Final recommendations for Marine Conservation Zones in the Irish Sea

Submitted 31st August 2011

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Covering Note for ISCZ final recommendations

The ISCZ process has involved a wide range of organisations and individuals interested in or concerned about Marine Conservation Zones (MCZs) in the Irish Sea. The ISCZ process was set up to inform Defra's decision making by providing recommendations for MCZs in the Irish Sea.

This report represents the work undertaken by the ISCZ Regional Stakeholder Group (RSG) in developing its recommendations for Marine Conservation Zones in the Irish Sea. The report contains within it the agreements, comments and caveats regarding the sites put forward as part of a coherent network of MCZs. In order to get to this point the RSG worked within the "rules" given to them by Natural England and JNCC, in the form of the Ecological Network Guidance (ENG). It is important to note that sites may not be the perfect or ideal choice for all members of the RSG but, when seen as part of an inter-linked and inter-dependent network, they are the best that the group could produce within the available time. Readers of this report are also encouraged to consult the individual RSG meeting reports that were produced throughout the process.

This report will be made available to the public to ensure openness and transparency about the work of the RSG. It is not the intention, however, to invite comments on the report as this is not a public consultation but a participatory planning approach. We are aware that Defra will run a public consultation later on in the process, after submission of the RSG's recommendations.

Merely by having participated in the process, no stakeholder is thereby bound to agree with every statement in the report.
The members of the Regional Stakeholder Group for the majority of the process are listed below. For details on attendance of each individual RSG meeting, readers should consult the meeting reports.

ISCZ Regional Stakeholder Group members:

Name	**Sector/Interest and/or Organisation**
Andrew Newlands	Marine Management Organisation
Adrian Lester	Commercial shipping (Chamber of Shipping)
David Pendleton	Ports and Harbours (Mersey Maritime)
Stuart Livesey	Marine Renewables (Renewables UK)
Julie Drew	Marine Renewables (Renewables UK)
John Watson	Oil and Gas (Oil and Gas UK)
Andrew Bellamy	Marine aggregates (British Marine Aggregates Producers Association)
Peter Jamieson	Sub-sea cables (UK Cable Protection Committee)
David Dobson	North Western IFCA
Ron Graham	Commercial Fishing: Mobile whitefish gear
Tom Bryan Brown	Manx Fisheries (Manx Fish Producers Organisation)
Gary Pidduck	Commercial Fishing: Static gear
John Hermes	Commercial Fishing: Scallop dredging
Chris Woods	Commercial Fishing: Inshore shellfisheries
Davey Hill (supported by Dale Rodmell)	Northern Irish Fisheries (Anglo Northern Irish Fish Producers Organisation and NFFO)
Dick James	UK Association of Fish Producers Organisation **Up to 13th July 2011 only**
Jerry Percy	Welsh fisheries (New Under Ten Fishermens Association) **Up to 12th July 2011 only**
Kelsey Thompson	Mariculture
Thomas Catchpole	CEFAS

Eibhlin O'Sullivan	Irish fisheries (Irish South and West Fish Producers Organisation)
Tom Craeynest	Belgian fisheries (Redercentrale)
Cristina Herbon	Joint Nature Conservation Committee
Chris Lumb	Natural England
Sarah Peet	Environment Agency
Cheryl Nicholson	Wildlife Trusts
Andrew Gouldstone	Royal Society for the Protection of Birds
Cynthia Burek	Geodiversity (NW Geodiversity Partnership)
Kay Foster	Marine Conservation Society
John Amery	Recreational angling
Chris Sweeting	Recreational diving
Geoff Megitt	Recreational leisure craft (Royal Yachting Association)
Sue Stallibrass	English Heritage
Tony Wyld	Ministry of Defence
Andrew Finlay	The Crown Estate
Matthew Palmer	Marine Research (National Oceanography Centre)
Caroline Salthouse	Northwest Coastal Forum
David McAleavy	Sefton Coast Partnership Forum
James Cogle	Marine Scotland
Paddy Campbell	Department of Agriculture and Rural Development (Northern Ireland)
Fiona Gell	Department of Environment, Food and Agriculture (Isle of Man)

ISCZ Final recommendations

Rough overview of report structure and content

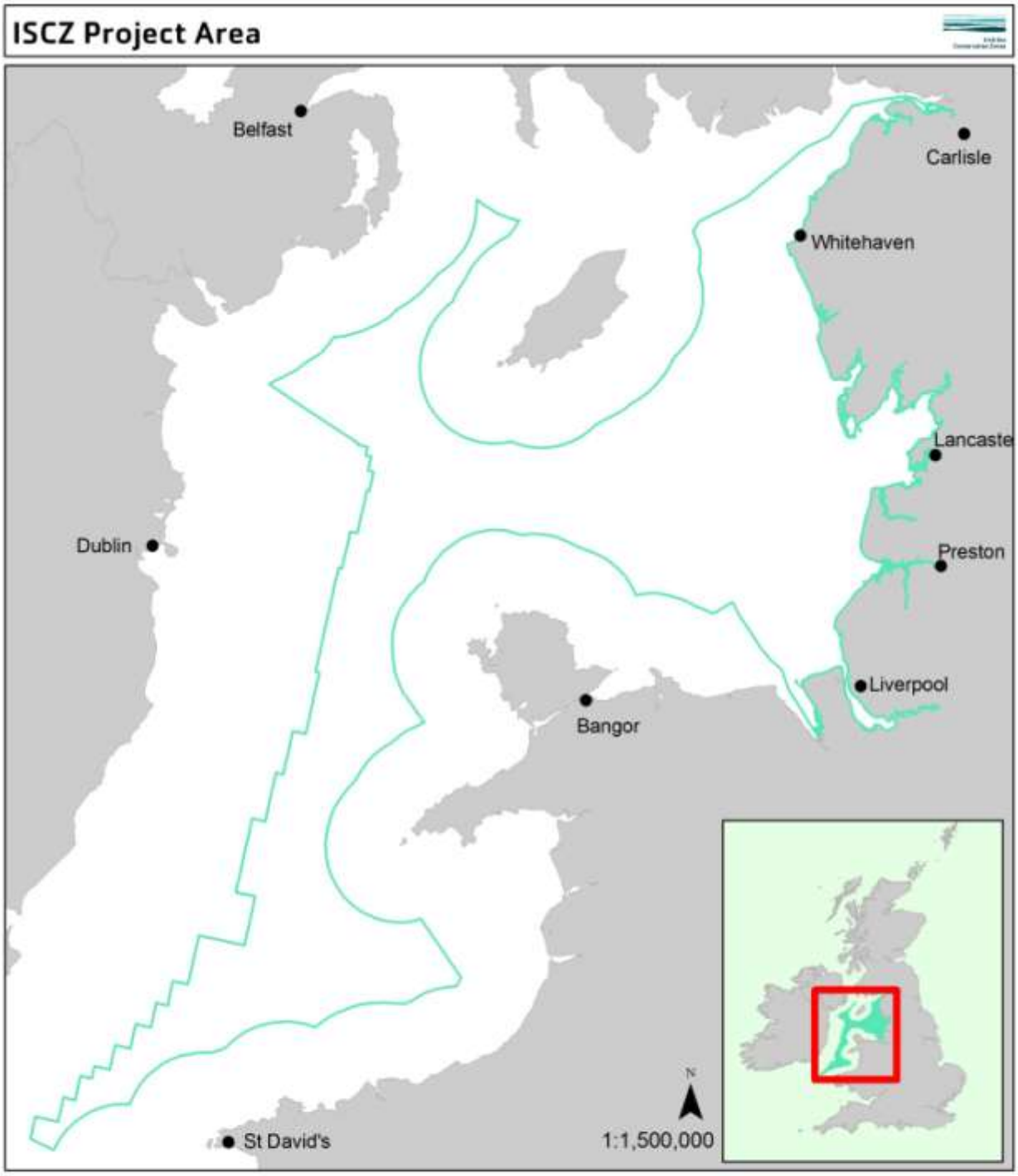
This final report has been written by the ISCZ project team on behalf of the ISCZ Regional Stakeholder Group. The work presented in this report is the end result of a c.18 month stakeholder-led participatory planning approach to identify a network of recommended Marine Conservation Zones in the Irish Sea. A map of the project area is included below.

The report is split into three parts:

- Part 1 of the report is a write-up of the planning process through which the final recommendations have emerged
- Part 2 contains a description of the final network configuration of recommended MCZs with associated maps, statistics and narrative.
- Part 3 is comprised of Selection Assessment Documents for each individual recommended MCZ and recommended reference area

For full context, the report should be read alongside some additional materials. Some of these materials have been included as annexes to this report, and others are available on the ISCZ website www.irishseaconservation.org.uk

The final report does not contain an executive summary. A plain English summary report has been published separately.



Legend

Project Boundary

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PART 1 THE ISCZ PROCESS

This first part of the final recommendations report gives an overview of the ISCZ process. Section 1.2 outlines the key ISCZ project participants (in the form of individuals and groups) and their roles in the process of identifying an ecologically coherent network of MPAs in the ISCZ project area. Section 1.3 goes on to describe the key guidance and advice that the participants were given in order to produce the recommendations. Sections 1.4 and 1.5 describe the key project milestones (the various iterations that were published through time as the work progressed) and the process through which the recommendations were developed within the various stakeholder meetings. Section 1.6 describes the process through which the recommended management for the sites in the network was derived and the linkages of this work with the Impact Assessment that will follow on from the final recommendations. Sections 1.7 and 1.8 focus on the initial stakeholder evaluation of the process and provide a brief overview of the future status of this work leading up to the government's Public Consultation on Marine Conservation Zones.

1.1 Formal Project Phase: May 2009 – February 2012

The formal project phase can be defined as the period within which the ISCZ project team were in place. This period spans from 18th May 2009 to 28th February 2012. Prior to 18th May 2009, many aspects of the national MCZ project were being worked on – largely by the Statutory Nature Conservation Bodies (SNCBs), Defra, and the various regional project host organisations. During this time, the Finding Sanctuary (regional MCZ project in south-west England) was underway partly as a pilot project for the proposed regional division of the MCZ work. In addition to Finding Sanctuary and ISCZ, regional MCZ projects were also formally set up in the North Sea (Net Gain) and in south-east England (Balanced Seas).

The formal role of the project was to deliver:

1. Recommendations for site locations and boundaries
2. Recommendations for Conservation Objectives
3. Recommendations for management implications and management measures
4. An Impact Assessment to assess the costs and benefits of the designation of MCZs

Requirements 1, 2, and in part 3, are delivered in this final recommendations report. Requirements 3 and 4 will be delivered through the Impact Assessment.

Whilst the final recommendations report was submitted on 31st August 2011 the project will be formally active until the end of February 2012, by which time an Impact Assessment will be delivered to the government to accompany the final network of sites.

1.2 ISCZ Regional Project Participants and Roles

1.2.1 The Regional Project Board

Regional Project Board Role and Membership

The ISCZ Regional Project Board is comprised of key project partners – Natural England and JNCC – and other relevant organisations such as Envirolink (the company with whom the ISCZ team are housed).

The ISCZ Regional Project Board has overall financial and management responsibility for the project and is responsible for its delivery. It also ensures that the project is co-ordinated and communicates to all stakeholders and links with the other regional MCZ projects and the national MCZ project. The Project Board has had no role in the design or selection of MCZ sites.

The Project Board membership has changed throughout the lifetime of the project. It has always consisted of the following organisations, but the individuals have varied through time:

Natural England (Regional) – Chris Lumb (before RSG formation), David Knight, Stephen Ayliffe
Natural England (National) – Jamie Davies, Jen Ashworth
JNCC – Jon Davies, Amy Ridgway
Envirolink – Nick Storer
CCW (observers) – Kirsty Lindenbaum, Mary Lewis

The following organisations were also part of the Project Board, but not for the full lifetime of the project:

University of Liverpool – Sue Kidd (chair from January 2010)*
Defra (observers) – Emily Musson, Simon Crabbe
North West Development Agency – Richard Tracey (chair until January 2010)*

* Sue Kidd was the Project Board chair for the majority of the project's lifetime.

1.2.2 The Regional Stakeholder Group

The role of the Regional Stakeholder Group

The Regional Stakeholder Group (RSG) represented the range of stakeholder interests in the ISCZ project area. The group identified and agreed on the recommendations submitted to the government in this final report. They recommended the locations of the proposed MCZs and the proposed conservation objectives for each site. They also had the opportunity to discuss management for the proposed zones, and provide comments on stakeholder implications and benefits.

All RSG meetings were organised and delivered by a professional facilitator and process consultant (see Section 1.2.6). The group did not have a formal chair person.

RSG Membership

The process by which the RSG members were selected can be summarised in the following key stages:

1. The ISCZ liaison officers undertook a preliminary search for marine stakeholders in the Irish Sea. This resulted in a database with the contacts of over 1000 individuals.
2. Four County Workshops were held in northwest England in Autumn 2009, to which over 600 stakeholders were invited. These workshops were organised with the intention of communicating the aims and purpose of the ISCZ project. Stakeholders were asked to devote time to consider who would be appropriate to sit on the RSG. The first project process consultants (or facilitators) advised a suitable breakdown of sectors/interests for the RSG. The stakeholders completed a questionnaire where they had an opportunity to suggest named individuals for each 'seat' and also to comment on the proposed balance of interests. The results of this questionnaire were processed and considered further by the process consultants. The four County Workshops took place on the following dates / venues. Full word for word reports are publically available.
    a. Cheshire and Wales (The Heath, Runcorn) 1st October 2009
    b. Merseyside (Liverpool John Moores University, Liverpool) 2nd October 2009
    c. Lancashire (Blackpool Imperial Hotel, Blackpool) 5th October 2009
    d. Cumbria (Rheged Centre, Penrith) 13th October 2009
3. JNCC let a contract to identify national stakeholders who were requesting involvement in the ISCZ (and sister) project(s). This produced a further list of organisations for consideration by the process consultants.
4. In January 2010, the Project Team and process consultants met with a small group of regional experts to decide on the makeup of the RSG and to shortlist appropriate individuals to take the various seats on the group.
5. In the event that two or more individuals' names were on the shortlist for the same seat (sector/interest), the ISCZ project team contacted those individuals to facilitate a shared solution to the problem. This resulted in one individual per seat, and a full RSG list.
6. After the formation and announcement of the RSG in the public domain, several stakeholders contacted ISCZ requesting a place on the group. This continued throughout most of the lifetime of the RSG. The process consultant decided whether or not there was good rationale to accept these additional stakeholders onto the group. In most cases, these requests were rejected on the basis that it was not appropriate to have more than one individual to represent a particular interest/sector.

Several individuals on the RSG changed as the project progressed. This was largely due to staff changes within many of the organisations on the group. Where they could not attend a meeting themselves, the RSG members were encouraged to arrange for a substitute to attend in their place. For details on attendance of each individual RSG meeting, readers should consult the meeting reports.

1.2.3 Named Consultative Stakeholders

Unlike the three other regional MCZ projects, ISCZ chose not to adopt named consultative stakeholders into the process. The original process consultant felt that this would raise the status of certain stakeholders outside of the RSG and that this may not result in a positive situation. Instead, the ISCZ Project Team sent the first, second and third progress reports, for comment, to all individuals on the ISCZ contacts database (>2000 contacts). Comments forms that the team received back from these stakeholders were processed by the Project Team and the outputs were communicated with the RSG in the following meeting/s. The draft final recommendations were also sent to those on the contacts database although not for comment due to the limited time available.

1.2.4 Focus Groups

Unlike the three other regional MCZ projects, ISCZ chose not to adopt formal local planning groups throughout the full process. The geographical complexity of the project area did not lend itself to a natural structure of local groups, which would have had to include the Isle of Man, Northern Ireland, Wales and Scotland in addition to the various counties in northwest England. ISCZ did not have the staff resources to operate such a number of local groups.

However, after the production of the third iteration (progress report) the RSG requested that a series of focus group meetings were held to inform the remainder of the planning work. At that time, ten pMCZs existed in the network and it was thought logical to geographically cluster these sites into groups of two (i.e. five separate focus group meetings). The focus groups included some members of the RSG but mostly included more local stakeholders that had an interest in the site but who were not on the RSG. The role of the focus groups was to provide information to filter up to the RSG; they did not make any decisions on the network, they only produced recommendations. Two further focus group meetings were held in June and July as new site boundaries and network issues arose. Details of the meetings can be found in Section 1.5.1, and meeting reports are publically available.

1.2.5 Project Team

The role of the project team was to support the RSG in their decision-making in order to produce recommendations for the MCZ network, to formally write up this work, and to produce an Impact Assessment that will accompany the final recommendations.

Members of the project team have changed over time. Those individuals that were involved in the final 12 months of the project (when most of the site recommendation work took place) are listed below:

Project Manager: Dr Greg Whitfield

- Economist: Francesca Moore
- MPA Planner: Kieran Bell (up to May 2011) and Andy Cameron (from May 2011)
- Communications Manager: Matthew Sutcliffe
- Marine Ecologist: Dr Adel Heenan (up to May 2011) and Harriet Morrall (from May 2011)
- GIS/Data Officer: Tom Higginbottom
- Liaison Officers: Stephen Manning and Chris Egan

1.2.6 Facilitators

The formal role of independent facilitators in the MCZ project was to design and run workshops to deliver MCZ recommendations, and to support the selection of the stakeholder group. Independent facilitators and process consultants provide advice and guidance through the process. They do not make decisions for stakeholders; rather they help stakeholders to make decisions as effectively as possible.

