ESTABLISHING INFORMATION NEEDS FOR PLANNING AND ASSESSMENT OF RECREATION ACTIVITY IN THE COASTAL ENVIRONMENT: A CASE STUDY FROM CORK HARBOUR, IRELAND

CUMMINS V.[(1)], GAULT J.[(1)], O'MAHONY C.[(1)], KÖPKE K.[(1)],
GRIFFIN P.[(2)], WALSH E.[(2)] AND O'SUILLEABHAIN D.[(2)]

[(1)]Coastal and Marine Resources Centre, Environmental Research Institute, University College Cork, Haulbowline Naval Base, Cobh, Co. Cork, Ireland.
[(2)]Planning Policy Unit, Cork County Council, Floor 13, County Hall, Cork, Ireland.

Abstract

The coastal and marine based leisure sector is experiencing growth in many areas of Europe. In Ireland, this growth is, in part, driven by a recent period of economic prosperity, and facilitated by the expansion of infrastructure to accommodate and maintain current growth in coastal and marine recreation, as well as attract future use. In particular, the recreational activities of boating and sailing have experienced considerable growth over the last decade. Similar to other human activities, marine leisure and recreation can have a positive influence, bringing benefits to coastal locations and communities. However, in the absence of appropriate planning and management, recreational activities can be a catalyst for environmental degradation, negative user interactions and deterioration in the quality of life for members of coastal communities. A sound planning and management framework, founded on best available scientific understanding and the principles of sustainable development, is imperative to ensuring that impacts associated with marine recreation accrue socio-economic and environmental benefits to coastal communities. Elements of such a framework include: a clear understanding of the environment's capacity to absorb current and increased rates of recreational activity; the interactions amongst recreational users and with other users of the coastal environment; and development of scenarios to inform future planning requirements.
Cork Harbour, situated on the southern coast of Ireland, is one of the largest coastal water bodies in Ireland. Cork Harbour is analogous with many other coastal locations in that it is a multi-resource and multi-use environment. Coastal and marine based recreation is one of the primary human uses of Cork Harbour; the harbour area is considered a regionally important location for boating and sailing and hosts international events. Through a collaborative research initiative – Coastal Research and Policy Integration (COREPOINT) - involving local authority planners and research scientists, efforts were made to improve understanding of the current levels of recreational activity, and the planning and management implications associated with any increase from current levels. The assessment involved quantitative and qualitative survey methods to identify data gaps in terms of: baseline information; user attitudes and perceptions towards existing management framework and facilities for recreation; interactions between different user groups; spatial distribution of recreational activities; and, institutional and administrative short comings. The results of the assessment provide an improved understanding of the current coastal recreational situation and have value as input to local area planning and a potential integrated management plan for Cork Harbour.

Introduction

Current trends indicate that the coastal and marine environment is coming under increasing pressure to provide goods and services and accommodate a growing list of activities (Douvere and Elher, 2007); marine and coastal recreation is one such activity. In Ireland, the marine-based tourism and leisure sector is undergoing current growth in terms of infrastructural investment and development, and levels of participation. Recent national research surveys indicated that marine leisure activity, based on Ireland's marine and freshwater resources, generated in excess of €400 million in expenditure by Irish residents

alone, and the sector supports approximately 5,000 jobs (Marine Institute, 2004). The economic upturn experienced since the 1990s has contributed to an increase in the number of people involved in water-based recreational activities, particularly sailing and boating. The forthcoming strategy document *Towards a Marine Tourism and Leisure Strategy 2007-2013*, will outline the direction and prioritisation of investment required to continue and sustain growth within the sector. Within the national framework for marine leisure and recreation the Counties of Cork and Kerry possess the strongest product base (O'Connor, 2007) and the marine-based leisure activities of Cork Harbour are viewed as a key reason to visit the south west region of Ireland (Fáilte Ireland, 2007).
In Ireland, the recent and projected growth of the marine tourism and recreation sector offers numerous opportunities for socio-economic benefit, e.g. ensuring viable coastal communities are sustained in areas where traditional modes of employment are disappearing. However, the expansion of the sector will also have implications for many coastal locations. Impacts associated with increased levels of activity, coupled with the ancillary development required to support the growth of the sector will place demands on the management of the coastal environment. In the absence of appropriate planning and management, recreational activities can be a catalyst for environmental degradation, negative user interactions and deterioration in the quality of life for members of coastal communities. This presents particular challenges for coastal local authorities. Although other statutory bodies have a planning remit in the coastal environment, it is the local authorities, as the principal planning consent body, which have a significant influence on physical developments related to the marine leisure sector. Furthermore, local authorities are also responsible for the maintenance of roads, public water supplies and sewage systems, and in some cases for piers and breakwaters – criteria that have a potential bearing on the siting of developments for the marine tourism and recreation sector (Martin, 2007). Within Cork Harbour, a unique model of partnership between a research centre and the local authority is contributing to the information needs for planning and assessment of recreation activity.

