains levels of PBDE chemical contaminants and levels of PBDE contamination are now being studied and recorded in fish. Whilst these chemicals are not yet on the banned list and are only one example, they are bioaccumulating in the food chain and are believed to possess endocrine disrupting abilities. It is imperative that the treatment facility in Derrynumera is sufficiently adaptive to remove these types of newly emerging contamination prior to discharge in Newport's food production area.

Hospital Wastes

Derrynumera Landfill operated as an unlicensed landfill from the 1970's and no records are available of what went into the dump during that period. Since Derrynumera is the closest landfill to Castlebar hospital, there is a strong possibility that the landfill received hospital wastes prior to the granting of the license. Since certain types of hospital wastes contain and emit radiological contamination, analysis is required to identify radiological contamination and if necessary steps should be taken to prevent access or radiation to the environment via the leachate.

Independent Risk Assessment

An extensive Risk Assessment should be carried out detailing a comprehensive profile of the current and expected chemical and physical characteristics of the leachate by reference to both domestic and internationally published data on leachates, giving detailed information outlining forecasting methods.

The Risk Assessment should describe the likely significant effects, direct and indirect, on the environment of each one of the chemicals identified in the above leachate profile explained by reference to its possible impact on:- All species of flora and fauna referred to in the SAC list for species, their food sources and all of the life stages of those species particularly the larval, juvenile and reproductive stages. The risk assessment should identify which contaminants may escape the treatment process and what their effects will be. If adequate information is not available in the published scientific literature then studies should be carried out including ecotoxicology testing on bivalve development & bioaccumulation to determine the risks that

particular contaminants, which may escape the treatment process, pose to human health.

Planning and Design

The capacity of the leachate treatment facility and lifespan of the landfill is of concern to the members since there are so many variables associated with the proposals. What is the anticipated lifespan of cell linings in the landfill and what long term plan is in place in the event of failure / expiration of the cell linings? It is crucial that there are no discharges of untreated leachate effluent and the planning phase should factor all of the variables into the design capacity to ensure that, population growth, 10 year storm events, additional landfill cells and climate change scenarios are scientifically assessed for a 20+ year life span. There should also be an emergency contingency plan in the event of overload with notification procedures laid out to prevent contaminated produce reaching the consumer. This plan should specify compensation measures agreed with producers and backed by an appropriate insurance bond, in the event of disruption to production, product contamination, market recall and loss of market image.

Monitoring and Review Procedures

The EIS's should address proposals to agree transparent procedures to monitor the discharge effects, the method of disposal of leachate solids and the estimated future flows of leachate. The EIS should include a detailed review of all the alternative technologies available for the disposal of leachate together with a Cost Benefit analysis of each. The EIS should also state what review procedures are proposed as scientific understanding grows and leachate treatment methods improve?

Treatment

Almost no information was available regarding the level of treatment that the leachate will receive. The EIS should incorporate a comprehensive description of the treatment technology and processes. We also request to be consulted in the decision making process on the effectiveness of primary, tertiary, polishing and additional chemical removal at extracting contaminants from the leachate to agree what is the most suitable treatment for this effluent.

Previous correspondence

As stated in our letter of 12th December 2002, CBMF remain strongly opposed to proposals to treat and discharge leachate in Westport WWTP as a temporary measure until the Derrinmera plant & pipeline is operational. This facility was not built for this type of treatment and we do not believe that this activity would conform to SI No. 200/1994 & the Quality of Shellfish Waters Directive. In that letter we urged the council to carry out an expert and independent assessment of the long-term effects that leachate discharge has had on the Castlebar River over the past 2-3 years, we would like to know if this work has been carried out and if so we request copies of the findings. We also expressed our surprise at the consultant's plans to conform to the wastewater treatment standards only after initial dilution. We do not believe that dilution is in itself a solution and are now even more concerned since it appears that our comments have been

disregarded. The consultants propose to use dilution to disguise the contamination levels of the leachate and that this is the main method of achieving discharge standards. We do not believe that this offers Newport's food production area sufficient protection and that it makes nonsense of the discharge standards. The EIS's should specify true values in the form of the total quantities of contaminants that will be discharged per annum over the anticipated lifespan of the facilities.