The ISCZ project worked with two different facilitators during its lifetime. From August 2009 to February 2011 the project employed Dialogue Matters as their process consultants and facilitators. From March 2011 until the end of the process the project employed R K Partnership as their process consultants and facilitators.

The Irish Sea Conservation Zones (ISCZ) Stakeholder Process was designed and facilitated by Rob Angell of R K Partnership Ltd (RKP) from March 2011. Lynn Wetenhall and Jim Welch supported the facilitation and process design. The facilitators held no formal position on any of the substantive issues that were considered. It was for the participants to decide what issues were raised, how they might be addressed and how any observations, conclusions and recommendations might be recorded and communicated.

Meeting reports were produced following each stakeholder workshop. When working with Dialogue Matters, these took the form of 'word for word' reports, which aimed to capture all of the dialogue within a workshop in the order that it occurred. When working with RK Partnership, meeting reports were constructed to reflect the key discussions, outcomes and agreements that occurred in the meeting itself; they do not necessarily follow the order in which the meeting took place.

1.2.7 Process Group

The Process Group was a sub-set of the RSG (representing the full range of interests) that periodically met during the process. In reality, most of the Process Group discussions typically involved a c.30 minute discussion at the end of an RSG meeting. They were not intended to be formal meetings, more a mechanism of feedback to inform planning work for the following workshop.

Upon starting work with ISCZ, but before they ran their first RSG meeting, R K Partnership advised that it was necessary to have a formal Process Group meeting. This was held on 1st April 2011 and a full meeting report is publically available. During this meeting it was agreed that the role of the Process Group was:

- To support the project team and RK Partnership in designing and reviewing the overall process for the ISCZ process
- To provide ideas and input to the design of RSG and any other stakeholder meetings
- Continue to deal with any issues of representation (on the RSG) that arise

Process Group members through the process were as follows:

- Chris Lumb (Natural England)
- Julie Drew (Renewables UK)
- John Amery (Recreational Angling)
- Ron Graham (Commercial fishing)
- Dave Dobson (NW IFCA)
- Andrew Gouldstone (RSPB)
- Graham Ford-Kyte (MMO)
- Greg Whitfield (ISCZ Project Team)

1.3 Guidance and Information Underpinning MCZ Planning

1.3.1 National Guidance

Project Delivery Guidance

The Project Delivery Guidance is Natural England and JNCC's advice on the process for the selection and recommendation of MCZs to Government. The guidance was provided to the regional stakeholder groups, regional MCZ project teams and other stakeholders to enable them to understand the framework for selecting Marine Conservation Zones (MCZs). The guidance is informed by existing and draft Government policies; this includes the Ministerial Statement, Marine Protected Area Strategy and Draft Guidance Notes. It does not cover the criteria for the identification of MCZs, which is outlined in the Ecological Network Guidance.

The Project Delivery Guidance is publically available on both Natural England and JNCC's website.

Ecological Network Guidance

The Ecological Network Guidance (ENG) is Natural England and JNCC's advice to promote effective biodiversity conservation and to help ensure that MCZs contribute to an ecologically coherent network of Marine Protected Areas. The guidance was presented to the RSG to guide their planning work. It is divided into seven network design principles and five further considerations (both ecological and practical). The guidelines themselves are summarised below:

- **Representativity**: the network should cover the range of biodiversity in our seas. To do this, it should protect broad-scale habitats and threatened, rare or declining species and habitats (Features of Conservation Importance – FOCI) that are present
- **Replication**: more than one example of each MCZ feature should be protected to minimise the risk of damage in any one location and as insurance against long term changes and unexpected disasters
- **Adequacy:** the MPA network should include a large enough proportion of each habitat and species to enable their long-term survival and, where necessary, recovery
- **Viability:** MCZs must be large enough to ensure habitats and species are self-sustaining and will persist through environmental change
- **Connectivity:** connections between individual MPAs should be maximised to maintain healthy habitats and species
- **Protection:** to make sure all MCZ features can be in healthy condition (either by recovering or being maintained), some MCZs will need more protection than others
- **Best available evidence:** to use the best information that is currently available without waiting for potentially better data to come along since that could cause delays and lead to damage of features before they are afforded protection

Section 2.2.4 of this report will present how the ISCZ final recommendations perform against the criteria set out in the ENG.

The ENG is publically available on both Natural England and JNCC's website. A summary version of ENG is also publically available.

Conservation Objective Guidance

The Conservation Objective Guidance (COG) sets out the process for drafting a conservation objective for the features identified within the recommended Marine Conservation Zones (rMCZs). The Marine and Coastal Access Act 2009 (MCAA, 2009) requires designation orders to include the Conservation Objectives for the rMCZs. These are presented in Part 3 of this report, on a site by site basis.

The COG is publically available on both Natural England and JNCC's website. A summary version of COG is also publically available.

Reference Area Guidance

The Reference Area Guidance was provided by JNCC and Natural England at the request of the regional MCZ projects. It was intended to guide the RSG when identifying reference areas. The underlying message of the Reference Area Guidance was that:

'Each broad-scale habitat type and FOCI should have at least one viable reference area within each of the four regional MCZ project areas where all extraction, deposition or human-derived disturbance is removed or prevented.'

The Reference Area Guidance gives details of extractive, depositional and other human-derived disturbing activities, and also explains the rationale for having Reference Areas as part of an ecologically coherent network of MPAs.

1.3.2 Ecological and Environmental Data

Ecological and environmental data (e.g. habitats, species and data on the physical environment) that were used through the process to inform site selection are listed in Annex 1. Data underpinning site selection are listed in the Selection Assessment Documents in Part 3 of this report.

1.3.3 Socio-economic Data

Socio economic data (e.g. maps of commercial fishing activity) that were used through the process to inform site selection are listed in Annex 2.

1.4 Key Milestones

1.4.1 Planning Iteration

Progress Reports

During the lifetime of the ISCZ project, the planning work was submitted formally to Natural England, JNCC and the Science Advisory Panel on four occasions. These submissions were referred to as iterations, and on each occasion a progress report was produced. The purpose of this iterative approach was to enable the Science Advisory Panel to give detailed feedback on the progress of each of the regional projects. This feedback was necessary during the stakeholder-led planning process, as opposed to more traditional approaches when such comments would have normally been received at the end of the process.

The first iteration was published on 30th June 2010 and presented to the Science Advisory Panel on 5th July. At this time, the network included only five pMCZs. They were all located offshore, and were identified using EUNIS Level 3 broad-scale habitat data only.

The second iteration was published on 29th October 2010 and was presented to the Science Advisory Panel on 3rd November. At this time, the network included nine pMCZs. The five offshore sites had developed through stakeholder dialogue and the use of new data, and a new offshore site had been added. The remaining three sites were all located inshore – the result of new planning work considering inshore Feature of Conservation Importance data.

The third iteration was published on 28th February 2011 and was presented to the Science Advisory Panel on 3rd March. At this time, the network included eleven pMCZs and largely presented a network of sites that had evolved from those presented in the second iteration. One new inshore pMCZ was added to the network (located at Allonby Bay, north Cumbria) and a further offshore site (between Northern Ireland and the Isle of Man).

The draft final report was published on 1st June 2011 and was presented to the Science Advisory Panel on 3rd June. At this time, the network included fifteen pMCZs. This was made up of an evolution of the eleven sites presented in the third iteration, with the addition of three estuary pMCZs and one inshore pMCZ located off the Fylde coast.

SAP Feedback

After each progress report, the independent Science Advisory Panel provided the project team with detailed feedback on their assessment of the performance of the network. This feedback was published on the Defra website. The key messages and actions proposed in the feedback were taken very seriously and were presented to the RSG in the following workshop so that they could be addressed in the MCZ planning work. Feedback proved to be, on the whole, helpful and constructive and helped to shape the development of the network through time. In some instances the RSG disagreed with the advice of the Science Advisory Panel and when this happened the project team ensured that the reasons for the disagreement were recorded.

The SAP feedback on the three iterations and the draft final recommendations is publically available. The SAP comments (to Government) on the final recommendations will follow this final report, and will also be made publically available in the coming months.

1.5 Developing the Network Recommendations

1.5.1 Meeting Summaries

The below passage gives an overview of the planning meetings, that took place during the lifetime of the project, that influenced the development of the network.

RSG meeting 1: 18th March 2010 (Ribby Hall Hotel, near Preston)

This was the introductory meeting in the process. The main purpose of the meeting was to begin setting the scene and building a shared understanding of the Irish Sea and its users. RSG members took part in a range of activities to begin to draw out their knowledge, insights and ideas. A full word for word workshop report is publically available but, in brief, the workshop included:

1. Developing draft guidance for how the RSG could work effectively together
2. Building up a shared RSG picture of the Irish Sea including information, data, trends and valued features
3. Considering the benefits and effects of the main marine human uses and activities as well as the potential benefits, negative effects and challenges of MCZ designation

RSG meeting 2: 5th May 2010 (Ribby Hall Hotel, near preston)

This second meeting of the RSG aimed to build on the knowledge sharing of participants that begun in the first workshop. The RSG were tasked with recording information on pre-formatted sheets about the impacts that their activity had on the range of broad-scale habitats that are present in the ISCZ project area. Following this, the participants undertook the following activities:

1. A presentation on the Ecological Network Guidance (ENG) from Dr Jen Ashworth. This explained the key principles of the ENG
2. An opportunity to digest the key messages in the ENG and the ecological data that are available in the ISCZ project area. Time was then given for the participants to explore the implications of the ENG for mapping a network of sites in the Irish Sea
3. The participants were split into small multi-sector groups and were tasked with mapping a network of sites in line with the ENG adequacy targets for subtidal broad-scale habitats

A full word for word workshop report is publically available.

RSG meeting 3: 15th June 2010 (Lancaster University

This third meeting of the RSG aimed to build on the mapping work that the participants undertook in RSG meeting 2 (above). The Project Team had analysed the mapped outputs from the previous meeting and presented the areas of overlap between the various sub-groups. These (small) areas of overlap were proposed 'core areas' from which it was proposed that a combined RSG network could be developed. The RSG were first asked to do this in small multi-sector groups. The results of this small group mapping work were digitised over lunchtime and the new areas of overlap were presented back to the group, along with an update of how these areas performed against the ENG adequacy targets. A plenary session followed; this allowed the RSG to come to a joint conclusion on the boundaries of five sites that were submitted as part of the first iteration.

A full word for word workshop report is publically available.

RSG meeting 4: 14th and 15th October 2010 (Lancaster University)

The fourth RSG meeting focussed on the continued development of the network. It was the first workshop that provided the RSG with the benefit of feedback from the Science Advisory Panel and from wider stakeholders (i.e. those that are not on the RSG). In addition to this feedback, the introduction of new data (Features of Conservation Importance and human use data e.g. FisherMap) meant that the RSG had to devote time to digest this new information before doing any further work on the network.

Mapping work focussed on the development of the sites that emerged in RSG meeting 3, and the consideration of other offshore areas in light of the new data available. This work was done in small multi-sector groups. In addition, the entire shore was considered in light of the new ecological data. To do this, the group were again split into small multi-sector groups to undertake this 'inshore' mapping exercise. All mapping work was strongly grounded in the need to meet the targets set out in the ENG. The RSG were then given the chance to look at the outputs of each sub-group. They were asked to prioritise which of the outputs that they preferred (1st and 2nd choice) and the sites with the highest scores were the sites that made up the second iteration network. This exercise resulted in options for several sites.

A full word for word workshop report is publically available.

RSG meeting 5: 27th and 28th January 2011 (Ribby Hall Hotel, near Preston)

The fifth RSG meeting focussed on the development of the network following detailed feedback from the Science Advisory Panel and a large number (>100) of wider stakeholders. In addition to this, the SNCBs had produced a features-activities matrix that indicated possible compatibility and non-compatibility of features with certain activities. This was the first time that the RSG begun to develop the network with any kind of formal advice on potential activity restrictions within MCZs.

A large plenary session took up the majority of this two-day workshop. This session focussed on getting a jointly agreed network of sites. Each site was discussed in turn; boundary modifications were proposed by various stakeholders and these were discussed in plenary and either accepted, rejected or accepted with a qualification. Discussions lasted for long periods of time, allowing the RSG to come to a full understanding of each other's views and needs. The agreed site boundaries made up the network of the third iteration.

A full word for word workshop report is publically available.

Focus Group Meetings (Round 1): March and April 2011

The first round of focus group meetings were held in March and April 2011. Their aim was to integrate key local stakeholders into the planning process. Stakeholders worked in small groups and in plenary to provide suggestions for site boundary modifications and to feed detailed information on the type and extent of activities that take place in each site into the planning work. The latter data proved to be crucial for the development of Conservation Objectives and the Vulnerability Assessment. Suggestions and rationale for site boundary modifications were presented to the RSG and proved to be crucial for the development of the draft final and final recommendations. The dates/venues of the first round of focus group meetings were as follows; full meeting reports of each are publically available:

- Liverpool (pMCZ 4 and 5 of iteration 3) 24th March 2011
- Belfast (pMCZ 6 and 7 of iteration 3) 29th March 2011
- Haydock Park (pMCZ 2 and 3 of iteration 3) 31st March 2011

- Whitehaven (BAI 1 and pMCZ 10 and 11 of iteration 3) 5th April 2011
- Liverpool (pMCZ 13 and 14 of iteration 3) 12th April 2011

Smelt and European Eel technical workshop: 7th April 2011 (Envirolink, Warrington)

In addition to the focus meetings the RSG, in their fifth (January) meeting, requested further information on the protection of the highly mobile species listed in the ENG. In order to provide this information, the Environment Agency organised a specialist Smelt and European Eel workshop in April 2011. In addition to the Environment Agency, the workshop also included select members of the ISCZ Project Team, the North West Inshore Fisheries and Conservation Authority, and Natural England. This workshop aimed to address the evidence base for the presence of these species in the major Irish Sea estuaries on the North-west coast. The workshop produced three recommended areas for estuarine pMCZs in order to protect the two highly mobile species in the project area. These were presented to the RSG in the May meeting. A full meeting report is publically available.

RSG meeting 6: 9th and 10th May 2011 (Liverpool John Moores University)

This was the first meeting that was designed and facilitated by RK Partnership. The meeting focussed on the need to get the network to an almost final state, for the draft final recommendations report. There were several key pieces of information for the RSG to digest to help them in their work. This included suggestions from the focus group meetings that ISCZ held in March and April 2011, suggestions from the Smelt and European Eel workshop that the Environment Agency set up in April 2011, feedback from the Science Advisory Panel on the third iteration network, and feedback from wider stakeholders. Several suggestions were made by the project team for the RSG to discuss; these suggestions aimed to accommodate the feedback and suggestions that had come forward, whilst also aiming to meet the Ecological Network Guidance.

Small group work allowed several boundary proposals for the full RSG to consider. In plenary, each site was discussed in turn; boundary modifications were proposed by various stakeholders and these were discussed in plenary and either accepted, rejected or accepted with a qualification. Discussions lasted for long periods of time, allowing the RSG to come to a full understanding of each other's views and needs. The agreed site boundaries made up the draft final network. Several sites were agreed outright for inclusion in the final network, and others were to be discussed at the final RSG meeting in July.

Further small group work and a plenary session allowed the RSG time to consider the Reference Area options that were suggested at focus group meetings and from the project team. Due to time constraints, there was only time to consider a handful of these options. Some Reference Areas were agreed and some were rejected. The RSG and project team agreed to hold a further meeting in June that would be dedicated to Reference Area planning work, and would finalise the Reference Area set.

A full meeting report is publically available.

Focus Group Meetings (Round 2): June 2011

When planning the draft final recommendations in the May meeting, the RSG identified a new pMCZ offshore from the Fylde coast (pMCZ8; called Fylde Offshore rMCZ in the final recommendations). The RSG requested that a focus group meeting to be set up in order to provide local stakeholder input to the planning of this new site. This meeting took place on June 15th 2011 at the Euston Hotel in Fleetwood, Lancashire. The aim of the meeting was to allow the local stakeholders to feed detailed information on the type and extent of activities that take place in this site, into the planning process. Coupled with this, the

group produced three site boundary recommendations (with rationale) for the RSG to consider for the planning of the final recommendations in July.

A further focus group meeting was held at the Liverpool Airport Crowne Plaza) on 28th June 2011. This meeting was set up in order to address the potential consequences shortfall of subtidal mud (against the ENG adequacy target). The reason that the focus group had to do this work was in anticipation that co-location of offshore windfarms with pMCZ2 (now West of Walney rMCZ) would not reach a conclusion and, as a result the network would not have enough subtidal mud. This meeting, therefore, did not focus on any one particular site; rather its aim was to identify an area/s to make up the shortfall of subtidal mud, for the RSG to consider for the development of the final recommendations. The meeting ran in plenary throughout, and the focus group identified four possible areas to make up the mud shortfall. These areas had very low levels of stakeholder support. A full meeting report is publically available.

RSG meeting 7: 29th June 2011 (Liverpool Airport Crowne Plaza)

This meeting was dedicated to Reference Area planning work. In light of the fact that several Reference Areas were agreed or rejected at the previous workshop, the project team provided the RSG with some further options in order to meet the ENG target for Reference Areas (i.e. to have each feature in the project area covered by at least one viable Reference Area). A combination of several small group and plenary sessions allowed the RSG to come to a conclusion on each of the Reference Area options, and allowed time for them to modify the boundaries of several of the options. It was agreed that a couple of the options needed some further work, and that this would be presented to the RSG for their consideration at the July RSG meeting.

A full meeting report is publically available.

RSG meeting 8: 13th and 14th July 2011 (Ribby Hall Hotel, near Preston)

The aims for the final RSG meeting were twofold. First, to finalise the network and the Reference Areas. Second, to present the process by which Conservation Objectives and activity restrictions were derived and allow the RSG time to fully understand these and comment on them.