1. Coastal Research and Policy Integration (COREPOINT) Project and Cork Harbour

1.1 The COREPOINT project

The COREPOINT project which commenced in November 2004 and scheduled to run until mid-2008 is funded under the INTERREG IIIB programme. The project addresses concerns related to mutual coastal problems across North West Europe (NWE) and aims to connect science and policy for advancing support for Integrated Coastal Zone Management (ICZM) (Cummins et al., 2006). COREPOINT project partners comprise research centres, local authorities and coastal networks from Ireland, UK, France, Holland and Belgium.
Within COREPOINT, working couplets were established between local authorities and research groups; research undertaken is dictated by the coastal management needs as identified by the local authority. These pairings (five in total) of local authorities with research centres at various geographic locations within each partner country are termed the COREPOINT Expert Couplet Nodes (Cummins et al., 2006). In Cork Harbour the local Expert Couplet Node consists of the Planning Policy Unit of Cork County Council and the Coastal and Marine Resources Centre (CMRC), University College Cork. This Expert Couplet builds links between Cork County Council and the CMRC by engaging in research that is tailored to address the planning and management issues in Cork Harbour, in the context of the ICZM principles of best practice. Issues such as the impacts of predicted changes in climate, development and use of brownfield sites, and the recreational capacity of the harbour formed the focus for the research effort of the Cork Harbour Expert Couplet Node.

1.2 Cork Harbour

Cork Harbour (51° 53.94' N, 8° 27.68' W) is one of the largest coastal water bodies in Ireland and the most industrialised estuary in the State (Johnson et al., 2002). The harbour's coastal zone and immediate hinterland is home to a concentration of chemical and pharmaceutical industries, including eight of the top ten pharmaceutical companies in the world (Cummins et al., 2006). Cork Harbour is the location for the Port of Cork and Ireland's only oil refinery, both of which are important in the context of regional and national economies. Cork Harbour includes mixed rural and urban settings, as well as mixed land uses, e.g. industrial, residential, recreational and agricultural.
The harbour region contains a variety of habitats, e.g. shallow cliffs, intertidal mudflats, reed beds, shingle, rocky foreshores, and islands. Cork Harbour is acknowledged as being an area of significant ecological importance and is currently designated as an NATURA 2000 site and a wetland site of international importance under the Ramsar Convention (Gittings 2004). Cork Harbour provides a sheltered environment with deep-water channels capable of accommodating shipping and boating activities. As well as being an important site in terms of natural heritage, Cork Harbour boasts a rich cultural heritage relating to issues such as emigration, trade and military presence in the harbour. The harbour area contains many man-made and natural features that give the harbour its unique and historic character (Cummins and O'Donnell, 2005).

1.3 Recreation in Cork Harbour

The shoreline and waters of Cork Harbour provide opportunity for a wide range of recreational activities, e.g. walking, rowing, sailing and swimming, which involve varying levels of participation. Primary water-based activities comprise boating, angling charters and yachting. Cork Harbour has a long tradition of recreational boating, being home to the oldest yacht club in the world (St. Leger 2005). The harbour hosts the bi-annual Cork Week, an important European sailing regatta (Shields et al., 1997) as well as the annual International Deep Sea Angling Festival. Port of Cork has come to specialise in the provision of facilities to cruise liner traffic, deep water berthing facilities at Cobh and Ringaskiddy can accommodate large liners. Cork Harbour's location makes it an attractive port of call for cruises from the Baltic, Mediterranean and Caribbean as well as trans-Atlantic cruise traffic (Moloney and O'Sullivan 2004).

