



Maritime Ireland / Wales
INTERREG 1994-1999

Clean Seas Project Harbour Survey Report (Ireland)

December 2001

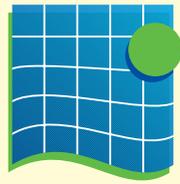


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Maritime (Ireland / Wales) INTERREG Programme- Building Bridges.

Maritime Ireland / Wales INTERREG 1994 – 1999

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Maritime Ireland/Wales INTERREG Report No. 10.

This project (Contract EU/557/14/001) is supported under Measure 1.3. Protection of the Marine and Coastal Environment of the Maritime (Ireland-Wales) INTERREG Programme (1994-1999) administered by the Marine Institute (Ireland) and the National Assembly for Wales and is part funded by the European Union's Regional Development Fund.

ISSN: 1393-9025

Maritime (Ireland/Wales) INTERREG Programme 1994 – 1999

The EU Maritime (Ireland/Wales) INTERREG II Programme (1994-1999) was established to:

1. promote the creation and development of networks of co-operation across the common maritime border.
2. assist the eligible border region of Wales and Ireland to overcome development problems which arise from its relative isolation within the European Union.

These aims are to be achieved through the upgrading of major transport and other economic linkages in a way that will benefit the constituent populations and in a manner compatible with the protection and sustainability of the environment. The Maritime INTERREG area includes the coastline counties of Meath, Dublin, Wicklow, Wexford and Waterford on the Irish side and Gwynedd, Ceredigion, Pembrokeshire and Carmarthenshire on the Welsh side and the sea area in between.

In order to achieve its strategic objectives the programme is divided into two Areas:

Sub-Programme 1: **Maritime Development:** transport, environment and related infrastructure (€59 million)

Sub-Programme 2: **General Economic Development:** Economic growth, tourism, culture, human resource development (€24.9 million)

The Marine and Coastal Environment Protection and Marine Emergency Planning Measure (1.3) has a total budget of €5.33 million of which €3.395 million is provided under the European Development Fund. EU aid rates are 75% (Ireland) and 50% (Wales).

The specific aims of Sub-Programme 1.3 are:

- to promote the transfer of information between the designated areas
- to establish an in-depth profile of marine/coastal areas for conservation of habitat/species
- to explore, survey, investigate, chart the marine resource to provide a management framework
- to develop an integrated coastal zone management system
- to improve marine environmental contacts and co-operation
- to promote the sustainable development of the region
- to improve nature conservation

Joint Working Group

The Joint Working Group, established to oversee the implementation of the Measure, consists of 5 Irish and 5 Welsh representatives.

Irish representation: Department of the Marine & Natural Resources, Department of the Environment & Local Government, Department of Transport, Energy & Communications, Local Authority and Marine Institute.

Welsh representation: National Assembly for Wales, Countryside Council for Wales, National Trust, Local Authority (Dyfed), Local Authority (Gwynedd).

This Report series is designed to provide information on the results of projects funded under Measure 1.3. Protection of the Marine & Coastal Environment and Marine Emergency Planning.

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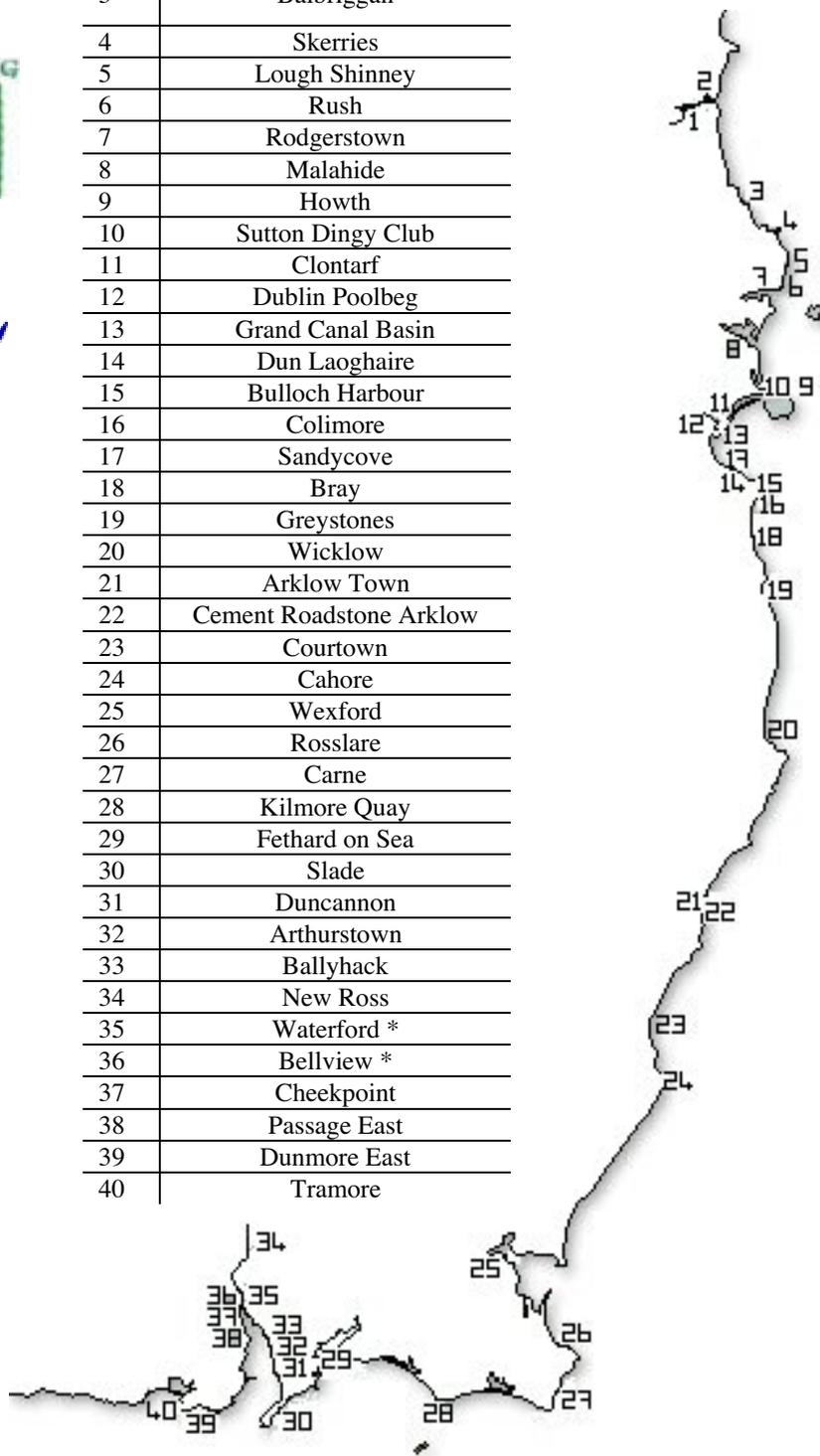
Map of Irish Survey Area Coastwatch INTERREG Harbour Survey Spring 2001

CLEAN SEAS



1	Drogheda Port
2	The Fishmeal factory
3	Balbriggan
4	Skerries
5	Lough Shinney
6	Rush
7	Rodgerstown
8	Malahide
9	Howth
10	Sutton Dingy Club
11	Clontarf
12	Dublin Poolbeg
13	Grand Canal Basin
14	Dun Laoghaire
15	Bulloch Harbour
16	Colimore
17	Sandycove
18	Bray
19	Greystones
20	Wicklow
21	Arklow Town
22	Cement Roadstone Arklow
23	Courtown
24	Cahore
25	Wexford
26	Rosslare
27	Carne
28	Kilmore Quay
29	Fethard on Sea
30	Slade
31	Duncannon
32	Arthurstown
33	Ballyhack
34	New Ross
35	Waterford *
36	Bellview *
37	Cheekpoint
38	Passage East
39	Dunmore East
40	Tramore

* Harbours not surveyed



1. Introduction: INTERREG Clean Seas Project

The aims of this EU co-funded INTERREG project were to help minimise waste discharge and loss from boats and harbours into the sea and to improve waste management practices in the Maritime INTERREG-IIA area.

The project relied mainly on awareness raising work, including gathering and providing information on the level of littering, oil pollution and waste disposal methods, legislation and best practise. The partners - **Keep Wales Tidy** and **Coastwatch Ireland** - instigated and participated in clean up action and helped install model waste reception facilities.

Harbours in Wales and Ireland were visited by a Galway Hooker - the *Clionna na Toinne* - Coastwatch Ireland's "Green Boat". Joint boat events were supplemented by individual initiatives on both coasts. The present report covers the final Irish partner contribution to the project.

Method: Harbour Survey 2001

A detailed questionnaire was designed to 'waste- eco-audit' each harbour, building on the experience of a 1999 and 2000 survey carried out by local Coastwatch volunteers. After joint training, all harbours between Drogheda and Tramore were visited at least once by surveyors. Water quality samples were taken for lab analysis and other data gathered by inspection and asking users. Data gathered was transferred to computer spread-sheet.

Results:

A scoring method was devised on the lines of the Tidy Towns competition. Results of this first audit are presented here as scores out of 20 under the following headings:-

- Cleanliness of harbour and water (page 4)
- Waste management facilities (page 6)
- Information available to users (page 8)
- Nature and Care (page 10)
- General Management (page 12)
- Water Quality (page 14)

Water Quality was covered under Cleanliness, but has been given extra space due to the level of local interest.

As a visual aid, harbours were then ranked from best to worst in each section. For colour coded maps of the harbours see Figure 1.

For more detail on the survey, including the questionnaire used please check our website : <http://www.coastwatcheurope.org/>

The Highest Scoring Harbours in each category were:

- Clean water and shore: *Kilmore Quay, Co. Wexford and Dun Laoghaire Harbour.*
- Top water quality was recorded in: *Fethard on Sea, Co. Wexford; Grand Canal Basin in Dublin and Dun Laoghaire Harbour.*
- Waste Management Facilities: *Dunmore East, Co. Waterford.*
- Information for users: *Dunmore East and Kilmore Quay.*
- General Management and State of Repair: *Dun Laoghaire, Kilmore Quay, Dunmore East and Courtown, Co. Wexford.*
- Care for Nature: *Dunmore East.*

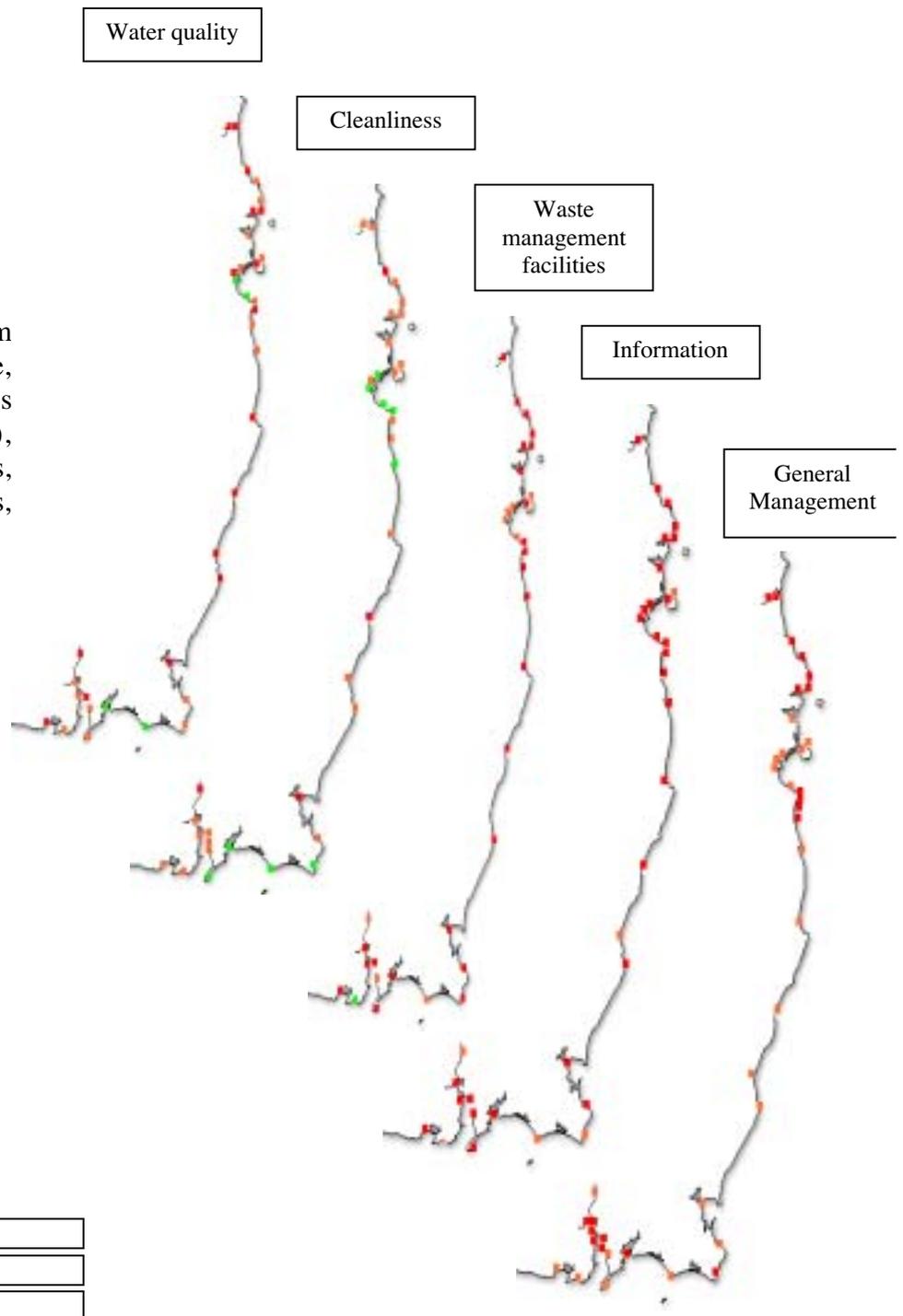


Key Issues for follow up:

- Fifteen of the 36 harbours surveyed on the S. Irish Sea are situated in areas of designated for Nature protection. Most others are close to such a site, or one of national importance. Extra care should be taken in these areas. Yet information and guidance were totally lacking.
- More could be done to avoid waste building up in corners, diffuse littering and oil getting into water. This requires waste management plans drawn up with the users, as well as a harbour master or equivalent to monitor and enforce.
- Waste reception facilities are totally inadequate in most harbours. This invites seafarers to dump, or to decide on self-help like burning mixed waste.
- Aside from waste management and information needs, two issues stood out in our survey: the dependence on voluntary work, especially providing emergency services and the need for a coastal zone management frame in harbour areas.