In terms of finalising the network, the project team presented options for the RSG to consider tweaking the boundaries of some of the sites. These options were based on feedback from the SAP and the SNCBs, suggestions from the focus group meetings and suggestions from some stakeholders on the group. A combination of small group work and plenary sessions allowed the RSG to agree the final network of recommended MCZs. The only major issue was associated with co-location of the West of Walney rMCZ with the windfarm developments in the same area. This issue could not be resolved fully, but the RSG agreed on the submission of a proposed co-location zone that would be included as part of the West of Walney rMCZ if the offshore wind developers could come to a mutually agreed management situation with the SNCBs, Defra, DECC and the MMO.

The few Reference Areas that were left open for further work at the end of the June RSG meeting were discussed and agreed. Another option was put forward for the first time at the meeting, and this was accepted. One further option was presented by the project team, but was rejected.

The project Economist presented at length to the RSG to allow them to understand the process by which Conservation Objectives had been set and activity restrictions had been derived. Stakeholders were given

the opportunity to document implications and benefits of the activity restrictions on a site by site basis. This information is documented in the management tables in Annex 3.

1.6 Management of human activities within MCZs

1.6.1 Impact Assessment (IA)

The aim of the IA is to assess the costs and benefits of the designation of MCZs upon UK human welfare. It covers a twenty year period from the point of designation (assumed to be 2013). It aims to capture social, environmental as well as economic values. Work is ongoing on the IA and will be submitted to the SNCBs in October 2011. It will be submitted to Defra in January 2012. The IA will be used by the Minister and Secretary of State to decide which rMCZs to put forward for public consultation in 2012.

1.6.2 Vulnerability assessments and the development of conservation objectives

For rMCZs that are not reference areas the proposed management was informed primarily by information regarding the sensitivity of species and habitats recommended for protection by MCZs and information about the level and type of activity in each site.

Information about the sensitivity of species was initially provided by JNCC and Natural England (Tillin *et al.* 2010). This information was developed by contractors based on academic research, grey literature and industry expertise and advice from JNCC and Natural England. It identified the level of sensitivity of features to pressures, and the types of pressures exerted by different activities.

Information about the level and type of activity in each site was based on information collected from stakeholders (largely through the March and April focus group meetings – see section 1.5.1) and users of each site, as well as information in regional and national data sets held by the project teams.

The information on sensitivity of features and activities in each site were entered in to a spreadsheet by the project team which:
a) summarised the type and level of human activity in each site, and
b) identified what pressures each activity applies upon the features in each site, based on the type and level of activity.

This information was used to undertake a vulnerability assessment for each site, which examined the degree to which each feature in each site was vulnerable to human activities. Vulnerability was assessed based on the sensitivity of features to pressures caused by activities that are taking place and the level of exposure to those pressures (as indicated by the level of the activity). It took into account local conditions as far as possible. The vulnerability assessment was based on activities that are currently taking place and the current levels of these activities. The vulnerability assessment ruled out:

- Those activities that do not significantly impact the features in each site (they may take place in the site but there is no evidence that they overlap).
- Those activities that may impact a feature, but that are already adequately managed (and so the features are already protected against these impacts through existing management).
- Those activities that may impact a feature, but the level of activity is so low in the site that the impact is not significant enough to warrant intervention.

The activities that were considered to potentially require management are those that potentially impact features in each site and features are not adequately protected from at present. The project team used site-specific information and the advice of JNCC and Natural England to develop conservation objectives for the species and habitats in each site proposed for designation. Quality assurance of the assessment was provided by the JNCC and Natural England (though quality assurance of the vulnerability assessment for fisheries for sites within 12nm was not available in time for submission of this report).

Where the vulnerability assessment indicated a feature protected by an MCZ is significantly impacted on by the activities taking place in the site, the conservation objective was specified as 'recover to favourable condition' for that feature. Where the vulnerability assessment indicated that a feature was not significantly impacted on by any activities in that site, the conservation objective was specified as 'maintain at favourable condition' for that feature.

1.6.3 Management Measures

For the purpose of the impact assessment, the next task was then to identify which activities need to be managed. The IA assumes that management of an existing activity is needed only for features recommended with a conservation objective of recover in relation to that activity. In other words, only where the vulnerability assessment has indicated that the activity could potentially impact on a feature protected by an MCZ. This assumption was made in the absence of more detailed information on the management that will be needed for each site. Development of the management will be informed by additional evidence on the location, sensitivity, and existing condition of features protected by an MCZ and the current level of impact (if any). Consideration will also be given to the consequences of displacement arising as a result of MCZs, other protected areas and other activities in the marine environment. In the event that features are impacted on in future by increases in the levels of existing activities or by new activities, the necessary management will be introduced.

Once the additional management that is needed for pMCZs (in including reference areas) had been identified, the project teams identified potential management measures that could be used to apply the management to each site (such as a byelaw or voluntary agreement) (box 6). This was informed by information supplied by public authorities and through discussions with stakeholders including the MMO, IFCAs and other public bodies (further details are provided where appropriate in the method paper for each sector). Where stakeholders have identified a preferred management measure this has been indicated in the IA. Based on the advice of Defra, management measures were evaluated in terms of their practicality, effectiveness and enforceability. Where stakeholders have not identified a preferred measure, two scenarios are employed in the analysis: a statutory measure and voluntary measure.

Management overview

In summary, in ISCZ project area, management of the rMCZs will fall into the following categories:

Fisheries management – IA assumptions

Within 0-6nm, management comprises a reduction of pressures exerted by specific gear types (or prohibition in a reference area), managed by way of a voluntary agreement or IFCA byelaw.
Outside of 6nm, due to historic fishing rights to non-UK fleets, this can only be managed by CFP. In reference areas outside of 6nm, all types of gear types will be prohibited through CFP.

Recreation management – IA assumptions
Outside of 12nm, there is currently no mechanism to allow this to be managed. Therefore, only a voluntary agreement can be used to do this. Within 12nm, the MMO is the appropriate body to enforce recreational management. In the ISCZ project area, this comprises recreational activities that are assumed to be prohibited in reference areas ('extractive' and 'depositional' activities according to the SNCB Reference Area Guidance). Assumptions have been developed by the regional project economists with Natural England with regard to 'potentially damaging' activities. In essence, MMO byelaws will be used to manage:

- Prohibition of recreational angling in areas located within 6-12nm (in 0-6nm, IFCAs are responsible for managing this activity)
- Prohibition of anchoring of motorised and non-motorised vessels in areas located within 0-12nm
- Vessel speed restriction in areas located within 0-12nm

Local authority/landowners will be responsible for managing recreational activities in the intertidal range (between MHWM and MLWM).

Licensed industries (such as aggregates, renewable, oil & gas, coastal defence, water quality etc.) will be managed where appropriate through the existing licensing regime.

1.6.4 Regional Stakeholder Group input

Stakeholders have informed the various stages of the development of management measures to varying degrees in each regional project. In most instances, information was collected from them about the level and type of activity in each site (or clusters of sites). The stakeholders have been given the opportunity to comment on the development management measures in all cases and to make further management suggestions. These are provided in the management tables in Annex 3.

1.7 Evaluating Success

1.7.1 Stakeholder Support for the final recommendations

A summary narrative of stakeholder support for the individual rMCZs and Reference Areas is given in the Selection Assessment Documents section of this report (Part 3).

In terms of the final network, the members of the RSG who remained in the room at the end of the last RSG workshop (on 14th July) were asked how satisfied they were with the final network of sites. The results of this exercise are shown on Figure 1.1, which is a digitised version of a flipchart used in the RSG meeting. The plenary comments that were captured in this session are recorded in the final meeting report, which readers of this report are encouraged to consult.

The diagram shows that, of those RSG members present when the exercise was undertaken, none of the stakeholders felt entirely not satisfied or entirely satisfied with the network. Four out of 24 stakeholders felt as though they were not satisfied (to the left of the median line) and 18 out of 24 stakeholders felt satisfied with the final network (to the right of the median line. The remaining two stakeholders were neither satisfied nor not satisfied with the network. Importantly, many of those who felt satisfied with the final network placed their ticks towards the fully satisfied end of the diagram.

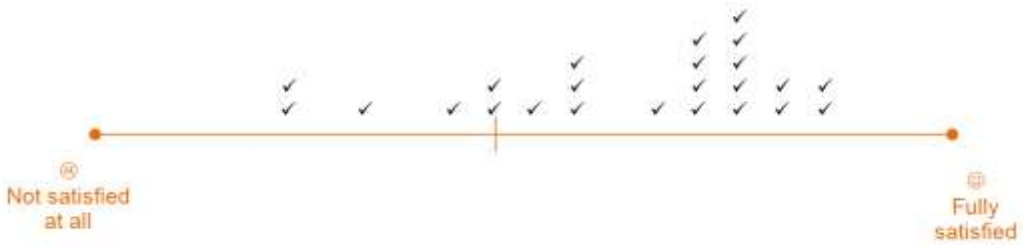

Figure 1.1: Results of stakeholder satisfaction survey

It is important to note that this indication of level of support (or stakeholder satisfaction) relates to the network of sites that have been recommended by the RSG. It cannot be assumed that the level of support would be the same (or even similar) if only some sites in the network are put forward for public consultation and designation. It also cannot be assumed that the level of support would be the same (or even similar) if any of the site boundaries are tweaked or altered in any way before being put forward for public consultation and designation. The recommendations presented in this report were decided upon by the ISCZ RSG. Any subsequent changes to the network will not necessarily have any endorsement by the RSG.

1.7.2 Process

At the final RSG meeting (13th and 14th July), stakeholders were asked to evaluate several other elements (i.e. other than the final network, above) of the project including the process, the facilitation and the role of the project team. A report that compiled these outputs is included in Annex 4.

1.8 Beyond the Regional Project Recommendations

The Science Advisory Panel will review the final recommendations presented in this report. It will assess how well they meet the government's guidance on the ecological performance of Marine Conservation Zones and report its findings to Defra. Natural England and JNCC will also provide their assessment and advice about the recommended Marine Conservation Zones to Defra.

Once the final recommendations, Impact Assessment and statutory advice have been received, Government Ministers will consider which sites to put forward for public consultation. This will be an opportunity for people to feedback to the government on the proposed designations before they are finalised (i.e. designated). At the time of writing, there is no official timeline for the public consultation or when MCZs will begin to be designated.

1.9 Reference List

Tillin, H. M., Hull, S. C., & Tyler-Walters, H. 2010. Development of a Sensitivity Matrix (pressures-MCZ/MPA features). Report to the Department of Environment, Food and Rural Affairs from ABPMer. Southampton and the Marine Life Information Network (MarLIN) Plymouth: Marine Biological Association of the UK. Defra Contract No. MB0102 Task 3A, Report No. 22

PART 2 RECOMMENDATIONS

2.1 Notes on the content and structure of Part 2

This section reports on how the overall network configuration performs against the ENG targets. This includes representativity, replication, adequacy, viability and connectivity. Each site has been given a unique name (see Table 2.1) but, for the purpose of this section of the report, they will be referred to by their original site number.

2.2 Network Report

2.2.1 The network configuration (overview)

The final recommended network configuration in the ISCZ project area consists of fifteen recommended Marine Conservation Zones (rMCZs) and fourteen recommended Reference Areas (rRAs) (Table 2.1 and Table 2.2 and Figure 1.1 to Figure 2.8). These sites, combined, cover a total area of 3957.7 km^2 which is around 23% of the total ISCZ project area. There is a range of estuarine, inshore and offshore rMCZs covering the full range of environments in the project area. However, not all of the benthic habitats which fall within an rMCZ boundary are proposed for designation. Some, for example are already afforded protection from existing MPAs, whilst others may be too small to propose for designation. The ISCZ project team devised a general rule to determine whether small areas of broad-scale habitat types should become features proposed for designation within MCZs. Broad-scale habitat types were not proposed to be designated features in a site if the area of the habitat was less than 0.5 km^2, unless that area contributed to > 5% of the network total of that habitat type or if the RSG specifically requested that small features should be proposed for designation within certain sites. In addition, rRAs which lie within rMCZs (Table 2.2) do not contribute to the total network area (as their contribution is already accounted for from their associated rMCZs), but rRAs which do not lie within an rMCZ (for example rRAs K, W, T and Z) do contribute to the overall network area.

Of the 15 rMCZs in the final network, the western edges of rMCZs 3, 4 and 5 abut onto the UK Continental Shelf limit, and the eastern boundaries are defined by the Welsh territorial water limit (12 nm from the Welsh coast). The eastern and western boundaries of rMCZ 6 and 7 are defined by the Isle of Man territorial waters and the Northern Irish territorial waters respectively. The northern boundary of rMCZ 6 also abuts onto Scottish territorial waters. The UK 12 nautical mile limit intersects rMCZ 1, whilst rMCZ 2 and rMCZ 8 are intersected by the UK 6 nautical mile limit. The UK mean high water springs (MHWS) abuts onto rMCZ 10, 11 and 13, as well as rRAs K and T. It should be highlighted that rRAs K, T, W and Y do not lie within an rMCZ or existing MPA, but rRAs W and Y do lie within other existing MPAs. It should also be highlighted that rRA Z lies partly above the MHWS and so outside of the project area, but a portion does intersect with rMCZ 13.

In addition to the sites outlined above, these final recommendations include a proposed co-location zone (pCLZ) (Figure 2.9). The northern boundary of the pCLZ abuts onto the southern boundary of rMCZ 2 (West of Walney rMCZ). Part of the pCLZ also lies within rMCZ 2. The Regional Stakeholder Group (RSG) has assembled a statement regarding the pCLZ, which is described in further detail in the Selection Assessment document for rMCZ2 – in Part 3 of this report. Readers of this report are encouraged to view the RSG 8 meeting report (ISCZ 2011d) for full context on this issue.

Table 2.1: Summary of rMCZs and any intersecting MPAs

rMCZ		Intersecting rRA		Intersecting MPA
Number	**Name**	**Code**	**Name**	**Name**
1	Mud Hole	A	Mud Hole	None
2	West of Walney	-	None	None
2	Proposed Co-location Zone	-	None	None
3	North St George's Channel	B	North St George's Channel (1)	None
		S	North St George's Channel (2)	
4	Mid St George's Channel	C	Mid St George's Channel	None
5	North of Celtic Deep	-	None	None
6	South Rigg	F	South Rigg	None
7	Slieve Na Griddle	G	Slieve Na Griddle	None
8	Fylde Offshore		None	Liverpool Bay SPA
10	Allonby Bay	H	Allonby Bay	None
11	Cumbrian Coast	I	Cumbrian Coast (1)	Drigg Coast SAC St Bees Head SSSI
		J	Cumbrian Coast (2)	
13	Sefton Coast	Z	Sefton Coast	Ribble & Alt Estuary SPA Sefton Coast SSSI
14	Hilbre Island Group	-	None	Dee Estuary SPA Dee Estuary SAC
15	Solway Firth	-	None	Solway Firth SAC Upper Solway Flats & Marshes SPA
16	Wyre Lune	-	None	Lune Estuary SSSI Wyre Estuary SSSI
17	Ribble	-	None	Ribble & Alt Estuart SPA Ribble Estuary SSSI

Table 2.2: Summary of rRAs and any intersecting rMCZs and MPAs

rRA		Intersecting rMCZ		Intersecting MPA
Code	**Name**	**Number**	**Name**	**Name**
A	Mud Hole	1	Mud Hole	None
B	North St George's Channel (1)	3	North St George's Channel	None
C	Mid St George's Channel	4	Mid St George's Channel	None
F	South Rigg	6	South Rigg	None
G	Slieve Na Griddle	7	Slieve Na Griddle	None
H	Allonby Bay	10	Allonby Bay	None
I	Cumbria Coast (1)	11	Cumbrian Coast	St Bees Head SSSI
J	Cumbria Coast (2)	11	Cumbrian Coast	None
K	Tarn Point	-	None	None
S	North St George's Channel (2)	3	North St George's Channel	None
T	Cunning Point	-	None	None
W	Barrow South	-	None	South Walney & Piel Channel Flats SSSI
Y	Barrow North	-	None	Duddon Estuary SPA
Z	Sefton Coast	13	Sefton Coast	Ribble & Alt Estuary SPA