2. Methodology

In order to formulate an improved understanding of current trends and extent of recreational activity in Cork Harbour a multi-faceted approach was developed using both quantitative (e.g. inventory) and qualitative (e.g. questionnaire survey) data sources. At present there are no procedures in place to systematic collate data on marine recreation in Cork Harbour, thus much the methodology was designed to access the current situation and identify data gaps in terms of: baseline information; user attitudes and perceptions towards existing management framework and facilities for recreation; interactions between different user groups; spatial distribution of recreational activities; and, institutional and administrative short comings.
The combined methodology comprised three components: (i) an inventory of recreational activities in Cork Harbour; (ii) a questionnaire survey on recreational activities, facilities and associated user perceptions and attitudes in the study area; and (iii) an estimation of the recreational boating carrying capacity. Throughout the study, Geographical Information Systems (GIS) was used to collate, analyse, map, and visualise data for Cork Harbour.

2.1 Inventory

The inventory was compiled to establish baseline data on recreation in Cork Harbour with a focus on marine activity. The inventory incorporated information on all the access points to the water. Information on marina and boatyard storage, estimated ratio of sailing to motor boats, and estimated average boat size was collected through personal communication with senior staff members or owners of the marinas and boat yards in the harbour. Information on

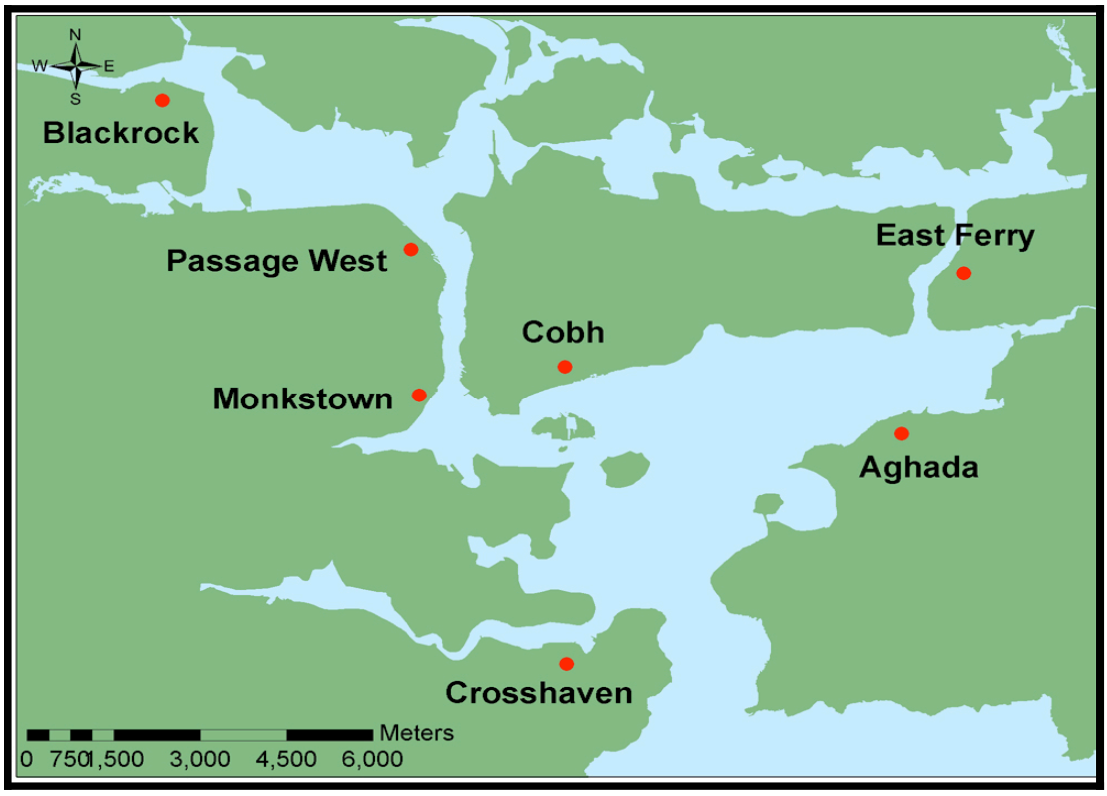
the location of moorings, numbers of boats on moorings, boat sizes and types of boats was acquired through analysis of the Port of Cork database (unpublished data) on moorings and boats in Cork Harbour. However, it should be noted that for each mooring, data on boat type and size are only available if the boat has a length of 6m or above, and from the period from 1998 to 2006. The number of boats below 6m was estimated by subtracting the number of boats at or above 6m from the total number of moorings. This calculation works on the assumption that all the moorings hold a boat, which is likely to be the case for Cork Harbour where moorings are left unused in only exceptional situations.