INTERREG Clean Seas Harbour Survey 2001

Figure 1.
The S.E. coast of Ireland from Drogheda down to Tramore, judged by cleanliness (including water quality), waste management facilities, information available to users, and general management.



For harbour names see "Map of Irish Survey Area".

Coastwatch unannounced harbour survey
See www.coastwatcheurope.org for more details.

2. Clean Water and Shore

Four headings for cleanliness were used:

- Oil pollution on land, on water, or the intertidal
- Solid waste – again by area
- Inflows into the harbour area and their function (sewage discharge, river, storm water overflow)
- Water quality of harbour and inflow(s).

The scoring was weighted towards oil and sewage pollution, as these tend to have more serious consequences than solid waste left lying around or littering. In a repeat survey this could be dealt with by giving a separate solid waste and litter management score.

2.1 Oil

Oil spreads thinly on water, making it almost inevitable that a few small patches would be encountered in a busy harbour. These were ignored by our surveyors. On land oil will soak quickly into the ground, so care was taken when examining land.

Best

No oil was seen on the shore, intertidal area or sea in the following harbours when visited: Tramore, Fethard on Sea, Carne, Greystones, Clontarf, Rush, Rodgerstown, Sutton, Dun Laoghaire, Colimore, Courtown, Cahore, Slade and Duncannon.

In contrast, Ballbriggan, Skerries, Howth, Lough Shinny and Dunmore East all had several areas suffering oil pollution at time of visit. The worst conditions were seen at the fishmeal factory in Co Meath, where apart from oil dumped in corners, an outhouse was filled with layers of old oil and rubbish. Another ongoing problem was at the Shell station in Dunmore East Harbour.

Inadequate oil reception facility – e.g. free standing barrel – appeared to give rise to oil pollution in the surrounding area – e.g. Howth and Rosslare (in front of the repair yard). In Wexford Harbour, some dump oil into waste ground beside the new North side pier – an area from where it will no doubt escape back into the sea in time.

Oil in water is more often associated with badly tuned bilge water pumps. Such harbours stand out as ‘Limpet deserts’, as these Chinese hats cannot hold onto harbour walls if these are covered in a film of oil on the receding tide.

2.2. Solid Waste

Forgotten boats and furnishings, nets not used for a decade and general litter tend to fill corners. But the situation is improving remarkably in many harbours by combination of own initiative (e.g. Bulloch) litter warden (e.g. Tramore) and harbour master action (e.g. Arklow).

A worrying phenomenon is the ‘stuffed’ harbour, where construction and demolition waste, laced with other rubbish is used as infill. This mix is covered by earth every so often, or finished with tarmac. Of those checked, not a single infill had an EPA

license. As at times the local authority itself is responsible for dumping, it was not clear whether a C&D permit, as can be granted by local authorities, would apply.

Sadly many historic buildings, like ice houses and grain stores are host to rubbish, instead of a dignified use. This was seen in both small and large harbours.

<i>Harbour</i>	<i>Cleanliness (score out of 20)</i>
Dun Laoghaire	19.5
Kilmore Quay	18.5
Grand Canal Basin	17.5
Fethard on Sea	16.5
Bulloch Harbour	16
Slade	16
Greystones	15.5
Clontarf	15
Carne	15
Howth	14.5
Bray	14.5
Sutton dinghy club	13.5
Cahore	13.5
Duncannon	13.5
Rush	13
Wicklow Harbour	13
Rosslare	12
Lough Shinny	11.5
Tramore	11.5
Coliemore	11
Courtown	11
Skerries	11
Passage East	11
Malahide	10.5
Poolbeg	10.5
Cheekpoint	10.5
Dunmore East	10
Rodgerstown	10
Drogheda Port	9
Fishmeal Factory	9
Arthurstown	8.5
Ballyhack	8
New Ross	7.5
Arklow Harbour	7.5
Wexford town	7
Ballbriggan	6.5

*Table 1: Cleanliness scores for harbours, Coastwatch snap shot survey.
Shading for excellent and good (15 or more points) fair (>7.5 to 14.5) and poor (zero to 7.5)*

3. Waste Management Facilities

Facilities are still dismal in most harbours. Table 2 shows a huge gap between the comprehensive facilities in Dunmore East and the rest. Still among those with between 6 and 11 points there were fine local initiatives, which are listed in our waste facility inventory (Appendix 1) such as well maintained oil reception facilities in Duncannon.

Oil pollution kills organisms, taints fish and dirties gear. We have plenty of legislation to control disposal. Since last year, the Irish Sea has ‘Special Area’ status under the MARPOL Convention Annex 1. So strictest oil pollution prevention measures are to be taken. Yet, only 6 of the 36 harbours surveyed had good or reasonable oil reception facilities. Going down the coast these were – Arklow, Co Wicklow, Kilmore, New Ross and Duncannon in Co Wexford and Dunmore East in Co. Waterford. A few others had a barrel for waste oil, without a bund and black stained ground around them. These were not counted as oil reception facilities, but oil pollution hazards!

Recycling companies use mobile units to pump waste oil from large vessels. In Arklow this is augmented by oil reception facilities for small boat owners. Elsewhere boat owners have to find their own disposal means.

Directly related to oil is **oil filter disposal**. Only Dunmore East had a special filter collection facility. Dumping is widespread. Filters put into mixed waste bins, turn the entire content into a hazardous load for our unlined landfill sites.

There are many other **problem wastes** produced in Harbours and on boats, e.g. batteries and paint scrapings. The facilities to collect these safely were only found in Dunmore East.

Best Waste Collection Facilities

In **Dunmore East** diverse user groups came together to improve waste management. The initiative was backed by the Dept. of the Marine and Waterford County Council. Over the months all concerned agreed on facilities needed and general management. Possible reuse and recycling of materials was researched. The Department of the Marine underwrote the core facilities including oil, oil filters, paints and thinners, batteries and cradle bins for residual waste and also addressed defunct containers and other old waste.

The Fishermen’s Co-op acted as an information and meeting nucleus, also organising fish offal containers and a can bank for own staff. A glass and can recycling bank was installed by Waterford County Council and their Litter Warden started visiting. The end result – a harbour with model segregated waste reception facilities, which on re-survey 8 months later were well kept and used.

<i>Harbour</i>	<i>Waste management facilities (score out of 20)</i>
Dunmore East	20
Howth	11
Kilmore Quay	11
New Ross	10
Clontarf	10
Duncannon	9
Grand Canal Basin	8
Dun Laoghaire	8
Wicklow Harbour	7.5
Carne	7
Arklow Harbour	7
Courtown	6
Passage East	6
Poolbeg	5
Tramore	5
Greystones	4.5
Malahide	4
Sutton dinghy club	4
Rosslare	4
Wexford town	3.5
Drogheda Port	3
Skerries	3
Cahore	3
Slade	3
Rush	2
Bray	2
Ballyhack	2
Cheekpoint	2
Lough Shinny	1.5
Rodgerstown	1.5
Coliemore	1.5
Ballbriggan	1
Bulloch Harbour	1
Fethard on Sea	1
Fishmeal Factory	0
Arthurstown	0

Table 2: Waste management facilities, Coastwatch snapshot survey. Shading for good, fair and poor.

Several harbours had segregated waste facilities for **glass and cans** near by, with highest concentration in Co Wexford and Fingal County Council.

Toilets on land and sewage pump-out facilities for boats. The former existed in most harbours, the latter in none. It surprised us that there are harbours, used by crowds of people, advertised in our tourist literature with either no toilets, or ones so badly kept that nose pegs and wellies are in order. Bulloch Harbour is in a special “permanently locked” toilet category.

4. Information for Users

Designations, emergency plans and bylaws are little more than good intentions, if the people who use the harbours and their environments don't know about them. Our survey showed most people don't know and would have to be pretty determined to find out. Harbours are ranked by information available in or near by. For some harbours – like Poolbeg – there is almost no material, but the main Port of Dublin has a lot, including signs, bylaws, etc. raising the score.

Information was researched under the following headings:

- **Pollution contact numbers** were given in less than half the harbours. The harbour master's office and the Life-boat house were the usual positions. In Courtown Co Wexford, the information was well presented on the beach notice board beside the harbour.
- **Emergency plans** - Lifesaving information was very well presented in the majority of harbours - most as RNLi voluntary service. However Pollution emergency plans have only been finalised for one harbour – Dublin Port. So lack of information was due to lack of plans.
- **Waste reception information** was exceptionally poor. This reflects the lack of waste reception facilities, but also goes beyond it. In one large harbour the oil collection barrels are locked away in a yard with not a hint of a sign to guide would be users.
- Most harbours had no **bylaw information** posted up and knowledge as to existence of bylaws was difficult to come by. Well positioned signs were in Dun Laoghaire, Kilmore and Courtown, though in the latter the information needs to be clarified. (NB- enforcement of bylaws was judged under 'general management'.)
- Fine examples of **Interpretation signs** were seen. Most Wexford Harbours are on the 'Wexford Coastal Path' and signs show a map of the coast with a range of information especially historical. But are **designations** a taboo subject in harbours? While almost all of the harbours surveyed were in, or near a Nature site of European importance, this information was not displayed in a single harbour! In Malahide, for example, a glossy brochure covers lots about the area, without a mention of the estuary as designated SPA and SAC. **Historic Interpretation** was found in several harbours, in port literature– good example in Arklow Harbour Commissioner publication – on signs e.g. Lough Shinny, Ballyhack, and Fethard or sculptures/harbour furniture as in Poolbeg, Wexford and Carne.
- **Sewage pollution warnings** were seen in Courtown harbour only. Many more need it until their water quality is reliable.



Photo: Kilmore boat museum.

<i>Harbour</i>	<i>Information (score out of 20)</i>
Dunmore East	12
Kilmore Quay	12
Courtown	11
New Ross	10
Howth	9
Carne	9
Fethard on sea	6
Duncannon	6
Ballyhack	6
Poolbeg	6
Malahide	5.5
Lough Shinny	5
Dun Laoghaire	5
Bulloch harbour	5
Cahore	5
Arklow harbour	5
Wexford harbour	4
Cheekpoint	4
Passage East	4
Ringsend basin	3
Wicklow harbour	3
Rosslare	3
Drogheda port	2
Sutton	2
Clontarf	2
Slade	2
Skerries	1
Tramore	1
Balbriggan	1
Rush	1
Coliemore	1
Bray	1
Greystones	1
CRH harbour	0
Arthurstown	0
Drogheda Fishmeal Factory	0
Rogerstown	0

Table 3: Information for harbour users, Coastwatch snap shot survey. Scores out of twenty. Shading for good, fair and poor.

5. Nature and Care

Designations here cover: Special Areas of Conservation (SAC) under the Habitat Directive; Bird Directive SPAs; proposed NHAs under the new Wildlife Act; and sites due for NHA designation because of geological or fossil features.

SACs and SPAs are together referred to as 'European sites'. Of our 36 surveyed harbours, all but one (Greystones) are either in or within a mile of a designated site. Fifteen harbours are in, or directly adjacent to a 'European site' – that is one covered by the Habitat Directive (see Figure 2). Another seven harbours are within a mile of one.

Apart from the Wadden Sea Harbours of the North Sea, there are unlikely to be as many harbours in or near designated areas as in this band in the South East Irish sea. However the following must be noted:

1. Users don't generally know about the importance of their area.
2. These sites are designated on paper – Duchas has not published a single conservation plan. How protection functions is nebulous especially for the marine sites.
3. While farmers in designated areas have received increased REPS payments and incentives to encourage environment friendly measures, harbour users and management have nothing.