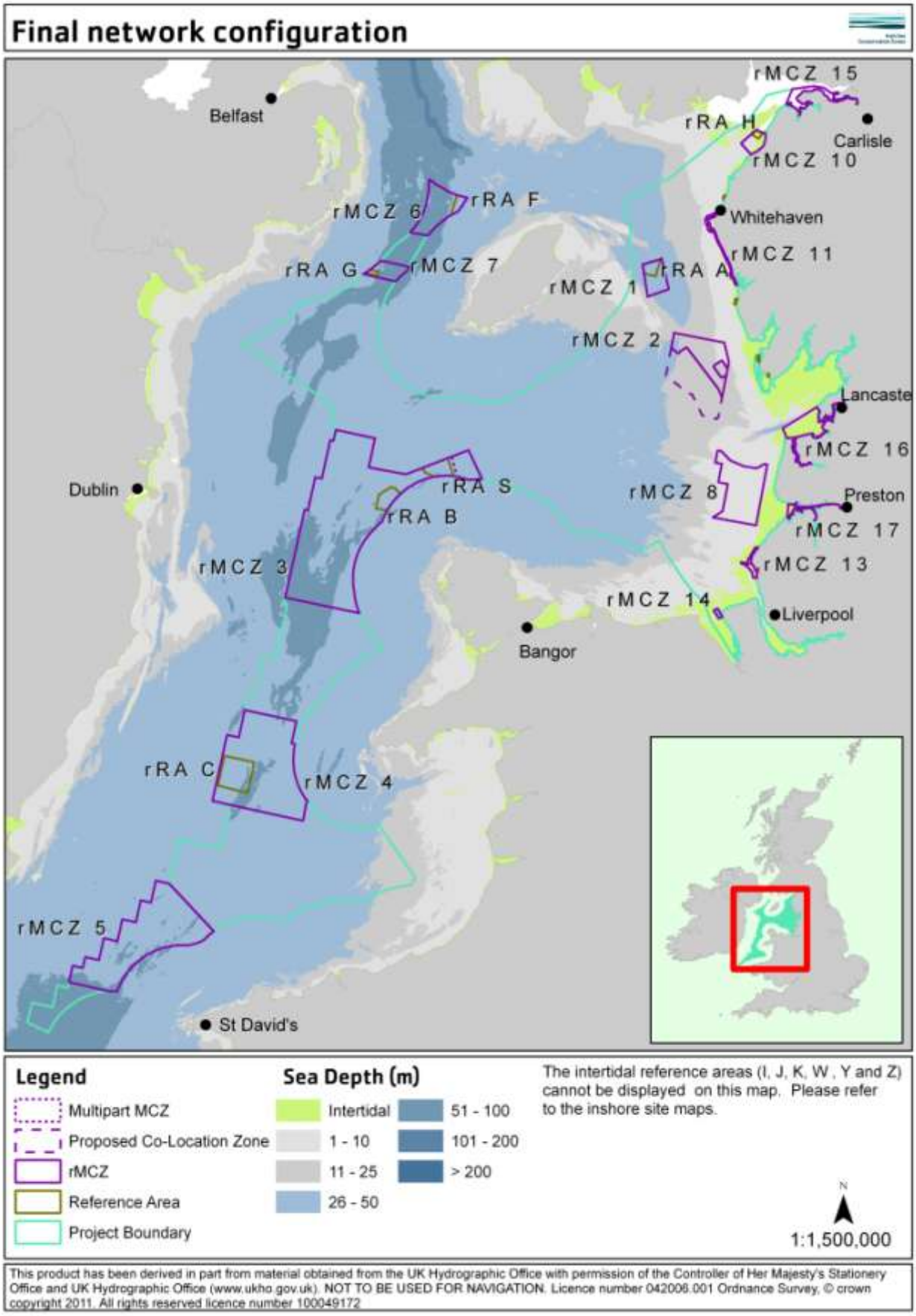

Figure 2.1: Final network configuration showing the underlying bathymetry

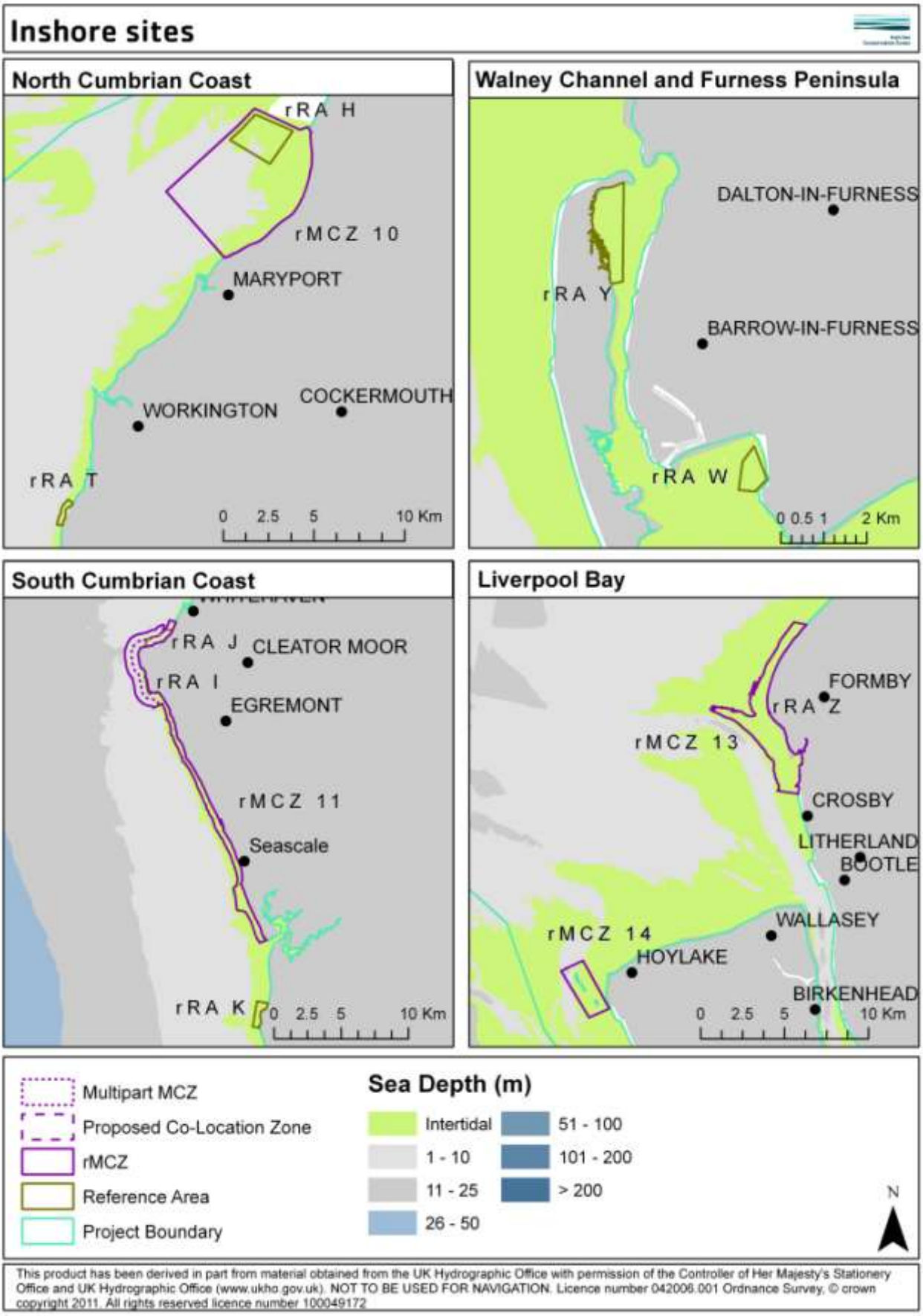

Figure 2.2: Inshore rMCZs and rRAs showing the underlying bathymetry

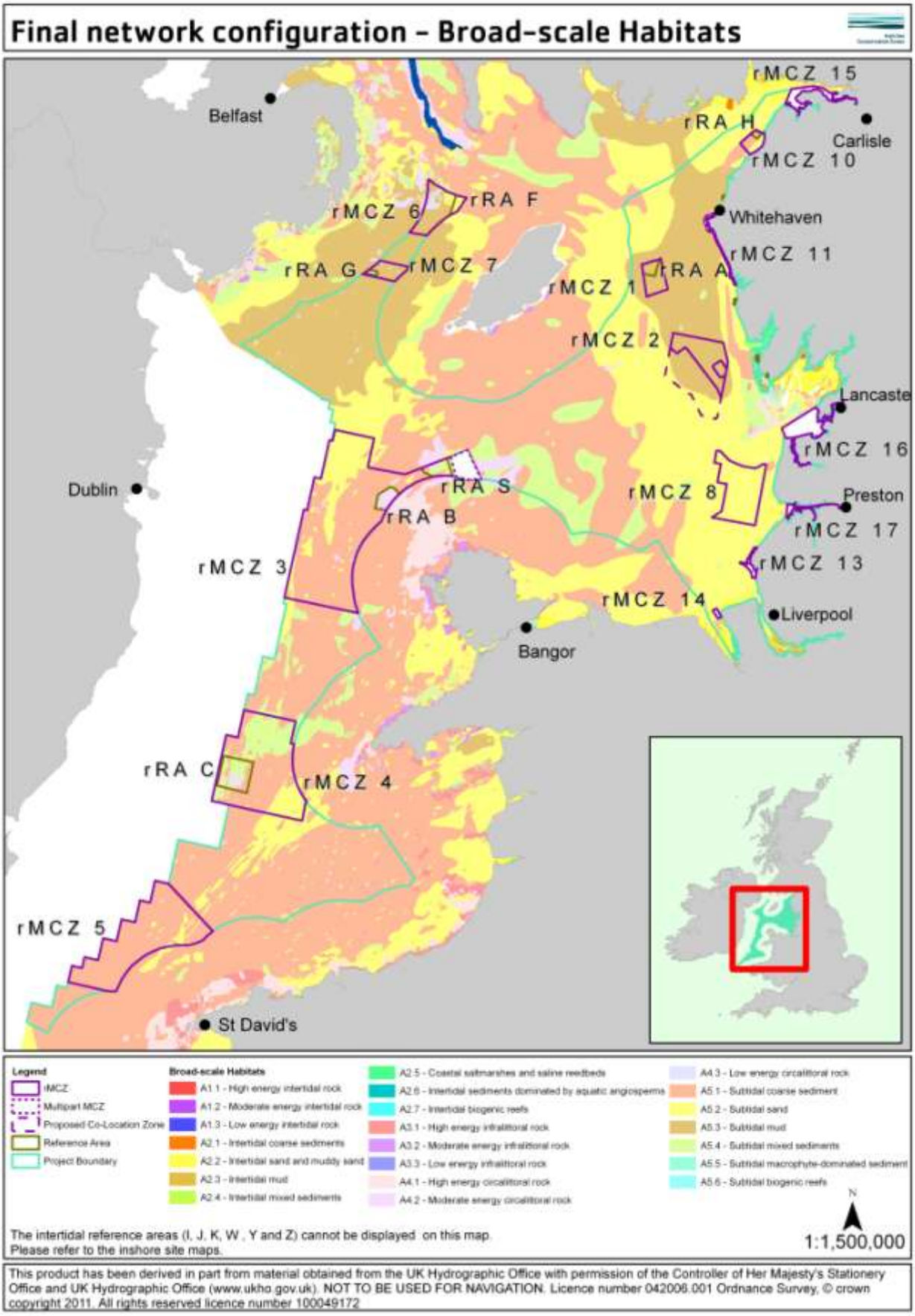

Figure 2.3: Final network configuration showing the underlying Broad-scale Habitats