An investigation into the location and types of recreational clubs in the study area was undertaken to generate an overview of recreational activities including an indication of spatial distribution and/or concentration of these activities within the study area and the extent of membership. This information was obtained through e-mail and telephone contact with the individual club secretaries and/or key staff. Individuals involved in specific recreational activities, which do not operate on a club basis in Cork Harbour, such as windsurfing, were also contacted.

2.2 Questionnaire Survey

The questionnaire survey was undertaken in 2005 and 2006 to provide baseline data concerning the recreational use, the recreational facilities and associated user perceptions (e.g. in relation to user interaction, satisfaction with facilities, safety and environmental standards, etc.) in Cork Harbour. Following completion of a trial, and assessment of feedback, the final version of the questionnaire comprised closed and open-ended questions, using a scaled format in certain instances. Seven areas within the harbour region were chosen as sampling points to cover the spatial extent of Cork Harbour (Figure 1). The sites chosen were: Blackrock; Passage West; Monkstown; Crosshaven; Lower Aghada; East Ferry; and Cobh.

Figure 1: Map showing the distribution of the questionnaire sampling locations within Cork Harbour.



2.3 Boating Carrying Capacity

The recreational boating carrying capacity for Cork Harbour was estimated through an adjusted calculation based on the methodology devised by Bosley (2005), this involved establishing values for: 1) the usable boating area; 2) the peak use rate for Cork Harbour; and, 3) the boating density for Cork Harbour. The peak use rate (Bosley 2005) was estimated by determining the number of boats 'parked' on moorings, or in marinas and boatyards in the harbour. The boating density was calculated by dividing the usable boating area by the peak use rate. This result was then compared with an optimal scenario; the carrying capacity was determined by dividing the estimated number of boats at peak use with the optimal number of boats. The carrying capacity is exceeded when the percentage at peak use is greater than 100%.

3. Discussion of Key Results and Findings

The following sections present the key findings to emerge from an integrated analysis of the data collated as part of the inventory, user questionnaire survey and capacity assessment exercises.
In order to understand the interactions, impacts and issues associated with recreation activities in Cork Harbour it was first necessary to establish a baseline. This study represents a first attempt at collating information on recreation activity and users in Cork Harbour. To date, data on recreational activities in Cork Harbour has not been collated in a systematic manner and there is no single organisation or regulatory body tasked with responsibility for management of and planning for the marine recreation sector in Ireland. In fact, a number of statutory bodies have responsibilities for regulating activities within the harbour that relate to marine recreational users, e.g. harbour and port authorities, Environmental Protection Agency and Government Departments. Information from this study, combined with other COREPOINT activities (development of integrated management plan for the harbour, landscape characterisation of a pilot area in the harbour, creation of GIS for harbour management, and assessment of impacts of climate change) will form the basis for COREPOINT's contribution to assisting the local authority in: planning support (including that for recreation) in Cork Harbour; and identifying scenarios where the local authority may play a role in resolving interactions and engaging in collaborative actions with other stakeholders (statutory and non-statutory).

3.1 Recreation Activities

As demonstrated by the present study, Cork Harbour hosts a number of recreational activities involving high numbers of participants, (e.g. boating), and smaller interest groups, (e.g. wind surfing). The range of activities also extends from active interests, (e.g. scuba diving), to more passive forms of recreation, (e.g. walking). Residents and visitors use the harbour as a recreational resource year round; with visitor numbers peaking in the summer months. Thus, the harbour provides a multi-season amenity catering for a range of recreational users. Of the activities included in the questionnaire survey, coastal walking was selected as the leading recreational activity in Cork Harbour. The popularity of walking amongst residents and visitors to Cork Harbour is influenced by the availability of a network of diverse walks (e.g. cliff top, shoreline, wooded) within the harbour environs. Depending on user preferences, walks are accessible within close proximity to urban centres, while more secluded walks are also available. Additionally, walking does not require special equipment and participation in the activity does not necessarily depend on the support of a recreational club.

The low levels of participation indicated for bird watching was surprising, considering Cork Harbour is a site of high ornithological international importance for wintering waterfowl and a popular location for bird watching. Possible explanations for this may include the fact that survey respondents did not explicitly distinguish between *walking* and *bird watching while walking* when replying to the questionnaire. The fact that bird watching is sometimes undertaken in solitary and relatively inaccessible locations may also have contributed to this user group not being represented as much as expected – however, the questionnaire survey

did include locations that are commonly used by bird watchers, e.g. coastal walk from Aghada towards Rostellan.

