# Final Report and Recommendations

**September 7th, 2011**

## Download Section 2 of 7

**Parts II.1 and II.2 (introduction to part II, and the network report):**
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This is one of seven download sections of Finding Sanctuary's final report, which was initially only made available to download as a single document. Because of the large size of the final report, we have made it available in this format for users who have had difficulty downloading it in one go or printing off individual pages from the large PDF.

Where possible, readers are advised to download the single document in preference to the separate download sections. Although the content is identical, the hyperlinks in the report's main Table of Contents and List of Maps are severed when the PDF is split.

# Part II – Finding Sanctuary's Network Recommendations

# II.1 Introduction to Part II

## II.1.1 The fundamental importance of the network concept

This second part of the final report describes the project's final MCZ recommendations. It is split into a network report (which describes the network configuration as a whole), followed by a series of individual site reports (which contain more specific details on each one of the rMCZs and recommended reference areas within the network configuration).

We have aimed to ensure that each site report contains all the key information that is relevant to a given rMCZ or recommended reference area, including information that is the same for many or all sites (e.g. many of the working assumptions apply to most or all rMCZs, and these are repeated in each site report). However, the site reports cannot be regarded as a series 'stand-alone documents'. Each individual site report will only make sense within the context of the full final report, which describes the recommended network as a whole.

This is because Finding Sanctuary's final recommendations are for a *network* of sites, not for a series of individual protected areas which someone might pick and choose from: Finding Sanctuary was tasked with delivering recommendations for Marine Conservation Zones (MCZs) that would, together with existing MPAs, form an *ecologically coherent network of marine protected areas*. Some of the individual rMCZs are not 'special' in any ecological sense, but each one makes its own important contribution towards creating a protected area network configuration that represents the full range of marine biodiversity, as required by the principles outlined in the ENG. The stakeholder comments in this report also reflect the fact that each site was planned to sit within a wider network. This is referred to explicitly in the cover note, which states that *'...we are satisfied that they represent the best negotiated outcome for an inter-linked and inter-dependent network...'*.

In order to maintain the integrity of Finding Sanctuary's final recommendations, the content of individual site reports should never be presented in isolation from the content of the remainder of the document, nor should individual sites be evaluated in isolation from the network configuration they form part of.

## II.1.2 The stakeholder narrative

***The importance of the stakeholder narrative***

The development of a stakeholder narrative to form part of the final recommendations was a key component of Finding Sanctuary's work (see part I). The stakeholder narrative is important, as it describes the working assumptions that underpinned the stakeholders' planning work, implications of potential sites which stakeholder representatives highlighted during their discussions and negotiations, uncertainties, and additional comments made about the developing network configuration as the planning progressed. It draws together the work carried out by the Working Groups, the wider Steering Group, the Local Groups and the project team over the course of the whole planning period. The narrative recorded in this final document was developed over the course of many months of planning work, and its development can be traced back through progress reports and meeting reports from 2010 onwards.

The implications that are highlighted in the stakeholder narrative are those that were highlighted during the planning discussions. At the time of writing up these final recommendations, an much more in-depth and comprehensive Impact Assessment is being conducted by the project economist,

which is due to be finalised in January 2012. The impact assessment work continues to engage with key stakeholders who may be affected by the recommended sites, including many of those who were represented on the Steering Group and Local Groups.

***Integrating the vulnerability assessment into the narrative***

As described in part I, at the very end of the project (between April and June 2011) a series of vulnerability assessment (VA) meetings took place, which in addition to defining draft conservation objectives also began discussing what management would actually be needed within each site. The outcome of the management discussions held during the VA is separate from the working assumptions that had underpinned the planning of the network.

At the final stakeholder meetings in May, June and July 2011, the initial outcomes of the VA discussions were shared with the stakeholder representatives on the Joint Working Group and the Steering Group. This included the draft conservation objectives as well as the outcome of the discussions about site management and activity restrictions. Because we knew that the process for defining management would carry on beyond Finding Sanctuary, and because the VA discussions did not result in definitive management options, what was presented at the final meetings was simply a snapshot of where the VA management discussions had got to at the time (hence we refer to it as the 'VA snapshot'). The VA snapshot elicited a lot of feedback from stakeholder representatives.

In writing up the stakeholder narrative for this final report, the project team faced a challenge: The narrative had to include a comprehensive description of the working assumptions that had previously underpinned the planning process, as well as a description of the VA snapshot. The stakeholder comments in the final narrative refer to both, sometimes linking them. The challenge in writing up lay in drawing a clear distinction between the two. Appendix 13 includes the VA maps that were provided to stakeholder representatives in their final meeting, showing a visual representation of the VA snapshot. This has been included so that readers have a record of the information that stakeholders had available at the time they made their final comments within this process.

### II.1.3 Structure of the network report

The network report describes the final recommended network configuration as a whole. The first sections of the network report cover stakeholder narrative, followed by sections that describe the network configuration and its performance against ENG criteria.

The network reports starts with a statement that the Steering Group made at their final meeting, largely in response to the VA snapshot (section II.2.1). This is followed by a generic narrative that had been formed over the whole of the planning process, i.e. mainly before the VA process had started. Section II.2.2 covers rMCZs, and section II.2.3 covers recommended reference areas. The generic narrative is a project team reflection on issues that came up repeatedly for many or all of the sites in the network, and includes some stakeholder comments made on the network as a whole. It is not a replacement for the more detailed narrative contained in the individual site reports, though it provides context. The next section (section II.2.4) is a project team perspective on levels of support for the network as a whole.

Section II.2.5 is a general description of the network configuration, including a summary list of all rMCZs and recommended reference areas. Section II.2.7 is a summary of the draft conservation objectives for all rMCZs and recommended reference areas. The final sections of the network report

describe the network's performance in meeting the ENG, with a summary of the contribution of existing MPAs (the gap analysis – section II.2.7), followed by figures and statistics for the network as a whole (section II.2.8), and figures specifically for recommended reference areas (section II.2.9).

### II.1.4 Structure of the rMCZ site reports

Following the network report, there is a series of site reports, one for each rMCZ (and each recommended reference area). The site report structure is as follows:

- ***Site name:*** title of the site report

- ***Basic site information:*** site centre location, site surface area, biogeographic region, site boundary description, related sites

- ***Features proposed for designation within the site:*** summary list of draft conservation objectives, and statistics calculated from GIS data on how much of ENG-listed features have been recorded within the site

- ***Site summary:*** brief description of ecological and topographic characteristics of the site

- ***Detailed site description:*** more detailed description of the ecological characteristics of the site, based on a quick review of scientific literature

- ***Stakeholder narrative: Assumptions and Implications:***
    - This provides a comprehensive overview of the working assumptions and implications recorded over the course of the process, in a table format. The first column shows assumptions about activity restrictions, i.e. whether or not activities would be allowed to continue within a site, or whether they might need to be restricted or excluded. The second column lists implications, based on the assumptions made, as highlighted by stakeholders during Working Group meetings and Steering Group meetings. This column reflects the considerations that were recorded and discussed during the planning discussions. It is not a replication of the Impact Assessment, and is not intended to be comprehensive.
    - The assumptions / implications table is followed by a short table showing the site-specific management outcome of the VA discussions.