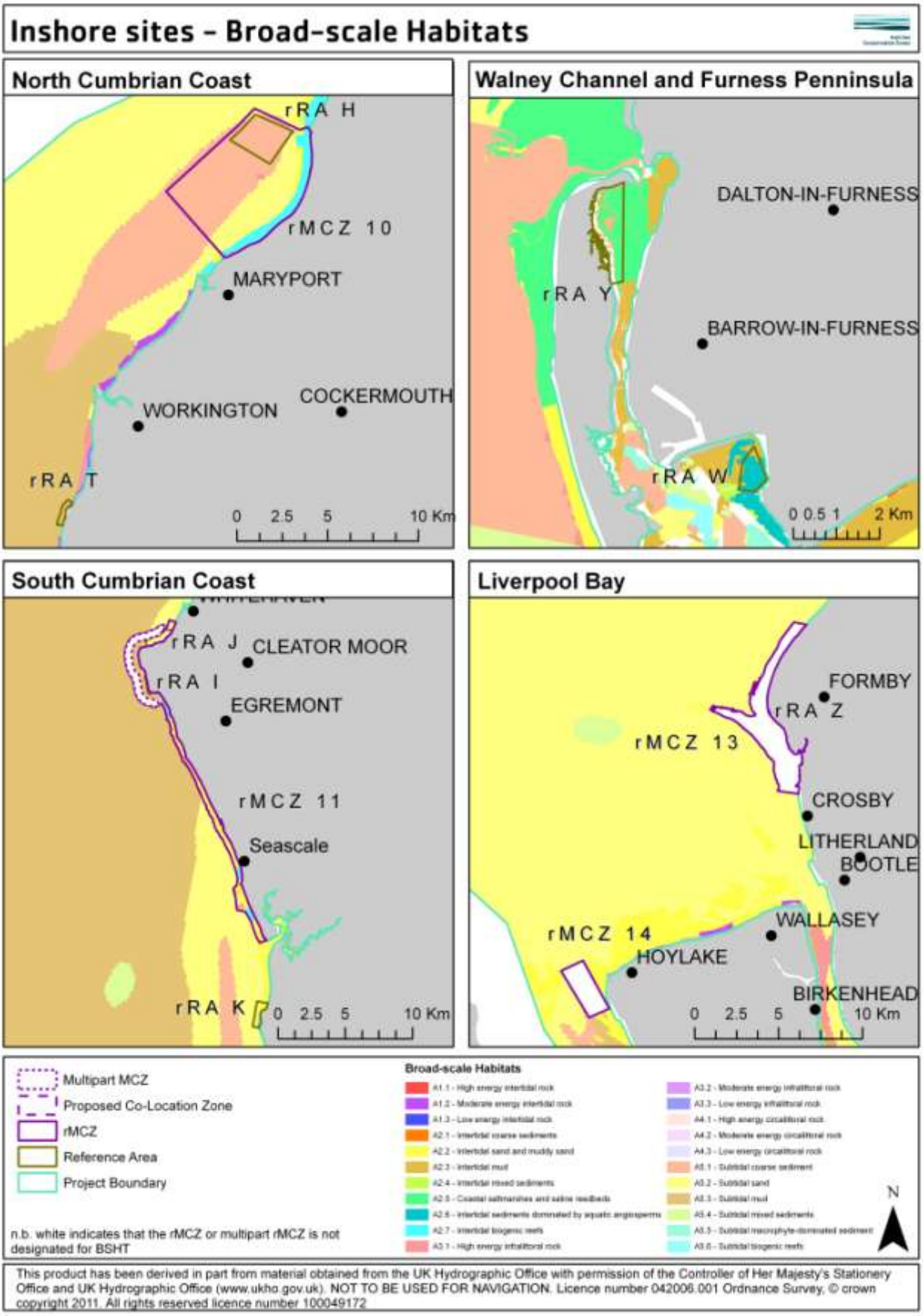

Figure 2.4: Inshore rMCZs and rRAs showing the underlying Broad-scale Habitats

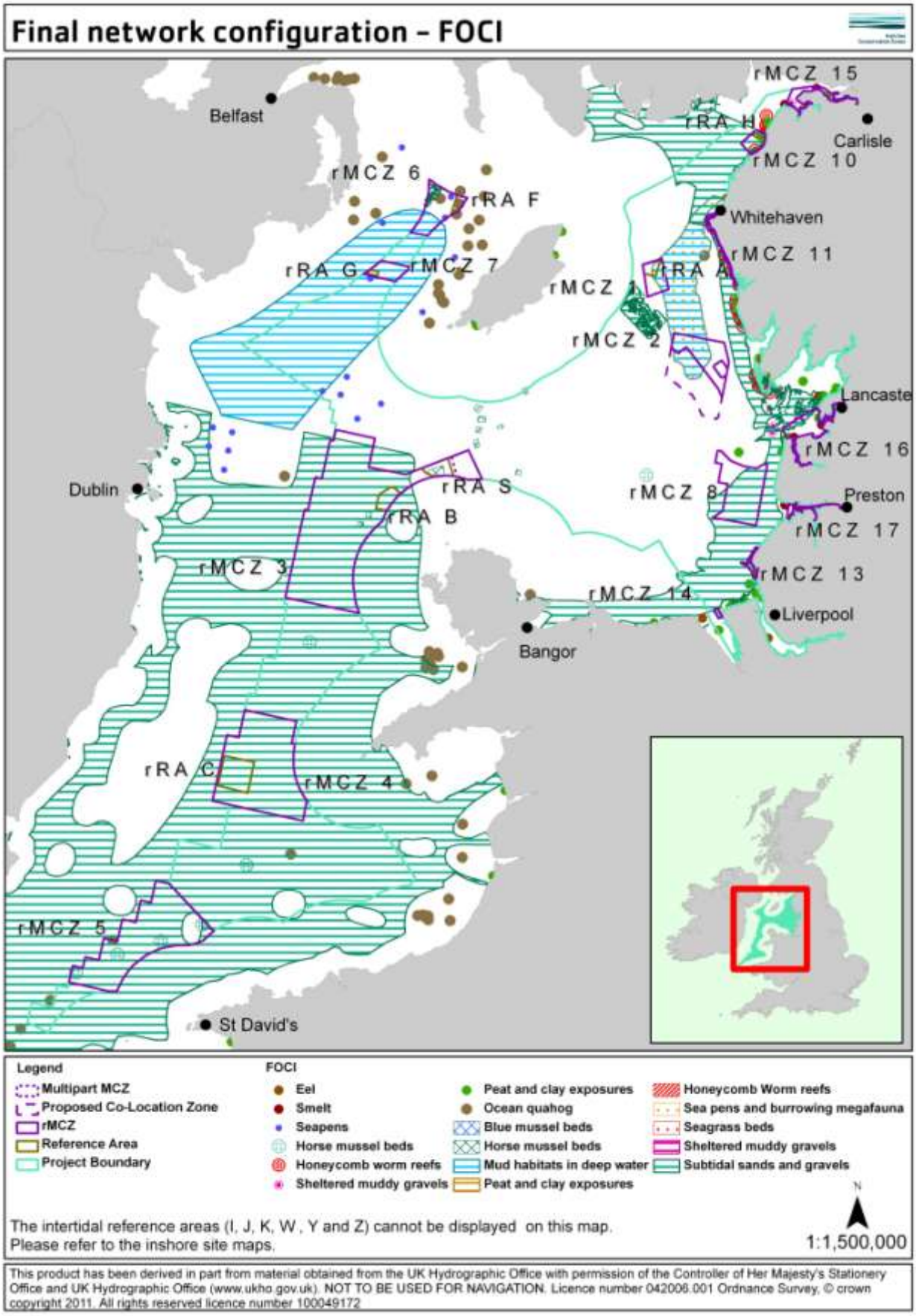

Figure 2.5: Final network configuration showing the underlying FOCI

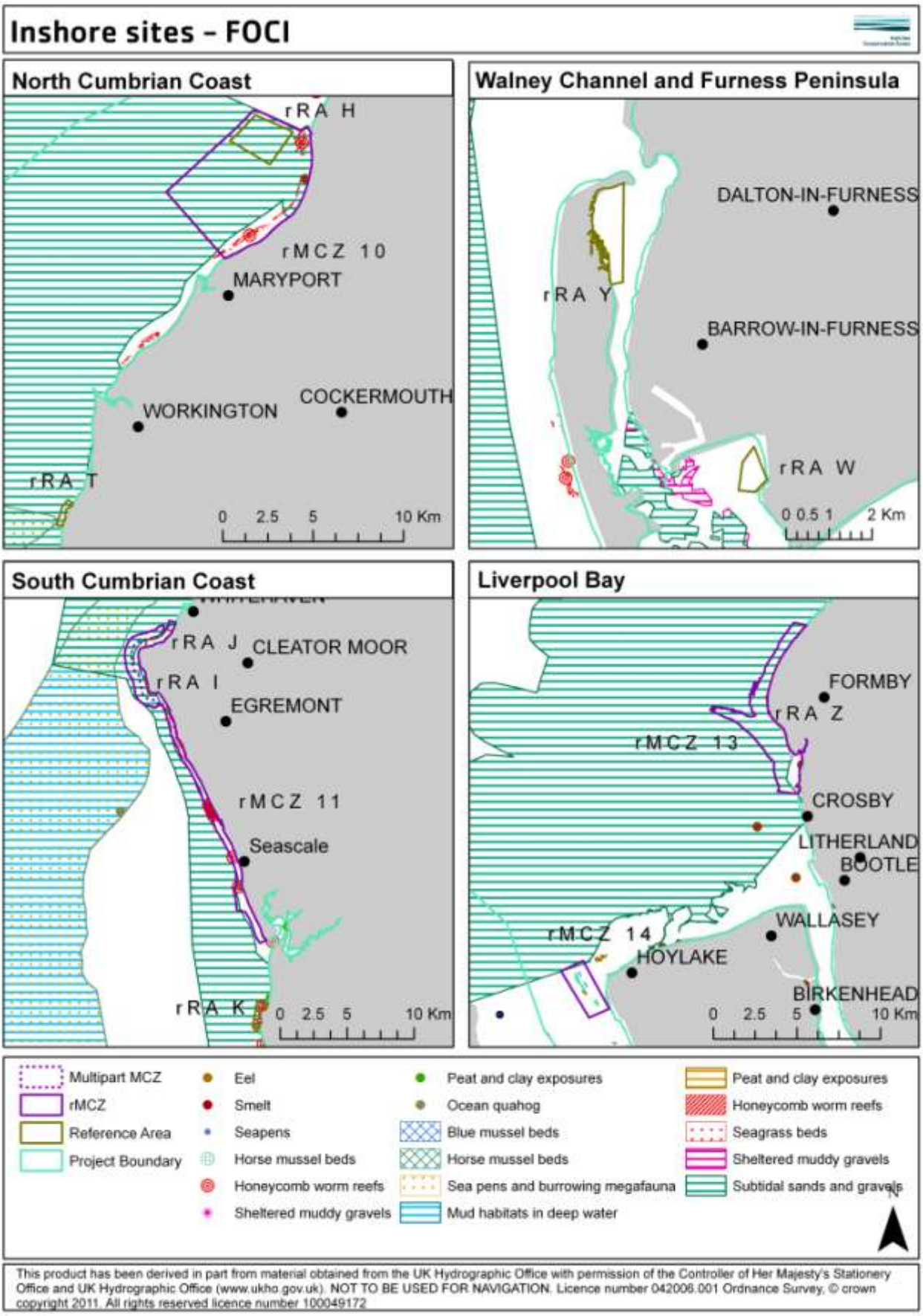

Figure 2.6: Inshore rMCZs and rRAs showing the underlying FOCI.

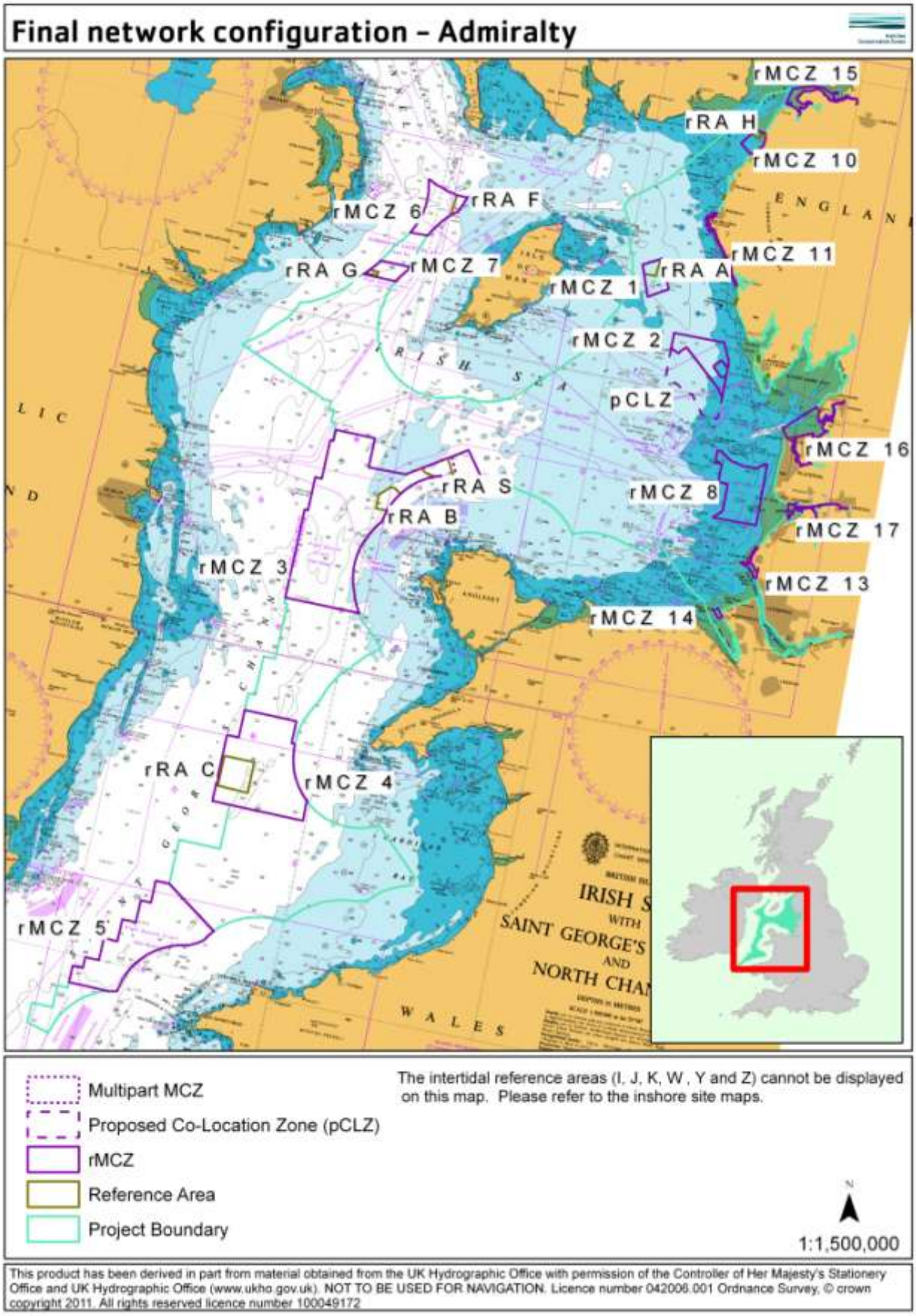

Figure 2.7: Final network configuration showing the underlying admiralty chart

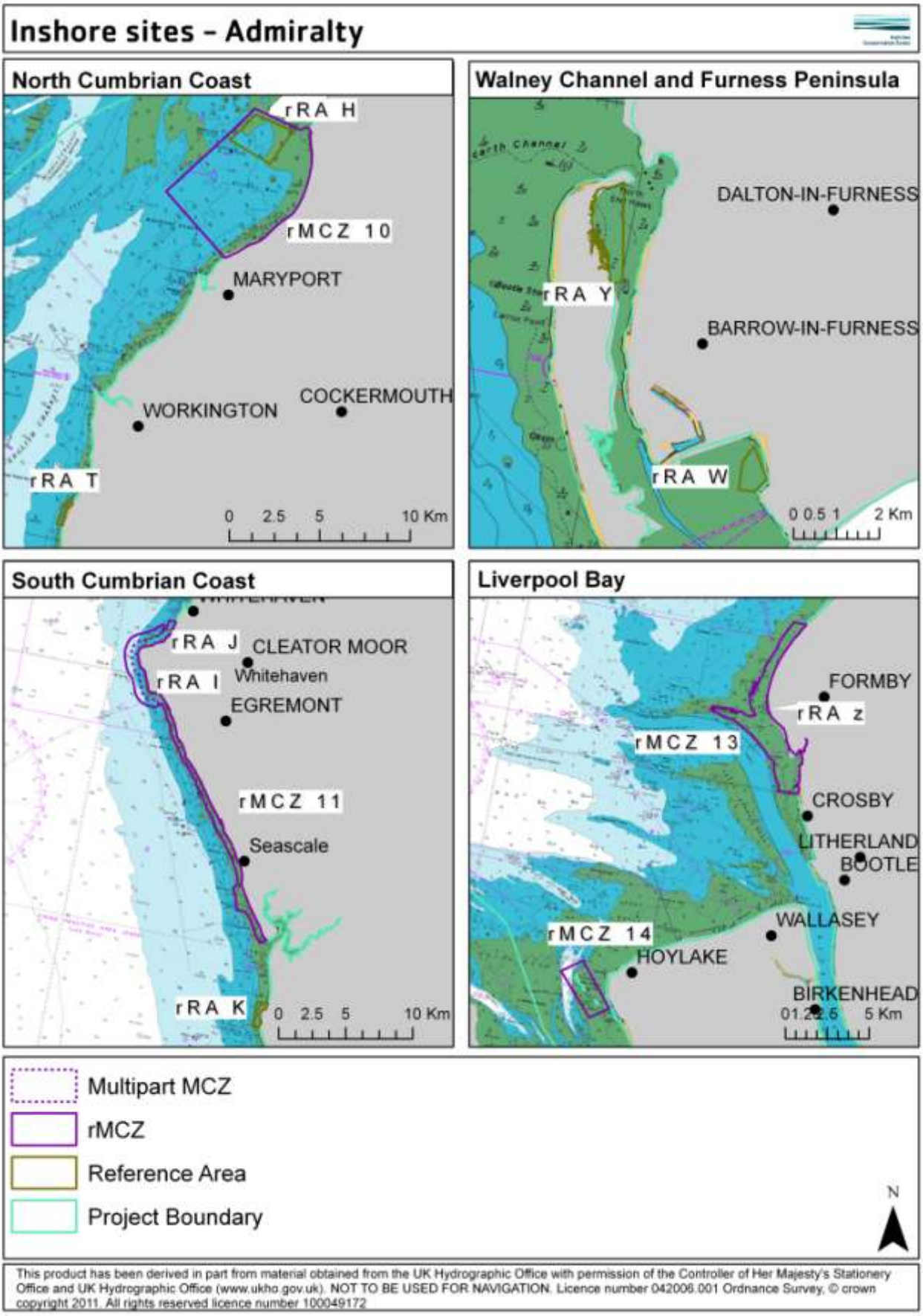

Figure 2.8: Inshore rMCZs and rRAs showing the underlying Admiralty Chart

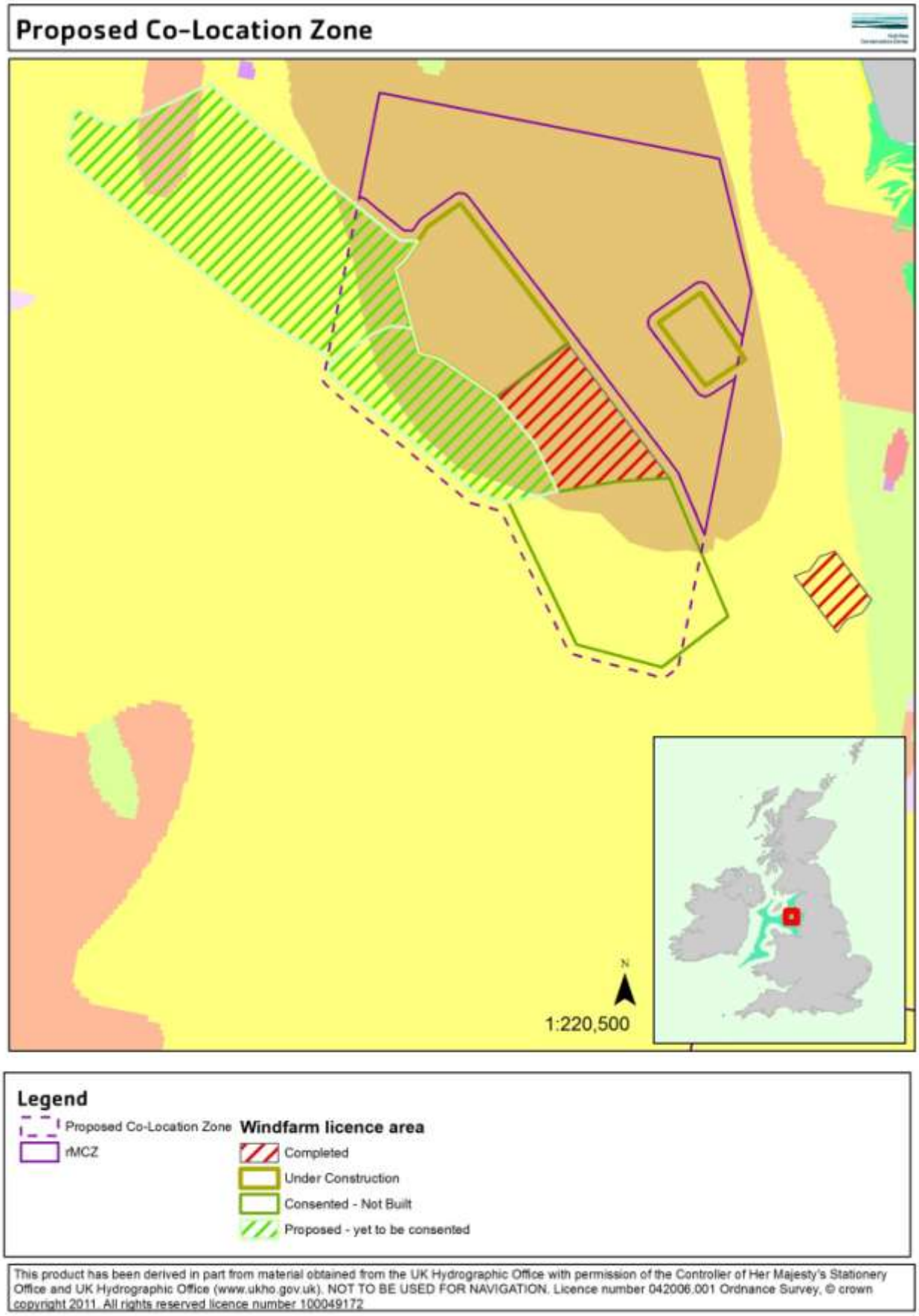

Figure 2.9: Proposed Co-Location Zone showing the underlying Broad-scale Habitats and FOCI

2.2.2 Conservation Objective summary

This section comprises of two tables which summarise the conservation objectives for all features designated within the final network of sites.