The Harbour where users showed most awareness, pride and care for their heritage was **Dunmore East**. Here Fishermen are even running annual Kittiwake nurseries for fledglings which have got into difficulties and all put up with the extra dirt created by the birds nesting all around the harbour.

Wildlife to Boast about

Plants and animals in and immediately around many of our harbours must be mentioned. While a full survey will hopefully be part of a follow up project, Coastwatchers were astounded by the richness in most harbours. Even in busy Dun Laoghaire harbour one can find limpets, several species of periwinkle and sea anemones tucked away beside the lifeboat house. What a symbol of quality!

In smaller harbours the wildlife observed was sometimes so outstanding that one would want to stop and watch – not survey. Lough Shinny, Skerries and Bulloch harbours are patrolled by seals, whose whiskers can be counted from the pier wall. Sutton Dinghy club has a panoramic view of Bull Island- UNESCO World Biosphere reserve- where on the tip, seals haul out.

In two harbours, king-fishers use the river end, while ducks form the more visitor friendly front line. In two others otters come down river into the harbour area. In Bray swans move casually between locals all winter. In Grand Canal Basin one can snorkel to observe the fish - almost like in a big clean pond.

Threats to nature...

Commonly observed problems in our harbours are likely to pose a threat to wildlife. These include, the dumping of construction and demolition waste on or near harbours and wetlands; and poor handling of oil and old paint (including TBT antifoulants) with consequent loss of sensitive species – e.g. in Howth and Arklow. From the Nature point of view the saddest scenes were on the Boyne where about a third of the intertidal protected area has been lost (some temporarily), and traditional users displaced due to Port expansion.

To tackle the weaknesses described, we need information, incentives for sustainable use of resources and harbour management that takes the local site peculiarities into account. Last, but not least, better enforcement of existing legislation is necessary, especially relating to waste management. Foreshore and planning acts should be prioritised.

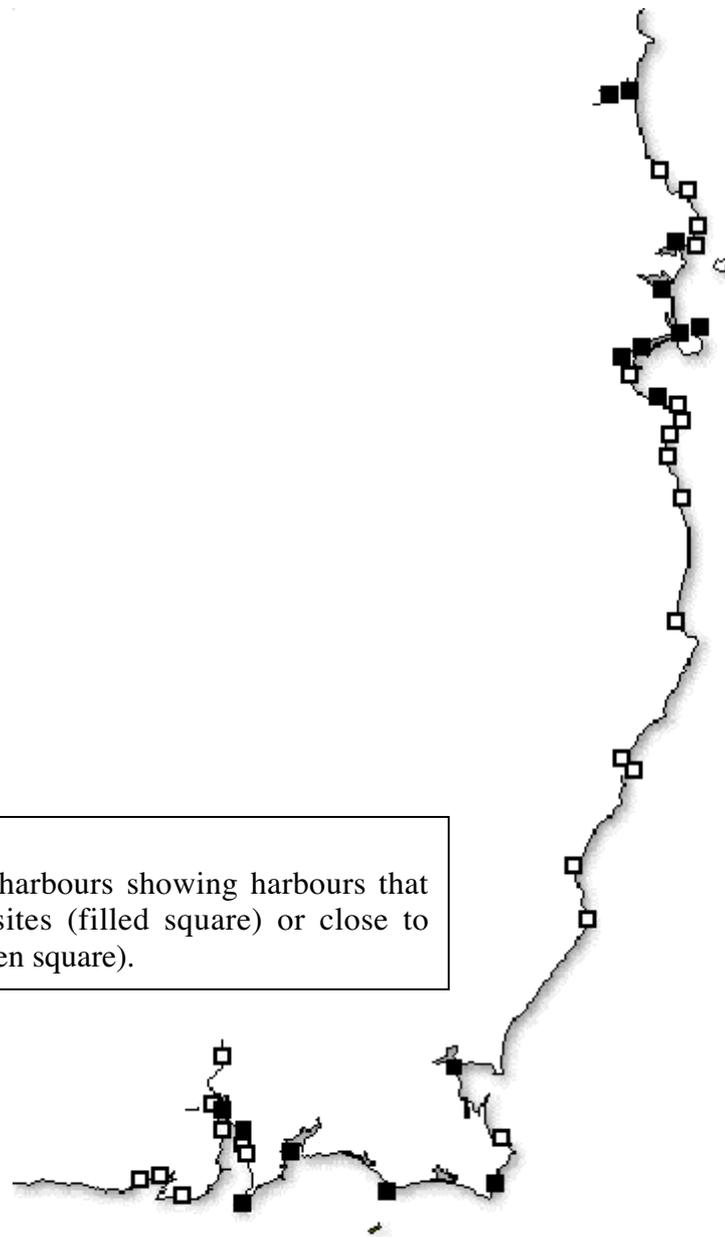


Figure 2.
Map of surveyed harbours showing harbours that are in European sites (filled square) or close to European sites (open square).

6. General Management

This section covers a range of management issues from bylaws and sewage treatment to emergency plans and Life-boats.

What struck surveyors most was the extent of local initiatives in the smaller harbours. Only Ports and some private facilities have full time harbour masters. The majority depend on individuals who all come and go at different times to somehow organise matters. It is a credit to the voluntary effort of users and Tidy Town Committees that many of our small harbours look welcoming, are painted, have rubbish control of some manner and have minor repairs undertaken.

Bylaws have been passed for perhaps 1/3 of the harbours. They are urgently needed in more, especially where jet-skis roam in important habitats and areas used by swimmers.

With regard to **Waste management**, 2 methods are used: – leaving rubbish on the quayside beside boats for the harbour staff pick collect (seen in Howth), or users bringing rubbish to the bins, or segregated collection facilities. The majority of harbours though have neither, and waste disposal or management happens as the individual sees fit.

Practice seen - moving down the waste ladder:

1. **Prevention** is hardest to track. It can be a sea farer changing over to boat grocery deliveries in boxes rather than in plastic bags. Plastic is easily lost overboard and poses a threat to turtles and sea mammals, who mistake it for jelly fish.
2. **Re-use:** Fish boxes are made of durable plastic and reused by owners and finders. The most innovative re-use initiative encountered was in Dave Crilly's Celtic Bait shop, where a bait container reuse scheme was introduced. For every 13 empty bait containers returned to the shop, one full one is given free. This tackles one source of sea angling litter head on.
3. **Recycling:** If one looks at material used in lobster and whelk pots as well as crab cages, one can see that own-initiative recycling is alive and well among fishermen. Apart from this, the picture is black! Only Dunmore East had certified hazardous waste collection (by Cara Waste Management, coupled with Atlas Oil) and thus as much recycling of this waste as is presently possible in Ireland.
4. **Incineration and disposal** are on the bottom of the waste ladder but by default they are most common. What a way to greet our visitors at the gate-ways to Ireland when they see the burning litter fires in harbours such as Rosslare and Bulloch. What a way to look after a wetland or attempt to stop erosion. This end of waste mismanagement needs urgent attention.

Crossing over between waste facilities and management, we encountered some innovative bin designs. One which could almost be classed as a work of art was the bin cage on Howth Pier. Of the commercially available models, lidded cradle bins on wheels, appeared most useful for seafarers, with the typical all-in-one covered street bin for visitors.

<i>Harbour</i>	<i>Score for general management</i>
Dun Laoghaire	11
Courtown	11
Kilmore quay	11
Dunmore east	11
Howth	10
Grand canal basin	10
Slade	10
Duncannon	10
Clontarf	10
Greystones	10
Arklow	10
New Ross	10
Cahore	9
Rosslare	9
Poolbeg	8
Wicklow	8
Wexford	8
Malahide	8
Sutton	8
Carne	7
Fethard on Sea	7
Cheekpoint	7
Passage East	7
Drogheda port	6
Skerries	6
Balbriggan	6
Bulloch harbour	6
Bray	6
Lough Shinny	3
Ballyhack	3
Arthurstown	3
Coliemore	3
Drogheda fishmeal fact.	2
Rush	2
Rogerstown	2

Table 4: Management scores for harbours.

Sewage treatment in harbours and hinterland is still a major problem. Scores were given if at least sewage was pumped into adequate primary treatment – such as Ringsend for Dun Laoghaire, Grand Canal Basin and Bulloch Harbour.

Life Boats on the other hand were present in the majority of harbours, with buildings and, where seen, equipment in beautiful condition – a real symbol of excellence in voluntary organisation.

Clean ups were seen both as part of Tidy Towns and - as in Bulloch Harbour – as user initiative. Step and **slip way** cleaning by scrubbing or power hosing, rather than chemicals – was noted as normal practice in Arklow, Sutton Dinghy Club and Tramore.

7. Water Quality in Harbours- part of Cleanliness section

Between April 4th and May 16th 2001, a team of trained Coastwatch surveyors carried out water quality tests on 36 Irish SE coast harbours to provide a first snapshot of faecal pollution levels in harbour waters and drains, streams, pipes flowing into or close to harbours. Each water sample was brought to the TCD laboratory and tested for two faecal pollution indicators – *E. coli* and **faecal streptococci**. Of the 110 water samples analysed, 83 were harbour water samples and 27 from accessible inflows.

Standards

Water quality standards should protect users. The EC Bathing Water Directive standards are now 22 years old and are considered too lenient. Water ‘crawling’ with faecal bacteria – as in say 1600 faecal coliforms per tea cup full (100 ml) – would still be in compliance with the Directive. This is set to change as the Directive is about to be revised.

The World Health Organisation (WHO) has carried out a comprehensive review of research on safety of recreational waters over the last 4 years and found that from a concentration of only ~100 faecal coliforms, or ~50 faecal streptococci per 100 ml of water, incident of user illness (like stomach upsets) rose significantly.

Table 5 gives the WHO as well as old and new proposed EC bathing water standards. For faecal coliform the standards are still being debated by both WHO and EU, as is the replacement of faecal coliforms by *E. coli*, considered a more accurate indicator of sewage pollution.

Table 5: Bathing and Recreational Water Standards

STANDARD in 100 ml of water	EC bathB Water Direct Imperat	National Limit Value NLV Ireland	EC Bathing Water G guide	Prop. new EC <i>E. coli</i>	Prop .WHO <i>E. coli</i>
Faecal Coliform	2000	1000	100	400	100
<i>faecal streptococci</i>	Non	200	100	50	50

Results by harbour

Water quality results for each harbour were converted into a score between 0 and 8, based on compliance with above standards. A score of 8 indicating excellent harbour water quality as well as excellent inflow water quality, with not one result breaching any present or proposed standard. The lower the score, the worse the quality. In the case of the four marked* the harbour water quality was excellent at the access points sampled, but inflow pollution reduced the harbour score.

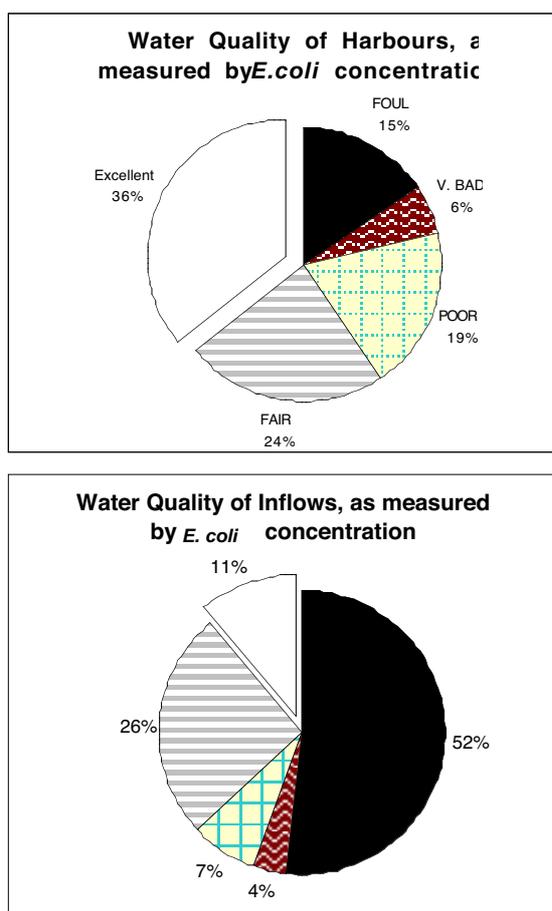
Figure 1 shows all harbours tested and a crude red, orange, green traffic light colouring to indicate water quality. The standards set in this scoring were strict. Green was only given when all samples were of excellent quality, breaching no present or proposed recreational (including bathing) water standard. The orange alert covers a range of minor and major breaches, while all ‘Reds’ except for Wicklow Harbour had poor harbour and inflow quality. In Wicklow harbour water was excellent in areas sampled, while the large piped inflow in the harbour was grossly polluted.

