Marine Management Organisation

Compilation of spatial data on marine recreation activities: Phase 2

Mapping marine recreation guidance: How to supply spatial data

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Compilation of spatial data on marine recreation activities: Phase 2

Mapping marine recreation guidance: How to supply spatial data

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mpc
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1. About this Guidance

1.1 Background

Marine recreational activities are a growing and important part of England's coast and marine environment. Tens of thousands of people use the marine environment for recreational purposes every day, ranging from walking on a beach to surfing and sailing. It is of significant importance to the economy.

Whilst England's seas are increasingly crowded with multiple activities and uses, there is also a need to protect important habitats and features. A new system of marine planning is being introduced to help manage the seas alongside other regulation. This will ensure the sustainable development of the marine environment.

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Decision making needs to be informed by good data. This guidance will enable marine recreational stakeholders and groups to provide decision makers, such as the Marine Management Organisation (MMO), with spatial data. Spatial data in this context are information about where recreational activities are actually taking place. Moreover, collecting data of this sort, will be of potential value to recreational organisations for funding, commercial and other management purposes. The development of this guidance has involved consultation with a number of recreational organisations and bodies and is in response to a demand for guidance on how spatial data on marine recreational activities can be used by regulators.

1.2 Purpose

The purpose of this guidance is to provide advice on best practice methods for providing spatial data on marine recreation activities to inform decision making on how England's seas are managed (termed 'marine management' hereon). In addition it details how to assess these data for quality and confidence, how to store data in

line with recognised data and metadata standards and how to share data in a controlled format. This guidance does not provide specific instructions on different methods of data acquisition, such as membership surveys or site visits, as these will vary depending on the activity and organisation's approach. Instead, it lays out the relevance and standard of different approaches to data acquisition, detailing the critical components used to inform marine management decision making. A summary of the guidance provided within this document is provided in Figure 1 below.

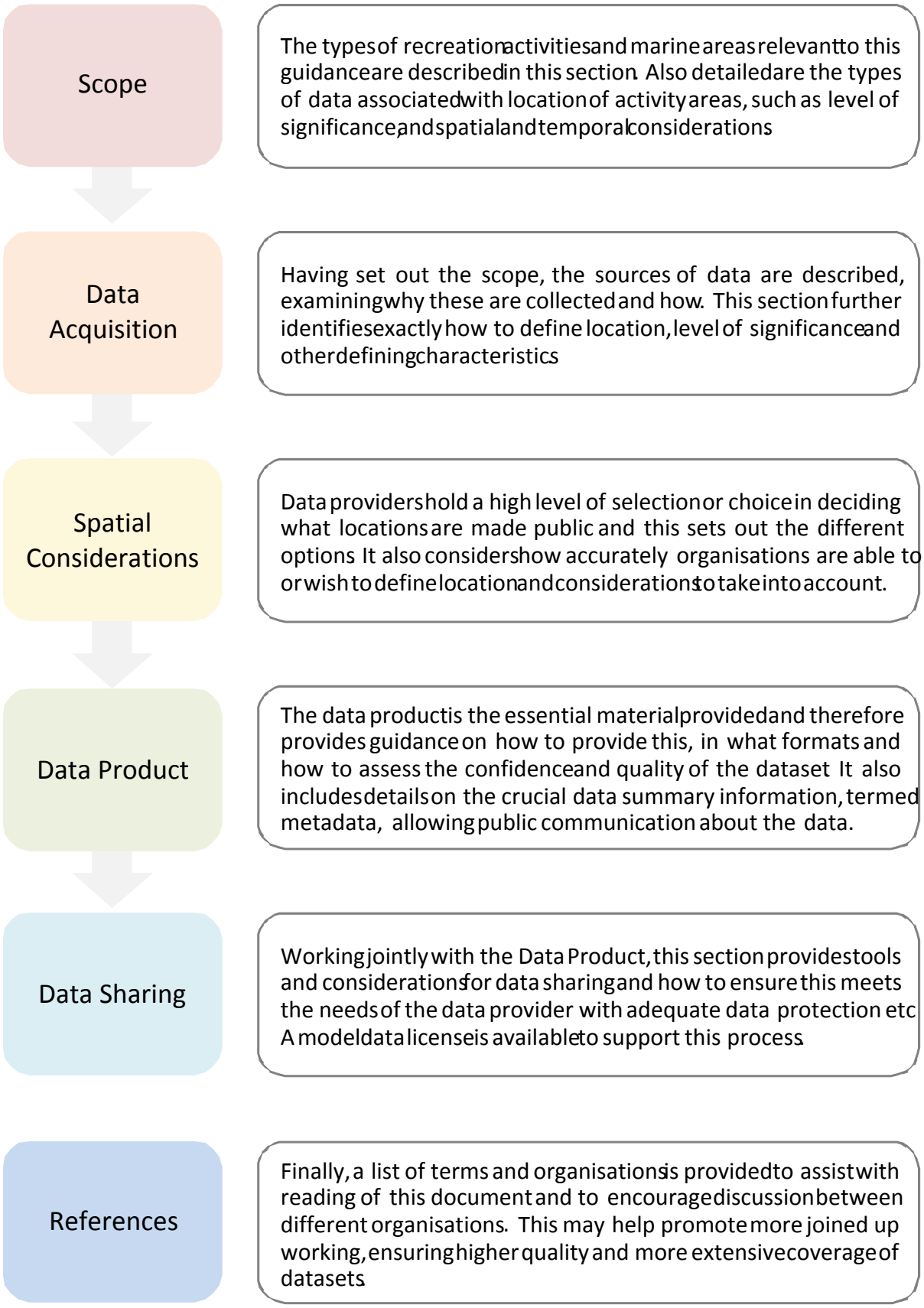
By following the guidance, a more streamlined and consistent approach is allowed, ensuring that any shared knowledge and data collected can be quickly and confidently passed up through management to help inform decisions. In return this ensures that the recreation sector is given the best opportunity to protect their activity areas and have a say in the future decision process. For further information about marine planning, and the roles of the MMO please visit:

www.marinemanagement.org.uk/marineplanning

1.3 Marine Environmental Data and Information Network

This guidance document is developed based on previous work by the Marine Environmental Data and Information Network (MEDIN): the MEDIN Discovery metadata standard and the MEDIN leisure and recreation data guidelines. MEDIN data guidelines have traditionally been developed to address data storage and management of scientific information about the marine environment, typically survey data. Whilst MEDIN has recently adapted to address socio-economic data, this requires a slightly different approach to formal MEDIN data guidelines. The principal difference is in the delivery of spatial data products on recreation activities as opposed to scientific survey data. The other difference is a greater focus on considerations in supply of this data due to the expansive field of recreation data. Despite these differences, providing the information requested in the accompanying spreadsheet will ensure your data contains all the relevant information to make it reusable in the future.

Figure 1: Summary of this document.



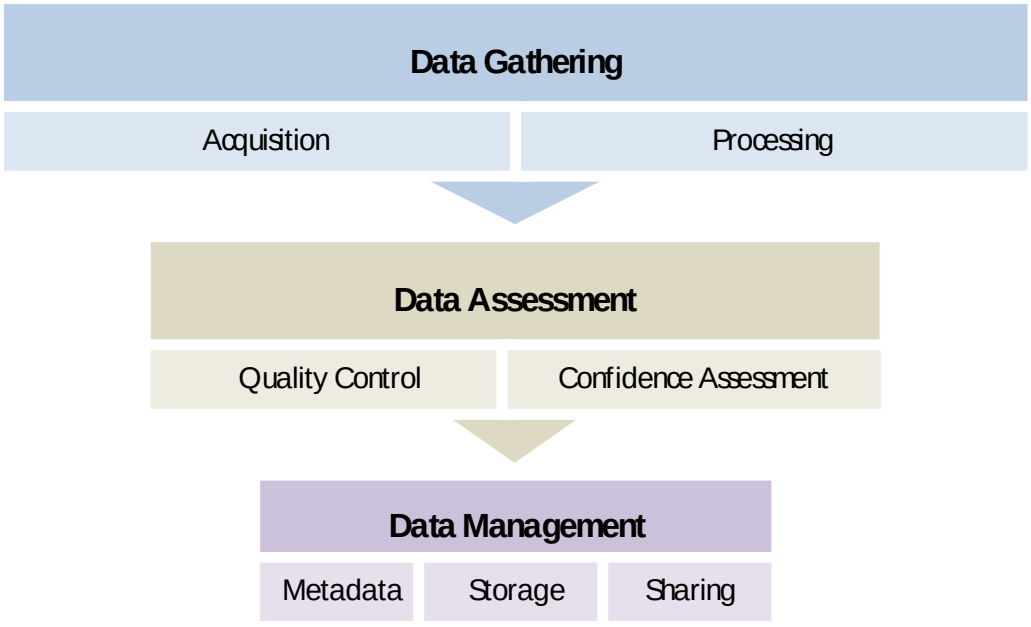
1.4 Using this guidance

Within the chapters of this guidance document, three key stages to dealing with spatial data for marine recreation activities are addressed:

Data Stage
Data gathering
Data assessment
Data management

The first stage of data gathering provides the baseline requirements for both the acquisition (e.g. survey) and subsequent processing of data, (e.g. the accumulation of results into information for one area as a whole) to form the data product. The second stage of data assessment provides the end user of the data product (e.g. MMO) with a degree of confidence in the quality and relevance of a dataset (e.g. through examination of method of data collection, whether data provide actual activity locations, if the data are relevant, reliable, etc.) which is essential to inform marine management. The third stage of data management communicates a summary and information about the data product (termed 'metadata') to the end user. For example, this includes the history and background of the dataset, file format, platforms on which to store the data and conditions or controls on how the data product can be used and shared by the end user (e.g. a data licence). Figure 2 shows these three stages and their key components.