- ***Stakeholder narrative: Uncertainties and Additional Comments:*** site-specific uncertainties and additional comments, some of which relate to the VA snapshot

- ***Levels of support:*** a project team perspective on levels of support for the site, based on discussions at stakeholder meetings (rather than just reflect how much the site is supported, this includes a description of the nature of specific concerns, and in some cases this overlaps to a degree with the content of the stakeholder narrative sections)

- ***Supporting documentation:*** description of the sources of ecological information used in the site report

- ***Site map series:*** main site map with boundary coordinates, additional maps with ecological and socio-economic information

This site report structure integrates the requirements of a nationally prescribed MCZ Site Assessment Document (SAD) structure with the site report structure that Finding Sanctuary had developed over the course of the project (see progress reports).

### II.1.5 Structure of site reports for recommended reference areas

The site reports for recommended reference areas are structured in the same way as site reports for rMCZs. The main difference is a much shorter and less complicated stakeholder narrative. There was much clearer guidance available on what activities will be restricted in reference areas (see the national MCZ project draft reference area guidance[15]), compared with MCZs in general. This meant that the work on assumptions (see below) and the vulnerability assessment was not needed.

[15] http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

# II.2 Network report

## II.2.1 Steering Group commentary on its work

At their final meeting on July 26th, 2011, the Finding Sanctuary Steering Group agreed to make the following statement about their work. The statement was made in the context of having seen the initial outcomes of the vulnerability assessment meetings (the VA snapshot). It followed on from the suggestion that most members of the Joint Working Group had made at their final meeting in June 2011, in response to the VA snapshot, which was for the Steering Group to make an explicit recommendation that all mobile bottom-towed fishing gear should be excluded from all rMCZs (based on the working assumption that had underpinned the planning process).

**FINDING SANCTUARY STEERING GROUP COMMENTARY ON ITS WORK**

We have worked hard as a group to achieve the targets set by ENG guidance. As a project we have worked with a set of assumptions that enabled us to construct a network of MCZs.

As an example, although a blanket ban on bottom trawling was used by the group as a working assumption, we are not comfortable turning this into a recommendation because of the reasons below, and also because different gear types have different impacts on different sea bed types and habitats. Therefore there could be different management measures for different gear types providing evidence on impacts can be risk assessed.

The VA process appears to be an attempt to provide the certainty that we used our assumptions for. We are not comfortable with the VA outputs (in particular for the inshore sites) because:

- The information and evidence arrived too late so we have had no time to consider what it means and to review our decisions in the light of it
- The evidence underpinning it is too scant
- for at least some sites (e.g. Torbay), applying the VA outputs appears to go against input from, and agreement by, local stakeholders
- in some cases local knowledge has led us to believe that management measures don't seem to support the draft conservation objectives
- some draft conservation objectives are wrong, e.g. set as maintain when should be recover and vice versa

**SUGGESTIONS ON NEXT STEPS**

To achieve meaningful implementation and necessary levels of buy in to MCZs:
There should be a review of the MMs proposed from the final (sense checked) VA process. This should include us as regional stakeholders, enabling us to work through them in the appropriate level of detail. This should take place before the SNCB advice to DEFRA and therefore well before the public consultation, and the results from it fed into the public consultation. We would want to have time to take the results of this to the local stakeholders that participated in the Finding Sanctuary process for their views and response.

The public consultation process would encompass conservation objectives and management measures. The rationale for each management measure should also be provided.

In order to fully understand the context within which this statement was recorded, please refer to the process description in part I, the stakeholder narrative in section II.2.2, and the full reports from the Steering Group meeting on July 26th and the sixth Joint Working Group meeting in June 2011.

## II.2.2 Stakeholder narrative for rMCZs

***Working assumptions and implications***

*Fundamental working assumption*

At the time that the network configuration was being shaped, before the vulnerability assessment process had started, several working assumptions were formulated. The fundamental working assumption was that current activities within an MCZ would be allowed to continue, unless they prevent the conservation objectives of the site from being achieved. This applied to all activities.

For reference areas, it was understood that high levels of restrictions would be placed on ongoing activities, because this was clearly set out in the draft reference area guidance. For wider MCZs, it was more difficult to try and formulate more specific assumptions on what the fundamental assumption might translate to in practice, in terms of what activities would need restricting in what ways. The following paragraphs summarise, in generic terms, what the more specific assumptions were for rMCZs (not including reference areas). They are not exhaustive, and readers should always refer to site reports for a full site-specific narrative.

*Commercial Fishing*

A generic assumption was made early on in the process that mobile bottom-towed fishing gear would not be permitted in any MCZs. Offshore fisheries representatives did not agree that this assumption was realistic, and asked for an alternative wording to be used, which in essence stated that 'all fishing activities can continue unless it prevents conservation objectives from being achieved'. Whilst accurate, that wording goes no further than the fundamental working assumption that applied to all activities.

In reality, the assumption that mobile bottom-towed gears would not be permitted in any MCZs ran through the entire planning process, and this is acknowledged by fishing representatives. As a consequence, the planning process avoided areas most intensively used by benthic mobile gear fishermen, in as much as it was possible to meet the ENG elsewhere. This has had a direct bearing on the final configuration of the recommended network (map FR_080). Implications that stakeholders highlighted as arising from an assumed closure of MCZs to these gear types centred around the loss of fishing grounds to mobile gear fishermen, negative displacement effects, and negative economic consequences to fishermen.

For other types of fishing activity, the generic assumption was that present levels of activity would be allowed to continue in MCZs, although stakeholders discussed and acknowledged that there may need to be an upper limit on intensity of use (should activity levels increase and evidence show that the activity is preventing conservation objectives from being achieved). This upper limit was discussed, specifically, for static gear types that make contact with the seafloor, as the conservation objectives for rMCZs centre on the protection of the seafloor.

Note that for the Skerries Bank and surrounds rMCZ, one of the areas most intensively fished by static gears within the region, the recommendation for the rMCZ is explicitly made only on the condition that current management is maintained – any additional restrictions resulting from an MCZ designation would seriously compromise levels of support for the site (see site report for more details).

In terms of implications of MCZ designation for fishing activity other than bottom-towed gears, stakeholder representatives highlighted potential risks to local fishermen should the working assumption not hold true, i.e. should current levels of use not be allowed to continue as a result of the MCZ being designated. These centred on concerns about economic losses, especially for local inshore fishermen operating small boats, who have limited capacity to travel longer distances in order to seek alternative fishing grounds.

On the other side of the argument, science and conservation representatives commented that there could be economic benefits to the fishing sector as a result of MPAs being put in place, if the protection levels within MPAs are high enough. These benefits could result from a healthier ecosystem, and spillover of larvae and fish (e.g. see PISCO, 2011). A more practical benefit was also suggested, which was that the incorporation of effectively managed MPAs into local fisheries management may increase the likelihood of sustainability certification.

*Renewable energy developments*

For renewables, two alternative sets of working assumptions were recorded for a period of time during the planning process, resulting in two variations of the network (e.g. see the third progress report, published in February 2011). The 'no co-location' variation of the developing network assumed that renewable developments would not be compatible with MCZs and would therefore not be allowed within site boundaries. The 'co-location' variation assumed compatibility.

In the final recommendations, a single network configuration is presented, based on the assumption of compatibility, i.e. the assumption that renewable energy installations (wind, wave and tidal) will be permitted within MCZs. The assumption includes a caveat based on SAP feedback, i.e. that renewable energy installations should not be constructed on all instances of any particular broad-scale habitat type protected in the network. In effect this means that the assumption cannot be applied simultaneously to every site in the network, despite it being recorded in every site report (a caveat to this effect is included in the site reports).

Several implications are recorded which would arise if the assumption on compatibility turned out to be wrong, which centre on the costs to the energy sector as well as the possible compromising of the UK's renewable energy targets. The narrative presented in individual site reports also highlights which sites in the network coincide with renewable energy resource, based on feedback received from the renewables sector.