<i>Harbour</i>	<i>Water quality (score out of 8)</i>
Grand Canal Basin	8
Dun Laoghaire	8
Fethard on Sea	8
Kilmore Quay	7
Skerries	6
Howth	6
Bulloch Harbour	6
Greystones*	6
Carne	6
Slade*	6
Clontarf	5
Bray	5
Rosslare	5
Duncannon	5
Cheekpoint	5
Passage East	5
Dunmore East	5
Lough Shinny*	4.5
Malahide	4.5
Fishmeal Factory	3.5
Ballbriggan	3.5
Drogheda Port	3
Rush	3
Wicklow Harbour*	3
Sutton dinghy club	2.5
Rodgerstown	2
Ballyhack	2
Tramore	2
Courtown	1.5
Cahore	1.5
Wexford town	1.5
Poolbeg	1
Coliemore	1
Arklow Harbour	1
New Ross	1
Arthurstown	0

*Table 6: Water quality scores for harbours, Coastwatch snap shot survey. Scores out of eight. * Excellent harbour water quality results but inflows polluted.*

8. Water Quality Results overview

The two tests – faecal streptococci and *E. coli* - gave different results, with *E. coli* in higher concentrations and breaching standards more than twice as often. As in both cases the laboratory method used depends on growing actual colonies of bacteria (MF method) and some *E. coli* strains can themselves cause eye, nose and stomach ailments, let us take the *E. coli* results as the safer look at quality.



Graphs above compare results for harbour water tested (83 samples) and inflows (27 samples).

Excellent quality, which did not breach any existing or proposed recreational water standard, was found in 36% of harbours, but only 11% of inflows. Fair quality, but still in breach of EC guidelines, described one in 4 inflow as well as one in 4 harbour samples.

While 15% of harbour waters were grossly polluted, another 25% would be in breach of proposed new EC water quality standards. Foul water was encountered in more than half of inflow samples and another 11% would not make new EC standards.

Graph data expressed as % of samples breaching:

- EU Bathing water Directive Imperative (I) standards (Coastwatch label 'Foul')
- Irish National Limit Values (NLVs) (' V. Bad')
- Proposed EU recreational water standards (' Poor')
- EU Bathing Water Directive Guideline (G) and same value WHO standards ('Fair')

Labels "Foul" to "Excellent" applied by Coastwatch.

Conclusion

The snap shot water quality survey suggests that faecal pollution – generally of sewage origin – is a widespread problem in our harbours. Many harbours are used for storing shellfish and crustaceans while waiting for sale. Fishermen often have no choice where to land and come in contact with water – neither have life boat crews for both training and actual emergencies. Children's swimming classes are traditionally held in harbours in many areas. There is an upsurge in recreational activities in harbours and the government intends to foster this further.

The following are urgently needed:

- Regular water monitoring in harbours used for recreation or for storing fish and shellfish, to protect human health.
- Assemble monitoring data and health warnings where appropriate.
- Identification and then focussed tackling of pollution sources. Large sewage treatment plants will not solve the small inflow problems that can seriously pollute parts of enclosed harbours.

9. Appendices.

Appendix 1. Waste Management Database

Introduction.

Inventories of waste reception¹ facilities and management practice in harbours of the South Irish Sea were produced as part of the INTERREG Clean Seas project. Such inventories can serve as a guide to seafarers who wish to dispose of waste, can be used by authorities to compare notes on best practice and should – on the Irish side – aid the drawing up of harbour waste management plans².

The information on the waste reception facilities available was collected during harbour visits carried out on the Welsh side by the *Keep Wales Tidy Group* and on the Irish side by *Coastwatch Ireland*. Both inventories are now completed and reflect the status in spring 2001. As the legal situation and hence practice are quite different on both sides of the S. Irish Sea, the two inventories have a primarily national function at this stage and are therefore presented separately. However in 18 months, when the EU Port Waste Management Directive comes into force, a comprehensive whole Irish Sea approach should be undertaken.

This document covers 38 harbours on the Irish Republic side, from the Boyne river (Drogheda Port) to Tramore in County Waterford. For each harbour, a rough guide to size and users is followed by a review of present facilities and waste management practices. Short comments and recommendations provide a first flavour of impression gained on visits and needs identified by users. Sewage pollution is mentioned where appropriate, with cross reference to water quality research also included in this project and presented on the web at: www.coastwatcheurope.org/harbour/introduction.html

¹ Also known as waste *collection facilities*

² the new EU Port Waste Management Directive requires such plans to be in place by Dec 2002

Drogheda Port, Co. Louth

	Size: Large Regional Port and expanding
	Uses: Industrial/ Commercial Fishing Limited Rowing/ canoeing/ watersports

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	Yes- ship collection on demand (Atlas oil)		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	No		
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes- Drogheda Corp. individual industries in the harbour & Port Co.	Good	No. (Waste accumulating in parts of the harbour)
Toilets	Yes- public town toilets		
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention	No		
Clean ups	Yes, parts		
Other			

Comments:

The port is drawn out and expanding seawards along the estuary. For the INTERREG survey only the South side of the river was examined. This incorporates several defunct, or part used old buildings and fenced off sites. Waste management facilities were non-existent in publicly accessed areas and dumped materials could be seen in closed off parts. The largest waste management experiment in any harbour is found here, as over one million cu m dredge spoil have been placed on intertidal mudflats (designated SPA) as interim storage area under license. Other areas of intertidal mudflat have been filled in with construction and demolition waste as well as soil.

Recommendations:

1. A full waste management plan for the Harbour should be prepared.
2. A good clean-up of the South side of the harbour including the old stores would provide a face-lift to this potentially beautiful harbour front.
3. Areas where unauthorised infill has taken place should be restored to intertidal mudflat.

Boyne Fishmeal Factory



Size: Very small

Pier used by 3 to 6 fishing trawlers. Adjacent coast used by many small traditional mussel fishermen (temporarily out of work while mussels have been dredged out for deepening harbour channel and new stocks awaited).

Uses:

Fishing/Shellfishing; Military; Rowing

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	No		
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	No		
Toilets	No		
Other	No		
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention	Yes	Mussel fishermen use most efficient / minimum waste method of fishing	
Clean ups	No		
Other	No		

Comments:

This stunningly situated quay is part of a disused factory the quay is still used by local trawlers and the army. The area beside the quay is a traditional shore launch for mussel fishermen using towing boats. The disused factory has become an attraction for graffiti artists as well as an illegal dump. This site exhibits the worst waste management seen anywhere in any harbour! Dumping and burning are regular occurrences. Oil and oil filters are dumped in an outhouse, layered metres deep with other waste.

Recommendations:

1. The area should be made safe, waste, including hazardous items, removed and the fence repaired giving fishermen access keys. This should prevent continuation of illegal dumping.
2. Simple waste facilities- closed skip and small bunded oil container – should be installed as an interim measure until a full plan for the site is made. If a responsible body cannot be identified then Meath County Council, as local authority looking after the area for planning purposes, should act.
3. This site would be an ideal location for a Marine Interpretation Centre for the Boyne estuary SAC and salmonid waters. Talks, demonstration of skills and fieldtrips by local fishermen, fisheries officers, environmental groups, historians etc. could be linked into such a facility.

Balbriggan, County Dublin

	<p>Size: Medium Currently 14 boats fishing out of the harbour and occasional visits from yachts. Razor boats increasing</p> <p>Uses: Fishing/Shellfishing Yacht club Rowing/canoeing/watersports Sea scouts</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	No		
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	No		
Toilets	Yes	Closed at	
		time of	
		visit	
Waste management initiatives			
Re-use/waste prevention	Yes/no	Details	
		Yes- Fishermen reuse and recycle materials for making lobster pots	
Clean ups	Yes-	occasional clean-ups organised by users	

Comments:

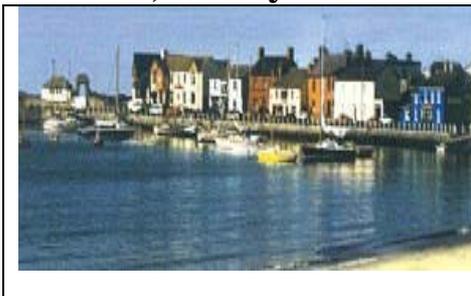
This most northerly of the County Dublin harbours is blessed with a main line rail station, which overlooks the harbour. The view though is of a harbour, where dumping of all sorts is common and waste management is not practised as responsibilities between Dublin Port (present master) and Fingal CC (future master) are considered. One part-time harbour master is covering this and Skerries Harbour.

At Balbriggan several defunct vessels, which may pose a hazard, are also receptacles for litter. Old fishing equipment is left around. Litter as well as large items, such as traffic cones and shopping trolleys, are dumped into the water and it appears that no one feels the urge to recover them. There are no facilities in the harbour itself for waste collection.

Recommendations:

1. Basic waste reception facilities are badly needed in this harbour as in most others in the Fingal County Council area. Facilities could be set up in each harbour, shared between two, or a mobile scheme servicing harbours from Skerries to Rogerstown could be tried.
2. Responsibility for waste management in the North Dublin harbours should be resolved.
3. Litter law monitoring and enforcement effort is needed to avoid trolleys etc. being thrown in for fun. If anyone caught was required to pick them out of the harbour mud, it might be a better deterrent than paying a fine.

Skerries, County Dublin

	<p>Size: Medium Up to 9 trawlers & 5 razor boats</p> <p>Uses: Fishing Shellfishing (prawn and razor) Yachts Rowing/canoeing/watersports</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	Close by	Good	Yes
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	No		
Toilets	Yes	Good	Yes
Other			
Waste management initiatives			
Re-use/waste prevention	Yes	Details Re-use of fish boxes, mending of nets for re-use, most lobster pots made of recycled materials	
Clean ups	Yes	On land. For harbour see below	

Comments:

The users of this harbour wanted to become a model waste management harbour like Dunmore East and put a huge effort into initial clean up and planning when our project started. Sadly the limbo position as to responsible authority prevented any waste management facility decision.

At time of visit the piers were quite clean and equipment such as lobster posts stacked tidily, although old oil bottles/drums and rusty equipment were dumped behind a container. There were many walkers in the harbour area as well as fishermen and other boat users, but no litter bins. Since the Coastwatch awareness raising meeting and a major clean up led by fishermen (Easter 2000), the intertidal has once more become dotted with rubbish. Litter was also present along the water. Fish offal problems in the harbour have been ongoing.

Recommendations:

1. Responsibility for waste management should be clarified and the law enforced. Basic waste reception facilities should be installed or a mobile waste scheme put in place.
2. Bins are needed immediately to cope with visitor's waste and fish offal.
3. Bearing in mind the number of cans seen, a can bank could be beneficial here.

Lough Shinny, County Dublin

	Size: Small 10 fishing boats all year round swelling to 13 in summer
	Uses: Fishing Shellfishing Yachts/ pleasure craft –very few Rowing/canoeing – occasional

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	No		
Fish Offal	Yes – 1 small skip but used for everything	No lid and overflowing	No
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes- one	OK	No- more needed
Toilets	Yes- in village	Closed	No
Other			
Waste management initiatives			
Re-use/waste prevention	No		
Clean ups			
Other			

Comments:

Lough Shinny is set into a beautiful landscape, with spectacular rock folding. There are tame resident seals and the intertidal is a good wader feeding area. A popular beach also merges into the harbour. However, waste management is appalling in this very valuable area. Sewage enters behind the harbour and into the beach. The harbour was strewn with small waste (net ends, fish heads etc.) and old engine parts on all three visits. One skip initially installed for fish offal is now used for all types of waste. Meanwhile fish offal is overflowing from a small crate onto the pier. Storage facilities for equipment and boat repairs are also inadequate.

Recommendations:

1. It is recommended that either waste reception facilities be installed at the harbour or an alternative mobile waste scheme be put in place.
2. Additionally responsibility for management, including waste management should be resolved as a matter of urgency.

Rush, County Dublin

	<p>Size: Small 1-3 fishing boats and occasional yachts</p> <p>Uses: Fishing incl. some razor shellfishing Yachts Rowing/canoeing/watersports</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium other)	No		
Fish Offal	Yes- just a box		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes- one bin	Good	No
Toilets	Yes, nearby	Good	Yes
Other			
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention	Yes	Re-use of fish boxes, mending of nets for re-use, most lobster pots made of recycled materials	
Clean ups	Yes	Occasional clean ups	

Comments:

This harbour is on a scenic shore road and lies in a beautiful area with many different marine habitats, including rock pools. The pier surface and intertidal were part clean part moderately littered on both visits. The solitary bin at the road end is not sufficient for this harbour. One of the houses opposite the harbour is disused and a likely source of the litter which blows across the street into the harbour water.

A layer of old sanitary material along the pier wall and shore (left after the last raw sewage overflow) seemed very objectionable on second visit, when this layer was at least 2 weeks old. A small open drain (highly contaminated) discharges at the harbour entrance and runs along the top slipway.

Recommendations:

1. It is recommended that either basic waste reception facilities be installed at the harbour or an alternative mobile waste scheme be put in place.
2. Sources of waste need to be tackled here, coupled with clean ups as needed.
3. Sewage problems should be addressed urgently- mains sewage and the small drain.