Figure 2: Stages of dealing with data.



1.5 Categories

It is important that data originating from a wide range of activities, methods and processing types, etc. are described in common terminology. This will help users find, understand and use the data, aiding both the communication between organisations in different sectors, as well as their own individual plans and efforts. From here on, certain categories are provided to help data providers describe their data. The categories will come into use when completing the associated spreadsheet template data form, which provides lists of vocabulary to describe data. The allocated categories and descriptions may also be used to help guide organisations on their preferred approach in representing the locations of marine recreation activities to inform marine management.

In addition, the use of these categories will help with search tools to make datasets more 'discoverable', once they are stored. By using these categories, data providers are increasing the chances of data end users discovering their data, for example where summary data (metadata) is held on the MEDIN Discovery Portal. Think of them as descriptive categories, for example a dataset relating to surfing occurrence along the south coast might be tagged with the categories 'Surfing', 'Sport', 'GIS' and so on.

Within this document, categories are marked out in coloured tables, turquoise as the category and the descriptions in grey.

1.6 Other guidance documents

A spreadsheet is available, together with this guidance, which provides a template for providing data and summary information about the data (metadata).

This spreadsheet will assist with reading this document in full. This document and associated spreadsheet template form one of two sets of guidance to inform organisations working in the marine recreation sector concerned with spatial data on marine recreation activities. The other guidance has been compiled to support the MMO's work on marine management and is titled:

MAPPING MARINE RECREATION: A ROAD MAP TO FULL COVERAGE DATA. A guidance document detailing spatial data collated to date, gaps, recommended approaches, key organisations and contacts, timescales and funding.

It is recommended that the two documents are given equal attention by any organisations wishing to provide data to the MMO in the future.

These documents can be downloaded from the MMO's website[1].

[1] http://www.marinemanagement.org.uk/evidence/documents/1043.htm

1.7 Other supporting documents

Additional resources developed by the MMO may further assist with the understanding of this document but are not essential to read to inform data gathering, assessment and management and provided below as background only. These include:

- Compilation of spatial data on marine recreation activities: Phase 1 http://www.marinemanagement.org.uk/evidence/documents/1013.pdf

- Compilation of spatial data on marine recreation activities: Phase 2 http://www.marinemanagement.org.uk/evidence/documents/1043.pdf

1.8 Reference lists

A full list of terms used within this document is provided in Section 8. This includes separate lists of organisations operating in each of the recreation and non recreation sectors, as well as a list of terminology and abbreviations.

1.9 Acknowledgements

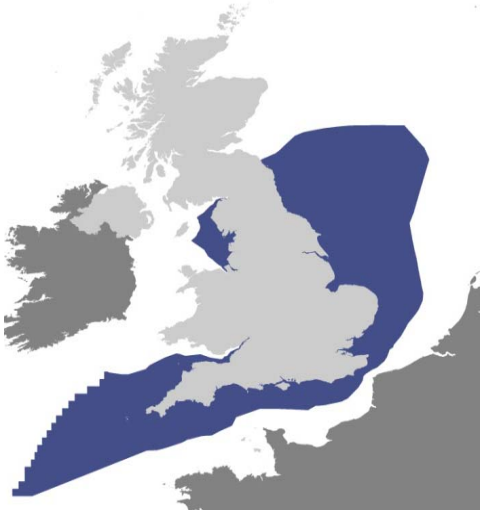
We would like to thank the many recreation organisations and individuals who either attended the project workshop (26 February 2013, Southampton), or who helped provide information and viewpoints during individual consultation. We thank those organisations also who have provided valuable peer review of this guidance, including the Royal Yachting Association (RYA), Canoe England and British Marine Federation. The guidance has also received strategic peer review by the Marine Environmental Data and Information Network (MEDIN), who we were grateful to for inviting us to present and discuss this work at their Working Group meeting (25 April 2013, Liverpool). This amended and final version therefore considers all edits and opinions reported back.

2. Scope

2.1 Activities and areas

This guidance specifically accommodates those marine recreation activities that fall within the remit of the Marine Management Organisation (MMO): between mean high tide, or the tidal limit of estuaries, out to the offshore extents of England's Marine Area (as well as offshore areas in other parts of the UK). A map of these areas, as far as legislation in England is concerned, is shown in Figure 3. However this guidance may be used in a wider context beyond England.

Figure 3: Marine areas relevant to marine regulation in England.

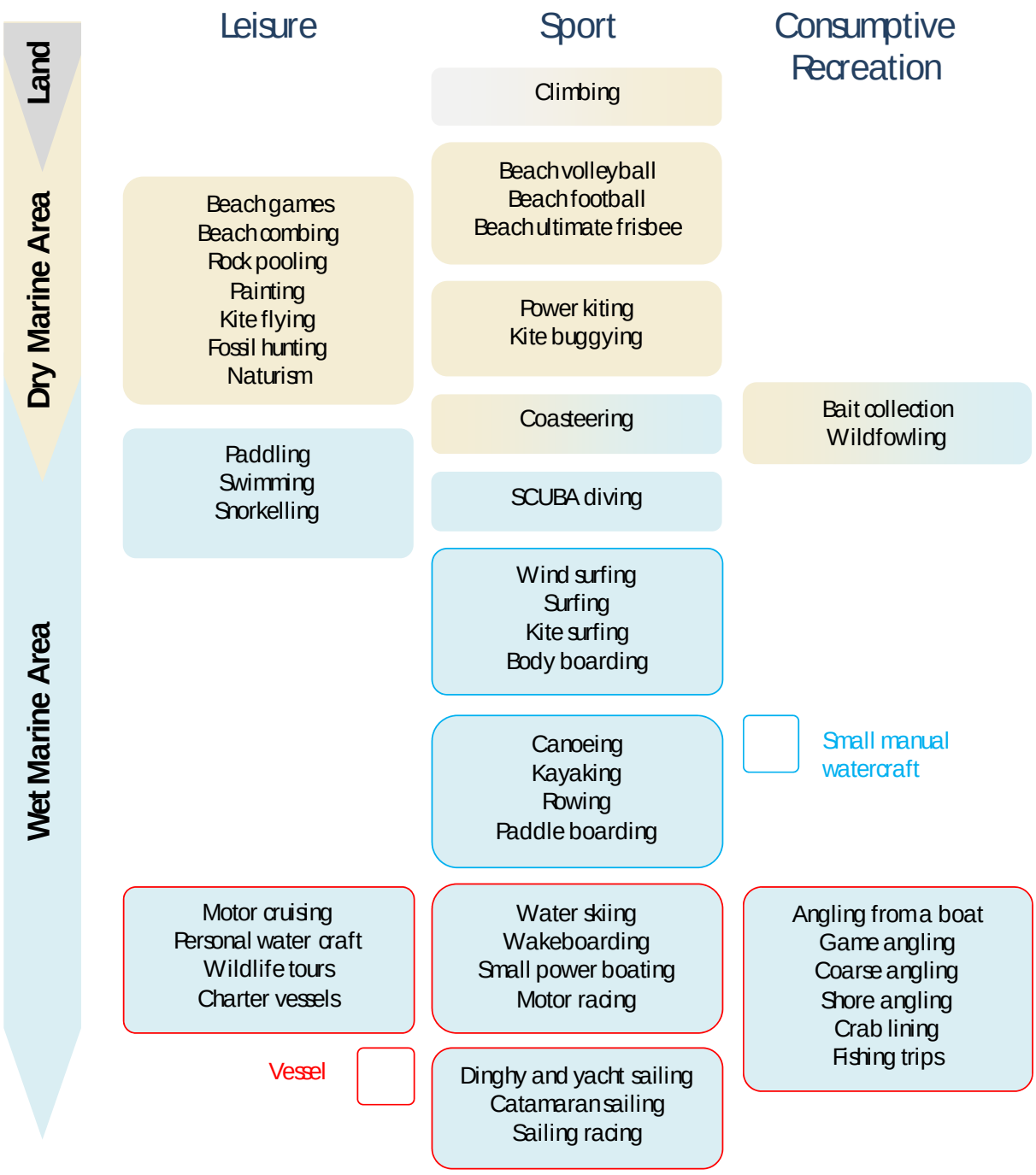


A list of activities within scope of this guidance is also shown in Figure 4. These are grouped into three categories:

Activity Characterisation	Description
Environment	Dry or wet marine environments
Activity type	Leisure, sport or consumptive (extractive, e.g. fishing)
Watercraft	Dependence of activity on manual watercraft or a vessel

These categories are required in the associated spreadsheet template, within the 'High Level Metadata' and 'Spatial Data' worksheets.

Figure 4: Marine recreation activities and their groupings.



Note the term ‘consumptive’ indicates the extraction of resources from the environment, e.g. fishing or bait collection.

Marine management also has regard to activities taking place in close proximity to the Marine Areas and so this guidance may also support data on other activities above high tide on the beach / shore or cliffs. A full list of terms used within this document is provided at the end.

2.3 Spatial data

This guidance aims to assist those looking to capture new spatial data on marine recreation activities, or those looking to gather together existing datasets. ‘Spatial data’ refers to any information on the location of where activities take place, commonly referred to as ‘activity areas’. In addition to this principal requirement, the guide also defines the importance of supporting information including the ‘level of significance’ of an activity area(s) and socio-economic considerations. For example, a dataset may include a series of busy kayaking hotspots along England’s coast with the number of participants per year. This guidance primarily targets (but is not limited to) datasets of national or regional coverage, as further detailed in the following section.