Despite the ultimate assumption of compatibility, during the planning discussions the renewables sector was keen to steer the location of rMCZs away from areas of high renewables interest, wherever it was possible to meet the ENG elsewhere. This was a direct result of the ongoing uncertainty on what implications an MCZ designation might have for potential future renewables developments within or near the boundaries of a given site. The uncertainty meant that the sector found it hard to quantify risks posed by the process and by signing up to a given set of rMCZ recommendations, and tended towards assuming a 'worst-case scenario' even when the Working Group was explicitly recording the assumption of compatibility. On the other hand, in the one

specific case where it was possible to reduce the uncertainty and for developers get a better understanding of the true risks (the case of the Atlantic Array planned wind farm), the developers were able to agree to the recommendation that the Atlantic Array area be included in the network recommendation (see the statement made by RWE in the site report). This illustrates how the high levels of uncertainty inherent in the MCZ planning process might have lead to lost opportunities for biodiversity conservation in finding synergies and 'win-wins' within the context of wider marine spatial planning.

*Submarine cables*

For submarine power and telecommunications cables, the assumption was made that existing cables would be allowed to stay operational within rMCZs, and that new cables would be permitted with no additional need for mitigation beyond those that would be required anyway under current management and licensing regimes. Stakeholder representatives highlighted implications that would arise from that assumption not holding true, including some of the added costs that might be faced by cable operators and renewables developers.

*Aggregate extraction*

Aggregate extraction was assumed to be incompatible with MCZs, and as a consequence, the rMCZs were sited away from currently licensed aggregate extraction areas.

*Dumping and disposal*

Dumping and disposal was assumed to be incompatible with MCZs, and generally, rMCZs were located away from active disposal sites, in some cases with boundary adjustments made to increase buffer zones (e.g. for Mounts Bay rMCZ). The one exception is Padstow Bay and surrounds rMCZ, which overlaps with a small part of a current disposal site – this was highlighted as a potential problem by stakeholder representatives at the end of the process, but there was no more time to make further boundary adjustments at that stage.

*Recreational activities*

Recreational activities, including recreational angling, were assumed to be permitted within MCZs, as was the passage of vessels. Anchoring and its potential damage to the seafloor were discussed, and a generic assumption was recorded that anchoring of large vessels would not be permitted in MCZs, but that for small vessels, it would generally be permitted, with a possible exception if particularly sensitive seafloor habitats were present. In one instance in particular (Studland Bay rMCZ), a possible restriction on anchoring over sensitive seagrass areas has been the subject of a long-standing conflict between local stakeholders, and this is discussed further in the relevant site report.

Several stakeholder representatives highlighted that there could be benefits to recreational activities from effectively managed MCZs, especially for coastal sites. There is potential for an increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc), and a local MCZ might provide a selling point that could attract visitors to a particular area.

*Coastal activities*

A series of assumptions were formulated that apply to coastal sites in particular, such as an assumption that aquaculture installations would be permitted in MCZs (with mitigation if necessary), that wastewater management and the location of wastewater outfalls would not be affected by MCZs (given that mechanisms are already in place to improve and maintain good coastal water quality, e. g. through the Water Framework Directive), and that coastal management and defence would not be impacted by MCZ designation. The implications arising around these assumptions are detailed in site reports.

The Environment Agency highlighted that all lengths of the coast, including estuaries, have a flood risk and coastal management policy assigned to it in shoreline management plans (e.g. hold the line, managed retreat, extend the line), and will have more detailed plans and activities within strategies (Flood Risk and Erosion Management or FERM). The basic assumption during the network planning was that Flood and coastal risk management activities can continue in coastal MCZs. The EA were concerned that this should be the case, and that it should cover:

- beach replenishment (including the pumping of material onto a beach by metal pipe from vessels within 200 to 300m of the shore),
- Access to, and maintenance of, flood risk management assets and structures on the foreshore, e.g. groynes,
- An assumption that the withdrawal of an activity is acceptable – e.g. managed retreat of flood risk management. There is a potential, for example, that the sediment regime may change as a result.

However, in general the Environment Agency have been supportive of MCZ proposals, and see benefits arising from sustainably managed, healthy coastal and marine ecosystems which MCZs could help deliver. Several stakeholders highlighted that MCZs in general, and coastal MCZs in particular, could result in improvements for the local economy at coastal locations, as a result of the enhanced leisure opportunities highlighted above, and because MCZs would bring benefits for science, education opportunities, and a focus for voluntary groups.

*Ports*

Like the renewables sector, the ports sector faced a great deal of uncertainty of the risk associated with MCZs, both in terms of what ports-related activities might be impacted, and in terms of what additional regulatory hurdles might result from MCZ designations in order to be able to carry out port-related activities and operations within or close to a given MCZ. As a result, the ports sector was keen to steer the selection of MCZs away from ports, wherever possible. This meant that the selection of estuarine MCZs was delayed significantly in the planning process (see part I.7.5). The ports representative collated a great deal of information with respect to possible implications of MCZs to ports, and these are included in the relevant site reports.

*Assumptions relating to draft conservation objectives for mobile species*

Finally, some of the inshore rMCZs have draft conservation objectives for seabirds, basking sharks or cetaceans. In order to protect such species within the relevant sites, it was assumed that the management necessary would centre on education, awareness raising, and putting in place voluntary codes of conduct to avoid disturbance and wildlife collisions. Earlier on in the process, assumptions had been recorded that some types of fishing (netting and longlining) may need restriction or mitigation strategies to avoid bycatch of seabirds and cetaceans, but the validity of these assumptions was strongly questioned by many stakeholder representatives early on, so these early assumptions became invalid (refer to previous progress reports).

***Key uncertainties***

*Uncertainties about site management and activity restrictions*

As referred to several times in this report, the most significant uncertainty faced by the project was the lack of knowledge on management of MCZs. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

This fundamental uncertainty threatened to undermine effective stakeholder participation in the project from the beginning. We spent a lot of time discussing this uncertainty within stakeholder groups, and this is what gave rise to the need to formulate the management assumptions discussed above. These assumptions helped stakeholders make progress on designing rMCZ sites and boundaries and meeting the ENG, in the face of uncertainty.

*Data gaps*

Another area of uncertainty that applies to most of the components of the network relates to gaps in ecological and socio-economic data. These gaps in knowledge have been widely discussed and acknowledged as a reality during the planning process. Nevertheless, the project had the clear remit to pursue the delivery of MCZ recommendations based on the best available information, accepting that this information is often less than perfect. Appendix 8 discusses the ecological datasets that underpinned the project's work in detail.

***Additional comments***

*Comments on meeting the ENG*

For some FOCI species and habitats, the minimum ENG replication targets are exceeded in the network configuration. In part, this is because all ENG-listed features reliably recorded within sites have been given draft conservation objectives. A commercial fishing representative raised the question whether the group would have any opportunity to revise the draft conservation objective list for each site, and remove 'excess' features from the list in some of the sites, leaving the sites to protect only those features for which there would otherwise be a shortfall. A statement was recorded to say that commercial fishing cannot support the inclusion of 'excess' features in the conservation objectives, and for the same reason, they do not support the inclusion of non-ENG listed mobile species (seabirds and cetaceans) on the draft conservation objectives list. Similarly, the commercial fishing sector strongly questioned the inclusion of a large number of estuaries in the network, because the ENG does not stipulate any quantitative guidelines for the number or types of estuary to be represented, or for areas of additional ecological importance to be included in the network. Therefore, they viewed the large number of estuarine MCZs as being surplus to the requirements of the ENG.