Rogerstown, County Dublin

	<p>Size: Very small A few trawlers and boats</p> <p>Uses: Fishing Yachts/ pleasure crafts</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	No		
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	No		
Toilets	No		
Other			
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention	No		
Clean ups			

Comments:

The harbour has one access and is sheltered in the Rogerstown estuary. The nearby Ballyhealy dump is often a source of rubbish blowing or floating into the harbour. At time of visit, there were abandoned cars near the harbour entrance. There are no waste management facilities at Rogerstown harbour.

This harbour is in a European designated site, so development is not likely to take place. Once Ballyhealy dump is closed, waste problems should decrease and it should become a most beautiful location.

Recommendations:

1. It is recommended that either basic water reception facilities be installed at the harbour or an alternative mobile waste scheme be put in place.
2. Future harbour uses which complement the high ecological value of the area (e.g. a marine interpretation boat) might be considered in conjunction with dump afterlife plans.

Malahide, County Dublin

 <p>(http://www.crestnicholsonmarinas.co.uk)</p>	<p>Size: Medium A new marina with over 300 berths</p> <p>Uses: Yachts/pleasure craft Sea scouts</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	Yes- nearby		
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	Yes	Good	Yes
Other			
Waste management initiatives		Yes/no	Details
Re-use/waste prevention			
Clean ups		None that we are aware of	
Other			

Comments:

There are no facilities in the marina for waste oil, paints/solvents or recyclable materials. There were several areas of water with oil/frothy scum and/or litter, both inside and outside the harbour at time of both visits.

Recommendations:

1. Small oil reception facilities with bund, or other suitable disposal, e.g. arrangement with a local garage. Since the marina is in a SAC, a notice should warn users to take extra care regarding oil.
2. Facility to deal with paint scrapings and a cradle bin for paints and solvents.
3. Recycling for drinks containers should be facilitated in the marina itself either in house or as part of local collections.
4. Marina information should note that extra diligence is needed in this European site as regards waste management on boats and in the marina.

Howth, County Dublin

	Size: Medium One of the primary fishing harbours on the East coast of Ireland, coupled with large marina and sailing club
	Uses: Fishing & Shellfishing (limited) Commercial non fishing included diving service Yachts/pleasure craft Sea scouts Tourist excursions

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	Yes	Poor	No
Oil filter & rags	Yes	Poor	No
Nets, ropes/equipment	Yes	Good	Yes
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	Yes- nearby		
Fish Offal	Yes- for cat food	Good	Yes
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	Yes	Good	Yes
Other	See comment		
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention	Lobster pots etc		
Clean ups	Yes regular		
Other	Special net surrounding bin on end of pier made of recycled materials		

Comments:

Howth harbour is a juggling act between a working harbour for fishermen, small port industry and ships, a marina and a major visitor attraction. Fishermen leave waste on the pier for collection by harbour staff. Theoretically this could be segregated but so far it isn't. Despite the free collection of waste, some dumping is occurring in corners and into the water. There was considerable oil on the water at all three visits. The harbour's oil reception facilities are locked away and are not bunded. The earth around the old oil containers is contaminated. The piers and landscaped grounds are clean and attractive (maintained by Howth harbour and Fingal CC staff). The marina has separate waste management and is very clean with in house waste reception.

Recommendations:

1. Upgrading of the oil reception, including bunds and facilities for oil filters and oily rags.
2. An urgent wake up call addressed to users to avoid oil pollution, check bilge pumps etc. followed by enforcement action if necessary.
3. This harbour is so large and busy that a full segregated solid waste facility system should be installed. This should be achieved by joint planning with all users and authorities.
4. Regular clean ups of the rocks on the outer harbour are needed, or a litter trap fitted.

Sutton Dingy Club, County Dublin



(<http://www.sdc.ie>)

Size: Very small
60 regular (small) sailing boats and several motorised emergency cover boats.

Uses:
Sailing club and lately sailing school

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	N/a		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	No		
Fish Offal	N/a		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	Yes- in club	Good	Yes
Other			
Waste management initiatives			
Re-use/waste prevention			
Clean ups	Yes- in club by staff. Also occasional clean ups of adjacent shore		
Other			

Comments:

Small private leisure facility, recently expanded into a sailing school, and tucked into the North Dublin Bay World Biosphere reserve. Waste is taken care of by the club and goes into wheely bins left out for County Council collection. There is very little oil produced since the only source is rescue boats and all other vessels are sailing boats. The club area and slipways were very clean on both visits, but the beach beside it, sometimes used by the club, has a frequent waste problem with marine litter dumped by the tides.

Recommendations:

1. As this club is in our only marine world biosphere reserve, the highest care must be taken. No paint should enter the sea and slipways should only be scrubbed (no chemicals used).
2. The sailing school attracts a lot of young people and it would be good to teach model waste management as part of the course.
3. Segregation of waste, particularly oils, paints and drinks containers, should be incorporated into the local recycling schemes (for example bottle bank at nearby church, oil in nearby garage).

Clontarf, County Dublin

	<p>Size: Small 50 sailing boats in summer</p> <p>Uses: Private sailing club situated overlooking Dublin Port and in Dublin Port area.</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	N/a		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	Yes	Good	Yes
Fish Offal	N/a		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	Yes	Good	Yes
Other			
Waste management initiatives		Yes/no	Details
Re-use/waste prevention			
Clean ups		Yes. Clean ups 4/year – skips brought in	
Other			

Comments:

Clontarf has a clean and well kept private sailing club. The Dublin Corporation Bring Centre nearby provides an outlet for most of the daily user waste- drinks containers, paper, etc, but does not deal with hazardous waste like paints and batteries. Some construction waste and rubble exists under the jetty, otherwise there is good maintenance and co-operation between the club and local authority.

Recommendations:

1. A recycling or disposal route for hazardous waste, especially paints/paint scrapings and batteries, should be found. The Bring Centre may be expanded or Dublin Port facilities used when they come on stream.
2. The area is part of a SPA and infill with construction waste is unsuitable.

Dublin Poolbeg, County Dublin

	<p>Size: Very small</p> <p>Uses: Yachts/ pleasure craft</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	No- but nearby		
Fish Offal	N/a		
Other segregated collection			
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	Yes – in club		
Other			
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention			
Clean ups			
Other			

Comments:

This small boat club was found to be generally clean and well maintained. Mostly litter tends to be made up of items washed down the river or out of Dublin Port.

Recommendations:

1. Users should be encouraged to use the excellent Dublin Corporation Bring Bank in Ringsend where waste, including drink containers and batteries may be brought.
2. Sewage pollution of the river, which presently impacts on the site, should improve dramatically once the new Dublin sewage treatment plant comes on stream. Meanwhile a warning to wash hands / avoid boat rope contact with open cuts etc. should be posted.

Grand Canal Docks, County Dublin



(<http://www.grandcanalharbour.com>)

Size: Medium – two basins

Approximately 40 boats of various sizes at dry dock.
Also other yacht and barge visitors

Uses:

Industrial/ Commercial – dry dock

Yachts/ pleasure craft

Watersports – diving and wind surfing centre

Tourist excursions – Viking boats go from road into and around basin

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	Yes		
Oil filter & rags	No		
Nets, ropes/equipment	N/a		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	Yes – nearby Dub. Corp Bring Centre		
Fish Offal	N/a		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes – 2 bins	OK	No
Toilets	Yes	Basic	?
Other	Yes- Skip	Bad- overflowing	No
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention			
Clean ups	Yes – By local groups including diving club		
Other			

Comments:

All waste facilities, down to the two bins, appear to be set up and managed by private/ business user initiatives, rather than organised by the authority – OPW Inland Waterways. Facilities for hazardous wastes such as paints are inadequate. On first visit the yard adjacent to the outer basin was very untidy, but improved remarkably later. Efforts by local business to keep waste under control are evident with clean ups both on shore and under water (including removal of a car last year from the water by the scuba club). In the inner basin one home-owner regularly cleans up water borne litter.

Recommendations:

1. Current oil reception facilities should be upgraded and banded.
2. More control is needed of paint scrapings and spillages, tarpaulin could be used to this end. Appropriate disposal of paint scrapings and solvents should also be ensured.
3. Responsibility for waste management should be clarified.
4. Pump out facilities for boat toilets should be introduced.
5. The impacts of the Viking Tours on water quality should be assessed.
6. The Water Ways Centre – staffed by those responsible for this Basin – could run litter projects highlighting the need to keep the water clean, and install a litter trap.

Dun Laoghaire, County Dublin

 <p>(http://www.spinaweb.ie)</p>	<p>Size: Large</p> <p>Uses: Major ferry port Fishing Industrial/Commercial Yachts/ pleasure craft - 5 clubs Sea scouts Rowing / canoeing / sailing classes Tourist excursions</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	Yes Also oil interceptors at certain places	Collection on demand (Atlas)	Yacht & motor club bring oil to local garages
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	Yes	Good	Yes
Fish Offal	No – to seals / pots		
Other segregated collection	Dog dirt bins all along the pier	Good	Yes
Other Facilities:			
Litter bins/skips			
Toilets	Yes, public in ferry terminal, others in clubs etc	Good	Yes
Other	Pump Out facilities for boat toilets		
Waste management initiatives			
Re-use/waste prevention	Yes/no	Details	
Clean ups	Yes – by harbour staff		
Other			

Comments:

The harbour water quality, which used to be very poor with sewage pollution and oily cover in corners, is now excellent and a showcase of what a busy harbour can achieve. However, there are no oil reception facilities for fishermen or the many motor boats. Their waste oil is taken to a local garage. New facilities are to be installed in the recently built marina. The weakest spot in the harbour regarding waste management lies on the industrial side behind the main sewage pumping station. Here O'Neil's Oil and the scrap yard pose a serious pollution hazard.

Recommendations:

1. Fully segregated waste facilities for all users installed and sign posted.
2. Signs to point harbour users to the can/bottle bank at the north end of the harbour.
3. Regular monitoring and posting of water quality results would be of real benefit to recreational users and tourists.

Sandycove, County Dublin

(http://www.dublin_local.ie)

Size: Very small
Primarily swimming and row boats

Uses:
Popular bathing spot
Rowing/ canoeing
Occasional fishing boat

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	N/a		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	No		
Fish Offal	N/a		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes		
Toilets	No		
Other	No		
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention	No		
Clean ups			
Other			

Comments:

This sanded-up harbour is a very popular bathing spot particularly for children. Beside it the Sea Scouts have a base with an old well-maintained boathouse. Diving and snorkelling are also popular activities. Just around the rock outcrops is the Forty-Foot, previously the site of a drowning accident when a good swimmer was entangled in lost monofilament net.

In summer high visitor pressure results in a lot of litter at Sandycove. Dog fouling is also a problem. The bins in place are not adequate and are not emptied regularly enough in summer.

Recommendations:

1. Better litter bins and more frequent litter collection.
2. Awareness / Litter bin location sign.
3. Posting of water quality monitoring results.

Bulloch Harbour, County Dublin


Size: Small

4 fishing boats all year round, but fills up totally in summer with boats and yachts.

Uses:

Fishing – including lobster and crab fishing

Yachts/pleasure craft

Watersports –diving, canoeing, sailing

Tourist excursions to Dalkey Island and around the bay

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	No		
Fish Offal	Yes open fish boxes	Not ideal	No
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes one	OK	No
Toilets	Yes- present in CC pumping station, but locked permanently	Unavailable	Would be but closed
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention	Yes	Some nets etc recycled in lobster pots	
Clean ups	Yes	Fishermen/youth groups	
Other	Yes	Mixed waste gathered is burnt on the rocks	

Comments:

The fishermen at Bulloch have one barrel outside their hut functioning as a bin and catering for all harbour waste. In summer Dun Laoghaire Council may provide bins to cater for tourists. Waste is collected from the road once a week. Oil can be brought to Dun Laoghaire Corporation yard 2km away. Daily waste is collected by fishermen and either kept for the weekly collection, or burned on the rocks in the harbour. There are pristine new toilets in the pump house just behind the harbour, but there is no access to these and harbour users have to use an area behind the rocks. A recent clean up was carried out by fishermen and a re-formed local youth group. The harbour is 'owned' but not loved by Dublin Port.

Recommendations:

1. The first class locked toilets should be made available to the fishermen.
2. Waste facilities should be provided and the burning of waste in the harbour should be stopped.
3. Separate collection of paint solvents and scrapings should also be provided.
4. Waste oil should be collected in the harbour or at nearby facilities with clear information to users.
5. The overdue harbour ownership and management decision should be made.