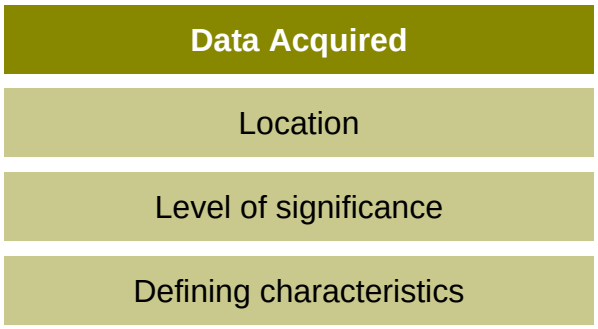
The location of where an activity actually takes place, or activity area, is the most desired information required on location. However, there are a number of indicators to activity areas or secondary location definitions, such as slipways, car parks and businesses offering services, which provide additional relevant detail to the data. Whilst data providers may find many more examples, some of the major types of indicators are summarised below.

Indicators to Activity Areas
Access infrastructure
Clubs & centres
Operators & businesses
Monitoring stations

Caution should be given to using these as a substitute for actual activity areas wherever possible. Their use can result in either the misrepresentation or complete omission of actual areas where activities take place. If these secondary location definitions are used, the data provider should point out the relevance, strengths and weaknesses in using the dataset. In some circumstances, it may be the quickest approach to mapping activity areas and this is useful as a first broad scale approach. It also may be the case that it is sufficient, e.g. marina locations.

2.4 Types of data

Data acquisition aims to address three criteria:



These three criteria are addressed in the associated spreadsheet template, each within its own worksheet for data submission (worksheets 3, 4, 5).

When new data are collected from source, the primary aim is to define the location(s) where the individual (or collective) activity or activities take place. This is essential and allows the spatial presentation of the activity areas(s) to be shown alongside data for other users of the sea.

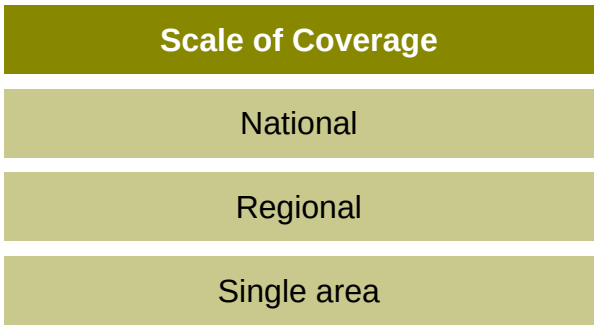
The secondary aim is to collect any associated data that can inform the level of significance of each of the unique activity areas, (e.g. gathering information on visitor/participation numbers.). This is not absolutely essential but is very useful to determine the importance of an activity area in relation to other uses of the sea or other activity areas.

Lastly, defining characteristics of an activity and its participants may provide supporting information to further evaluate the activity area's significance, such as participant age, sex or distance travelled. Whilst this is not essential, it is still of great use to inform marine management from a socio-economic perspective.

In addition to these three overarching criteria, there are a number of more administrative parameters required, such as recording the date and time, unique location identifier (as defined by the data provider), weather, etc. This guidance first addresses the overarching principles of data acquisition outlined above before proceeding to detail these more administrative requirements, as addressed in Sections 5 and 6.

2.5 Scale of coverage

Datasets may provide coverage at varying levels, for example across the whole of the UK or England, a region of the sea or county, or one single location / area. Whilst the main focus of this guidance is on datasets that provide multiple locations of activities, information on individual areas is also welcomed. A summary of the benefits and weaknesses at each scale are provided below:



- **National** datasets that source data using a uniform approach provide more consistent standards across the dataset, allowing increased confidence in comparisons between geographical areas. This reduces the risk of gaps in the dataset and misrepresentation of activities in different regions, therefore allowing increased confidence in decision making. Recreation organisations and members are encouraged to work collectively to form consistent national datasets wherever possible.

- It is recognised that organisations operating at a **regional** level have or could easily acquire suitable data more rapidly at this scale, rather than developing a national approach in collaboration with other regions. Whilst a national perspective is still the optimum goal, marine management does also operate at a regional scale when developing Marine Plans and so datasets at this scale are still of benefit.

- Data providers considering sharing information on one **single area** alone are encouraged to work with a wider network of organisations, or regional / national representatives, to allow for the possibility of this being compiled into a more extensive dataset at a later stage. At the back of this guidance in Section 8, a list of national organisations is provided, that is of potential use to organisations operating at the single area scale for potential collaboration. However, this guidance will also facilitate the sharing of such data and there may be certain situations where significance of a single area may outweigh any wider scale approach. Types of data are detailed further within this guidance.

2.6 Age or ‘vintage’ of data

As participant numbers and other characteristics of marine recreation activities change on a regular basis, the most up to date datasets are understandably of greatest benefit to the end data user. Ensuring data are up to date is of particular importance to (but not limited to) emerging activities, such as kite surfing or ‘fashionable’ dive sites. In general, data collected more than ten years ago do not carry the level of confidence required in marine management. However, for the more stable activities that may change little over time, and where good datasets are available, these will be considered.

2.7 Trends and updating datasets

Marine management is also interested in trends of activity use, both in terms of locations and level of significance. For example, it is useful to know how the number of activity participants or its seasonal variation changes over time, or indeed whether it remains steady. Therefore, repeat datasets obtained over any period, historically, are welcomed. Looking to the future, updates every two years are ideal, where resources allow, for assessing any change in activities. For those activities that are in rapid development, e.g. coasteering, annual updates could be of initial benefit. Whilst the ideal or optimum update periods are suggested here, these are not a necessity and the decision lies with the data provider.

2.8 Season of data capture

Clearly, the time of year at which marine recreation data are captured will significantly affect their scope and prevailing context. For example, collecting information on beach activities in winter will be vastly different to the summer months. It is also likely that the time of year will affect how far people are prepared to travel to participate in their preferred activity, and how regularly, resulting in demographic shifts in participant characteristics.

Ideally, data should present a year round perspective of an area's level of significance, whether sampling throughout the different seasons or from continual monitoring as with operational tracking. However, it is realised that this is not always possible and if data are only available from one period of the year then the peak season for that activity would be the best choice. This is not necessarily during summer, e.g. if beaches are busy with general visitors sunbathing and bathing, etc. this may conflict with and therefore preclude other activities. Therefore, organisations associated with individual activities should assess, from their own expert knowledge or from previous (a) survey(s), when this peak period occurs and then target this for data gathering. It may be useful to consult the following section in reference to this, which discusses Influencing Factors to activities taking place.

Where historic or future data may only be provided for non-peak periods, this may still be useful but it is important that the data provider communicates this.

Whilst in many cases the specific dates will be used in a dataset, some generalisation may be required in the processed data product to refer to the seasons or other times of the year. In this latter case, the following categories are suggested:

Time of Year	Description
Autumn	First day of school term in September up to end of November
Winter & Early Spring	First day of December until day before Easter holidays
Easter Holidays	The principal two weeks of Easter school holiday period, often the week before and week after Easter weekend (but not when Easter is early)
Late Spring	First day of school term after Easter until last day of school term before summer holidays
Summer Holidays	School summer holiday period

These categories are required in the associated spreadsheet template, within the 'Metadata High Level', and 'Other Characteristics' worksheets.

3. Data Acquisition

3.1 Objective

Whilst this guidance does not inform on how to collect data from the field, a summary of approaches is given here for reference. These methods vary greatly, as do the types of organisations / sectors involved, ranging from sports clubs and associations to tourism bodies and Government agencies. This section therefore helps provide a context to both the considerations in any future data acquisition, as well as a set of vocabulary with which to describe the data. The approaches provided here are by no means an exhaustive list and we welcome suggestions of other sources of data and methods.

3.2 Drivers for data acquisition

Organisations have been collecting and mapping locations of activities for many different reasons to date. This may be to assist with the operation of their organisation, or to the benefit of their members, etc. With legislative change and the development of Marine Plans, there is now a further demand to identify activity areas, (e.g. to help protect an area from development for its continued recreational use). The overarching drivers of acquiring spatial data on marine recreation activities are provided below. It is useful to know why a dataset has been compiled as this influences its characteristics.

Driver	Description
Retain use	Retain use of an activity area which has demand or planned use from other users, e.g. strategic planning, designated Marine Conservation Zones (MCZs), industry / development, other conflicting recreation activities.
Growth areas	Target particular areas to the benefit of the local tourism economy or individual businesses.
Promote activity	Promote an activity generally and not restricted to particular areas(s), e.g. for health benefits, to increase national memberships, strengthen campaigns, boost minority sports.
Assess impact	Assess impact of activity on other users and habitats, e.g. bird disturbance studies in protected areas.
Facilitate operations	Facilitate the day to day operations of an organisation, e.g. website traffic monitoring, vessel monitoring.

These categories are required in the associated spreadsheet template, within the 'Detailed Metadata' worksheet.

3.3 Methods

There are three principal types of data capture which are differentiated by whether they are one off survey or a series of discrete surveys or events, continual monitoring, or 'random' data capture:

Overarching Method	Description
Survey	During a survey of a given time period, information is selected or sampled. The data is considered to be representative of a whole, or is otherwise assessed for deviation from the full situation and normalised.
Monitoring	Monitoring entails continuous recording of data and may be set up for one location for a limited time period or may be unlimited.
Random	There is no targeted data acquisition and instead relies on a response to a central facility, e.g. the general public responding to a survey.

In general, an extended period of data collection is of greater value to marine management, providing a more representative dataset. However the methods used will depend on the available resources of the data provider, i.e. finances and funding and/or available volunteer / membership base. Clearly, continual monitoring provides the highest level of confidence in the final data product but is only possible, from a financial and resource viewpoint, for certain activities, e.g. vessel tracking.

Within these three categories there are a large number of individual methods. Some examples are provided below together with the types of considerations unique to these methods.