Table 2.3: Summary of the Conservation objectives for all features designated within rMCZs

Site Name	Broad-scale Habitats		Features of Conservation Importance		Non–ENG Features	
	Name	Conservation Objective	Name	Conservation Objective	Name	Conservation Objective
rMCZ 1	Subtidal Mud	Recover	Mud Habitats in Deep Water	Recover	None	
			Seapens and burrowing Megafauna Communities	Recover		
rMCZ 2	Subtidal Mud	Recover	Mud Habitats in Deep Water	Recover	None	
			Seapens and burrowing Megafauna Communities	Recover		
Proposed Co-location Zone	Subtidal Mud	Recover	Mud Habitats in Deep Water	Recover	None	
	Subtidal Sand	Recover	Seapens and burrowing Megafauna Communities	Recover		
rMCZ 3	High Energy Circalittoral Rock	Maintain	Subtidal Sands and Gravels	Recover	Drumlins	Maintain
	Moderate Energy Circalittoral Rock	Maintain	Horse Mussel *(Modiolus modiolus)* Beds	Recover		
	Subtidal Mixed Sediment	Maintain	Ocean Quahog *(Arctica islandica)*	Maintain		
	Subtidal Coarse Sediment	Maintain	Ross Worm (*Sabellaria spinulosa*) Reefs	Maintain		
	Subtidal Sands	Recover				
	Subtidal Biogenic Reefs	Recover				
rMCZ 4	Moderate Energy Circalittoral Rock	Maintain	Subtidal Sands and Gravels	Recover	None	
	Subtidal Coarse Sediment	Recover				
	Subtidal Mixed Sediment	Recover				
	Subtidal Sands	recover				
rMCZ 5	Moderate Energy Circalittoral Rock	Maintain	Subtidal Sands and Gravels	Recover	None	
	Subtidal Coarse Sediment	Recover	Ocean Quahog (*Arctica islandica*)	Recover		
	Subtidal Sands	Recover				
rMCZ 6	Subtidal Mud	Recover	Mud Habitats in Deep Water	Recover	None	
	Low Energy Circalittoral Rock	Recover	Ocean Quahog *(Arctica islandica)*	Recover		
	Subtidal Sands	Recover	Sea-pen and burrowing megafauna communities	Recover		

Table 2.3 (continued): Summary of the Conservation objectives for all features designated within rMCZs

Site Name	Broad-scale Habitats		Features of Conservation Importance		Non–ENG Features	
	Name	Conservation Objective	Name	Conservation Objective	Name	Conservation Objective
rMCZ 7	Low Energy Circalittoral Rock	Recover	Mud Habitats in Deep Water	Recover	None	
	Subtidal Mud	Recover				
rMCZ 8	Subtidal Sand	Maintain	Subtidal Sands and Gravels	Maintain	None	
rMCZ 10	High Energy Intertidal Rock	Maintain	Honeycomb Worm(*Sabellaria alveolata)* reef	Maintain	None	
	Intertidal Biogenic Reefs	Maintain	Subtidal Sands and Gravels	Maintain		
	Subtidal Coarse Sediment	Maintain	Blue mussel *(Mytilus edulis)* beds	Maintain		
	Subtidal Sands	Maintain	Peat and clay exposures	Maintain		
rMCZ 11	High Energy Intertidal Rock	Maintain	Blue Mussel *(Mytilus edulis)* Beds	Maintain	Black Guillemot *(Cepphus grille)*	Maintain
	Intertidal Biogenic Reefs	Recover	Intertidal Under Boulder Communities	Maintain		
	Intertidal Sand and Muddy Sand	Maintain	Honeycomb worm *(Sabellaria alveolata)* reef	Recover		
	High Energy Infralittoral Rock	Recover	Peat & clay exposures	Maintain		
rMCZ 13	None		Peat and Clay Exposures	Recover	None	
rMCZ 14	None		Peat and Clay Exposures	Recover	None	
			Blue Mussel (*Mytilus Edulis*) Beds	Recover		
rMCZ 15	None		Smelt*	Maintain	None	
			Eel*	Maintain		
rMCZ 16	None		Smelt*	Maintain	None	
			Eel*	Maintain		
rMCZ 17	None		Smelt*	Maintain	None	
			Eel*	Maintain		

Table 2.4: Summary of Conservation objectives for al features designated within rRAs

Site Name	Broad-scale Habitats		Features of Conservation Importance		Non-ENG Features	
	Name	Conservation Objective	Name	Conservation Objective	Name	Conservation Objective
rRA A	Subtidal Mud	Reference	Mud Habitats in Deep Water	Reference	None	
			Seapens and burrowing Megafauna Communites	Reference		
rRA B	High Energy Circalittoral Rock	Reference	Subtidal Sands and Gravels	Reference	None	
	Moderate Energy Circalittoral Rock	Reference				
	Subtidal Coarse Sediment	Reference				
rRA C	Moderate Energy Circalittoral Rock	Reference	Subtidal Sands and Gravel	Reference	None	
	Subtidal Coarse Sediment	Reference				
	Subtidal Mixed Sediment	Reference				
	Subtidal Sands	Reference				
rRA F	Subtidal Mud	Reference	Ocean Quahog *(Arctica islandica)*	Reference	None	
	Subtidal Sands	Reference				

Table 2.4 (continued): Summary of Conservation objectives for al features designated within rRAs

Site Name	Broad-scale Habitats		Features of Conservation Importance		Non-ENG Features	
	Name	Conservation Objective	Name	Conservation Objective	Name	Conservation Objective
rRA G	Low Energy Circalittoral Rock	Reference	Mud Habitats in Deep Water	Reference	None	
	Subtidal Mud	Reference				
rRA H	Subtidal Coarse Sediment	Reference	Subtidal Sands and Gravels	Reference	None	
	Subtidal Sand	Reference				
	Moderate energy infralittoral rock	Reference				
rRA I	High Energy Infralittoral Rock	Reference	Subtidal sands and gravels	Reference	None	
	Subtidal mud	Reference	Intertidal Under Boulder Communities	Reference		
	Subtidal sand	Reference				
rRA J	High Energy Intertidal Rock	Reference	Subtidal sands and gravels	Reference	None	
	Intertidal mixed sediments	Reference	Intertidal Under Boulder Communities	Reference		
	Subtidal sand	Reference				
rRA K	High Energy Infralittoral Rock	Reference	Honeycomb worm (*Sabellaria alveolata)* reefs	Reference	None	
	Intertidal Biogenic Reefs	Reference	Blue mussel (*Mytilus edulis)* beds	Reference		
	Intertidal Sand and Muddy Sand	Reference	Subtidal Sands & Gravels	Reference		
	Subtidal Coarse Sediment	Reference				
	Subtidal Sand	Reference				
rRA S	Moderate Energy Circalittoral Rock	Reference	Horse Mussel *(Modiolus modiolus)* Beds	Reference	None	
	Subtidal Mixed Sediment	Reference				
	Subtidal Coarse Sediment	Reference				
	Subtidal Sands	Reference				
	Subtidal Biogenic Reefs	Reference				
rRA T	Moderate energy intertidal rock	Reference	Subtidal sands and gravels	Reference	None	
	Subtidal mud	Reference				
rRA W	Intertidal mud	Reference	Seagrass beds	Reference	None	
	Intertidal sediments dominated by aquatic angiosperms	Reference				
rRA Y	Intertidal mud	Reference	None		None	
	Coastal saltmarshes and saline reedbeds	Reference				
	Subtidal coarse sediment	Reference				
rRA Y	None		Peat and clay exposures	Reference	None	

2.2.3 Summary of the contribution of existing protected areas

Natural England and JNCC will provide this information to Government as part of their submission of advice on the MPA network in 2012. However, various components of this report refer to the contribution of existing MPAs towards meeting the ENG targets. This is described in the following section (2.2.4). Figure 2.10 shows all of the MPAs within the Irish Sea.

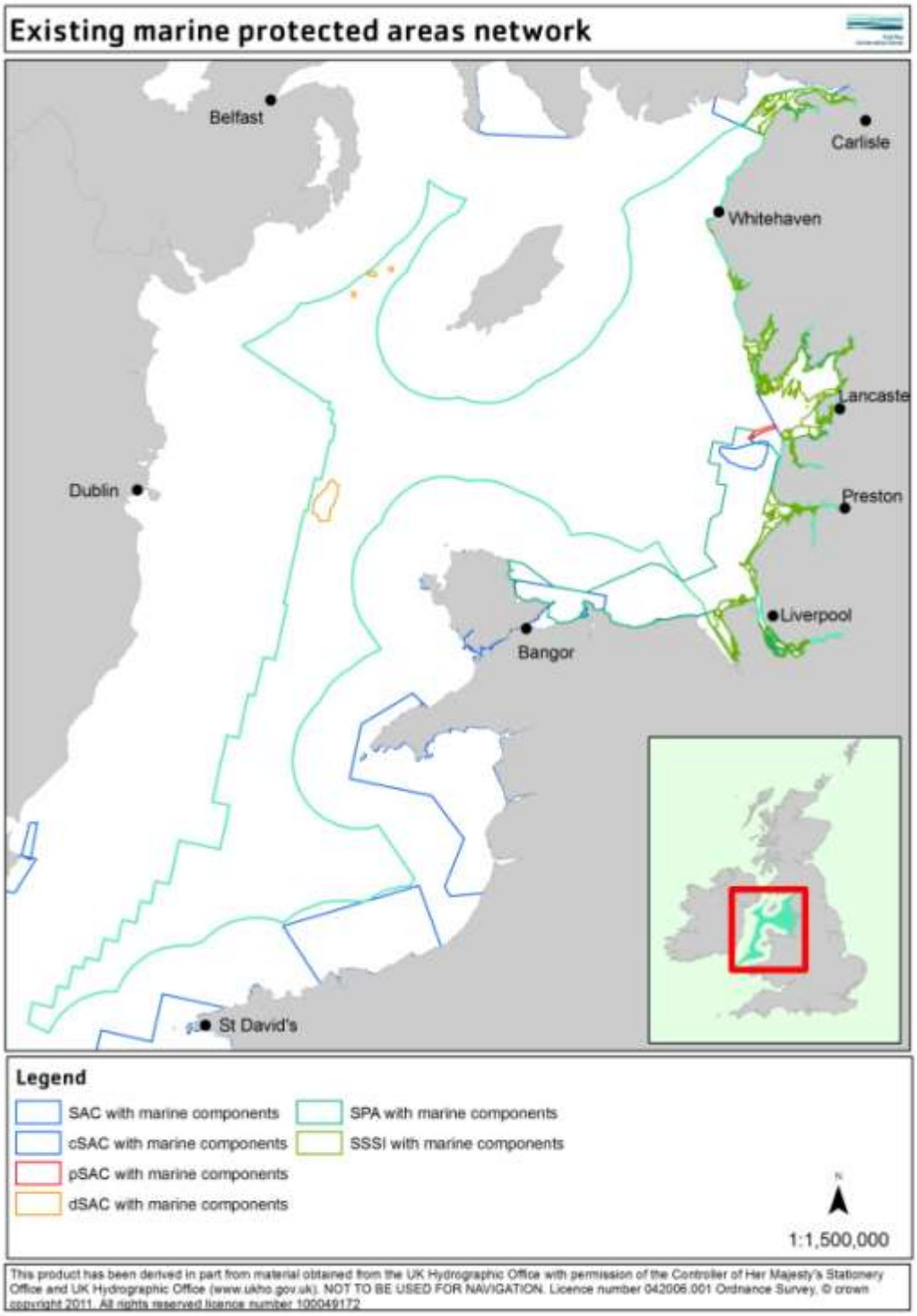

Figure 2.10: Exisitng MPAs located within the Irish Sea

2.2.4 The performance of the network configuration against the Ecological Network Guidance

Introduction to network statistics

This section of the report describes the performance of the final network against the criteria and targets set out in the Ecological Network Guidance (ENG).

The calculations have been derived based on a modified version of the EUNIS Level 3 habitat map provided by the Joint Nature Conservation Committee (JNCC). The provided map was created using a combination of the UK SeaMap data sets, and validated against JNCCs marine recorder data. Modifications to the broad-scale habitats layer include:

- Changing the area of low energy infralittoral rock in the Mersey estuary to high energy infralittoral rock. This was modified through a RSG request, given their understanding of the energy levels in the Mersey estuary.
- Changing all broad-scale habitats in rMCZ 6, except for moderate energy circalittoral rock and subtidal sand, to subtidal mud. This was modified through a RSG request given the continued uncertainty about this part of the Irish Sea. There was a general consensus that the area was made up of mud with outcroppings of rock. More details on these habitats can be found in the Selection Assessment Documents for rMCZs 6 and 7.
- Changing the moderate energy infralittoral rock in Lune Deep to moderate energy circalittoral rock. This was modified as new information (in the form of multibeam data from the Maritime and Coastguard Agency) became available in Selection Assessment Documents for the Lune Deep pSAC.
- Changing the boundary between the subtidal mud and sand habitats in the eastern Irish Sea. This was modified on the advice of Natural England, the evidence for which is based on grab sample surveys completed by CMACS (Lumb et al., 2011). The Mud Habitats in Deep Water FOCI was also modified to match the new subtidal mud broad-scale habitat boundary. More details on these habitats can be found in the Selection Assessment Documents for rMCZs 1 and 2.

Modifications to the FOCI datasets include:

- Non-use of the Ocean Quahog *Arctica islandica* data (various locations – offshore and on the Sefton Coast) provided through the Defra MB102 contract and Mersey Biobank, due to extremely low confidence. Following the release of the 2nd iteration it became apparent that many of these records were incorrect and obtained from unreliable sources (e.g. relict shells washed on to the shore). The RSG made clear their reluctance to identify sites based on these data.
- The project team liaised with Bangor University and obtained a reliable data set on the distribution of the Ocean Quahog *Arctica islandica* from Dr Paul Butler whose research on paleoclimatic reconstruction from the shells of the species has led to comprehensive knowledge and data on the distribution of the species and preferable habitat for breeding populations. These data were incorporated and used in the MCZ site identification process
- Non-use of horse mussel *Modiolus modiolus* bed data provided through the Defra MB102 contract for the following reasons :
    - A horse mussel bed is defined as a biogenic reef with coverage of 50% of the area. None of the MB102 points had confidence in this classification as they were identified from grab samples which, in some cases, were several decades old.

    - The southern limit of Horse Mussels (*Modiolus modiolus*) is generally considered to be around the North Wales coast (Ivor Rees Pers. comm 2011) It was, therefore, likely that the more southerly records are not *Modiolus modiolus* but rather *Modiolus adriaticus* (Ivor Rees Pers. comm 2011). This species is not a species or a habitat listed in the ENG.
- Advice from the SAP and from stakeholders advocated the ecosystem services and conservation benefit of this FOCI and tasked the project team to acquire reliable data on the distribution of *Modiolus modiolus* beds in the project area.
    - New data was obtained from the Strategic Environmental Assessment report (Rees, 2005) that specified the distribution of bed habitat and species records. This was considered to be a reliable data source.
- Non-use of Ross worm *Saballeria spinulosa* data in rMCZ 3 following confirmation with JNCC that these had been clarified as crusts and species records. It could not be confirmed that they provide over 50% coverage of the area (and therefore cannot be confirmed as *reefs*). Ross worm *Saballeria spinulosa* reefs are not, therefore, proposed for designation in these final recommendations.

To assess performance of the network against the ENG, adequacy calculations are based upon the total area of each feature (broad-scale habitat/s and/or FOCI) within the network of sites (rMCZs and rRAs). Replication is a count of the number of examples of each feature within the network of sites. This means that replicates may be derived from sites that only hold a small amount of a feature. The exception to this rule are the Horse mussel *Modiolus modiolus* beds, for which there are 2 replicates found within one large site (rMCZ 3 – North St George's Channel) where the two instances of this feature are spatially discrete enough to count as two replicates. It should also be noted that some sites (rMCZ 14, rMCZ 13, rMCZ 11 and rMCZ 3), or parts of these sites, do not propose designation of some of their underlying broad-scale habitats (for reasons discussed in the Selection Assessment Documents section of this report – Part 3). In these instances, they do not count towards the ENG targets for broad-scale habitats. In addition to this, where the Horse Mussel *Modiolus modiolus* beds FOCI have been identified in rMCZ 3, the area also proposes designation of the Subtidal Biogenic reefs broad-scale habitat, as Horse Mussel beds are biogenic reefs. Similarly, where the Blue mussel *Mytilus edulis* beds have been identified in rMCZ 14, the area also proposes for designation the Intertidal Biogenic reefs broad-scale habitat, for the same reason.

Replication for existing MPAs has been derived from Gap Analysis calculations provided by JNCC in order to assess the contribution of the existing MPAs towards the ENG targets. Where MPAs intersected or overlapped with one another, only one replication was counted. If the MPAs intersected but there are features replicated in spatially discrete areas outside of one of the MPAs, but still within the other, then the feature was counted twice. The adequacy calculations are derived from GIS-based calculations of surface coverage of the features that are afforded protection within the existing MPAs. Only features that are designated in existing MPAs that are included in the Gap Analysis are included in the network calculations. A summary of the Gap Analysis tables can be found in Annex 5. All calculations are in the Lambert Azimuthal Equal Area projection, as recommended by the SNCBs.

Broad-scale Habitats: representativity, replication and adequacy

The rMCZ network is representative of all broad-scale habitats identified in the ENG that are present in the ISCZ project area with the exception of subtidal macrophyte-dominated sediments. This habitat is only present, according to the broad-scale habitat data, in the highly used area of Morecambe Bay. The RSG did not feel that it was reasonable to place any further restrictions on sea users in Morecambe Bay, given the number of MPAs (and associated management) that already exist there.

Of the other broad-scale habitats which have adequacy (%) target ranges listed in the ENG, all minimum targets have been met with the exception of High Energy Infralittoral rock and Moderate Energy Infralittoral rock (Table 2.5). These two habitats are only present in small/discrete pockets of the project area, amounting to a total area of 10.15 km^2 and 4.36 km^2 respectively. For high energy infralittoral rock, 6% has been captured in the network in 3 separate sites. This gives an indication of how discrete these habitats are. The habitat is recorded as being present but not designated in rMCZ 10 as the habitat is not deemed to be of a viable size (see ISCZ rule of thumb for features that are present but not proposed for designation, in the above section). It should be noted that one of these sites (rMCZ 11) does not conform to the rule of thumb outlined in Section 2.2, as the RSG felt that specific discreet feature should be proposed for designation. Of the remaining habitats, all of the maximum adequacy targets have been exceeded with the exception of High Energy Circalittoral rock, Subtidal Coarse sediment, Subtidal Sand and Subtidal Mud (Table 2.5). It should be noted that these habitats do all exceed the minimum adequacy targets. It should also be noted that without the proposed co-location zone in the network, which does not form part of the formal final network to date, the total coverage of Subtidal Mud will fall from 18% to 13% which will fail to meet the adequacy targets. The proposed co-location zone is discussed further within the Selection Assessment Document for rMCZ 2 (Part 3). Readers of this report are encouraged to view the RSG 8 meeting report (ISCZ 2011d) for full context on this issue.