*Named Consultative Stakeholder feedback*

Named Consultative Stakeholders (NCS) were invited to provide feedback for each of the three progress reports in July/August 2010, November 2010 and March 2011. They were provided with an ftp link to all the relevant reports and additional documentation and a form to record feedback. No responses were received for the 1st Progress report. Feedback from the 2nd Progress report was

primarily from European fishing interests as well as some comments from EDF Energy and information relating to geological conservation. The feedback expressed concerns for a number of sites, but did not provide alternative suggestions or changes. NCS feedback following the 3rd progress report came from three European fishing organisations, highlighting a number of sites where there were concerns. Many of these sites had already been discounted. Further details can be found in section I.6.6.

*Fisheries management beyond 6 nautical miles and the Common Fisheries Policy*

One comment that was highlighted from the earliest stakeholder meetings was that it would not be acceptable to have in place any measures that unilaterally prevented UK fishermen from fishing in certain areas, while other European vessels still had access to those areas. Given that in many areas, non-UK vessels have historic fishing rights beyond the 6nm limit, and that beyond the 12nm limit all EU vessels have equal rights to fish, this effectively means that in all MCZs beyond 6nm, fishing restrictions would need to be implemented through the CFP.

At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'

This assurance led to a related concern being voiced by fishing representatives. Based on the assumption that implementing management through the CFP may be more difficult and take longer than implementing management within 6nm, there was concern that this might lead to a 'tranching' approach where inshore sites would be implemented in preference to offshore sites, or earlier than offshore sites. This would not be acceptable to inshore UK fishermen, especially small-scale fishermen with small boats and limited capacity to find alternative grounds, who would be disproportionately affected compared to offshore UK and EU fishermen.

*Reactions to the vulnerability assessment*

The most significant additional comments from stakeholders with respect to the network recommendations as a whole relate to the vulnerability assessment (VA) process and its initial outcomes. After having played a central role in determining a configuration of rMCZs and recommended reference areas that would meet the ENG, and spending a lot of time formulating the accompanying narrative, stakeholder representatives felt sidelined in the vulnerability assessment process, especially with respect to the discussions on site management.

At the sixth Joint Working Group meeting in June 2011, results from the regional vulnerability assessment discussions were presented to the stakeholder group. The meeting report contains a full record of the discussion that ensued, but some key comments are recorded here.

- *Reactions to the VA recorded during the June 2011 Joint Working Group meeting:*
    - With respect to all rMCZs, certain activities (e.g. bottom-towed fishing) should be restricted altogether within rMCZs, even if they are not currently occurring or are

happening at a low level. If they are not restricted and these activities begin in a rMCZ, they could destroy conservation efforts. We shouldn't wait for monitoring to identify a problem (i.e. a degradation in species/habitat condition) before we act on managing these activities.

- Decisions on boundaries /site locations have been based on a working assumption of no bottom-towed fishing gear. As such, recommendations should be based on this because that has always been the premise of the discussions. The network (of rMCZs) is the result of months of work and previous working assumptions should not be ignored.
- Not all stakeholder representatives agreed with these additional comments – the offshore fishing representative stated that the offshore fishing sector had never accepted a complete exclusion of mobile bottom-towed gears from all MCZs as a realistic or appropriate assumption, even though the assumption had been used during the planning process (please refer to the meeting report for more details).

- *Reactions recorded after the June 2011 Joint Working Group meeting:*
  - The results of the regional VA discussions seemed to indicate that mobile demersal fishing gear might be permitted in many sites. As a result, representatives of conservation NGOs, Natural England, the scientific community, and the recreational sector, made the following comments, which are relevant to this site.
  - There are two overarching issues which pertain to rMCZs where mobile demersal gear will still be permitted:
    - The assumption that natural disturbance (e.g. sites in/near the Bristol Channel) is greater than disturbance caused by fishing activity is based on the condition of habitats that are already impacted by fishing activity.
    - Sites which are trawled, even at low levels of intensity, are exposed to physical disturbance pressures that means they are likely to be altered and it is therefore difficult to assess their condition as favourable.
    - In both cases, removing the pressure caused by fishing activity is likely to allow stabilisation of the habitats. This would be a more precautionary approach and could be reviewed at the first MCZ review. Conversely if demersal fishing activity is not restricted at these sites, there is a risk of maintaining sites in a degraded condition and therefore not allowing them the potential to improve.
    - The above members of the Joint Working Group do not consider that these broad-scale habitats are currently in 'favourable condition'. They feel that the Conservation Objectives should be reconsidered and changed from 'maintain' to 'recover'.

The vulnerability assessment process, combined with this reaction of the Joint Working Group, gave rise to a discussion during the last Steering Group meeting in July 2011, which resulted in the statement in section II.2.1 being agreed.

The above comments, and the statement in section II.2.1, reflect stakeholders' concern about two issues: one was the process by which the VA was carried out, and the other was the outcome (albeit an outcome with no final answers). As stated above, process concerns centred on the lack of involvement of the stakeholder group in the vulnerability assessment process.

Concerns about the activity restriction and management outcome (the VA snapshot) centred on the lack of alignment with the working assumptions. The latter concerns were particularly strong for

inshore sites. For sites far offshore, some stakeholder representatives considered there to be a higher uncertainty about the impacts of some types of bottom trawls, depending on the seabed substratum, depth, and natural energy affecting the seabed. To some extent, the mismatch between the working assumptions and the content of the VA snapshot can be explained by the fact that their formulation and recording took different approaches. The vulnerability assessment discussions only focussed on a limited number of activities in each site (depending on which activities are carried out at high levels), whereas the assumptions were more comprehensive and covered activities that may not always currently be present in each site. In addition, it was recognised by some stakeholders that the shaping of the network had avoided areas where human activities (especially mobile bottom-towed fishing gears) take place at high intensities, thereby making it less likely that those activities would have been identified as causing a problem during the vulnerability assessment discussions.

### II.2.3 Stakeholder narrative for recommended reference areas

Many stakeholder representatives felt uncomfortable with the high levels of restrictions to be put in place within reference areas, and fishing representatives stated outright that they do not support their inclusion in the network. The process of developing reference area recommendations therefore focussed on finding locations with limited ongoing human activities, that were also efficient and valuable in terms of their contribution to the ENG. Despite significant time and effort having been spent on developing reference area recommendations, the set of 13 sites included in the network recommendations fall short of meeting the ENG requirements for reference areas (see section II.2.9).

In total, 157 different reference area options were drawn during the process. This is the number of GIS shapes that were created, so it includes shapes that overlap where boundaries were adjusted, or where several options were considered at the same location – nevertheless, this large number illustrates how much effort was spent on the task. At their final meeting in July 2011, the Steering Group stated that they wished the final recommendations to highlight that the Joint Working Group got as far as they could with a challenging piece of work, and that the rationale and the reason for not going further was the high socio-economic impact of inshore reference areas. Any attempt to 'fill in the gaps' from outside the stakeholder group would risk the agreement and compromise reached between stakeholders on the sites that were included in their final recommendations (rMCZs as well as reference areas).

More site-specific commentary is included in the site reports for recommended reference areas. Appendix 10 includes a table of activities which, in the draft reference area guidance, are listed as not compatible or requiring possible management in reference areas. This table is laid out in the same way as the assumptions / implications tables in rMCZ site reports, and was used to capture stakeholder comments on the implications of individual recommended reference areas during meetings. The intention was to include one of these tables in each site report. Ultimately, however, a lot of the stakeholder narrative on the recommended reference areas was recorded during plenary sessions rather than on the tables, and the table format proved somewhat unwieldy and unnecessary. The table is therefore not replicated in each recommended reference area site report.