Method Type	Description
Questionnaires & Interviews	Work to date has aimed questionnaires and interviews at participants, local businesses and individuals with expert knowledge of others' use of the sea from observations, e.g. wardens of protected areas, fishing activity or lifeguards. Coverage clearly depends on spot sampling or a defined contact list. Financial considerations need to be made for repeat surveys to keep data up to date.
Upload to Website	This requires the same central organisation and standardisation as questionnaires and interviews, but depends on the action of individuals to upload information on activities to a website. This relies on suitable marketing to ensure even and wide coverage and representation of individuals, their activities and locations.

Aerial Imagery	Imagery captured using an aerial platform such as an aeroplane. Images are assessed for number of participants in different recreation activities. This is potentially an expensive option, especially considering that it is spot sampling and ideally requires repeat surveys.
Participant Tracking	Work here involves tracking participants using portable GPS units (or similar) to record where their activity of choice takes place, and the route(s) they follow, where relevant. This is very accurate but its use depends on how many days and whether all users are tracked. Participant tracking is differentiated from vessel tracking (below), by absence of a vessel; however it may still include a small watercraft, e.g. windsurfing.
Vessel Tracking	Vessels tracked by GPS to record routes, speed and duration of vessel activity. Either with no live sharing of data, e.g. chart plotters; or live sharing through e.g. Automatic Identification System (AIS) or Vessel Traffic Service (VTS), commonly used by organizations to monitor vessel movements, traffic, access points and moorings.
Licences Issued	The issue of licences indicates the presence of a particular activity, e.g. jet skiing, within the nearby areas. However, this does not delineate the actual activity areas which are used.

These criteria are required in the associated spreadsheet template, within the 'Detailed Metadata' worksheet.

3.4 Location

In very simple terms, the location of where a recreation activity takes place is essentially defined by one of four formats:

Location Type	Description
Defined Area	The boundary within which activities take place.
Line	The common pathways(s) along which activities take place, usually for travelling related activities, e.g. yachting.
Point	The central location of an area where activities take place, e.g. volleyball beach court or simplified identification of a bathing area; or the location of an indicator to an activity area, e.g. a recreation club.
Grid cell	Generalised activity locations mapped in cells or grids which would allow for full coverage within a given region.

These criteria are required in the associated spreadsheet template, within the 'High Level Metadata' worksheet.

In practice, spatial information is recorded through a number of methods and the pros and cons of each of these are provided below. The list starts with the most 'basic' or easiest reference location, moving down to more detailed definitions. However, it should be noted that the more basic levels of definition that represent a specific location (e.g. place name or postcode), are still beneficial for a dataset at a national or regional scale and can provide a first assessment of activities. It is recognised that in many cases this may be the main source of location data available and these are still encouraged. However, data providers should be aware of the implications on the confidence of the data and will need to assess resources / timescales and what is the greater of their needs to inform marine management.

Location Definition	Description
District, county	This is coarse (or low) resolution data, with no knowledge of where within this area an activity takes place. It is also a land based reference system, therefore not detailing where in the marine area an activity takes place.
Postcode	This again is coarse resolution data and land based, though an improved definition to district or county information.
Place name	Whilst technically a point on a map, a place name covers an area and therefore does not convey specifically where an activity takes place, whether it is within this place name area or adjacent.
Marine area	Coarse resolution, e.g. the Solent, but this is better than land based references.
Coordinates	Coordinates can be used to define a point, a line, or an area (i.e. through bounding coordinates). This is the most accurate source of spatial data, but depends on the provision of projection system used in defining the coordinates, e.g. British National Grid, WGS, etc. For more information on projections see: http://www.nationalatlas.gov/articles/mapping/a_projections.html

These categories are required in the associated spreadsheet template, within the 'High Level Metadata' worksheet.

Given that spatial definition of activities is the primary focus of this guidance, the following sections present some important considerations unique to this subject.

3.5 Level of significance

The level of significance of an activity area, such as number of participants or economic revenue, is useful to determine how important one activity area is to another, or relative to another sector. This is sought to assess the importance of protecting the activities that take place within it, whether this importance lies with the users, the local economy or otherwise. In many cases, significance is given to the volume or scale of usage. However, data providers are urged to assess what is important to their associated activities to represent significance. For example, an area that offers the most challenging environmental conditions (e.g. high surf, strong winds or hard coasteering routes) may in fact be the area of most significance to users and require greater attention in marine regulation considerations.

An area's level of significance may be captured from direct survey or monitoring of an area, related to individuals or watercraft; or in the absence of information on site visits, through an indicator of usage (e.g. income from hire shops). It may equally be captured from expert opinion and judgement in the case of relatively low usage areas that are considered of importance to participants.

Some examples of levels of significance are provided in the table below. However, data providers are urged to assess any additional sources of information that may inform significance, whether direct sources or indicators.

Level of significance	Description
Activity participant numbers	The number of people taking part in a recreation activity at the given location.
Vessel numbers	The number of recreation vessels at a given location.
Number of licences issued	Indicative data: issuing a licence to carry out a sport or activity would suggest that the licence holder intends to do so. Where the licence is issued will give an indication of where the activity takes place. However, this reduces data confidence as not all licences are used for the given licence period. But in the absence of other data, this would still be useful.
Number of webpage hits	Where a website provides multiple webpages on individual activity areas, the value of hits for each webpage indicates the interest and likely level of significance at that site. For example, climbing crags or surf conditions. Caution should be taken when using websites that are used by non-activity users as well, e.g. surf conditions may also supply wind conditions used by both surfers and recreational vessels.
Number of social media	Social media is increasingly being analysed for added-value data. The number of followers of a particular social media account may

Level of significance	Description
followers	provide an indication of the number of users involved in a given activity.
Local revenue or expenditure	Analysis of local spending can be used to value recreation in an area, and can also provide an indication of the popularity of certain activities locally. This may either be related purely to the activity, or for secondary services such as car park revenue. However, for the latter situation, a case would have to be made for the proportion of this revenue relating to a specific activity, e.g. by carrying out a study of the actual number of participants, in relation to the total number of cars parked.
Number of members	The number of members within particular societies and sporting clubs provides further proxy data as to the number of users. The size and reach of a membership body can be used to determine if members are focused locally, regionally or nationally.

These categories are required in the associated spreadsheet template, within the 'Level of Significance' worksheet.

For the majority of these cases, the level of significance can be provided by a count, such as the number of every participant, vessel, webpage hits, or a generalised assessment to provide categories significance. Categories can be numeric or textual, e.g. 0, 1-10, 20-30, etc. or simply high, medium, low, none. The best scenario in supplying data is to provide both, either in the data product itself, or if textual only supplied here then to define these in the accompanying metadata. Numeric categories may be assigned by expert judgement or through statistical means, e.g. natural breaks or percentiles, for which simple tools are available in Excel. Textual categories need to be applied consistently across data sets and supported by standardised category descriptions (e.g. low = 1-10). It is important to include 0 or 'none' otherwise no comparison can be made to the presence or absence of participants, vessels, etc.

Where multiple days' data exist, it is recommended that these are summarised in one dataset for the whole period, e.g. to form an average or total participant per day during each season. This may be carried out through various means, e.g. adding up total participants where continuous monitoring is used; or converting data from a series of seasonal one day surveys into one annual assessment of activity areas providing categories of high, medium or low. In the latter case, information could still be provided alongside the normal season of maximum and minimum usage. This is a good application of expert judgement, based on numerical values but used to inform an overall assessment.

Expert judgement has been applied in varying ways to inform level of significance to date, for example: an average daily value (in terms of a category, e.g. 1-10) by survey staff or off-site experts based on general knowledge; or a wider scale

assessment of the level of significance of an activity throughout the year (e.g. medium or high). Whilst expert judgement may provide very useful information to complete a full coverage dataset that would be of benefit to marine regulation, it should be noted that expert judgement does reduce confidence in data. This is not to say that expert judgement is not valuable, it is just that greater confidence can be attributed to more scientific and replicable methods. However the resources to carry out actual surveillance to provide similar results would be disproportionately expensive, with unlikely funding possibilities, and so this remains a good method where full regional/national coverage is required, especially for multiple activities.

3.6 Other defining characteristics

Often, certain additional characteristics are useful to document to build up a better picture of the importance of a given recreation activity. Demographic information, for example, can be used to assess the popularity of a particular activity (e.g. are young people carrying on participating in an established activity or are they focussing on new, emerging sports?).

Characteristics	Description
Participant demographics	For example, age, sex, demographic group.
Individuals / group	Determines whether the participants identified during data acquisition are carrying out the activity as individuals or as an organized group / team, e.g. this could then be defined as the number within a group.
Self-led / service provided	Is the activity self-led or carried out as a service provided by a local operator, e.g. surf lessons, hire of equipment, etc.
Vessel type	Length or type of watercraft.
Participant catchment	How far do people travel to make use of a particular area? Are the participants predominantly locals, or does the area have wider appeal?

These categories are required in the associated spreadsheet template, within the 'Other Characteristics' worksheet.

3.7 Influencing factors

As discussed already, time of year is one of the prevailing influences on when participants take part in many of the activities. During any period of data acquisition, data providers should clarify any influencing factors that affect either the location delineation, or the characteristics of participants within that area. Some examples of influencing factors are given below.