Of the 21 broad-scale habitats represented in the ISCZ project area, 17 are present in two or more sites (Table 2.6). The four habitats which only have one replicate are:

- Intertidal coarse sediments, of which 81% of the habitat is captured in the one example in the network (meeting the ENG adequacy target)
- Intertidal sediments dominated by aquatic angiosperms, of which 99% of the habitat is captured in the one example in the network (meeting the ENG adequacy target)
- Moderate energy infralittoral rock, of which only 9% of the habitat is captured in the one example in the network (missing the ENG adequacy target)
- High energy circalittoral rock, of which 15% of the habitat is captured in the one example in the network (meeting the ENG adequacy target)

For moderate energy infralittoral rock and high energy circalittoral rock, the data suggest that the habitats are both present in Morecambe Bay, but these features are not referred to in the gap analysis calculations as being afforded protection by the existing MPAs. If these habitats were designated under the Morecambe Bay SAC then they would both have 2 replicates and a larger total percentage cover in the MPA network.

Table 2.5: Contribution of rMCZs and existing MPAs (SACs, SPAs and SSSIs) towards satisfying the adequacy criteria set out in the ENG for Broad-scale Habitats. Site level information is included in the Selection Assessment Documents (SADs) in Part 3 of this report. Green cells indicate where the ENG adequacy targets are met and red cells indicate where they have not been met.

Broad-scale Habitat	Total in project area	ENG adequacy target		Area covered by recommended MCZ network		Area protected by existing MPAs		Total protected		Adequacy met
	(km^2)	(km^2)	(%)	(km^2)	(%)	(km^2)	(%)	(km^2)	(%)	(Y/N)
High energy intertidal rock	0.07	0.01-0.03	21-38	0.05	71.43	0	0.0	0.05	71	Y
Moderate energy intertidal rock	6.82	1.43-2.59	21-38	0.08	1.17	3.37	49.4	3.48	51	Y
Low energy intertidal rock	2.38	0.52-0.93	22-39	0	0.00	2.37	99.6	2.38	100	Y
Intertidal coarse sediments	0.72	0.18-0.30	25-42	0	0.00	0.60	83.3	0.60	83.3	Y
Intertidal sand and muddy sand	295.07	73.77-123.93	25-42	5.01	1.70	258.25	87.5	262.61	89	Y
Intertidal mud	125.07	31.27-52.53	25-42	0	0.00	119.12	95.2	118.82	95	Y
Intertidal mixed sediments	5.18	1.30-2.18	25-42	0	0.00	4.72	91.1	4.71	91	Y
Coastal saltmarshes and saline reedbeds	39.18	No target	No target	0	0.00	38.79	99.0	38.79	99	Y
Intertidal sediments dominated by aquatic angiosperms	1.24	No target	No target	0	0.00	1.23	99.2	1.23	99	Y
Intertidal biogenic reefs	12.07	No target	No target	5.55	45.98	6.19	51.3	11.71	97	Y
High energy infralittoral rock	10.15	1.52-3.15	15-31	0.4	4	0.20	2.0	0.61	6	N
Moderate energy infralittoral rock	4.36	0.74-1.40	17-32	0	0.00	0.38	8.7	0.39	9	N
Low energy infralittoral rock	0.12	0.02-0.04	16-32	0	0.00	0.12	100.0	0.12	100	Y
High energy circalittoral rock	63.96	7.04-15.99	11 - 25	9.48	14.82	0	0.0	9.59	15	Y
Moderate energy circalittoral rock	267.70	34.80-74.96	13-28	69.07	25.80	6.82	2.5	74.96	28	Y
Low energy circalittoral rock	31.70	5.07-10.14	16-32	25.27	79.72	0	0.0	25.36	80	Y
Subtidal coarse sediment	7127.31	1211.64-2280.74	17-32	1908.14	26.77	0	0.0	1924.37	27	Y
Subtidal sand **(with co-location)**	5108.62	766.29-1532.59	15-30	855.31	16.74	270.92	5.3	1123.90	22	Y
Subtidal sand **(without co-location)**	5108.62	766.29-1532.59	15-30	783.33	15.33	270.92	5.3	1072.81	21	Y
Subtidal mud **(with co-location)**	2937.71	440.66-881.31	15-30	538.91	18.34	0	0.0	528.79	18	Y
Subtidal mud **(without co-location)**	2937.71	440.66-881.31	15-30	379.01	12.90	0	0.0	381.90	13	N
Subtidal mixed sediments	1234.79	197.57-395.13	16-32	277.19	22.45	0	0.0	271.65	22	Y
Subtidal macrophyte-dominated sediment	10.07	No target	No target	0	0.00	0	0.0	0.00	0	N
Subtidal biogenic reefs	56.19	No target	No target	20.07	35.72	13.20	23.5	33.15	59	Y

Table 2.6: Contribution of rMCZs and existing MPAs (SACs, SPAs and SSSIs) towards satisfying the replication criteria set out in the ENG for Broad-scale Habitats. Site level information is included in the Selection Assessment Documents (SADs) in Part 3 of this report. Green cells indicate where the ENG targets are met and red cells indicate where they have not been met. Orange cells indicate instances where the replication target cannot be met because there is only one example of the feature in the project area.

Broad-scale Habitat	Number of examples (replicates) protected in existing MPAs	Number of examples (replicates) recommended MCZ network	Total number of Replicates
High energy intertidal rock	0	2	2
Moderate energy intertidal rock	2	1	3
Low energy intertidal rock	2	0	2
Intertidal coarse sediments	1	0	1
Intertidal sand and muddy sand	5	1	6
Intertidal mud	7	0	7
Intertidal mixed sediments	3	0	3
Coastal saltmarshes and saline reedbeds	5	0	5
Intertidal sediments dominated by aquatic angiosperms	1	0	1
Intertidal biogenic reefs	3	3	6
High energy infralittoral rock	1	2	3
Moderate energy infralittoral rock	1	0	1
Low energy infralittoral rock	2	0	2
High energy circalittoral rock	0	1	1
Moderate energy circalittoral rock	1	3	4
Low energy circalittoral rock	0	2	2
Subtidal coarse sediment	0	4	4
Subtidal sand **(with co-location)**	4	8	12
Subtidal sand **(without co-location)**	4	7	11
Subtidal mud **(with co-location)**	0	6	6
Subtidal mud **(without co-location)**	0	6	6
Subtidal mixed sediments	0	2	2
Subtidal macrophyte-dominated sediment	0	0	0
Subtidal biogenic reefs	1	1	2

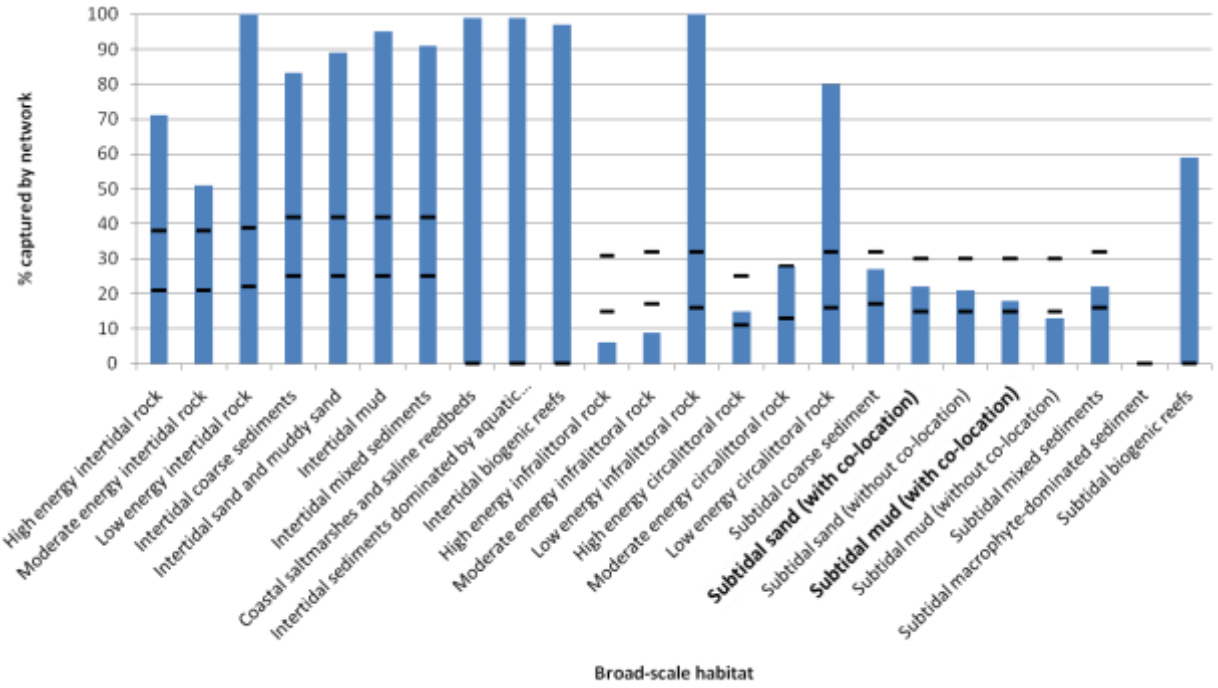

Figure 2.11: Graphical summary of the networks performance against the ENG broad-scale habitat adequacy targets

Feature of Conservation Importance: representativity and replication

The recommended network captures 17 features of conservation importance (FOCI) (Table 2.7). The two FOCI which are present in the project area but are not captured in the network are sheltered muddy gravels and ross worm *Sabellaria spinulosa* reefs. As with the broad-scale habitats above, these features only occur in discrete areas. Sheltered muddy gravels appear only in the Solway Firth SAC and Morecambe Bay SAC, however the feature is not designated in either MPA according to the Gap Analysis results. The *Sabellaria spinulosa* reefs found in the survey are just representative of the presence of the species. There has been no assessment as to whether these species form reefs, which is the habitat FOCI listed in the ENG.

Of the 17 FOCI represented in the project area, all but 6 are represented in three or more sites and therefore meet the ENG target for replication of FOCI:

- rMCZ 11 (Cumbria Coast) captures 89% of all recorded intertidal underboulder communities in a single site. The remaining 11% lie just outside the rMCZ11 site boundary
- Seagrass beds are represented in rRA W (Barrow South). No other examples are found in the project area
- Reliable Ocean quahog *Arctica islandica* data are located mainly outside (north) of the project area but the features within the project area have been captured in rMCZ6 (South Rigg)
- Horse mussel *Modilolus modiolus* beds that are present in the project area and have been quality-checked by our marine ecologist and local SNCB representatives and are included in the network of sites (rMCZ 3 – North St george's Channel; two separate replicates). Previous examples have been removed from sites rMCZ 4 (Mid St George's Channel) and rMCZ 5 (North of Celtic Deep) following discussions (with the School of Ocean Sciences at Bangor University) which have indicated that horse mussel beds are unlikely to be present this far south in the project area. As stated in the Draft Final report, the Ramsay Bay proposed MPA within the 3 nm limits of the Isle of Man, has been identified to give protection to horse mussel beds. The ISCZ team considers this to be an appropriate replicate even though it is not located within the ISCZ project area. If, as the SAP have suggested previously, Welsh MCZs will be designated to protect horse mussel beds then this would allow for at least three replicates of this FOCI in the Irish Sea Regional Sea.
- Saline lagoons have two examples included in the network (Duddon Estuary SSSI and South Walney and Piel Channel Flats). MB102 point data indicate that they are also found in Whitehaven docks but, for socio-economic reasons and the fact that the RSG have low-confidence in this single-point record, this area has not been identified for protection in the network
- Tide swept communities are found only in Morecambe Bay and Lune Deep, both of which are afforded protection by existing SACs.

Table 2.7: Contribution of rMCZs and existing MPAs (SACs, SPAs and SSSIs) towards satisfying the replication criteria set out in the ENG for FOCI (3-5 examples of each feature). Site level information is included in the Selection Assessment Documents (SADs) in Part 3 of this report. Green cells indicate where the ENG targets are met and red cells indicate where they have not been met. Orange cells indicate instances where the replication target cannot be met because there are less than three examples of the feature in the project area.

FOCI name	Number of examples (replicates) protected in existing MPAs	Number of examples (replicates) recommended MCZ network	Total number of examples (replicates) in the network (MCZs and existing MPAs)
Blue mussel *Mytilus edulis* beds	1	5	6
Coastal Saltmarsh	6	0	6
Estuarine Rocky Habitats	3	0	3
Intertidal underboulder communities	0	1	1
Horse mussel *Modiolus modiolus* beds	0	1	2
Intertidal mudflats	5	0	5
Mud habitats in deep water	0	4	4
Saline lagoons	2	0	2
Sea-pen and burrowing megafauna communities	0	3	3
Peat and clay exposures	1	4	5
Honeycomb worm *Sabellaria alveolata* reefs	3	3	6
Ross worm *Sabellaria spinulosa* reefs	0	0	0
Seagrass beds	1	0	1
Sheltered muddy gravels	0	0	0
Subtidal sands and gravels	3	7	10
Tide-swept communities	2	0	2
Ocean quahog *Arctica islandica*	0	1	1
Smelt *Osmerus eperlanus*	0	3	3
European Eel *Anguilla anguilla*	0	3	3

Viability

Table 2.8 shows that out of the 15 rMCZs and 1 pCLZ, all but rMCZ 11 (Cumbrian Coast) are of a viable size. rMCZ 11 is viable for FOCI but not for the broad-scale habitats that are proposed for designation. However, the habitats in question (particularly high energy intertidal rock) are only found in small, discrete quantities throughout the project area, and a high proportion of these are covered in rMCZ 11. In addition, the broad-scale habitats in question are all intertidal, and it does not seem appropriate to extend protection of intertidal features below the low water mark. rMCZs 13, 14, 15, 16 and 17 propose the designation of FOCI only; they are much smaller than the other rMCZs but are still of a viable size for FOCI. It should be noted that in rMCZ 14, the intertidal biogenic reefs broad-scale habitat is proposed for designation, but this is only because the blue mussel bed FOCI is also proposed for designated. All of the rMCZs except sites 1, 7 and 9 fall within the average viable size (80 – 315 km^2). The remaining rMCZs all meet the minimum viable size of 20 km^2.

Table 2.8: Summary of MCZ viability. Yes indicates that the sites meets the average viable size (80 - 315 km2) and bold indicates that the site meets the viable minimum size (20 km2)

rMCZ	Total Area (km^2)	Minimum Dimension (km)	Feature	Amount of feature (km^2)	Contribution to network (%)	Viable?
1 – Mud Hole	72.65	6.5	Subtidal Mud	72.65	2.47	**Yes**
			Mud habitats in deep water	NA		
			Sea-pen and burrowing megafauna communities	NA		
2 – West of Walney	156.37	2.96	Subtidal Mud	156.37	5.32	Yes
			Mud habitats in deep water	NA		
			Sea-pen and burrowing megafauna communities	NA		
2 - Proposed co-location zone	232.00	1.39	Subtidal sand	71.98	1.41	Yes
			Subtidal Mud	159.91	5.44	
			Mud habitats in deep water	NA		
			Sea-pen and burrowing megafauna communities	NA		
3 – North St Georges Channel proposed for BSHT	1327.63		High energy circalittoral rock	9.48	14.83	Yes
3 – North St Georges Channel proposed for Drumlins	60.39		Moderate energy circalittoral rock	40.07	14.97	
3 – North St Georges Channel Total	1388.03	10.84	Subtidal coarse sediment	901.06	12.64	
			Subtidal sand	336.16	6.58	
			Subtidal mixed sediments	30.90	2.50	
			Subtidal biogenic reefs	20.07	35.71	
			Horse mussel *Modiolus modiolus* beds	NA		
			Ross worm *Sabellaria spinulosa* reefs	NA		
			Subtidal sands and gravels	NA		
			Ocean quahog *Arctica islandica*	NA		
			Crocker carbonate slabs	NA		
			Geological and geomorphological features of interest	NA		
4 – Mid St george's Channel	760.86	6.39	Moderate energy circalittoral rock	26.67	9.96	Yes
			Subtidal coarse sediment	368.21	5.17	
			Subtidal sand	114.41	2.24	
			Subtidal mixed sediments	246.29	19.95	
			Subtidal sands and gravels	NA		
5 – North of Celtic Deep	655.69	3.68	Moderate energy circalittoral rock	2.33	0.87	Yes
			Subtidal coarse sediment	616.83	8.65	
			Subtidal sand	32.62	0.64	
			Subtidal sands and gravels	NA		
			Ocean quahog *Arctica islandica*	NA		

Table 2.8 (continued): Summary of MCZ viability. Yes indicates that the sites meets the average viable size (80 - 315 km^2) and bold indicates that the site meets the viable minimum size (20 km^2)

rMCZ	Total Area (km^2)	Minimum Dimension (km)	Feature	Amount of feature (km^2)	Contribution to network (%)	Viable?
6 – South Rigg	146.20	5.82	Low energy circalittoral rock	21.09	66.51	Yes
			Subtidal sand	28.83	0.56	
			Subtidal mud	96.28	3.28	
			Mud habitats in deep water	NA		
			Sea-pen and burrowing megafauna communities	NA		
			Ocean quahog *Arctica islandica*	NA		
7 – Slieve Na Griddle	57.79	1.26	Low energy circalittoral rock	4.18	13.18	**Yes**
			Subtidal Mud	53.34	1.82	
			Mud habitats in deep water	NA		
8 – Fylde Offshore	260.27	2.28	Subtidal sand	260.27	5.09	Yes
			Subtidal sands and gravels	NA		
10 – Allonby Bay	39.06	2.74	High energy intertidal rock	0.00	6.86	**Yes**
			Intertidal biogenic reefs	4.47	37.03	
			Subtidal coarse sediment	22.05	0.31	
			Subtidal sand	11.26	0.22	
			Blue mussel *Mytilus edulis* beds	NA		
			Peat and clay exposures	NA		
			Honeycomb worm *Sabellaria alveolata* reefs	NA		
			Subtidal sands and gravels	NA		
11 – Cumbiran Coast proposed for BSHT	9.27		High energy intertidal rock	0.04	67.37	No
11 – Cumbiran Coast proposed for Black Guillemots	7.90		Intertidal sand and muddy sand	5.01	1.70	
11 – Cumbiran Coast total	17.17	0.54	Intertidal biogenic reefs	0.85	7.04	
			Blue mussel *Mytilus edulis* beds	NA		
			Intertidal underboulder communities	NA		
			Peat and clay exposures	NA		
			Honeycomb worm *Sabellaria alveolata* reefs	NA		
			Eelgrass *Zostera angustifolia*	NA		
			Black guillemots	NA		
13 – Sefton Coast	13.19	0.76	Peat and clay exposures	NA		Yes
14 – Hilbre Island Group	4.49	1.32	Intertidal biogenic reefs	0.46	4	Yes
			Blue mussel *Mytilus edulis* beds	NA		Yes
			Peat and clay exposures	NA		
15 – Solway Firth	45.72	0.52	Smelt *Osmerus eperlanus* and eel *Anguilla anguilla*	NA		Yes
16 – Wyre Lune	92.38	0.77	Smelt *Osmerus eperlanus* and eel *Anguilla anguilla*	NA		Yes
17 - Ribble	12.7	0.53	Smelt *Osmerus eperlanus* and eel *Anguilla anguilla*	NA		Yes

Geological and geomorphological features of interest

In addition to the ENG features, the network also protects two geological and geomorphological features, drumlins in rMCZ 3 and the Irish Sea Mounds in rMCZ 6. Information on both of these features can be found in the Selection Assessment Documents section of this report (Part 3).