Coliemore Harbour, County Dublin

	Size: Small Row boats only
	Uses: Fishing Shellfishing – crab and lobster Rowing Tourist excursions – 1 ferry in summer to Dalkey Island

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	For storage huts, otherwise nothing		
Paint solvent/ Paint scrapings	No		
Batteries	N/a		
Drinks container recycling banks	No		
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes – 1 supplied by fishermen	OK	No
Toilets	Yes	Very Poor	No
Other			
Waste management initiatives			
Re-use/waste prevention	Lobster and crab pots made mainly from recycled materials		
Clean ups	Yes by users and road end by CC		

Comments:

Coliemore is a scenically studding, historic harbour. Inshore fishermen and recreational users share the cramped space. Sewage is bubbling out of the pier wall and there are real water quality problems. Only one barrel bin exists and is provided by the users. Paint scrapings were observed on the slipway and in harbour sediments. The only toilet that exists has distinct historic, but little user, value. A bleaching substance (zero bacteria count) was also observed to be running from a small pipe down the slipway on two visits.

Recommendations:

1. The area needs sewage treatment badly.
2. In the interim a warning sign not to swim or touch water in the harbour should be installed to protect public health.
3. Closed litter bins should be provided.
4. Segregated waste facilities should be designed together for Dalkey and Coliemore.
5. In the interim, facilities for paint scrapings and paint containers should be provided.
6. Toilet facilities with appropriate treatment should be put in place.
7. The ownership and responsibilities of this harbour should be clarified urgently.

Bray, County Wicklow

 <p>(http://www.allireland.com)</p>	<p>Size: Medium Only Yachts</p> <p>Uses: Yachts/ pleasure craft – yes sailing Swimming and general beach use Diving Sea scouts</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	N/a		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	No		
Fish Offal	N/a		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes – but not in the harbour itself		
Toilets	No		
<hr/>			
Waste management initiatives	Yes/no	Details	
<hr/>			
Re-use/waste prevention			
Clean ups	Yes part by Bray Urban Council		
Other			

Comments:

Bray harbour is no longer used by fishing boats but it is used by nearby sailing and diving clubs and sea scouts. It was built on the river Dargle and the main front south of the river is an easily accessible popular bathing beach with sand stretching well into the harbour at low tide. At time of visit, dumping was evident at the industry side on the North of the river. Burning of rubbish was also evident in that area.

Recommendations:

1. Litter bins should be provided within the harbour
2. Industry on the North side should undertake an overhaul of their waste practice.
3. One suspects that the harbour water quality is questionable when the river has high flow. This should be researched and if pollution bleeps are predictable a sign explaining this to users should be erected.
4. Research should be undertaken as to waste arising in the boat and industry area and how waste reception facilities might be linked to those needed for Bray town.

Greystones Harbour, County Wicklow

	<p>Size: Small 3 fishing boats and up to 17 yachts</p> <p>Uses: Fishing Yachts/ pleasure craft Rowing/ canoeing / sailing</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	Yes – 2 canvas bags	OK	Yes
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	No		
Fish Offal	No		
Other segregated collection	Yes- container for pet waste	Good	Yes
Other Facilities:			
Litter bins/skips	Yes- 3 rusty old bins	Poor	No
Toilets	Yes – in club	Poor	No
Other			
Waste management initiatives			
	Yes/no	Details	
Re-use/waste prevention			
Clean ups			
Other			

Comments:

Greystones has a well-built old harbour beside popular beaches. Recent secondary sewage treatment has improved water quality in the area greatly. Some dumping was noted around the harbour but did not seem to be harbour generated waste. Basic waste reception facilities were present here, but the litter bins and toilets were found to be in poor condition.

Recommendations:

1. Upgrading of litter bins.
2. Improvement of toilet facilities
3. Further research should be undertaken as to how waste reception facilities might be linked to those needed for Greystones town.

Wicklow Harbour, County Wicklow

	<p>Size: Medium</p> <p>Uses: Fishing Shellfishing- Whelk Industrial/Commercial Yachts/pleasure craft Sea scouts Rowing / canoeing/ sailing</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No- fishermen use Arklow		
Oil filter & rags	No- fishermen use Arklow		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	Yes	Good	Yes
Fish Offal	Yes- in fishboxes for whelk pots		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	Yes		
Other			
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention			
Clean ups			
Other			

Comments:

Most of the harbour is built along the river, which has fascinating, high quality wildlife encroaching right into the harbour area. The pier of the South harbour is used as a promenade and was very clean at time of visit with a lovely sheltered clean water beach inside the harbour itself. There are good recycling facilities, but some waste problems remain: fish offal was observed piling up in crates and on the ground; rotting offal is left behind at times according to some locals. The South quay is in particular need of cleaning. Some old equipment and ropes were seen dumped in corners below the water surface. A large piped inflow – possibly a stream – is considered clean by users, but was found to be polluted.

Recommendations:

1. Adequate facilities and ensured removal of fish offal
2. More bins on the South quay.
3. More frequent clean ups in this harbour to ensure left/ lost ropes etc. do not build up.

Arklow Harbour, County Wicklow

	<p>Size: Large</p> <p>Uses: Fishing & Shellfishing – Whelk Industrial/ Commercial Yacht club Sea scouts – large group Rowing / canoeing – suspended due to poor water quality</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	Yes		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	Yes		
Fish Offal	Yes		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes both		
Toilets	Yes		
Other	No		
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention			
Clean ups			
Other			

Comments:

The harbour may be divided into two parts. The South side is generally well kept, has oil facilities (bund, although bund open to rainwater and frequently circled by oily rags and cans); it's piers are cleaned and a note to move large waste had just been issued by the harbour master. The main source of problem waste is the large boatyard. Boats are brought here for antifouling, repair and outfitting. Paint is hosed and scraped straight into the harbour and there are no segregated waste facilities.

On the North side the sailing club and new buildings initially hide a major reconstruction area. When one travels into this area the picture is very poor, with a mix of demolition waste and opportunistic dumping from land and new construction waste.

Recommendations:

1. The old oil reception facility should be upgraded to prevent rain getting into the bund.
2. Reception for filters/rags/small containers should be installed near the old oil facility.
3. The boatyard should have full segregate waste facilities and collection of paint scrapings. This might be shared with the trawlers on the South side of the river.
4. The North side of the river needs to be cleared up urgently, and demolition waste screened for asbestos.
5. Waste reception facilities should be designed for present and developing use of the North side – a simple start to reducing littering might be bins and a can bank in the yacht club.
6. Toilets should be upgraded.

Arklow Cement Roadstone, County Wicklow

	<p>Size: Large</p> <p>Uses: Industrial/ Commercial</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	N/a		
Paint solvent/ Paint scrapings	N/a		
Batteries	No		
Drinks container recycling banks	No		
Fish Offal	N/a		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes		
Toilets	Yes		
Other			
Waste management initiatives		Yes/no	Details
Re-use/waste prevention			
Clean ups			
Other			

Comments:

This harbour was built by Cement Road Stone to transport rock out of their quarry in Arklow hill. The ships carrying aggregate are not serviced here according to CRS management. Dust and silt are the main visible waste incurred through the quarrying and crushing operations in and behind the harbour. Some waste is also produced by a small industry unit at the entrance and by transport lorries. There were two areas with scrap metal accumulating. A small inflow near the entrance gate was discoloured – possibly by high iron content. The harbour was not surveyed in detail.

Recommendations:

1. A check on ships carrying aggregate should be made to ensure waste oil is adequately cared for.
2. Silt and dust problems require most attention and should be tackled through waste licensing and monitoring procedures.
3. It would be important to ensure that no illegal dumping in the quarry occurs and old machines including scrap are removed when quarrying ceases in a few months as planned.

Courtown Harbour, County Wexford

	Size: Small
	Uses: Fishing Shellfishing Yachts/ pleasure craft Rowing/ canoeing/ sailing

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	Yes		
Fish Offal	Yes- in boxes	Fine	Yes
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	Yes	Good	Yes
Other			
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention		Old carpet used for covering fish and offal boxes Lobster / whelk pots made of re-used materials	
Clean ups			
Other			

Comments:

The harbour merges into a Blue Flag beach and the Courtown village and resort. It receives a lot of visitors. These are welcomed with more benches here than in any other harbour surveyed. Fishing is now reduced to whelk. Catch is kept in boxes, secured by carpet over the top on the quays. Bins are well maintained and in the summer the harbour is kept clean by daily cleaners, paid for by local businesses. Three local groups manage different aspects of the harbour. There is a major problem with sewage discharging into the harbour, but the Council has erected a sign to warn users and a sewage treatment plant is due to be completed in the next year.

Recommendations:

Segregated waste collection facilities should be installed to service Courtown and Cahore Harbour as well as Courtown village. This should be planned with local people- ideally by forming one umbrella management group which includes reps from all three present groups. The most needed facilities are probably for old oil and cooking oil (2 containers with bunds), and additional facilities for paint scrapings and solvents, as well as old batteries.

Cahore Harbour, County Wexford

	<p>Size: Small Ranging from three fishing boats in spring to roughly 17 in summer including visiting yachts.</p> <p>Uses: Fishing Yachts/ pleasure craft – occasional in summer Angling</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	No-		
Fish Offal	N/a		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	No – in summer		
Toilets	No		
Other			
Waste management initiatives			
Re-use/waste prevention	Yes/no	Details	
Clean ups	Local cleanups		
Other			

Comments:

Cahore is a beautiful little harbour, set in a high quality varied coastline. A lagoon enters the harbour, bringing rich invertebrate life on the positive side, but also sewage pollution bouts on the negative side. The harbour pier is used for sea angling and the whole area is very popular with day-trippers in summer. However, there are no waste facilities, and while the toilets in the local pub/restaurant are made available to visitors, this does not seem an adequate arrangement. Coastal protection efforts at this harbour include construction material and large household waste items. The sea has since started to disassemble this infill.

Recommendations:

1. A bin for angling waste and frequent collection should be provided along with a notice to anglers regarding where to dispose of waste.
2. Seasonal toilet facilities should be installed and kept clean.
3. Erosion control measures should be finished and made safe without the use of construction / demolition and household waste. This needs urgent attention requiring material to be bound securely.
4. Integrated waste management plan for Courtown and Cahore to cover all aspects of waste produced at these sites.

Wexford Harbour, County Wexford (*North & South sides*)

	<p>Size: Large</p> <p>Uses: Fishing Shellfishing – Mussels Industrial / Commercial Yachts/ pleasure craft</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?		Condition?	Adequate?
	South	North		
Oil	No	No		
Oil filter & rags	No	No		
Nets, ropes/equipment	No	No		
Paint solvent/ Paint scrapings	No	No		
Batteries	No	No		
Drinks container recycling banks (glass, aluminium, other)	Yes	No	Good	Yes
Fish Offal	N/a	N/a		
Other segregated collection	No	No		
Other Facilities:				
Litter bins/skips	Yes	No	Good	Yes
Toilets	Yes	No	Good	Yes
Other				
Waste management initiatives				
Re-use/waste prevention	Yes/no	Details		
Clean ups	Local clean-ups			
Other				

Comments:

This is a large drawn out harbour stretching from the inner harbour (yacht club, small boats, small trawlers) to the outer area seaward of the new bridge used by large mussel dredgers, trawlers, and with recently added yacht moorings. Major rehabilitation works have taken place on the South side to improve land facilities. However, infill on the North side, and possibly temporary trawler moorings, are very rough. Waste management is diffuse, depends on too many bodies and is totally inadequate for boat users. Sewage is still a major problem, but plans for treatment on the South side are almost complete.

Recommendations:

1. A waste management plan is urgently needed.
2. Facilities for fishermen are needed on both sides of the harbour, but especially on the North.
3. Clean-up of existing problems on the North of the harbour is needed immediately – particularly of oil pollution.
4. Oil reception facilities should be installed together with oil filter/rags bin in the North harbour.
5. A skip should be provided for large waste.
6. A Wexford harbour management plan should be considered to ensure the sustainable use and development of this area. There are many different stakeholders and authorities in the harbour and the wildlife needs particular attention.

Rosslare Harbour, County Wexford

	<p>Size: Large</p> <p>Uses: Fishing – inshore boats Shellfishing- lobster, also harvesting periwinkles Sea scouts Tourist excursions – Major Ferry Port</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No (except collection from ferry)		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	Yes - nearby		
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes	Good	No
Toilets	No		
Other			
Waste management initiatives			
Re-use/waste prevention	Yes/no	Details	
Clean ups	Yes		
Other			

Comments:

Inshore fishermen and small boat users were moved from their traditional area to a newly built spot between two jetties. They have no waste management facilities of any kind. The fishermen and small boat users take care of waste themselves with two barrel bins, clean-ups and burning of waste collected. Waste is being burned at the entrance to this harbour at a point very noticeable to visitors arriving by ferry. The main port boat repair area looks messy with scrap in heaps and oily patches.

Recommendations:

1. Waste collection should be provided on the inshore section of the harbour.
2. The burning of waste should be stopped.
3. Oil reception facilities for the whole harbour.
4. Better control of waste at the boat repair garage in the main harbour.