Influencing Factor	Description
Time of year	Season of the year as well as national / school holidays will all impact on participant numbers and extent of activity areas used. These may be related to both England and overseas participants.
Daily weather	Wind, sunshine, rain, temperature and humidity all affect participation of activities on a daily basis.
Sea state	Similarly, the sea state will affect any activity that takes place in the water, with rougher sea states acting both positively on volume / extent of activity (e.g. surfing), as well as negatively (e.g. swimming).
Pollution	Water quality, algal blooms, foam, oil slicks / deposits, litter on the beach, and air quality may all have a negative impact on recreation.
Wildlife presence	In some cases the presence of wildlife will increase activities, e.g. boat tours; whereas in other cases activities may decrease, e.g. the presence of jellyfish will usually deter swimmers.
Other users	Other marine users who are already using a site may prevent certain activities taking place, whether they are other recreation users, e.g. jet skis and swimmers; or from other marine sectors, e.g. dredging.
Training	Training schools within the local area may carry out lessons on a regular or irregular basis, e.g. summer schools.
Groups trips	The sudden arrival of a large group from outside the area, (e.g. coach trip,), may suddenly boost numbers as a one off event.
Event	An event may cover a wide range of circumstances, that both attract and/or potentially deter participants. For example an adjacent local event associated with activities may attract participants to the site, e.g. a sports competition; or a local event nearby may takes participants away, e.g. a music festival or political event.
Promotion	There may be a particular promotion, e.g. half price surf board hire or free lessons, on a day to help attract visitors.

These categories are required in the associated spreadsheet template, within the 'Other Characteristics' worksheet.

3.8 Spatial considerations

The location of an activity and its scale / significance may be captured in increasing levels of resolution / coverage and confidence dependant on the method. Confidence is an important component of any data product and a summary of how confidence is scored to inform marine management is also provided in this guidance. The next section therefore details the considerations in spatial data, highlighting the strengths and weaknesses, as well as some categories to use when describing data.

4. Spatial Considerations

4.1 Intensity of coverage

Coverage of any given data acquisition depends greatly on the method applied, survey selection or sampling, operational tracking already in place, etc. It is rare that any given method can provide full spatial coverage as this would require 24-7 year long surveillance, or reliance on every single participant informing an organisation of their activities. The only case this may be possible is for automated / operational tracking, as discussed later.

However, partial or reduced coverage does not necessarily reduce the use and application or even the confidence of the data, as long as this type of information about the data is communicated. Therefore, it is necessary to categorise how a set of areas were targeted to gather data, termed the 'target locations'. For example, a dataset that has targeted marine areas adjacent to towns and cities (urban areas) could be of great use in marine management, so long as the data users follow this by a gap filling exercise, sourcing data adjacent to rural areas.

4.2 Target locations

The reason for firstly identifying and then sharing an activity area informs how this information should be used, either singularly and/or in combination with other datasets. This is particularly relevant to data users who may be sourcing multiple datasets, to ensure that no single activity from one source is given precedence (or made inferior) over another without justification.

Note that the 'target locations', i.e. why information for a particular set of sites has been gathered, differs from the 'level of significance' (addressed in the former section), which refers to the scale of usage or another indicator of an area's significance. The target locations normally remains constant in character across one data gathering exercise, e.g. all busy / well known windsurfing sites surveyed. However the level of significance of each of these windsurfing areas will vary, e.g. with low usage (i.e. low number of participants) at one site compared to medium or high usage at another site.

The reason for identifying an area will normally fall into one or more of the following categories:

Target Locations	Description
Busy	High activity usage area, i.e. a relatively high number of participants.
Urban	High population area.
Economic	An economically important area, or similarly a low / deprived area.

Target Locations	Description
Nature	An environmentally attractive area.
Unique	Conditions of the area provide a rare or unique opportunity for the activity to take place.
Access	An area with easy / suitable access facilities, e.g. a town, slipway or marina, (rather than the site being remote/rural).
Potential impact	An activity monitored in order to assess disturbance of activity to other users / habitats, e.g. a bird disturbance study.
Conflict	An area where activities are vulnerable to the impact or conflict from other users.
Insensitive	An area that is not sensitive to disclosure and can be publically shared.
Events	Events of local, regional, national or international importance occur at the site.
Ownership	All areas owned by a company monitored, e.g. marinas belonging to one company.
Membership / network	All members or contacts of a larger umbrella organisation contribute data for their given area.
Growth	An area that has significant growth in an activity.
Sport conditions	Locations where environmental conditions provide particularly challenging conditions that are of value to certain activities.
Observers	An activity area may be targeted or be important for how many non-participating visitors it attracts, to watch the activity.
Potential	An area that provides suitable conditions or potential for an activity.
Random	Where a survey has been issued, the feedback may provide random selection of areas if the survey has reached a good sample size of different locations, demographic types, etc.
None	Areas provided cover all locations that an activity takes place within a specified region.

These categories are required in the associated spreadsheet template, within the 'Detailed Metadata' worksheet.

Note those categories listed may result in a number of secondary factors, for example a location may be shared due to its political importance or its tourism character. However, these will normally be accommodated by one or more of the factors already shown.

With regard to sensitive data, organisations or individuals may not wish to disclose locations where they wish to protect use, or provide limited, lower resolution data, on the density and occurrence of usage or true extent of an activity area, of these areas, keeping them 'secret' to their users. It is the data provider's choice whether to provide data, or not, to allow potential future protection against other developments (and potentially increase usage) or to keep these areas protected from further use by not making this information public.

Data providers are urged to assess any additional reasons for defining the importance of activity locations.

4.3 Definition and resolution of location

Similarly to the importance of the location, the way in which any area is defined or mapped will equally impact on the relevance of the information portrayed, in this case affecting the level of confidence in the data. The different ways in which location can be presented are provided below:

Spatial Delineation	Description
Format	An area may be defined by an area, line, point or grid cells, each with their differing resolution / suitability to an activity, as already outlined.
Resolution / Accuracy	There may be limitations imposed on the accuracy of an area's delineation (boundary), or data providers may have a requirement to the level of resolution. This may either be a desire to make it highly accurate / exact, or to reduce the accuracy, e.g. to protect any sensitivities.
Intensity	The delineation of an area may be taken from where all activities ever take place, where they mostly take place (e.g. an average), or through selecting those parts of the area that are important (refer to the previous section on importance of the location).

As noted above, an activity area may have defined boundaries, or be represented by a specific point or a line. These convey different levels of information, for example, an area provides a greater level of detail for where surfing takes place than a point.

However, where resources impact on the ability to prepare a more detailed location definition, it is better to have reduced definition or ‘resolution’ than none at all. It is recommended that organisations carry out a tiered process in defining activity areas, moving from coarse / low resolution through to detailed area definition as resources allow.

It should be noted, however, that evidence used to inform marine management, dependent on the application, does not necessarily require highly defined areas. For example, the broad-scale, regional, marine plans being developed now are relatively high level (low / coarse resolution), whereas marine licensing requires more detailed and precise high resolution information on the location of current and planned activities. However, when marine plans are used to inform decisions in the future, more detailed information will be useful to provide a full assessment, particularly in busy areas used by multiple sectors. The technical processes on capturing spatial information are addressed in later sections.

5. Data Product

5.1 Objective

Data submitted to inform marine management are less useful in their raw form, but become more helpful as the data products evolve following the processing of this raw data. It is these data products that are of most use to marine management decisions, due to their ability to provide a more effective presentation of the results. Data products that can quickly convey the primary patterns in marine recreation activity will be the most readily applied datasets.

For example, raw data may be processed by the data owner to categorise values; be summarised to represent total participants over a given timeframe; or involve the production of GIS (Geographical Information System) data from raw GPS data logs.

This section sets out some of the formats data may be provided in, followed by the details required specifically by the associated spreadsheet template. Up until this point in the document, the spreadsheet has been referred to wherever categories have been defined, to show where they are required within the separate worksheets. This section now pulls together all this information into one place for the formal submission of data. It therefore captures the categories and information detailed earlier in the document, together with the more administrative straight forward details that have not required explanation.

5.2 Level of detail captured

As discussed above, in some cases, the actual value of a defining characteristic can be accurately detailed (e.g. the number of people who participate in coasteering per year, from a given company). In other cases, this is not always possible and a level of simplification is required. For example this might include estimating the number of users at an activity area to within a given numeric range; the representation of a cruising route to a single line on a map rather than the broad corridor (area) the route actually uses in tacking; or level of significance assigned to high, medium or low, as informed through expert judgement or otherwise.

These are all very different methods to acquiring and presenting data and no single method is necessarily superior to the other. However, one issue with supplying raw numbers is that the data supplier then depends on the data user to apply their own level of categorisation on what is e.g. a high, medium or low significance, to make decisions. It is therefore best to supply both the numeric (e.g. categories) and descriptive (e.g. high, medium, low) categories and/or define these in the metadata.

What is important is that the method of data capture is identified to inform the end user and justify the level of confidence to avoid any doubt in its standard or quality. In the absence of any statutory or commercial requirement or obligations to collect such data, it is really a case of using the best, readily available methods to capture the best information possible, until improved methods can be used, which are likely to be dependent on funding, resources or requirements for the data, in addition to marine management.

5.3 Data product format

The format of spatial data will essentially be presented in one of three formats:

Format	Description
GIS	The provision of spatial information in GIS (Geographic Information System) is the ultimate format for sharing data. This allows the end user to immediately see where the data is located on a map and what this type of dataset is, provided through various software packages and resulting file formats. However, it is realised that many organisations do not use GIS software and do not have the resources to develop such a dataset. See GIS Formats below for free or easy to use packages.
Tabular	Tabular presentation of the location, e.g. coordinates or postcodes as outlined above, can be easily supplied instead. However, it is worth pointing out that those recreation organisations that have already created GIS datasets of their activity areas, have found that this encourages and speeds up discussion on the data product, therefore increasing its demand.
Textual	The least useful format for a dataset is descriptive text; this is not encouraged as it is unlikely that the data user has time to process this.

These categories are required in the associated spreadsheet template, within the 'High Level Metadata' worksheet.