Further Comments

The treatment of the leachate will need to be of a uniquely high standard to achieve the requirements of The Quality of Shellfish Waters Regulations, under which Clew Bay is designated. The members recognise that a reasonable stance regarding this designation should be taken, but we feel that these proposals place too much emphasis on dilution and not enough on treatment and are a threat to our survival. Unfortunately, to date, consultation and follow up communication have failed to reassure and our concerns have increased. At this point it must be asked how reasonable is it to expect the sensitive food production waters in Newport and Clew Bay to withstand the deterioration in water quality that these proposals will cause?

At the International Conference on Molluscan Shellfish Safety held in Galway last month, no fewer than 27 presentations of papers from all over the world were given on:- the microbiological status of shellfish, shellfish viruses & pathogens and chemical contamination of shellfish. The studies agree that shellfish act as 'sentinel' bioindicators of water quality and many of them are looking at ways of detecting contaminants to prevent them reaching the table. Clew Bay shellfish are able to withstand Newport's relatively low levels of pollution and still produce a top quality product. After absorption of sewage and landfill contamination from all over Connaught, what quality of shellfish will Clew Bay export to European tables?

We would be grateful for the opportunity to discuss these points further at your earliest convenience and look forward to your reply.

Yours sincerely,



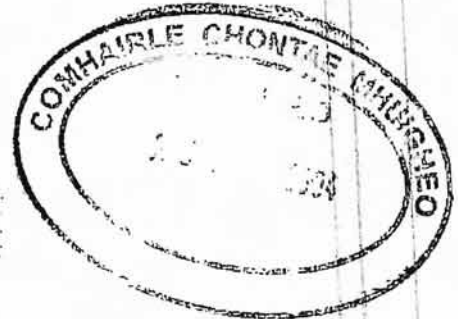
Niall O'Boyle.
CBMF Secretary.



CLEW BAY OYSTER Co-Operative Society Limited

THE QUAY, NEWPORT, COUNTY MAYO, IRELAND. (098) 41402.

Mr. Pat Commons,
SEO, Capital Works,
Mayo County Council,
Aras an Chontae,
Castlebar,
Co. Mayo.



25 AUG 2004

20th July, 2004.

Dear Sir,

Environmental Impact Studies for Derrinnumera Leachate Treatment and Sludge Hub Centre and Newport Waste Water Treatment Plant.

The Board of Directors of the Clew Bay Oyster Co-operative would like to thank the Mayo County Council's invitation to the meeting on May 26th, at which the Mayo County Council's proposals for the Newport Waste Water Treatment Plant, the Derrinnumera Leachate Treatment Plant, the Derrinnumera Sludge Hub Centre and the discharge pipe locations for these projects were discussed.

However, it is this Board's view that any Environmental Impact/Assessment Studies that precede the installation of any of the above projects that are commissioned by the Developer, Mayo County Council, must take into account the following items:

- **A full review of all legislation, both national and European, that has a bearing on the quality of both fresh water and marine ecosystems.** The Developer must demonstrate that the research into this legislation has been exhaustive.
- **The water leaving Derrinnumera must be cleaner than the water into which it is to be discharged.** The best available technology must be researched to ensure that any risks through bio-accumulation of toxins discharged into Clew Bay are eliminated by removal of all toxins at their source in Derrinnumera.
- **The Waste Water Treatment Plant in Newport must be equipped with UV or ozonation** to reduce the faecal coliform loading in the final effluent entering Clew Bay.
- **Alternative discharge points** need to be considered, and the reasoning behind the inclusion or exclusion of these alternative sites must be clearly and thoroughly demonstrated.



CLEW BAY OYSTER Co-Operative Society Limited

THE QUAY, NEWPORT, COUNTY MAYO, IRELAND. (098) 41402.

- Comparisons must be made with other countries faced with similar problems of effluent discharge into shellfish producing waters, and the best practice for Clew Bay be developed from this comparison.