Carne Harbour, County Wexford

	<p>Size: Very small 4 fishing boats</p> <p>Uses: Fishing – yes Shellfishing – lobsters</p>
<p align="center">http://www.wextrade.com</p>	

Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	Yes	Good	Yes
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes only 1	Poor-overflowing	No
Toilets	Yes	Good	Yes
Other	No		
Waste management initiatives			
Re-use/waste prevention	Yes/no	Details	
Clean ups			
Other			

Comments:

This harbour is in a marine SAC with a fascinating range of habitats. There are several areas where dumping is occurring, including infill of the reedbed wetland just behind the harbour. Waste management facilities are lacking generally with only one small litter bin (overflowing on both visits). Toilets were open and in good clean condition pre the busy summer season, however the effluent from these is not treated. The nearby Wexford CC drinks container recycling bank is well kept but cannot be seen from the harbour or by its users. Periwinkles awaiting collection on first visit were still in bags-but lay partially broken in the intertidal of the harbour a month later.

Recommendations:

1. Extra litter bins should be provided and servicing matched to demand.
2. Other waste disposal should be facilitated at nearby Kilmore Quay.
3. Toilet effluent should receive adequate sewage treatment.
4. Wetland loss through dumping should be halted immediately.
5. Notice as to facilities in Kilmore and the drinks containers bank nearby should be displayed.
6. With increased popularity of this area a harbour constable or beach/harbour manager would be very useful to inform, protect resources and help enforce waste law.

Kilmore Quay, County Wexford

	<p>Size: Medium</p> <p>Uses: Fishing Shellfishing- Scallops Yachts/ pleasure craft Tourist excursions – to Saltee Islands</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	Yes	Good	Yes
Oil filter & rags	Yes		
Nets, ropes/equipment	Yes for reuse, no as waste		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	No		
Fish Offal	Yes	Good	Yes
Pump out facilities	Yes- but many boats do not have matching connection		
Other Facilities:			
Litter bins/skips	Yes, excellent cradle bins		
Toilets	Yes – clean, but closed on first visit		
Other			
Waste management initiatives			
Re-use/waste prevention	Yes- shells from scallop fishery given away and used by		
Clean ups	local farmers for lining driveways.		
Other			

Comments:

Some of the best clean-up and waste management by law enforcement in Irish Harbours can be found at Kilmore, with marked improvement in oil pollution control over the last year. However, apart from oil and drinks containers all solid wastes are mixed for disposal. Also a container for oil filters is supposed to be present, but was not found during a survey and fishermen were seen dumping oily filters into a general bin. Instead of open skips, excellent covered cradle bins are installed at the harbour and are maintained to a high standard of cleanliness. The new tarred net pound area covers a multitude of old waste.

Recommendations:

1. Oily filter and rag bin should be made clearly identifiable and moved to beside the waste oil tank.
2. Consider upgrading oil reception facilities as some localised pollution is occurring.
3. Segregated facilities installed for hazardous waste like paints, batteries and fluorescent tubes.
4. Provide sewage boat pump out connections at reasonable price for purchase to improve pump out uptake in the marina.
5. Vigilance must be maintained that there is no dumping beyond the net pound and harbour.

Fethard on Sea, County Wexford

 <p>(http://www.goireland.com)</p>	<p>Size: Very small 4-5 fishing trawlers</p> <p>Uses: Fishing Shellfishing- Lobster Yachts/ pleasure craft- occasional Tourist excursions- mainly sea angling trips Sea angling</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	Yes – in village	Good	Yes
Fish Offal	No		
Other segregated collection			
Other Facilities:			
Litter bins/skips	Yes- 1 supplied by fishermen	Poor, overflowing	No
Toilets	No		
Other			
Waste management initiatives			
Re-use/waste prevention	Yes/no	Details	
Clean ups	Yes- regular clean ups		
Other			

Comments:

A potentially beautiful little harbour in a marine SAC, but it needs considerable attention, including repair of pier steps and wall. While the road and area en route to the harbour and the RNLI boat house were spotless, extensive solid waste was seen on the harbour shore including tyres, boxes and other rubbish. The one litter bin in the harbour was overflowing and obviously inadequate. Fish offal was observed washed up on the shore. Paint scrapings were found on the pier and in corners. The old house ruin at the harbour entrance was littered at time of survey. Barrels with concrete and some rubbish were placed at steps to prevent access to undermining by the sea.

Recommendations:

1. Oil reception facilities should be provided.
2. Adequate litter bins should be installed and serviced.
3. Fish offal management needs to be improved to be consistently good.
4. A coupling of facilities for Slade and Fethard along with joint waste management planning is recommended.
5. A notice as to where drinks container recycling bank is would encourage users to take the containers back after a day's work or excursion.

Slade Harbour, County Wexford

	<p>Size: Small – two linked basins</p> <p>Uses: Fishing Lobster and crab fishing Yachts/ pleasure craft in summer</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	Yes	Good	Yes
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes	OK	No
Toilets	Yes	Very Clean	Yes
Other			
Waste management initiatives			
Re-use/waste prevention	Yes/no	Details	
Clean ups	Yes- regular clean ups		
Other			

Comments:

A beautiful harbour, with historic remains of a castle and icehouse. Some solid waste was seen on the shore. Fresh fish offal was observed washed up on the shore and floating in the harbour. Some paint scrapings were found on the pier and in corners. The old disused icehouse can be entered and is also littered.

Recommendations:

1. Oil reception facilities should be provided.
2. For summer more litter bins should be installed and serviced.
3. Fish offal management needs to be improved to be consistently good- cradle bin as required.
4. A coupling of facilities for Slade and Fethard along with joint waste management planning is recommended.
5. The icehouse should be closed off, or restored.

Duncannon Harbour, County Wexford

 <p>(http://www.munster-express.ie)</p>	<p>Size: Small</p> <p>Uses: Fishing Shellfishing Yachts/pleasure craft Rowing/ canoeing/ sailing Marina planned</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	Yes	Good	Yes
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	Nearby	Good	Yes
Fish Offal	Yes	Good	Yes
Other segregated collection			
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	No, but toilets in the village 600m away		
Other			
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention	Facilities here are all village and local fishermen's initiatives		
Clean ups			
Other			

Comments:

The harbour area is about to experience major development led by outside interests. There have been a number of good local initiatives involving harbour waste management and waste oil collection (through a contract with a local oil collection service). Raw sewage discharges from a pipe along the harbour wall, and there are two other suspect outfalls which flow into the harbour. The working areas of the harbour are generally very clean except for patches of rubbish that seem to have blown out of the open skips. Some old net heaps and large waste was evident around both piers.

Recommendations:

1. Sewage treatment
2. A waste management plan for the four harbours in close proximity- Duncannon, Arthurstown, Ballyhack and Passage East.
3. As part of Duncannon's redevelopment top waste facilities should be incorporated for items such as paints, solvents, batteries etc. Such facilities could also serve the village.
4. Lidded skips would prevent rubbish from being blown around the harbour.
5. Occasional cleanups.

Arthurstown, County Wexford

	<p>Size: Very small</p> <p>Uses: Fishing Shellfishing Angling Rowing/ canoeing/ sailing Tourist excursions – ferry</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	No		
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	No		
Toilets	No		
Other	No		
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention			
Clean ups			
Other			

Comments:

The harbour is mainly used by the same fishermen who moor in Ballyhack. There are a number of disused boats and derelict buildings around the harbour. Sewage pollution problems have worsened in recent times as the area becomes more built up.

Recommendations:

1. Sewage treatment.
2. A waste management plan for the four harbours in close proximity- Duncannon, Arthurstown, Ballyhack and Passage East.
3. A full clean-up of the harbour, including the removal of disused vessels by owners or authorities.
4. Litter bins with lids to cope with visitor waste.

Ballyhack Harbour, County Wexford

	<p>Size: Small, drawn out into two parts</p> <p>Uses: Ferry Fishing Shellfishing (clams at present) Industrial/ Commercial- boat repair yard Yachts/ pleasure craft - very little</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	No		
Fish Offal	Fish boxes	Fair	When covered and removed in time yes.
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes 1 bin in summer	Good	Yes
Toilets	No, those in need use Byrne's pub		
Other			
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention	Lobster pots- most made, in part, of recycled materials		
Clean ups	Yes – partial		
Other	Yes		

Comments:

This historic harbour is neglected, with serious danger of losing a pier wall. A poor sight and smell for any tourist entering by ferry. The foremost problem in this harbour is not missing waste facilities, but the raw sewage and lack of overall management and repair. Local fishermen are organised into an association covering both Ballyhack and Arthurstown.

Recommendations:

1. Sewage treatment
2. A full clean-up of the harbour.
3. Litter bins with lids to cope with visitors waste.
4. A waste management plan for the four harbours in close proximity- Duncannon, Arthurstown, Ballyhack and Passage East.
5. As an immediate measure – one bunded oil container and a bin for oily rags to serve Ballyhack (including the boat service facility) and Arthurstown.
6. Follow-up on local community requests for management and funding to undertake the necessary measures to include employment of a Harbour Constable.

New Ross, County Wexford

 <p>(http://www.newrosschamber.ie)</p>	<p>Size: Large</p> <p>Uses: Industrial/ Commercial Yachts/ pleasure craft Rowing/ canoeing/ sailing Tourist excursions- Ferry/ restaurant boat</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	Yes- collection (Atlas)	Good	Yes
Oil filter & rags	No		
Nets, ropes/equipment	N/a		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	Yes	Good	Nearby
Fish Offal	N/a		
Other segregated collection	Yes- small skip for general hazardous waste	Fair	No
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	Yes- (only portaloos)	Poor	No
Other			
Waste management initiatives	Yes/no	Details	
Re-use/waste prevention			
Clean ups			
Other			

Comments:

New Ross is a commercial harbour on the river Barrow. Industry is expanding along the river and taking over wetland in the process. At the boat club infill of a river bank reedbed is occurring. The town merges into the harbour and waste management is carried out jointly by the harbour and the town.

Recommendations:

1. A full waste management plan is needed providing segregated waste facilities.
2. Extra effort should be made to avoid wetland loss along this designated SAC river.

Cheekpoint Harbour, County Waterford

	<p>Size: Small 40 fishermen in summer, some visiting yachts</p> <p>Uses: Fishing Shellfishing Yachts/ pleasure craft - some in summer</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks (glass, aluminium, other)	No		
Fish Offal	No, some use for bait		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes	Good	No
Toilets	No		
Other	No		
Waste management initiatives			
Re-use/waste prevention	Yes/no	Details	
Clean ups	Yes- cleanup and maintenance good.		
Other			

Comments:

Cheekpoint is a small, quaint harbour with a small fleet of fishing boats mainly in summer. During this season it also becomes a popular day trip, pub lunch spot. The harbour and surrounding area have been nicely landscaped with a grotto built by local Fás workers and flowers planted in brightly painted old boats. However, a general clean up of the harbour area is badly needed. Some dumping of construction waste has occurred and derelict vessels are abandoned in and near the harbour. Some patches of litter were also found and oil and paint residues were obvious in the harbour. Pieces of abandoned nets, ropes and other equipment are washed up on the intertidal area.

Recommendations:

1. The large derelict vessel at the base of the pier contains considerable engine oil and should be removed safely as a priority. Owners of other neglected looking boats should be given a month to remove or improve.
2. The bin provided is barely adequate for winter use. In summer three good bird proof bins are needed with emptying to match use.
3. Harbour waste facilities should be put in place- bearing in mind possible sharing with other small harbours. At a minimum a small bunded oil container with oily rag bin beside it should be present.

Passage East, County Wexford

	<p>Size: Small, but bursting at the seams with boats</p> <p>Uses: Ferry Fishing Shellfishing occasionally Pilot boat Yachts/ pleasure craft - occasionally</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	Yes	Very good	Yes
Fish Offal	Yes Fish boxes as needed	OK	Yes, as quickly moved
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	No (there is one on the ferry and in pubs)		
Waste management initiatives			
Re-use/waste prevention	Yes	Details	
		Some fishermen store containers and net ends and use in making and repairing lobster pots	
Clean ups	Yes	Harbour Constable, harbour users and village join for Tidy Towns clean ups	
Other	Yes	The ferry gets its oil removed professionally	

Comments:

The land surface and approach of this small harbour always looks spotless, despite considerable ferry traffic. There are some intertidal waste problems and a serious sewage problem (see water quality section). The harbour Constable has a noticeable and positive presence. The recycling bank is well laid out in a walled 'garden' area, but is hidden from ferry traffic which could make use of it. Net heaps have been increasing recently.

Recommendations:

1. Sewage treatment
2. Drinks container facility could be expanded into a Bring Centre for the harbour and village. Most useful addition would be a container for paints and scrapings, a small bunded oil container, with oily rag bin beside it and battery container.
3. A sign in the harbour advising the location of the drinks recycling bank.
4. New containers such as boxes or storage bags would improve storage.