5.4 GIS formats

GIS data may be supplied in the following file types / software packages:

GIS	Description
ArcGIS	ArcGIS is the most commonly used GIS platform. ArcGIS is a comprehensive GIS suite that offers much functionality and industry-leading technology. It is, however, expensive.
MapInfo	The nearest challenger to ArcGIS, MapInfo, is another popular GIS suite and offers much the same functionality and technology as its rival. It too is expensive.
Quantum GIS	The most popular of the free GIS software suites, Quantum GIS, facilitates the creation of ArcGIS-compatible shape files. The biggest drawback with QGIS is that support is provided through forums, unlike the extensive online help and telephone support provided for ArcGIS and MapInfo.
AutoCAD	AutoCAD facilitates computer-aided design and drafting. Outputs from the software can be used in GIS to perform spatial analyses. The software is perhaps less relevant to recreational survey work.

GIS	Description
Google Earth and Google Maps	Google Earth – a downloadable desktop application – facilitates the drawing and sharing of .kml files, which can then be opened and edited in most GIS software. Google Maps is a browser-based application (i.e. no download necessary) and requires the user to have a Google account to login and draw features (again, in .kml format). These maps can then be shared with individuals of the creator's choice.

5.5 Submission of data

Whether tabular or GIS, the intention would be that data on level of significance and other defining characteristics are provided in combination with the unique activity areas to assess differences across a region / nationally. In spreadsheets, this is completed by simply adding on additional columns next to the location definition (e.g. set of coordinates). In GIS, this is set out similarly and can be viewed through the 'attributes table', a table which contains a row for each location definition, very similar to the spreadsheet set up but linked to a map browser to visualise the locations. The associated spreadsheet template sets out three worksheets with which to provide the actual data. These are worksheet no. 3 Spatial Data, 4. Level of Significance and 5. Other Characteristics. The parameters required for each of these parts to the data is described below.

Worksheet '3. Spatial Data' provides a template to submit the actual dataset, with an entry per location. For ease of presentation, the template is presented with parameters vertically and each location entry provided in columns for ease of presentation; however data would normally be provided with this transposed, i.e. parameters as column headings and each location entry provided in rows. The actual location coordinates have only been requested for point locations only as it is realised the perimeter of areas of points representing a transect / line may be multiple and would normally be represented by GIS only (as opposed to the attribute information). The spatial data template in this worksheet could typically be applied to the 'attribute' table in a GIS file. Spatial data may be provided with additional fields to help describe this; however those provided are the critical parameters.

Spatial Data Parameters	Description
Dataset Unique ID	This is also defined within the metadata for the dataset as whole but is also necessary to define here.
Location_ID	A unique identifier for the location.
Location_SpatialForm	This is also defined within the metadata for the dataset as whole but is also necessary to define here.
Location_Definition	This is also defined within the metadata for the dataset as whole but is also necessary to define here. It may be described as an area (polygon); transect (line); point; grid cell (or a combination)
Location_Name	The commonly used name of the individual location.
Location_Ref	The grid reference defined by the Location_Definition.
Latitude	The latitude of a point location; or the centre of a transect, area or grid. Mandatory for point data. Optional for transect / area / grid as these are not easily provided in table format and so long as GIS is supplied, this will provide the spatial data required. To be provided as decimal degrees, between two and five decimal places.
Longitude	The longitude of a point location; or the start longitude of a transect; or the longitude at the south-west extent of an area. To be provided as decimal degrees, between two and five decimal places.
Date	The date or period to which the data are associated with.
Activity Type	The activity recorded at this location.

Worksheet '4. Level of Significance' provides a template to submit data that informs the level of significance, with an entry per location. Level of significance will typically be the level of usage, e.g. number of participants, but this will not always be the case. The template follows a similar format to the spatial data and provides IDs to relate the two together. However the two may typically be provided as one table with the level of significance data added as additional rows (or columns if transposed from the template as it is expected) to the spatial data. Level of significance may be provided with additional fields to help describe this; however those provided are the critical parameters.

Level of Significance Parameters	Description
Dataset Unique ID	This is also defined within the metadata for the dataset as a whole but is also necessary to define here.
Location_ID	This is also defined within the spatial data but is also necessary to define here.
Level of Significance Type	A description of the significant indicator being measured at this location, e.g. participant numbers; vessel numbers;

Level of Significance Parameters	Description
	number of web page hits. See guidance document for more information.
Period	Period for which the level of significance refers to. Could be a part of, whole or series of years.
Value	Integer value of measured indicator (e.g. 57 participants), value range, e.g. 50-60 participants, or category, e.g. Low

Worksheet '5. Other Characteristics' provides a template to submit additional data, with an entry per location. Additional data may include socio-economic data for example relating to each site. The other characteristics follow a similar format to the spatial data and provides IDs to relate the two together. However the two may typically be provided as one table with the scale of usage data added as additional columns to the spatial data. Other characteristics may be provided with additional fields to help describe this; those provided are purely examples and all data sources will differ considerably.

Other Characteristics	Description
Dataset_ID	This is also defined within the metadata for the dataset as a whole but is also necessary to define here.
Location_ID	This is also defined within the spatial data but is also necessary to define here.
Peak season	The season when the level of significance of the location reaches its peak within the year
Side grade	The sites used for certain sport activities will often be graded from easy to difficult, e.g. climbing crags are formally given this attribute, though less formally allocated grades may exist, e.g. surf spots that pose the largest waves
Other activities	Other activities that take place at the site
Access point	Nearest access point for the named activity for the given activity area
Influencing Factor	Measurements of those parameters that may have influenced results
Participant age ranges	Age categories that those participating in given activity fall into
Participant gender proportion	Ratio of female to male participants
Participant Working Status	Employment group of the participant, from the categories provided.
Participant socio economic group	Socio-economic group to which a participant belongs, based on the NRS social grade.
Participant ethnicity	Ethnicity of participant, from categories provided.
Participant	How often participant takes part in an activity, per year.

Other Characteristics	Description
frequency of participation in activity at each location	
Watercraft ownership (manual and powered watercraft/board only)	Details on the ownership of the watercraft that the participant is using. The boat could be owned by one individual (private ownership) or a group of individuals (shared ownership). In addition the participant could be acting as crew on someone else's watercraft or the boat could be hired.
Consumptive species	Consumptive species refers to those animals extracted from the marine environment, commonly through fishing. Give common and species name where possible or higher taxonomic group if not.
Number of species extracted	Details about the approximate frequency that a species has been caught or observed over the last 12 months.
Period for number of species extracted	Indicate period of extraction, if different from 12 months
Wildlife watching species	The main capture locations for consumptive activities e.g. productive angling areas or 'hotspots' for wildlife watching e.g. grey seal colonies.
Anti-foulants used	The antifoulant product used on the watercraft
Use of anchoring	The major locations in which a participant typically anchors a boat.
The extent of adherence to environmental best practise guidelines	Details about the understanding participants have of environmental best practise guidelines and the extent of adherence.
Wildlife disturbance	Details about potential disturbance to marine and coastal wildlife such as marine mammals, basking sharks and seabirds.
Sewage-related illness - Participant Count	Number of participants who have, at some time at the current location, contracted a sewage-related illness. Either provide data as an integer or a value range (i.e. '2', or '0-10')
Sewage-related Illness Type	Type of sewage-related illness contracted
Sewage/waste disposal information (powered watercraft)	Information on how waste discharge is dealt with by the participant.

5.5 Submission of summary data (‘Metadata’)

The history and background of a dataset is commonly provided through informal/un-standardised means (e.g. emailing a contact information about what your dataset holds). However, structured or standardised information ensures that all required fields in the data summary are provided to inform the end user. This allows the end user to then decide its relevance to their intended use of the data and decision to source. It also allows them to consider its application and correct use in decision-making in marine management.

Structured information about what the dataset holds is termed ‘metadata’. Some of the most important metadata parameters include a dataset title, date, purpose of data acquisition, data capture method, quality assurance carried out, confidence of the dataset and data source. Metadata is a primary requirement to any data product and is extremely useful in the initial stages of sharing data.

The tables below are copied from the associated spreadsheet template and set out a structure for compiling metadata relating to socio-economic and recreation-based data products. The suggested fields in these tables should be kept in mind when acquiring new data. There are two tables (relating to two worksheets within the spreadsheet): high level metadata and detailed metadata.

Worksheet '2a. Metadata_HighLevel' provides a template to submit metadata to conform to certain standards required by MMO and MEDIN. The parameters within this worksheet are considered essential to provide.

Heading	Requirement	Description	Recommended Term List or Format	Examples
Dataset Title	Mandatory	Title of the dataset	Free text	e.g. Kite buggying UK 2012
File name	Mandatory	Name of the file(s) supplied, including file extension. It is useful to note the coverage, activity, organisation, year and version number in the file name.	Free text	e.g. 'Kitebuggying_UK_GoKitesLtd_2012_V1.shp'
Dataset Unique ID	Mandatory	A unique code for the dataset to help identification of it. The web address relating to the project, followed by a unique code, may be used if applicable. It is useful to note all of the above as well as the version number or date of publication.	Free text	e.g. http://www.GoKitesLtd.co.uk/UKGoKitesLtd2012V1
Dataset type	Mandatory	Are the data a single dataset, a collection of different datasets or an online service through which data can be viewed/downloaded?	Categories: Dataset (information applies to a single dataset); Series (information applies to a group of datasets linked by a common specification); Service (information applies to a facility to view or download data)	e.g. Dataset
Data Product Format	Mandatory	Are the data supplied as GIS, tabular data or textual (descriptive)?	Categories: GIS; Tabular; Textual	e.g. GIS

Data Acquisition	Mandatory	Description of how the data were collected from source, methods applied, tools used, any sampling techniques, instruments used (if applicable), number of surveys or days of data collected, scale and intensity of coverage, organisations involved (if other than the data provider), etc.	Free Text	e.g. Observation surveys carried out between June and July 2012 to assess number of participants taking part in kite buggying across 48 busy beaches in the UK during summer holidays. Observations made during 10 individual days always taken at low-mid tide and early-mid afternoon, and at 250m intervals across beaches. Data collected also included age, gender of participants and model of kite buggy.
Location Definition	Mandatory	Does this sample location refer to either a district/county; postcode; place name; marine area; specific coordinates?	Categories: District/County; Postcode; Place name; Marine area; Coordinates	e.g. Coordinates
Data Processing	Mandatory	How have data been dealt with from data capture through to data processing and the final data product? How have data been aggregated or summarised / simplified? Have any categories been applied to raw data, e.g. to inform number of participants? Have sampled data been scaled up to represent annual values? Were data inserted from field notes into spreadsheets and then imported to GIS?	Free text	e.g. An approximation of the activity area was digitised on GoogleMaps to provide a GIS file. Categories of usage of low, medium and high were denoted to each location. Areas were issued to members to validate the boundaries and corrected following responses. Attribute data of usage was combined with the GIS IDs.