I look forward to your reply, and an opportunity to discuss these matters further at your earliest convenience.

Yours sincerely,

bp Francis O'Donnell
Secretary.

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cc: Board Members,
B.I.M.
Clew Bay Marine Forum,
Marine Institute,
Cllr Frank Chambers, Newport.
Cllr Micheal Holmes, Tiernaur.

**MAYO COUNTY COUNCIL
RECEIVED**
21 APR 2005
ROADS & CAPITAL WORKS

PHILIP LEE
SOLICITORS

*J. Baines Dos
← C. Eng
for your attention
please
Ry Nohs D/CM*

*Cops to:
B. O'Riordan, SE
T. Davis, SEC
B. P. Kelly, ECANTSG.
S.M. Garrick, SP. J. H. 80*

MAYO COUNTY COUNCIL
21 APR 2005
Co. Manager's Office

*A. Connors
ALD. 05. 20 April 2005
22.*

**MAYO COUNTY COUNCIL
SANITARY ENGINEERS
21 APR 2005
RECEIVED**

The County Manager
Mayo County Council
Aras an Chontae
The Mall
Castlebar
County Mayo

Re *Clew Bay Oyster Co-Operative Limited*
Proposed waste water treatment plant at Newport Bay, County Mayo
Proposed sludge hub centre and leachate treatment plant at Derrinumera Landfill near Newport, County Mayo

Dear Sir,

We act for the Clew Bay Oyster Co-Operative Limited ("CBOC"). We refer to the above mentioned proposed developments and to previous correspondence and submissions by individual members of CBOC to Mayo County Council in relation to concerns regarding the potential impact of those proposed developments on water quality in Clew Bay, and in particular, on Newport Bay. Please note that our client has no objection in principle to the proposed development of the Newport waste water treatment plant, (which technically, is a separate proposed development), save insofar as it may adversely affect water quality in Clew Bay.

We have been advised that Mayo County Council is currently revising an Environmental Impact Statement ("EIS") for the proposed treatment plants at Derrinumera Landfill and may shortly submit the EIS to An Bord Pleanála for approval.

Mayo County Council is hereby put on notice that the relevant receiving waters in Newport Bay meet all of the criteria for designation as "Shellfish Waters" under Council Directive 79/923/EEC on the quality required of shellfish waters ("the Directive"). Newport Bay constitutes coastal and brackish water requiring protection or improvement in order to support shellfish life and growth and thus to contribute to the high quality of shellfish products directly edible by man¹. The European Court of Justice has held in proceedings *Commission v Italy*² that there is

¹ Article 1 of Council Directive 79/923/EEC
² C-225/96

PHILIP LEE

"nothing in the wording of the directive to support an interpretation which would allow Member States not to designate all shellfish waters; that would, moreover, be contrary to its purpose, which is the protection of the environment and the abolition of unequal conditions of competition... Nor is there any support in the wording of the [directive] for the argument... that [the directive] permits the designation of shellfish waters provided for therein to be gradual".

We believe that the Minister for Communications, Marine and Natural Resources ("the Minister") has no discretion to refuse to designate Newport Bay waters as Shellfish Waters under the Directive and is in breach of the Directive. Furthermore, as a direct result of complaints made by the Irish Shellfish Association, of which our client is a member, the European Commission has decided to issue infringement proceedings against Ireland for (a) failing to implement adequate pollution reduction programmes and (b) failing to designate adequate 'Shellfish Waters' for areas where shellfish culture takes place and requires protection. The Commission has formally warned Ireland twice, and Ireland has said that it would designate more shellfish waters. It has not done so. The Commission has also recognised that the Directive is directly effective against state bodies. Therefore, notwithstanding the Minister's failure to formally designate the waters as Shellfish Waters, Mayo County Council must treat the Newport Bay waters as Shellfish Waters in accordance with the Directive.

An EIS for either of the proposed developments which does not take into account our clients' previously notified concerns or the designation of the waters as 'Shellfish Waters' shall not be in compliance with the relevant EU legislation including the EIA Directive 85/337/EEC. The emission limit values required to be observed under the Directive must be respected in relation to waters which should have been designated under the Directive.