### II.2.4 Project team reflection on levels of support for the network as a whole

In this final report, the project team were requested by Defra to provide information on 'levels of support' for the site recommendations. In order to meet the request, the project team have written their own reflection on 'levels of support' for the recommendations, both in this section (for the recommendations as a whole), and in each of the site reports. Whilst what is written here is based on stakeholder discussions that took place over the course of the project, it is a project team

interpretation and synthesis, and not a direct record of statements made by stakeholder representatives.

As reflected in the cover note, not all stakeholder representatives necessarily support all aspects of the project's final recommendations. Nevertheless, there is a general view that the recommendations, if implemented as recommended, constitute a set of sites that most stakeholders involved in the process could support, live with, or (as a minimum) accept as 'less bad than it might have been had we not been involved in the process'. This statement applies to the network recommendations as an integral whole, including the narrative and the working assumptions that underpinned the planning. It is based on the need to meet the ENG, and an acknowledgement that the work was carried out based on the best available (often less than perfect) data, within the timeframe available. The statement cannot be taken out of this wider context, nor would it apply to any isolated parts of the recommendations (e.g. site boundaries without the accompanying narrative, changes to the underpinning assumptions on management, or a subset of the recommended sites).

With respect to recommended reference areas, the fishing industry representatives stated clearly that they do not support reference areas. They made the following statement with respect to reference areas:

> 'Commercial fishing stated that the fishing industry representatives are adamantly opposed to the Government policy to include reference areas as part of the network of MCZs and they consider there to be no legitimate requirement under the Marine and Coastal Access Act. They believe it is a disproportionate measure and unnecessary for monitoring the ecological performance of MCZs and is a policy that has careless disregard for peoples' livelihoods. There is also insufficient time and information available to the regional projects to make robust selections of sites. Fishing industry representatives on the JWG are therefore not proactively identifying sites though they are responding in terms of highlighting what harm selections may cause.'

Fishing representatives largely chose not to participate in the planning discussions for reference areas, although some of them were present during the Joint Working Group meetings when this work happened, and they were given the opportunity to participate in or comment on the discussions at any stage.

At their last meeting in July 2011, the Steering Group were asked to mark on a simple scale how satisfied they felt with the network. This task was carried out at the very end of the meeting, and not all group members were present (please refer to the meeting report for details). Of those that were present, most marked their satisfaction near the middle or slightly above the middle of the scale. Several people commented that the reason for not placing the mark higher was based on what they considered to be failings of the process: the lack of clarity on management in particular, the lack of opportunity to review the outcomes of the VA process, and uncertainty around what happens next. Reasons for placing the mark higher than the middle included a sense that the recommendations were as good as they could have been within the process and time available, that stakeholders genuinely had an influence on the recommendations, and that the outcome had outstripped expectations.

It is worth reflecting on the initial purpose of bringing together a wide range of stakeholders and giving them a central role in making MPA recommendations: to build understanding and ownership of the sites, to allow the best available information and knowledge to underpin the planning process, and to avoid unnecessary conflicts, thereby maximising support for the network. However, the

purpose of the stakeholder process was not to turn every person or sector involved into a conservationist and MPA advocate, nor was it necessarily to get everyone to agree on and support every aspect of the final recommendations.

Our Steering Group representatives reflect great diversity in interests, values, attitudes to conservation, and fears / expectations of the MCZ process. There are sectors represented on the Steering Group who are fundamentally sceptical about marine protected areas, and about whether they should exist at all. This does not apply exclusively to the varied commercial fishing sectors (although they are traditionally seen as the most vociferous opponents of MPAs, and they tend to feel that they have more to lose from MPAs than others). As reflected in the stakeholder narrative, several other commercial sectors have shown scepticism with respect to MPAs, and have shown a preference for MPAs not to overlap with their areas of interest.

Other stakeholder group members represent conservation interests and are inherently strong advocates of MPAs. Some of these people represent organisations that would prefer to see MPAs designed based on biodiversity criteria alone, without any regard to wider socio-economic impacts, and would prefer higher levels of protection to those being discussed for MCZs.

Despite the fundamental differences between the sectors represented on the stakeholder group, representatives from a wide diversity of sectors have ultimately been able to work together constructively throughout the process. Many have put their own time (and, therefore, money) into the project, and all have worked hard to find a way of meeting the ENG, listening to each other, understanding and taking each other's interests into account. As stated, there are still plenty of uncertainties, conflicts of interest, misgivings about the process, and misgivings about the need for MPAs in the first place – but despite all of it, this stakeholder process has resulted in a set of recommendations that is underpinned by a sense of collective ownership by a group of representatives from across a diverse spectrum of interests.

### II.2.5 The network configuration (overview)

In addition to the existing MPAs, the network configuration consists of 58 recommended new sites: 45 rMCZs, and 13 recommended reference areas. They are shown on maps FR_001a to c and FR_002a to c, and listed in table II.2.5a below.

We have loosely split the 45 rMCZs into 32 'inshore' and 13 'offshore' sites. In this final report, this is for presentational purposes, as the whole network cannot be represented legibly on a single A4-sized map. The split loosely follows the 12nm limit as the dividing line, but not strictly so (e.g. one 'inshore' site – South-east of Falmouth rMCZ – lies almost entirely outside the 12nm limit). Several rMCZs straddle the 6nm and 12nm limits (see table II.2.5a and map FR_002a)[16].

Of the 45 rMCZs, some consist of several, spatially separate areas. The Taw Torridge Estuary rMCZ, Tamar Estuary Sites rMCZ and Upper Fowey & Pont Pill rMCZs each consist of two spatially separate areas. The Isles of Scilly Sites rMCZ consists of 11 separate areas, and is a particularly complex case, as each one of the 11 areas has its own list of draft conservation objectives (in some ways, the Isles

[16] There was a division between 'inshore' and 'offshore' work at various stages in our process, and this is reflected in earlier maps and reports. This has generally been done for pragmatic reasons, such as managing work load / Working Group sizes, rather than being a strict or consistent split along administrative boundaries. In fact, through the Joint Working Group we actively tried to prevent the 12nm boundary within the region leading to an artificial disjoint in the shaping of the network (see part I of this report).

of Scilly recommendations might be considered as 11 separate sites, albeit small ones – this would bring the total number of newly recommended sites in this report to 69).

Some of the inshore rMCZs contain zones – areas within the site that have differences in the lists of features to be protected, and / or in terms of assumed activity restrictions:

- Two of the areas within the Isles of Scilly Sites rMCZ have been zoned to include 'non-disturbance areas', where there is a recommendation for higher levels of restriction of human activities than elsewhere within rMCZs (but not as high as within reference areas).
- The Padstow Bay and surrounds rMCZ includes a zone with seabird conservation objectives (in addition to conservation objectives for seafloor ENG features within the whole site).
- The Hartland Point to Tintagel rMCZ includes a zone where cetacean protection was considered in addition to the seafloor features.
- The Torbay rMCZ includes a zone around Berry Head that is recommended solely for the protection of cetaceans and loafing birds (this is the only area that remains in our current network configuration that is suggested solely for mobile non-ENG species, after careful consideration by the JWG, on the basis that there are known problems in this area with speeding leisure craft causing disturbance and wildlife collisions).

Of the 13 recommended reference areas, three are located offshore (beyond 12nm), within rMCZ boundaries: The Canyons, Greater Haig Fras, and Celtic Deep. The remaining 10 recommended reference areas are located inshore (within 12 nm), with 8 on the south coast and 2 off the north coast. Six of the inshore recommended reference areas are not located within rMCZ boundaries, but instead lie within existing MPAs (SSSIs, SACs or SPAs).