Connectivity

Site-level connectivity (distances taken from the centroid of each rMCZ designated for broad-scale habitats) have been calculated and displayed in Table 2.9. Analysis for connectivity between MPAs included in the Gap Analysis is also included. These data indicate that all sites, except for rMCZ 6 (South Rigg), have at least one nearest neighbour between 40 and 80 km distance. rMCZ 6 is an exceptional case where the nearest neighbour (rMCZ 7 – Slieve Na Griddle) is located 26 km from the site (therefore less than 40 km, and too close to satisfy the connectivity guidelines), and the second nearest neighbour (rMCZ 3 – North St George's Channel) is 109 km from the site.

Table 2.9: Nearest neighbour distances for all rMCZs proposed for broad-scale habitat designation, based on centroid to centroid distance calculations. Those distances between 40 and 80 km are highlighted in yellow.

MPA	rMCZ 1	rMCZ 2 (with co-location)	rMCZ 2 (without co-location)	rMCZ 3	rMCZ 4	rMCZ 5	rMCZ 6	rMCZ 7	rMCZ 8	rMCZ 10	rMCZ 11	rMCZ 14	rRA T	rRA K
rMCZ 1														
rMCZ 2 (with co-location)	33													
rMCZ 2 (without co-location)	50													
rMCZ 3	133	125	129											
rMCZ 4	102	217	218	89										
rMCZ 5	291	289	288	158	72									
rMCZ 6	184	177	176	109	196	265								
rMCZ 7	152	149	149	80	239	240	26							
rMCZ 8	75	43	47	133	222	291	189	163						
rMCZ 10	55	79	78	192	274	340	231	203	122					
rMCZ 11	24	44	38	151	310	307	199	170	84	40				
rMCZ 14	113	79	85	143	229	299	201	175	41	162	123			
rRA T	35	61	56	172	251	326	205	179	103	21	20	142		
rRA K	29	19	26	152	233	231	187	163	62	60	20	103	39	
Dee Estuary SAC	117	85	89	148	234	306	206	183	47	165	129	6	144	107
Drigg Coast SAC	27	33	27	150	235	305	192	166	70	54	13	136	37	7
Lune Deep SAC	62	29	32	141	227	295	190	163	22	105	65	64	80	43
Shell Flat SAC	65	32	36	136	221	290	186	160	12	110	71	54	90	51
Morecambe Bay SAC	65	35	37	156	240	309	202	175	39	109	68	79	85	54
Solway Firth SAC	71	93	91	200	284	359	243	215	136	16	55	177	38	74
Dee Estuary SPA	120	88	92	150	237	307	209	186	50	168	130	8	144	107
Upper Solway Flats and Marshes SPA	71	93	91	200	284	359	245	215	136	16	55	177	41	72
Dee Estuary SSSI	117	85	89	148	234	306	206	183	47	165	129	6	144	107
Drigg Coast SSSI	27	33	27	150	235	305	192	166	70	54	13	136	37	7
Duddon Estuary SSSI	42	23	19	148	238	309	194	194	49	81	40	91	61	39
Lune Estuary SSSI	71	42	46	159	243	315	209	210	34	114	75	73	90	50
Mersey Estuary SSSI	128	98	102	170	263	329	236	216	54	176	138	37	155	118
Mersey Narrows SSSI	112	80	81	152	239	308	208	182	39	158	105	19	139	100
Morecambe Bay SSSI	75	45	44	161	250	318	211	212	45	115	77	86	93	53
New Ferry SSSI	122	90	91	171	248	315	226	212	44	166	127	27	144	108
North Wirral Foreshore SSSI	110	78	83	146	231	302	231	176	39	158	118	5	135	100
Ribble Estuary SSSI	86	54	59	151	240	305	205	183	15	133	102	41	114	71
Sefton Coast SSSI	96	63	68	144	232	300	201	174	19	144	103	24	125	85
South Walney and Piel Channel Flats SSSI	49	23	23	146	233	300	195	167	36	91	54	77	69	33
Upper Solway Flats and Marshes SSSI	80	106	98	209	296	297	250	226	147	25	64	186	43	74
Wyre Estuary SSSI	72	34	42	154	243	308	204	177	23	112	72	67	89	48

Feature connectivity is displayed in the suite of data presented in Table 2.10. The features have been assessed using EUNIS Level 2 habitat classification (coarser than Level 3, which is used elsewhere in the MCZ planning work). The nearest neighbouring feature/s are labelled according to the site within which the neighbouring feature falls within. Where the nearest neighbour distance is between 40 and 80 km, the cell has been highlighted in yellow. Habitats A2 (Littoral sediment) and A3 (Infralittoral rock and other hard substrata) are fully connected within the network. Habitats A4 (Circalittoral rock and other hard substrata) and A5 (Sublittoral sediment) are fully connected with the exception of rMCZ 6 (South Rigg) which, as highlighted above, is the only site which does not meet the connectivity targets (but does have a nearest neighbour within 40 km). Habitat A1 (Littoral rock and other hard substrata) is fully connected with the exception of rRA T (Cunning Point). The second nearest neighbouring site (Morecambe Bay SAC) lies 85 km

from rRA T. If the connectivity analysis was measured from the site border, then the connectivity would be 67 km and well within the targets.

Table 2.10: Feature connectivity based on EUNIS Level 2 habitats. Yellow cells indicate nearest neighbour features between 40 and 80 km distance

A1 Littoral rock and other hard substrata

MPA	rMCZ 10	rMCZ 11	rRA T
rMCZ 10			
rMCZ 11	40		
rRA T	21	20	
Dee Estuary SAC	165	129	144
Morecambe Bay SAC	109	68	85
Solway Firth SAC	16	55	38

A2 Littoral sediment

MPA	rMCZ 10	rMCZ 11	rMCZ 14	rRA K
rMCZ 10				
rMCZ 11	40			
rMCZ 14	162	123		
rRA K	60	20	103	
Dee Estuary SAC	165	129	6	107
Drigg Coast SAC	54	13	110	7
Morecambe Bay SAC	109	68	79	54
Solway Firth SAC	16	55	177	74
Dee Estuary SPA	168	130	8	107
Upper Solway Flats and Marshes SPA	16	55	177	72
Dee Estuary SSSI	165	129	6	107
Drigg Coast SSSI	54	13	110	7
Duddon Estuary SSSI	81	40	91	19
Lune Estuary SSSI	114	75	73	50
Mersey Estuary SSSI	176	138	37	118
Mersey Narrows SSSI	158	105	19	100
Morecambe Bay SSSI	115	77	86	53
New Ferry SSSI	166	127	27	108
North Wirral Foreshore SSSI	158	118	5	100
Ribble Estuary SSSI	133	102	41	71
Sefton Coast SSSI	144	103	24	85
South Walney and Piel Channel Flats SSSI	91	54	77	33
Upper Solway Flats and Marshes SSSI	25	64	186	74
Wyre Estuary SSSI	112	72	67	48

A3 Infralittoral rock and other hard substrata

MPA	rMCZ 11	rRA K
rMCZ 11		
rRA K	20	
Morecambe Bay SAC	68	54
Mersey Narrows SSSI	105	100

A4 Circalittoral rock and other hard substrata

MPA	rMCZ 3	rMCZ 4	rMCZ 5	rMCZ 6	rMCZ 7
rMCZ 3					
rMCZ 4	89				
rMCZ 5	158	72			
rMCZ 6	109	196	265		
rMCZ 7	80	239	240	26	
Lune Deep SAC	141	227	295	190	163

A5 Sublittoral sediment

MPA	rMCZ 1	rMCZ 2 (with co-location)	rMCZ 2 (without co-location)	rMCZ 3	rMCZ 4	rMCZ 5	rMCZ 6	rMCZ 7	rMCZ 8	rMCZ 10	rRA T	rRA K
rMCZ 1												
rMCZ 2 (with co-location)	33											
rMCZ 2 (without co-location)	30											
rMCZ 3	133	125	129									
rMCZ 4	102	217	218	89								
rMCZ 5	291	289	288	158	72							
rMCZ 6	184	177	176	109	196	265						
rMCZ 7	152	149	149	80	239	240	26					
rMCZ 8	75	48	47	133	222	291	189	163				
rMCZ 10	55	79	78	192	274	340	231	203	122			
rRA T	35	61	56	172	251	326	205	179	101	21		
rRA K	29	19	26	152	233	231	187	163	62	60	39	
Dee Estuary SAC	117	85	89	148	234	306	206	181	47	165	114	107
Shell Flat SAC	65	32	36	136	221	290	186	160	32	110	90	51
Morecambe Bay SAC	65	35	37	156	240	309	202	175	39	109	85	54
Solway Firth SAC	71	93	91	200	284	359	243	215	136	16	38	74
Upper Solway Flats and Marshes SPA	71	93	91	200	284	359	243	215	136	16	41	72

Areas of additional ecological importance (AAEI)

The network contains many examples of areas of additional ecological importance. For example, rMCZ 3 contains the Crocker Carbonate Slabs and rMCZ 7 contains the Pisces Reef complex, both of which are Annex I features of the Habitats Directive. In addition, rMCZ 8 contains bivalves which are an important food source for birds and play a key ecological functioning role. Also, rMCZ 11 proposes the protection of Black Guillemot seabirds. The proposed designation of these seabirds within the network would extend the protection of the birds beyond the existing SSSI and into the sea. In addition to the above examples, AAEI data were key to shaping most site boundaries. Other examples of how AAEI were used in the identification of the network can be found in the individual Selection Assessment Documents in Part 3 of this report.

2.2.5 Reference Area Summary

Readers of this report are encouraged to view the RSG meeting reports from the final three stakeholder meetings (ISCZ, 2011b, c and d) for full context on the decision-making associated with reference areas.

Of the 22 broad-scale habitats present in the ISCZ project area, the recommended reference areas (rRAs) cover 18. Low energy intertidal rock, intertidal coarse sediments and moderate energy infralittoral rock are only found in intensively used estuaries, particularly around Morecambe Bay. The RSG could not agree to recommend a reference area in any of the sites proposed to them (ISCZ, 2011b, c and d). Subtidal macrophyte-dominated sediment is only present in a highly used area in the mouth of Morecambe Bay, and is not included in the network at all (see Section 2.2.4). Of the FOCI, estuarine rocky habitats, ross worm *Sabellaria spinulosa* reefs, sheltered muddy gravels and tide-swept communities are not represented in a reference area. These features lie in similar highly used areas and no reference area could be agreed to cover these features.

Table 2.11: Summary table of recommended reference areas (rRAs).

Reference Area	Total rRA Area (km^2)	Minimum Dimension (km)	Feature	Amount of feature (km^2)	Contribution to network (%)	Viable?
A – Mud Hole	20.37	3.11	Subtidal Mud	20.37	0.69	Yes
			Mud habitats in deep water	NA		
			Sea-pen and burrowing megafauna communities	NA		
B – North St George's Channel (1)	35.28	1.53	High energy circalittoral rock	8.63	13.49	Yes
			Moderate energy circalittoral rock	22.73	8.49	
			Subtidal coarse sediment	3.93	0.06	
			Subtidal sand and gravels	NA		
C – Mid St George's Channel	103.46	9.96	Moderate energy circalittoral rock	21.16	7.91	Yes
			Subtidal coarse sediment	34.80	0.49	
			Subtidal sand	1.04	0.02	
			Subtidal mixed sediments	46.46	3.76	
			Subtidal sand and gravels	NA		
F – South Rigg	15.82	2.73	Subtidal sand	15.44	0.30	No
			Subtidal mud	0.37	0.01	
			Ocean quahog *Arctica islandica*	NA		

Table 2.11 (continued)2.12: Summary table of recommended reference areas (rRAs).

Reference Area	Total rRA Area (km^2)	Minimum Dimension (km)	Feature	Amount of feature (km^2)	Contribution to network (%)	Viable?
G – Slieve Na Griddle	4.46	0.69	Low energy circalittoral rock	2.04	6.45	No
			Subtidal mud	2.41	0.08	
			Mud habitats in deep water	NA		
H – Allonby Bay	4.91	2.02	Moderate energy infralittoral rock	0.04	0.84	No
			Subtidal coarse sediment	4.81	0.07	
			Subtidal sand	0.06	0.00	
			Subtidal sand and gravels	NA		
I – Cumbrian Coast (1)	0.12	0.07	High energy infralittoral rock	0.02	0.36	No
			Subtidal mud	0.05	0.00	
			Subtidal sand	0.05	0.00	
			Subtidal sands and gravels	NA		
			Intertidal boulder communities	NA		
J – Cumbrian Coast (2)	1.06	0.53	High energy intertidal rock	0.03	44.00	No
			Intertidal mixed sediments	0.03	0.65	
			Subtidal sand	0.94	0.02	
			Intertidal underboulder communities	NA		
			Subtidal sands and gravels	NA		
K – Tarn Point	1.07	0.51	High energy infralittoral rock	0.00	0.04	No
			Intertidal biogenic reefs	0.23	1.94	
			Intertidal sand and muddy sand	0.40	0.13	
			Subtidal coarse sediment	0.00	0.00	
			Subtidal sand	0.43	0.01	
			Blue mussel *Mytilus edulis* beds	NA		
			Honeycomb worm *Sabellaria alveolata* reefs	NA		
			Subtidal sands and gravels	NA		
S – North St George's Channel (2)	38.09	1.94	Moderate energy circalittoral rock	5.60	2.09	Yes
			Subtidal coarse sediment	10.31	0.14	
			Subtidal mixed sediments	18.73	1.52	
			Subtidal biogenic reefs	13.78	24.52	
			Subtidal sand	3.16	0.06	
			Horse mussel *Modiolus modiolus* beds	NA		
T – Cunning Point	0.46	0.31	Moderate energy intertidal rock	0.08	1.18	No
			Subtidal mud	0.38	0.01	
			Blue mussel beds	NA		
			Subtidal sands and gravels	NA		

Table 11 (continued)2.13: Summary table of recommended reference areas (rRAs).

Reference Area	Total rRA Area (km^2)	Minimum Dimension (km)	Feature	Amount of feature (km^2)	Contribution to network (%)	Viable?
W – Barrow South	0.46	0.31	Intertidal mud	0.07	0.05	No
			Intertidal sediments dominated by aquatic angiosperms	0.35	28.51	
			Seagrass beds			
Y – Narrow North	1.24	0.28	Coastal saltmarshes and saline reedbeds	0.73	1.85	No
			Intertidal mud	0.11	0.09	
			Subtidal coarse sediment	0.14	0.00	
Z – Sefton Coast	0.007	0.04	Peat and clay exposures	NA		No

2.3 Reference List

ISCZ. 2010b. Word for Word report from the 2nd Irish Sea Conservation Zones Stakeholder Group meeting. Dialogue Matters Ltd.

ISCZ . 2010c. Word for Word report from the 3rd Irish Sea Conservation Zones Stakeholder Group meeting. Dialogue Matters Ltd.

ISCZ. 2010d. Word for Word report from the 4th Irish Sea Conservation Zones Stakeholder Group meeting. Dialogue Matters Ltd.

LUMB, C., JOHNSTON, M. & BUSSELL, J. 2011. *Evidence on the distribution and quality of mud-related features in the Eastern Irish Sea.* A paper presented to the ISCZ Project Team and Regional Stakeholder Group.

REES, I. 2005 *Assessment of the status of horse mussel* (*Modiolus modiolus) beds in the Irish Sea off NW Anglesey.* DTI-SEA 6 Sub-contract report.