If Mayo County Council fails to take into account that Newport Bay constitutes 'Shellfish Waters' in an EIS for any development which may impact on the waters, this letter shall be relied upon in an application for our client's costs in respect of any legal action which may be taken to protect the quality of the "Shellfish Waters" in accordance with the Directive.

Whilst our clients do not object to the proposed Newport Waste Water Treatment Plant in principle, this letter should not be taken to indicate a waiver of our client's right to take action in respect of any contravention of the Directive through the existing discharge from Newport, or that the existing level of pollution in Newport Bay is acceptable. Our client is happy to meet with you to discuss the impact of this for your proposed developments.

A full submission will be sent to the Minister for Communications, Marine and Natural Resources and the Minister for the Environment, Heritage and Local Government on this issue of local and national importance within the next two - four weeks. Mayo County Council will be copied with this submission when it is made.

Yours faithfully,

Philip Lee Solicitors
PHILIP LEE SOLICITORS

PHILIP LEE

SOLICITORS

cc Law Agent, Mayo County Council

Minister for Communications, Marine and Natural Resources

Minister for the Environment, Heritage and Local Government

The Marine Institute

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Board 125A-911, 121001
Irish Sea Fisheries Board



Marine Institute
Foras na Mara

Clew Bay CLAMS Group

C/O BIM Office
Cary Walsh Building
Georges Street
Newport
Co. Mayo

Phone/Fax: (098) 21457
Mobile: Mary Hannan (087) 2230602
hannah@marine.ie
Alan Drumm, M. Furzace (087) 111107
alan.drumm@marine.ie

Mr. Brian Beckett
EcoServe
Unit 19B
KCR Industrial Estate
Kimmage
Dublin 12

19th November 2004

Re: EcoServe baseline aquatic ecological studies at Newport, Co. Mayo – assessments in relation to production of an EIS for the proposed Newport wastewater treatment plant (WWTP) discharge.

Bear Brian

Further to our recent meeting in the BIM Newport office, I am writing to you to convey the views of the Clew Bay CLAMS Group in relation to the proposed location of the combined outfall pipe for the Newport WWTP and the treated leachate from Derrinnumera Landfill.

As you are aware Clew Bay is under an Oyster Fishery Order that was granted to the Clew Bay Oyster Co-operative in 1979. In 1994 Clew Bay was designated as shellfish waters under the Quality of Shellfish Waters Regulations of 18 July 1994 (SI No 200 of 1994). Both areas covers the inner part of Clew Bay up to the high water mark. The Bay is also a candidate Special Area of Conservation under the Habitats Directive.

The Group welcomes the proposal for a new wastewater plant in Newport, as it will improve overall water quality by reducing human faecal coliforms and viral loading of the waters of Newport Bay and Clew Bay. However the Group have very grave concern regarding the disposal of leachate into Clew Bay. In addition the Group would question the location of the proposed combined outfall pipe, as it is closer to shellfish beds than the current location of the sewage outfall at Newport Quay. They feel that this proposed outfall will pose a greater threat in this ecologically sensitive area, to the shellfish and fish,

particularly in times of storm surges and when you take into account the volume and contents of the leachate from Derrinnumera Landfill. I have attached the last submission that was forwarded to Mayo County Council outlining the concerns of the Clew Bay CLAMS Group.

With regard to the EIS and the work that EcoServe is currently carrying out, the Group feel that the timescale you have been given for sampling is exceptionally short and inadequate given that it will only give you a brief early-winter ecological picture of the lower Burrishoole, Newport Bay and the inner Clew Bay area. As Mayo County Council itself regards the proposed outfall area to have a potentially significant environmental impact due to the very sensitive nature and international importance of the aquatic environment in the area, a more thorough EIS would seem more appropriate.

Yours sincerely



Mary Hanon
Co-liaison Officer
Clew Bay CLAMS Group.