Keywords	Mandatory	Keywords should define the content of your dataset(s), and are used to facilitate quick searches for data. Ideally the keywords will be found in one of two lists: INSPIRE and/or MEDIN keywords (and if used then the list from which the keyword comes from should be named). However these do not currently accommodate recreation datasets and so this field allows free text.	Categories from INSPIRE and/or MEDIN keyword lists. OR Free text	Kite buggying; Summer; Recreation; Survey; Participants; Beach; Areas
West Bound Longitude	Mandatory	The western-most limit of the data, provided in the coordinate system that the data were captured in. Two to four decimal places. Can be sourced from data, GIS or if no coordinate data collected, then from GoogleMaps by placing a 'what's here' pin on the west bound longitude location.	Coordinate; two to four decimal places	e.g. -1.3756
East Bound Longitude	Mandatory	The eastern-most limit of the data, provided in the coordinate system that the data were captured in. Two to four decimal places	Coordinate; two to four decimal places	e.g. -1.0513
South Bound Latitude	Mandatory	The southern-most limit of the data, provided in the coordinate system that the data were captured in. Two to four decimal places	Coordinate; two to four decimal places	e.g. 52.1465
North Bound Latitude	Mandatory	The northern-most limit of the data, provided in the coordinate system that the data were captured in. Two to four decimal places.	Coordinate; two to four decimal places	e.g. 52.5673

Spatial Reference System	Mandatory	Describes the system of spatial referencing, based on a pre-defined list, available here: http://www.epsg-registry.org/	Term List; http://www.epsg-registry.org/	e.g. WGS84 code: EPSG::4326; or British National Grid (projected) code: EPSG::27700, etc.
Data Acquisition Start Date	Mandatory	The earliest date and time that data capture began.	Date or Date Time; icy-mm-did or icy-mm-did hh:mm:ss	e.g. 2009-07-14 12:00:00
Data Acquisition End Date	Mandatory	The most recent date and time that data capture ended.	Date or Date Time; icy-mm-did or icy-mm-did hh:mm:ss	e.g. 2009-08-28 16:00:00
Date of Last Revision	Mandatory	The most recent date that the dataset were revised, if at all.	Date or Date Time; icy-mm-did or icy-mm-did hh:mm:ss	e.g. 2009-09-28
Date of Dataset Publication	Mandatory	The date at which the data were made publicly available. If the data are previously unpublished, enter the current date.	Date or Date Time; icy-mm-did or icy-mm-did hh:mm:ss	e.g. 2009-09-29
Frequency of update	Mandatory	The frequency with which the data are updated. Choose from one of the options to the right.	Categories: Continual; Daily; Weekly; Fortnightly; Monthly; Quarterly; Biannually; Annually; 2-5 years; 5-10 years; As needed; Irregular; Not planned; Unknown	e.g. '2-5 years'
Metadata date	Mandatory	The last date on which this metadata was updated. If it has not been updated it should give the date on which it was created.	Date format: icy-mm-did	e.g. 2009-09-29

Limitations on Public Access	Mandatory	Guided by MMO recreation data licence, refer to data licence used for dataset	Free Text	e.g. Data may be presented by the data licencee to the public in a visual context but the data product GIS files themselves may not be distributed. See data licence for full details.
Conditions applying for Access and use	Mandatory	Guided by MMO recreation data licence, refer to data licence used for dataset	Free Text	e.g. May not be used for commercial gain. See data licence for full details.
Distributor	Mandatory	Person(s) or organisation(s) responsible for the distribution of the data. More than one entry allowed.	Free text	e.g. Go Kites Ltd
Data Contact Name	Mandatory	Person(s) responsible for the production and upkeep of the data. More than one entry allowed. May be the same person as distributor.	Free text	e.g. 'John Smith'
Job Position	Mandatory	The job position held by the data contact.	Free text	e.g. 'Data Manager'
Organisation Name	Mandatory	Name of the organisation for whom the data contact works.	Free text	e.g. Go Kites Ltd
Postal Address	Mandatory	Address of the organisation given above.	Free text	e.g. Plymouth, Devon, PL1 1AA, England
Telephone Number	Mandatory	Contact telephone number of the data contact.	Numerical	01645328176
Email Address	Mandatory	Email address of the data contact.	Email	john@gokites.co.uk
Acknowledgement	Mandatory	Provide a statement that can be used to acknowledge the data you are providing.	Free text	e.g. 'Data provided by Go Kites Ltd 2012'

Dataset Report Reference	Optional	Reference of relevant report, if applicable.	Free text; in reference format.	e.g. Bloggs, J. (2012) 2012 Kite buggying spatial data and usage, UK. Go Kites Ltd, Plymouth.
Resource locator	Conditional	If the resource is available online you must provide a web address (URL) that links to the resource.	URL	e.g. http://www.GoKitesLtd.co.uk/Downloads
Metadata standard name	Mandatory	If using this spreadsheet template version V1.0, please insert MMORecreation_MetadataStandard_V1.0	Free text	e.g. MMORecreation_MetadataStandard_V1.0
Metadata standard version	Mandatory	If using this spreadsheet template version V1.0, please insert V1.0	Free text	e.g. V1.0
Metadata language	Mandatory	Language the dataset is provided in	Free text	e.g. English

Worksheet '2b. Matadata_Detailed' provides a template to submit additional metadata. The detailed metadata provides a more in depth view of the data, assessing the driver for data acquisition, processed, quality controlled and any confidence levels attributed to the data. Not all fields are mandatory but it is encouraged that all fields are completed.

This also requires an assessment of the quality and reliability of data gathered provides the ‘confidence assessment’. The method described within the table is based upon the MMO approach. This uses key indicators relating to the data capture methodology; data timeliness (i.e. how recently were the data collected are they still relevant?); the positional accuracy of the data; completeness of the dataset and; any quality control methods used by the data provider to assure confidence in a dataset.

Heading	Requirement	Description	Recommended Term List or Format	Examples
Purpose	Optional	An explanation of why these data were gathered. For what project/reason? Details should be provided regarding the project name/title, the date period over which the project was conducted and any related resources, be they a project website or report.	Free text	e.g. Data captured as part of an annual survey into the use of kite buggying in the UK carried out to inform business operations. Data also captured to inform the MMO's marine planning programme. See www.GoKitesLtd.co.uk for more information and a link to the project report'
Driver	Optional	Category(ies) into which dataset purpose might fall, as defined from the specified list (right). More information can be found in the guidance document.	Driver Categories: Retain use; Growth area; Promote activity; Assess impact; Facilitate operations	e.g. Retain use
Importance of Location	Mandatory	Why is this location of significance? i.e. Why survey here? See supporting document	One or more of the following categories: Busy; Urban; Economic; Nature; Unique; Access;	e.g. Busy

			Potential impact; Conflict; Insensitive; Events; Ownership; Membership / network; Growth; Sport conditions; Observers; Potential; Random; None	
Method Type	Optional	Category(ies) into which data capture method(s) fall, as defined from the specified list (right)	Method Categories: Questionnaires & Interviews; Participant Upload to Website; Aerial Imagery; Participant Tracking (e.g. by GPS on windsurfing); Vessel Tracking (by GPS); Licences Issued	e.g. Vessel tracking
Location Transformation	Conditional	If coordinates were originally gathered in any other reference system than the one in which they have been supplied, please indicate it here. State the original coordinate system, and the transform used to convert between that, and the supplied coordinate system.	Free text, but should include EPSG codes, available from: http://www.epsg-registry.org/	e.g. data originally gathered in British National Grid (EPSG:: 27700) but converted in ArcGIS to WGS84 (EPSG: 4326) using the 'OSTN02_v2' transformation.
GIS Format	Conditional	If data are GIS format, indicate	Free text	e.g. Data are supplied as

		here the file type and associated software.		ArcGIS v9.3 shapefiles
Location Spatial Form	Mandatory	Spatial representation of survey area of interest, as defined from the specified categories (right)	Location Categories: Area (polygon); Transect (Line); Point; Grid cell (or a combination)	e.g. area
Confidence of Method	Mandatory	An assessment of the method(s) used to capture a dataset. Categories defined as follows: '0' – Data are of an unknown origin '1' – Little or no published methodology can be identified. Little or no indication if this was "best practice" by experts/professionals in that field. Little or no indication of any external verification or peer review. '2' – Provided methodology but no indication if this was "best practice" by exerts/professionals in that field. Or: little or no methodology provided, but data come from an authoritative source. Some external checking indicated. '3' – Provided methodology is considered "best practice" by experts/professionals in that field. Methodology is valid and reliable	Free text; provide reasoning for score (can be taken from wording used in the description, left).	e.g. 1 – Little or no published methodology can be identified. Little or no indication if this was "best practice" by experts/professionals in that field. Little or no indication of any external verification or peer review.
Confidence of Timeliness	Mandatory	An assessment of the age (and therefore relevance) of a dataset.	Free text; provide reasoning for score (can be taken from	e.g. 3 - the data are up-to-date, date and period of