*Table II.2.5a List of all sites in the current network. The individual site reports contain more comprehensive details about related protected areas, this table indicates the main ones only.*

| Offshore rMCZs | |
|---|---|
| The Canyons | Located within the far south-west corner of the UK Continental Shelf limits. Contains The Canyons recommended reference area. |
| South West Deeps (West) | Abuts the UK Continental Shelf limit. |
| South West Deeps (East) | Abuts the UK Continental Shelf limit. |
| North-West of Jones Bank | |
| Greater Haig Fras | Contains Greater Haig Fras recommended reference area and the Haig Fras cSAC |
| East of Jones Bank | |
| East of Haig Fras | |
| North-East of Haig Fras | Abuts the UK Continental Shelf limit. |
| South of Celtic Deep | Abuts the UK Continental Shelf limit. |
| Celtic Deep | Contains Celtic Deep recommended reference area |
| East of Celtic Deep | |
| Western Channel | |
| South of the Isles of Scilly | Straddles the 12nm limit |
| Inshore rMCZs | |
| Poole Rocks | |
| Studland Bay | Includes intertidal area. |
| South Dorset | Straddles the 12nm limit. Contains South Dorset recommended reference area. |
| Broad Bench to Kimmeridge Bay | Intertidal site. Located within Purbeck VMCA. |

| | |
|---|---|
| South of Portland | Intersects Studland to Portland dSAC. |
| Chesil Beach and Stennis Ledges | Includes intertidal area. |
| Axe Estuary | Includes intertidal area. |
| Otter Estuary | Includes intertidal area. |
| Torbay | Includes intertidal area. Intersects Torbay to Lyme Bay cSAC. |
| Dart Estuary | Includes intertidal area. |
| Skerries Bank and surrounds | Includes intertidal area. Intersects with Prawle Point to Plymouth Sound & Eddystone cSAC, and the Start Point Inshore Potting Agreement. The southern tip of the site extends beyond 6nm. |
| Devon Avon Estuary | Includes intertidal area. |
| Erme Estuary | Includes intertidal area. Intersects with a SSSI |
| Tamar estuary sites | Includes intertidal area. Consists of 2 parts, intersects with a SSSI, SAC and SPA |
| Whitsand and Looe Bay | Includes intertidal area. Intersects with an existing voluntary marine conservation zone |
| Upper Fowey and Pont Pill | Includes intertidal area. Consists of 2 parts |
| South-East of Falmouth | Lies almost entirely outside the 12nm limit |
| South of Falmouth | Lies almost entirely outside the 6nm limit |
| The Manacles | Includes intertidal area. |
| Mounts Bay | Includes intertidal area. |
| Land's End | Includes intertidal area. Located on the Land's End peninsula, but not at Land's End itself (closer to Porthcurno). |
| Isles of Scilly Sites | Consists of 11 parts, all sit within the Isles of Scilly complex SAC, some intersect with SSSIs, most include intertidal areas. |
| Cape Bank | Straddles the 12nm and the 6nm limits, contains Cape Bank recommended reference area , and the Cape Bank section of Land's End and Cape Bank cSAC |
| Newquay and the Gannel | Includes intertidal area. |
| Padstow Bay and surrounds | Includes intertidal area. |
| Camel Estuary | Includes intertidal area. |
| Hartland Point to Tintagel | Includes intertidal area, and part extends beyond 6nm. |
| Lundy | MCZ already designated, boundary is identical to Lundy SAC. Contains Lundy recommended reference area, the boundary of which is identical to the existing Lundy no-take zone |
| Taw Torridge Estuary | Includes intertidal area. Consists of 2 parts, intersects with SSSI |
| Bideford to Foreland Point | Includes intertidal area. |
| Morte Platform | |
| North of Lundy (Atlantic Array area) | Straddles the 12nm and 6nm limits, follows boundary of planned Atlantic Array wind farm |
| Recommended reference areas – offshore (beyond 12nm) | |
| The Canyons | Within The Canyons rMCZ |
| Greater Haig Fras | Within Greater Haig Fras rMCZ |
| Celtic Deep | Within Celtic Deep rMCZ |
| Recommended reference areas – inshore (within 12nm) | |
| South Dorset | Within South Dorset rMCZ |
| South-East of Portland Bill | Within Studland to Portland dSAC |
| The Fleet | Within a SSSI, SPA and SAC |

| | |
|---|---|
| Lyme Bay | Within Lyme Bay to Torbay cSAC |
| Erme Estuary | Within the Erme Estuary rMCZ and SSSI |
| Mouth of the Yealm | Within Plymouth Sound and Estuaries SAC and the Yealm Estuary SSSI |
| The Fal | Within the Fal and Helford SAC |
| Swanpool[1] | Within Swanpool SSSI |
| Cape Bank | Within Cape Bank rMCZ and cSAC |
| Lundy | Within Lundy MCZ and SAC, the boundary is that of the existing no-take zone |

[1] The Swanpool Lagoon is the only place in England where the trembling sea mat *Victorella pavida* is recorded. However, it sits above the OS Boundary Line mean high water line, which we are using as the limit of our project area – so, technically, it is not within our region.