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Marine Institute
Furnace
Newport
Co. Mayo

telephone 353 98 42300

facsimile 353 98 42340

email newport.reception@marine.ie

website www.marine.ie

Mr Brian Beckett,
EcoServe,
Unit 19B, KCR Industrial Estate,
Kimmage, Dublin 12

12th November 2004



Marine Institute
Farras na Mara

Re: *ECOSERVE baseline aquatic ecological studies at Newport, Co. Mayo – assessments in relation to production of an EIS for the proposed Newport waste water treatment plant discharge.*

Dear Mr. Beckett,

Further to your recent letter to Dr Poole and our brief phone conversation some weeks ago I am writing to confirm our views regarding the proposal to relocate the outfall of the Newport Sewage treatment works, including leachate from the Derrinnumera landfill, to the outflow from the Burrishoole system at Rosgibblin point.

As you are aware the Marine Institute, and formerly the Salmon Research Trust of Ireland Inc. and Salmon Research Agency of Ireland, has for the past 50 years operated fish census and biological research programmes in the Burrishoole catchment. Over the past 40 years the continuous monitoring of salmon, sea trout, and eel stocks has been fully quantitative and represents a unique data set of global importance. As a result, the Burrishoole system is regarded as a major European and in the case of Atlantic salmon, a world index site. The Burrishoole data are fundamental to international assessments of stock status for salmon, eel and sea trout as carried out by the International Council for Exploration of the Seas (ICES), the European Inland Fisheries Advisory Commission (EIFAC) and the North Atlantic Salmon Conservation Organisation (NASCO).

The unique habitats contained in the Burrishoole catchment, including its discharge zone into inner Clew Bay, enjoy a high level of protection under various EU Directives and under national legislation. For example the catchment is a Scientific Area of Conservation and its salmon stock is protected under the EU Habitats Directive. Clew Bay itself is designated under the Quality of Shellfish Waters Directive, Water Framework Directive for transitional and coastal waters, and is a candidate SAC. Lough Furnace is now listed as an ANNEX I Priority Habitat under the Habitats Directive, as one of the few permanently stratified (meromictic) lagoon lakes in Britain and

Marine Institute
Galway Technology Park
Parkmore
Galway

telephone 353 91 730 400

facsimile 353 91 730 470

Marine Institute
80 Hazenratt Street
Dublin 2

telephone 353 1 476 6500

facsimile 353 1 478 4988

Marine Institute
Snagburn Road
Abbotstown
Dublin 15

telephone 353 1 822 8200

facsimile 353 1 820 3078


Ireland. Other areas of Clew Bay are also listed as ANNEX I Priority Habitats.

The provision of a wastewater treatment plant for Newport is to be welcomed and will doubtless lead to an improvement in water quality in the Newport River. However, as previously discussed, we have serious concerns regarding the proposed relocation of the outfall from the existing Newport River discharge point to the proposed outfall point at Rosgibblin. We would argue that the discharge of the effluent in this ecologically sensitive area poses a major risk to the status of adjoining area of the bay, the Burrishoole estuary and Lough Furnace. We are particularly concerned regarding the proposed inclusion of effluent from the Derrinnumera dump site. Mayo County Council itself considers the marine outfall to have a potentially significant environmental impact due to the very sensitive nature and international importance of the aquatic environment in the area.

With regard to the EIS, which your company is currently carrying out, we are concerned that the timescale you have been given for sampling is extremely limited and will provide no more than a brief early-winter snapshot of the lower Burrishoole and inner Clew Bay areas. We suggest that a comprehensive EIS would require monitoring of a comprehensive range of tidal regimes and seasonal factors. It should also take into account the current status of a broad range of sensitive aquatic species such as: wild and cultured shellfish, wild and cultured finfish, lobster, shrimp and scallop fisheries.

Despite the above limitations we are anxious to work closely with you and to provide to EcoServe with as much background information as possible on the Burrishoole system. My colleague Dr Poole has forwarded to you, under separate cover, a comprehensive pack of relevant publications and reports. Should you require any additional information or clarification on data already provided, please do not hesitate to contact either myself or Dr Poole.

Yours sincerely,



Dr Ken Whelan,

Director,

Aquaculture & Catchment Management Services
Marine Institute
Newport