3.2 User Perceptions

As well as information on recreation activities, the present study also revealed perceptions – both from visitors and residents - concerning criteria that would influence participation in water-based recreational activities. This provided insights into the satisfaction levels of recreational users, as well as giving an indication for motivation or reluctance to use the harbour for recreational purposes. A key objective of the study was to examine the extent to which current facilities influence the type and frequency of recreation in Cork Harbour. Facilities were categorised as those directly associated with recreation, e.g. clubs, and those which have some influence on recreation, e.g. parking, public toilets, signage, and access. The range of preferred facilities does not seem to be influenced by either the survey location or the recreational activity of the respondent. In all the survey locations facilities that would improve access to the water and accommodate water-based recreation were desired. Common facilities requested include: marinas or slipways; amenities geared towards children and young adults (particularly play areas and increased club activities); provision of bins and public toilets also featured in a number of locations.

In general, respondents perceived the maintenance of existing access points and slipways to be good. However, it should be noted that a possible bias may exist in the survey regarding locations that are frequently used recreational areas, where facilities are generally maintained to a higher standard. In comparison, peripheral locations where many access points are in need of repair or upgrade, may not register with recreational users because they do not use these access points for that very reason. An appraisal of existing access points requiring repair or upgrade, combined with identification of emerging demand areas, would be a beneficial input to any plans to develop and further promote Cork Harbour as a marine recreation area.

Judging from the responses received through the survey, increasing the availability of public toilets, bins, parking spaces and providing adequate signage will improve the general quality of Cork Harbour in relation to existing (and future) participation in water-based recreational activities. Educational and prohibitive signage could provide information to increase appreciation and awareness of Cork Harbour and addresses issues such as littering, unlawful behaviour and good practice when pursuing particular recreational activities.

With regard to ‘overcrowding’ and ‘conflict’ the majority of survey participants indicated they never had experience of these issues. This would suggest current interactions between recreation user groups in the harbour are harmonious. However, in the absence of an overall plan or strategy for recreation in the harbour it can be argued that the current *ad hoc* scenario may change in the future and interactions may not remain the same. Similarly, the contemporary concerns and issues raised previously (e.g. litter, access, safety, etc.) must also be considered in terms of future scenarios, where recreation activities such as boating are likely to increase, causing a change in the magnitude and impact of these issues, and in turn,
to the capacity of the harbour to accommodate associated change.

3.3 Boating Capacity Assessment

Although not the most popular activity (third after walking and swimming), boating was chosen as the focus of a capacity assessment because of its recent and projected growth, and the planning and management implications of accommodating this growth. The boating carrying capacity calculations for Cork Harbour were undertaken for a specific set of conditions and suggest for the present scenario that carrying capacity is exceeded by 18%. However, the result has to be viewed in the context of the limitations and terms of reference for this calculation, namely:

- The unlikely event that every boat in the harbour is operating on the water; and,

- A lack of operational boating density standards for the harbour, limiting the calculation to standards suggested for boating carrying capacity in other environments, e.g. on water bodies in the United States.

The result of the carrying capacity exercise does not assume an everyday use scenario for the harbour, rather it presents an extreme "what if" scenario, i.e. the likelihood of all boats in the harbour being on the water simultaneously. It could be argued that the value of the exercise was the process rather than the results, as the exercise involved: 1) the collection of data (e.g. on current use, facilities, and capacity), and identification of data gaps and trends; and, 2) interaction with stakeholders relevant to water-based recreation in Cork Harbour - both of which are of value to efforts focused on planning for recreation in Cork Harbour. The exercise was also useful when considered in the context of planning for future growth of the water-based recreation sector, much of which will be boating related, and what challenges may lay ahead for Cork Harbour in terms of planning and management.

Conclusion

The first step in any approach to sustainable recreation is to define and describe the current resource. The inventory developed for Cork Harbour provides information on the recreational contribution of the harbour, and gives an indication of the scale and range of recreation activities (and facilities), in the harbour. Whilst the Cork Harbour study produced valuable results in the context of planning and assessment, its value would be optimised within an integrated management framework that would ensure management and regulatory procedures are put in place to continue data collection and refine the monitoring of activities and impacts, in order to meet the challenges and issues facing the harbour. Further value in the study, particularly the development of the recreation inventory for Cork Harbour, was the fact that the exercise facilitated the identification of key stakeholders, who provided information to the study, and who are potential participants in any process designed to create an integrated management plan for the harbour.

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