Dunmore East, County Waterford

	<p>Size: medium- one of the largest fishing harbours</p> <p>Uses: Fishing- fish and lobster Shellfish (whelk) Industrial/ Commercial- fish coop, also some processing Yachts/ pleasure craft - sailing club Rowing/ canoeing/ sailing/ surfing – Adventure centre Tourist excursions angling</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	Yes	Fine	Access problem
Oil filter & rags	Yes	Fine	Yes
Nets, ropes/equipment	Yes- bags, boxes	Fine	Part –only interim
Paint solvent/ Paint scrapings	Yes- special container	Fine	Yes
Batteries	Yes- special container	Fine	Yes
Drinks container recycling banks	Yes both in Fish Coop & Waterford CC bank outside	Fine	Yes
Fish Offal	Yes- special skip	Fine	Yes
Other segregated collection	Yes- old nets for gardening use		Needs someone to ensure collection
Other Facilities:			
Litter bins/skips	Yes	Good	Yes
Toilets	Yes	Clean	Yes
Waste management initiatives			
Re-use/waste prevention	Yes/no	Details	
	Yes	Some fishermen have stopped using plastic bags on boats, most lobster pots from recycled materials	
Clean ups	Yes	Both by harbour staff and harbour users	
Other	Yes	Model waste management facilities set up as part of Clean Coast INTERREG project	

Comments:

A massive improvement has occurred at Dunmore from the waste situation two years ago. The facilities are now well used, but the Shell company at the entrance to the harbour is still an oil pollution black spot. Some dumping of gear has occurred since the recent clean up, and the scrap storage facilities are not yet replaced. Nets are kept in storage bags and boxes.

Recommendations:

1. Fishermen's storage huts are needed to replace old broken containers which have been removed.
2. Oil reception facilities should be rearranged to make pouring in old oil absolutely safe and easy, with an empty oil container bin beside it.
3. Signs to show where the waste facilities are.
4. Shell oil must clean up its black act!

Tramore, County Waterford

	<p>Size: Small</p> <p>Uses: Fishing – only 2 year round boats but swells to 35 fishing vessels in summer Rowing, sailing Popular swimming spot as very sheltered, annual official swimming classes</p>
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Waste Management Facilities

Segregated Collection For:	Container present or alternative facility?	Condition?	Adequate?
Oil	No		
Oil filter & rags	No		
Nets, ropes/equipment	No		
Paint solvent/ Paint scrapings	No		
Batteries	No		
Drinks container recycling banks	No		
Fish Offal	No		
Other segregated collection	No		
Other Facilities:			
Litter bins/skips	Yes 1 bin in summer		No
Toilets	Yes	Poor	Yes- in size, but needs cleanup and overhaul
Other			
Waste management initiatives			
Re-use/waste prevention	Lobster pots	Most made in part of recycled materials	
Clean ups	Yes	And some maintenance by life-boat staff & local volunteers	
Other	Yes	Waterford CC litter warden has acted on Coastwatch first survey waste info. promptly and instigated removal of abandoned boats and equipment	

Comments:

This is a beautiful harbour with few boats but used extensively by swimmers and particularly local children. It is also the site of annual life-saving and swimming classes. The foremost problem in this harbour is not missing waste facilities but the town sewage. Discharge from the adjacent sewage pump causes frequent sewage pollution and foul smells.

Recommendations:

1. Aside from addressing sewage pollution the most immediate need under the waste heading is for animal proof bins, which get emptied regularly enough.
2. In summer bins could be supplemented by a can bank.
3. Additionally one bin for paints is recommended, as ongoing maintenance painting is evident.
4. Due to close proximity to excellent full facilities in Dunmore East, a full waste reception facility in Tramore would not seem warranted. However a sign informing of the Dunmore facilities would be important for users not familiar with the area.

Discussion

The focus of the INTERREG Clean Seas project was to raise seafarer awareness of the need to prevent marine pollution and the individual seafarer's role in this. The main emphasis was on fishing, shellfishing and angling groups, with another INTERREG project focusing on yachtsmen. As the project progressed, the question of waste reception facilities and waste management in general became central to discussions. This was to be expected as most small harbours lacked facilities, but there was also a wider context: Our Irish harbour user campaign was running at the same time as regional waste information (some of which we distributed in harbours) and media reports covered the incinerator and 'super dump' debate.

Harbour users questioned where they and their harbour fitted in. Questions arose regarding waste management, for example what good is collecting waste in Tramore harbour to see it dumped into adjacent landfill site, visited by the sea at high tide? Is a traditional solid waste skip, coupled with banded oil container, the best facilities that can be aspired to as in some of the larger harbours?

In Dunmore East local users and government authorities decided to opt for the highest standards and install model waste reception facilities, rather than contenting themselves with mixed waste skips. Segregated waste collection was considered and it was decided to install containers for items and materials which could be reused or recycled.

Finance

At present most fishing waste is either reused or recycled in house (e.g. offal and net ends used for lobster pots, waste oil for burning in garage heaters), or disposed of 'free' by dumping at sea, in a wetland, or in an area suffering from erosion.

If a waste management system is introduced, then who is to pay? The 'Polluter Pays Principle' could mean a charge by volume or weight as waste is deposited. But such a system is difficult to implement – even for large ships, which can be tracked. It is certain to fail in small harbours. The alternative of integrating the cost in mooring fees or annual club membership is already practised by most yacht clubs. It is feasible if – as in Malahide or Clontarf- club members have sole use of a harbour area and the extra cost of waste management is small compared to overall membership fee.

But as harbours are generally open to the public and there are often associated users in the harbour who also produce waste, it would seem unjust and unwise to load the full cost of harbour waste management onto mooring fees. After all, the householder on a street with a public bin, does not have to pay for same, neither does the man dropping his litter in. Indeed not even dog owners pay for dog bins. These are all shared community costs- purposely set that way to achieve the aim of preventing pollution and optimising waste management.

It will be a serious task to strike the right balance between:

- charging in full for facility and management costs, but then either having an increase in dumping and pollution of the marine environment, or spending far more on monitoring enforcement and clean ups

- making it attractive to use waste reception facilities by providing them gratis or at a nominal annual charge. This should reduce oil and litter on our shores and decrease enforcement costs, but shift running costs on all tax payers.

Future

An exciting stage has been reached, where in almost all harbours included in this project, the core of local users are acutely aware of sewage, oil and (less so) solid waste pollution problems. Now for practice to improve, workable waste management systems must be put in place as soon as possible. This should include adequate facilities, harbour waste management plans and identifiable persons on site in charge of management.

During our survey, it was frequently suggested by harbour users that they sit down with authorities to draft such management systems for either single harbours or clusters of adjacent ones. This would be in line with government Agenda 21 public participation goals. Only one part time harbour master spoke out against such a methodology, or even providing facilities. His stated reasons being, that harbour users would not appreciate or utilise the facilities properly. Against that, the experience in Dunmore East showed seafarers are willing to make the extra effort and bring back segregated waste once agreed facilities are put in place to handle it and there is no direct charge for using the services.

Recommendations

1. Harbour Waste Management is needed now and should be integrated as a matter of urgency into other plans. That includes Regional Authority waste management plans and the Irish government CZM initiative.
2. A workshop should be held by autumn 2001 for government agencies, local authorities and user groups to agree how to proceed on waste management planning for harbours and timing to achieve the EU Port Waste Management Directive targets by December 2002.
3. Sufficient resources and man power should be made available in the forth coming national and local authority budgets to produce a first class harbour waste management system.
4. Users must be a central part of building up a sound waste management system. The Dunmore East experience should be taken as model for future work and not replaced by consultants who inform harbour users of their considered opinion.
5. It is recommended that not only the autumn coastal surveys carried out by Coastwatch volunteers, but also the detailed Harbour survey designed for this Clean Seas project be repeated annually or biannually and results published. This would help monitor progress, give up to date information on facilities to users from outside the area and would provide an extra incentive for harbour users and authorities to ensure management is progressively improved.

Appendix 2: Good & Bad in Irish Harbours



Above: Dunmore East.
Until new storage huts are
built for fishermen, net bags
help to keep tidy nets that
are not in use



Right: Finds on the shore-
Children during the
Coastwatch Clean-up 2000



Left: Kilmore Quay.
Good cradle bins but overflowing
at times

Appendix 2: Good & Bad in Irish Harbours



Left: Water litter. Litter, old oil container and oily scum accumulate in a calm corner- a typical sight in many harbours

Right: Model Waste Reception Facilities in Dunmore East



Left: Clean-up of the Grand Canal Basin as part of the Clean Seas Project.

Appendix 3: Maritime INTERREG Projects

The following co-operative projects and networks are supported under Measure 1.3 “Protection of the Marine and Coastal Environment and Marine Emergency Planning”, of the Maritime (Ireland/Wales) INTERREG Programme (1994 – 1999):

Co-operative Projects

1. **Roseate Terns - The Natural Connection - A Conservation and Research Project linking Wales and Ireland**
Irish Wildbird Conservancy / North Wales Wildlife Trust.
2. **Marine Mammal Strandings - A Collaborative Study for the Irish Sea.**
National University of Ireland, Cork / Countryside Council for Wales.
3. **South West Irish Sea Survey (SWISS).**
Trinity College Dublin / National Museum of Wales, Cardiff.
4. **The Fate of Nutrients in Estuarine Plumes.**
National University of Ireland, Galway / University of Wales, Bangor.
5. **Water Quality and Circulation in the Southern Irish Sea**
National University of Ireland, Galway / University of Wales, Bangor.
6. **Grey Seals: Status and Monitoring in the Irish and Celtic Seas.**
National University of Ireland, Cork / Dyfed Wildlife Trust.
7. **Sensitivity and Mapping of inshore marine biotopes in the Southern Irish Sea (SensMap).**
Ecological Consultancy Services (Dublin), Dúchas / Countryside Council for Wales.
8. **Marine Information System: Scoping Study (Phase I).**
Marine Institute, National Marine Data Centre/ Countryside Council for Wales.
9. **Achieving EU Standards in Recreational Waters.**
National University of Ireland, Dublin / University of Wales, Aberystwyth.
10. **Irish Sea Southern Boundary Study**
Marine Informatics Ltd (Dublin) / University of Wales, Bangor.
11. **Marine Information System: Demonstration (Phase II).**
Marine Institute, National Marine Data Centre / Countryside Council for Wales.
12. **Emergency Response Information System (ERIS)**
Enterprise Ireland, Compass Informatics, IMES / University of Wales, Bangor.
13. **Risk Assessment and Collaborative Emergency Response in the Irish Sea (RACER)**
Nautical Enterprise Centre (Cork), National University of Ireland, Cork, University of Wales, Cardiff.
14. **Critical assessment of human activity for the sustainable management of the coastal zone.**
National University of Ireland, Cork / University of Wales, Aberystwyth.
15. **SeaScapes – Developing a method of seascape evaluation**
Brady Shipman Martin, National University of Ireland, Dublin / University of Wales, Aberystwyth.
16. **Ardfodir Glan – Clean Coasts/Clean Seas**
CoastWatch Ireland / Keep Wales Tidy Campaign.

Co-operative Networks

17. **Irish Sea Hydrodynamic Modelling Network**
Trinity College Dublin / University of Wales, Bangor.
18. **CoAST - Co-operative Action - Sustainability Network**
Dublin Regional Authority / Isle of Anglesey County Council.
19. **ECONET - Erosion Control Network**
Enterprise Ireland / Conwyn County Council.
20. **Navigate with Nature**
Irish Sailing Association/Centre for Economic and Environmental Development- UK.
21. **“Land Dividing - Sea Uniting” Irish Seas Exhibition**
Irish Seal Sanctuary, ENFO / National Assembly for Wales.
22. **From Seawaves to Airwaves**
West Dublin Community Radio / Radio Ceredigion CYF.
23. **BENSIS – Benthic Ecology Network**
Trinity College Dublin / National Museum of Wales, Cardiff.
24. **Remote Sensing of Suspended Sediment Load in the Coastal Zone**
National University of Ireland, Galway / University of Wales, Bangor.
25. **Paving the Information Highway**
Ecological Consultancy Services (Dublin) / Irish Sea Forum, University of Wales, Bangor.
26. **Inland, Coastal and Estuarine (ICE) Journal**
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Studies in Marine Biodiversity and Systematics from the National Museum of Wales.
BIOMÔR Reports 2 (1): 1-143.

For further information on the Maritime Ireland/Wales INTERREG-II Programme see

www.marine.ie

Appendix 4: Acknowledgements

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The Project has been co-funded through the EU INTERREG II programme for Ireland and Wales, with cooperation, advice and access to expertise and information by the Welsh Assembly and in Ireland by Department of the Marine, the Marine Emergency Services the Marine Institute. We would like to thank them and the following for their enormous help:-

Extra surveys: Declan Collins; John Daly; Paul Dubsky; Michael Gunn; Barry Jones; Wendy Morgan; Aina O Hanlon; and Amada Wheeler; Local Authority staff in Fingal, Dublin Corporation, Dun Laoghaire, Wicklow, Wexford and Waterford for maps and information on sewage outfalls, as well as the SE Health Board for Sandycove water quality data.

Last but not least, all those who kindly answered our questions and added extra information as we descended upon them in the harbours.



This project (Contract EU 557/14/001) is supported under Measure 1.3 Protection of the Marine and Coastal Environment of the Maritime (Ireland-Wales) of the INTERREG Programme (1994 – 1999) administered by the Marine Institute (Ireland) and the National Assembly for Wales (Wales) and is part funded by the European Union's Regional Development Fund.