Map: FR_001a

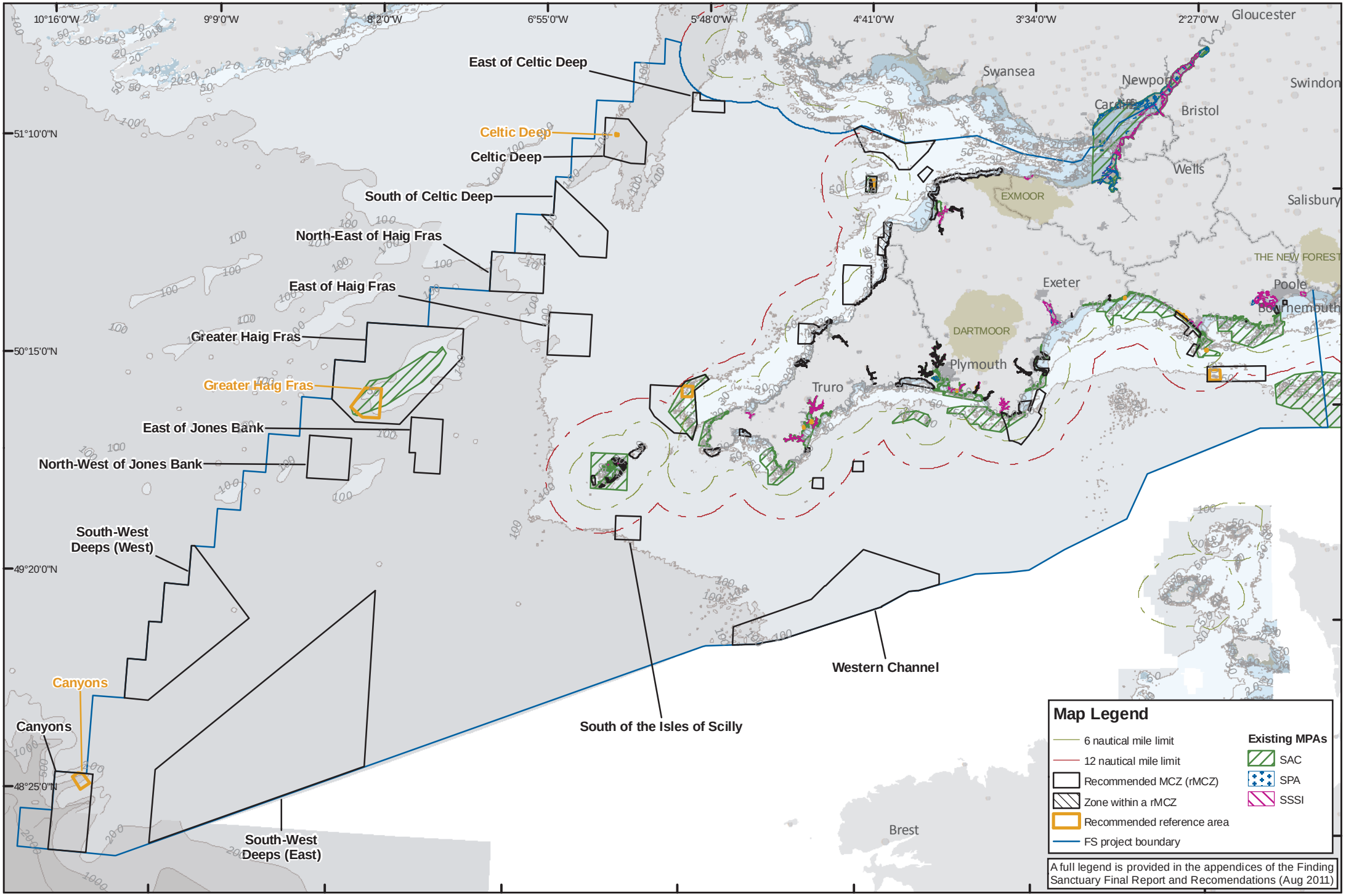
Version: 22Aug11

# Finding Sanctuary's MCZ Recommendations (offshore map)

This map shows Finding Sanctuary's network configuration (August 2011). Only recommended MCZs and reference areas considered "offshore" during planning work have been labelled here; refer to map FR_002a for inshore sites. Datum: WGS84; Projection: UTM30N.



0 25 50 100 km N




## Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)
- Zone within a rMCZ
- Recommended reference area
- FS project boundary

**Existing MPAs**

- SAC
- SPA
- SSSI

A full legend is provided in the appendices of the Finding Sanctuary Final Report and Recomendations (Aug 2011)

Map: FR_001b

Version: 06Sep11

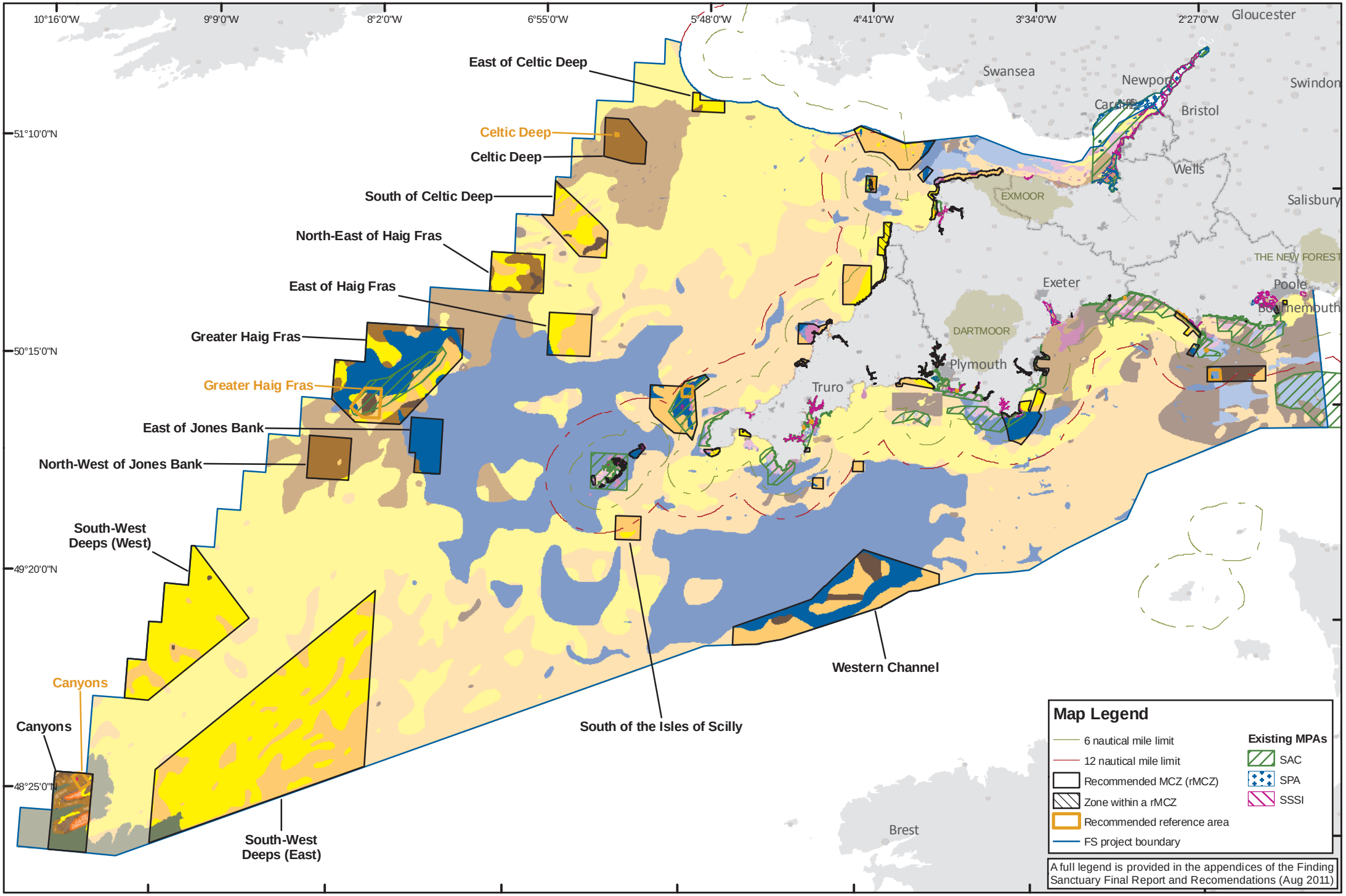
# Finding Sanctuary's MCZ Recommendations (offshore map)

This map shows the broad-scale habitats in Finding Sanctuary's network configuration (August 2011). Only recommended MCZs and reference areas considered "offshore" during planning work have been labelled here; refer to map FR_002b for inshore sites. Datum: WGS84; Projection: UTM30N.