		Categories defined as follows: ‘0’ – no details of data vintage are known ‘1’ – the data are out of date. Date/period of data collection are unclear '2' - the data are out of date. Date of collection is known, and some indication of update is made. No commitment made to certainly updating the data, however '3' - the data are up-to-date, date and period of data collection is known and updates are guaranteed to be carried out to a pre-determined schedule	wording used in the description, left).	data collection is known and updates are guaranteed to be carried out to a pre-determined schedule
Confidence of Spatial	Mandatory	An assessment of the certainty in the data's representation of location and extent. Categories defined as follows: '0' - unknown or uncertain extent and location details '1' - neither location nor extent are identifiable to a reasonable degree of accuracy '2' - location or extent accurately defined, but not both '3' - both location and extent accurately defined	Free text; provide reasoning for score (can be taken from wording used in the description, left).	e.g. 3 - both location and extent are accurately defined
Confidence of Completeness	Mandatory	An assessment of how comprehensive a dataset is. Categories defined as follows:	Free text; provide reasoning for score (can be taken from wording used in the	e.g. 2 - some known gaps

		'0' - unable to assess (insufficient information supplied) '1' - many gaps '2' - some known gaps '3' - no gaps	description, left).	
Confidence of Quality Assurance	Mandatory	An assessment of the quality assurance procedures applied during data capture, if any. Categories as follows: ‘0’ – no evidence of quality assessment provided ‘1’ – no quality control procedures completed at point of data collection or during data processing ‘2’ – some quality control information published at the point of data collection and/or during data processing however not accredited to a recognised standard ‘3’ – detailed quality control information published and available for the data collection and/or during data processing and accredited to a known standard	Free text; provide reasoning for score (can be taken from wording used in the description, left).	e.g. 1 – no quality control procedures completed at point of data collection or during data processing

6. Data Sharing

6.1 Publicising dataset availability

MEDIN makes sharing data easier via the MEDIN Discovery Portal:

http://portal.oceannet.org/search/full

This is a website that allows you to search for different types of marine data held at various organisations within the UK. To make your dataset visible on the MEDIN Discovery Portal you need to put your metadata into a specific, machine readable format using one of the tools that MEDIN supply, see:

http://www.oceannet.org/marine_data_standards/medin_data_guide2.html

The MEDIN helpdesk can help you ensure your metadata contains the appropriate information and is in the correct format. For more information on MEDIN contact

medin.metadata@mba.ac.uk

6.2 Protecting data

The sharing of data is an important stage at which to lay down the rules of how the data may be used, by whom, how long for and to identify any limitations imposed. Most datasets are supplied with a data licence agreement to help protect the rights of the data provider (and data user). It is recommended that data providers either use the model data licence created specifically for use by the recreation sector in providing spatial data to the MMO, or to develop their own.

The model licence agreement provides a tick box approach to the main part of the licence, allowing it to be tailored to each specific data provider. The tick boxes allows a set of clauses to be tailored to different parts of the data product supplied, including the Data Title, Raw Data, Metadata, Processed Data and Data Report. The aim of this approach is to encourage sharing of less sensitive parts of the data product, such as metadata, where other parts may be only used in confidence, e.g. raw data.

This licence may also be of use for providing data to others outside of the marine management / regulation sector and can be adapted accordingly.

7. Summary

This guidance has set out a detailed assessment of producing spatial data to inform marine management on marine recreation activities. It considers the multiple characteristics of a spatial dataset within this field, outlining how the approaches differ and the level of accuracy within each. The guidance is not a prescriptive set of rules on how to supply data but does ensure that any data providers are equipped with the best advice on how to contribute their information to inform marine management.

The guidance is in itself a backdrop to the associated spreadsheet through which actual data and metadata (information about the data) can be submitted which can be downloaded from the MMO website[1].

Whilst the reader is signposted to this spreadsheet throughout the guidance, all the tables are however reproduced within this document for reference.

This guidance on How to Supply Data and the associated spreadsheet do not bear any background to what data actually exists and that have been submitted or sourced by the Marine Management Organisation already. It is strongly recommended that anyone wishing to contribute spatial datasets in the future on marine recreation activities read about this background information in the guidance document:

MAPPING MARINE RECREATION: A ROAD MAP TO FULL COVERAGE DATA.

A guidance document detailing spatial data collated to date, gaps, recommended approaches, key organisations and contacts, timescales and funding.

This document sets out the optimum characteristics of a spatial dataset developed for each activity, outlines how working together from a top down national approach can support such an optimum dataset, details current data coverage in England, identifies gaps with suggested approaches to gap fill with prioritisation. It also considers organisations, offers tools and sets out estimated timescales and resources required for such data gathering, provided against timescales fitting in with marine management and regulation.

If you would like to obtain further information on marine regulation in England and understand better how such data would be applied, please visit the marine planning section of the MMO website[2].

[1][1] http://www.marinemanagement.org.uk/evidence/documents/1043.htm

[2] www.marinemanagement.org.uk/marineplanning

8. References

8.1 Terminology (A to Z)

Term	Description
Attribute data	Information describing or relating to a location, event or entity, for example activity type.
Confidence assessment	A measure of confidence in a dataset, assessing numerous criteria including data capture methodology and level of peer-review.
Controlled sharing	Pertaining to the sharing of data within pre-agreed constraints, such as a licence agreement.
Data acquisition	The process of capturing data, through methods including questionnaires, GPS tracking and aerial imagery, for example.
Data coverage	The geographic area covered by a dataset.
Data format	The form in which spatial data are supplied, essentially either as GIS data, in tabular form or as a text document.
Data processing	The steps involved in creating a data product from raw data. This may involve turning individual items of information into grouped results (such as age ranges of participants) or analysis techniques that anomalise sensitive information.
Data product	The result of data processing, the data product presents a version of the original raw data that has been analysed to best present certain findings.
Data record	A single entry within a dataset, for example a single respondent to a questionnaire within a dataset detailing all responses.
Data resolution	A measure of sampling density, or the ability of a sensor to resolve features, for example a digital camera.
Data sharing	The act of supplying data to a third party, often within pre-agreed constraints.
Data storage	The ‘safe-keeping’ of data. Usually achieved using digital media and a backup process.
Data vintage	The ‘age’ of the dataset, based on when the original data were first captured.
Discovery portal	A MEDIN search facility, enabling geographic search tools to find MEDIN-compliant datasets.
Geographic Information System (GIS)	Software that facilitates the storage, management, analysis and production of spatial data.
Marine Environmental Data and Information Network (MEDIN)	MEDIN promotes the sharing of, and access to, marine data, through data repositories, search facilities and a number of data guidelines and a metadata standard.
Marine recreation activities	Recreational activities that occur on, in or near the sea.
Marine management	The management of the marine area according to legislative measures, including marine planning, marine licencing, fisheries management, fisheries management

	and enforcement and protecting the environment.
Metadata	Information about data, such as when a piece of data was collected, by whom and using what method(s).
Quality assurance	A series of steps taken to ensure a product – in this case a dataset – can be used as intended.
Spatial data	Data with a geographic 'tag', meaning it has a location in space that can be plotted and used to inform decision-making.

8.2 Acronyms

Acronym	Explanation
EPSG	European Petroleum Survey Group
GIS	Geographic Information System
GPS	Global Positioning System
INSPIRE	Infrastructure for Spatial Information in the European Community
ISO	International Organisation for Standardisation
MEDIN	Marine Environmental Data Information Network
MMO	Marine Management Organisation
MPC	Marine Planning Consultants
NERC	Natural Environmental Research Council
QA	Quality Assurance
VMS	Vessel Monitoring System
WGS	World Geodetic System

8.3 National recreation organisations

Note this is not an exhaustive list but provides some of the most prominent organisations working in the recreation sector.

Angling Trust
British Association for Shooting and Conservation
British Canoe Union / Canoe England
British Coasteering Federation
British Horse Society
British Kite Surfing Association
British Mountaineering Council
British Rowing
British Stand Up Paddle-Boarding Association
British water ski and Wakeboarding Association
British Sub Aqua Club
Cruising Association
Outdoor Swimming Society
PADI
RYA
Surfing GB
UK Windsurfing Association
Volleyball England

8.4 National organisations related to the recreation sector

Note this is not an exhaustive list but provides some of the most prominent organisations working in the recreation sector.

ABP Ports
British Marine Federation
Canal and River Trust
Canoe and Kayak UK (Magazine)
Centre for Environment, Fisheries & Aquaculture Science
Maritime and Coastguard Agency
MDL Marinas
National Coastwatch Institute
National Trust
Natural England
Royal National Lifeboat Institution
Royal Society for the Protection of Birds
Sea Watch
Seasearch
Shark Trust
Surf Life Saving Great Britain
Surfers Against Sewage
UK Charter Boats
UK Harbour Masters Association
Visit England

8.5 Recreation websites offering spatial information

Note this is not an exhaustive list but provides some of the most prominent organisations working in the recreation sector.

www.boatlaunch.co.uk
www.divernet.com
www.divingdirect.co.uk
www.finstrokes.com
www.forces-of-nature.co.uk
www.grabyourboots.com
www.racekites.com
www.sportextreamemap.com
www.thewindmap.com
www.wannadive.net
www.wannakitesurf.com
www.wannasurf.com
www.yumping.co.uk