0 50 100 km N

FINDING SANCTUARY




## Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)
- Zone within a rMCZ
- Recommended reference area
- FS project boundary

**Existing MPAs**

- SAC
- SPA
- SSSI

A full legend is provided in the appendices of the Finding Sanctuary Final Report and Recomendations (Aug 2011)

Map: FR_001c

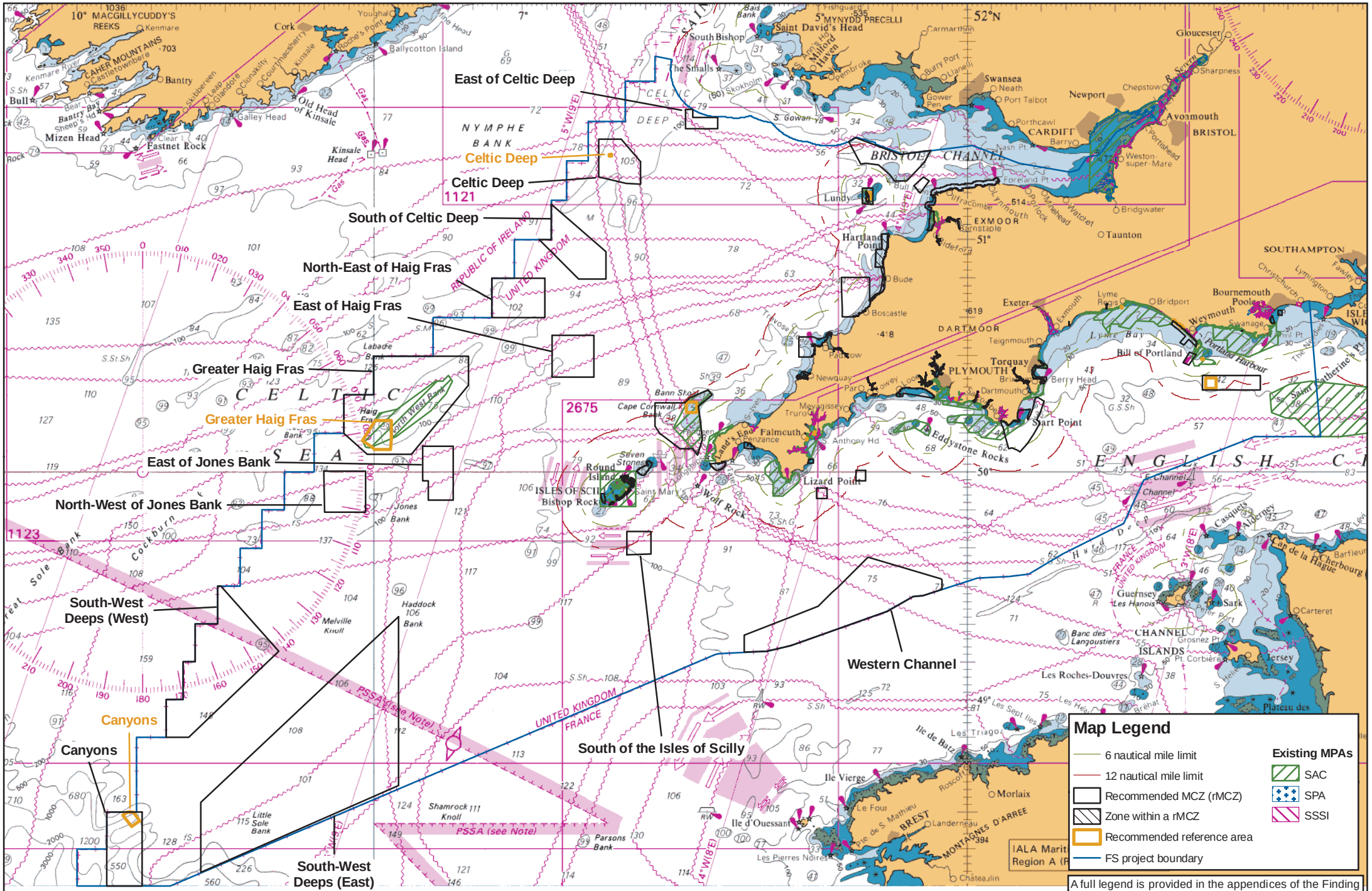
Version: 06Sep11

# Finding Sanctuary's MCZ Recommendations (offshore map)

This map shows Finding Sanctuary's network configuration (August 2011). Only recommended MCZs and reference areas considered "offshore" during planning work have been labelled here; refer to map FR_002c for inshore sites. Datum: WGS84; Projection: Mercator.



0 90 180 km



Map: FR_002a

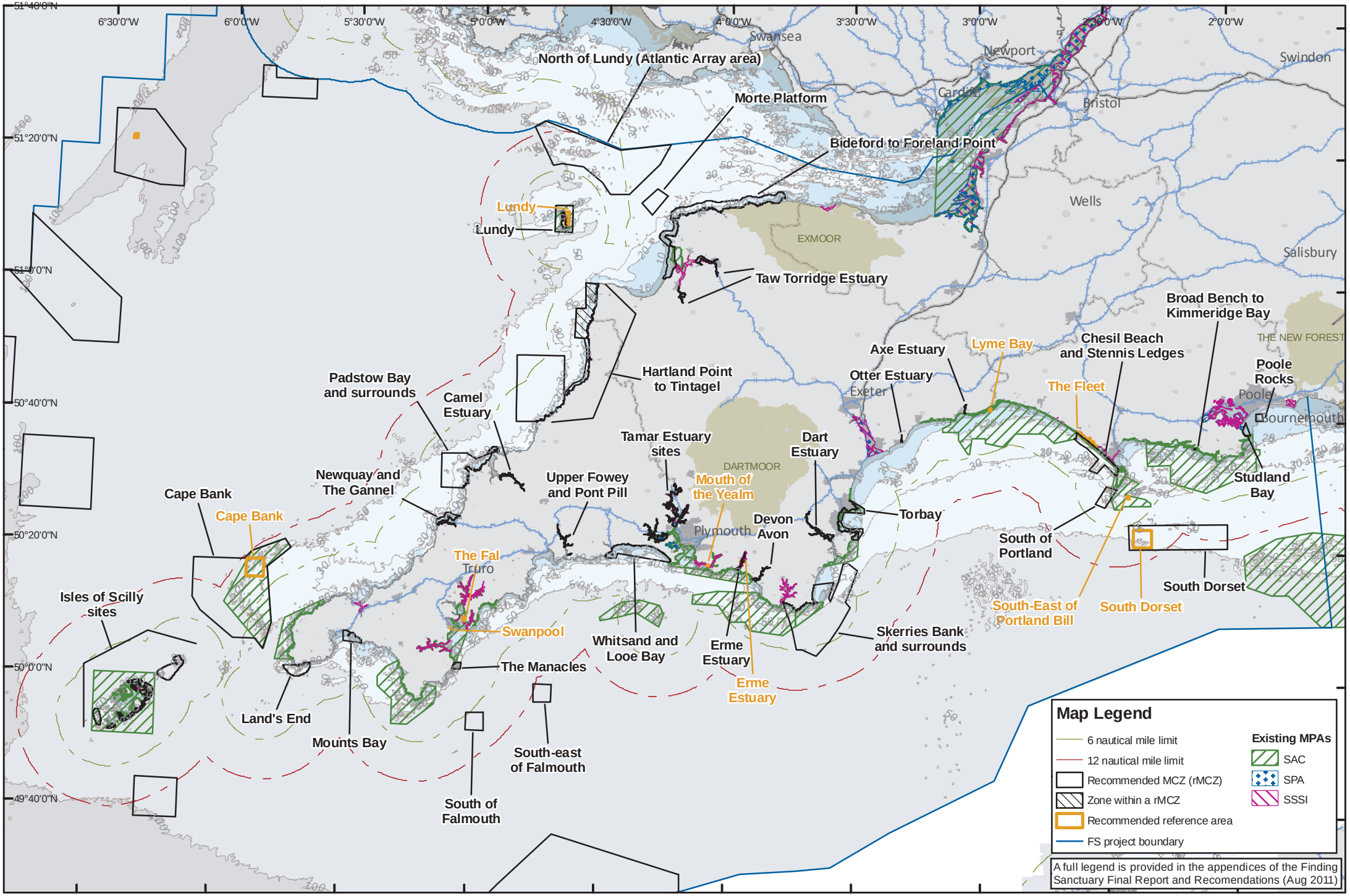
Version: 19Jul11

# Finding Sanctuary's MCZ Recommendations (inshore map)

This map shows Finding Sanctuary's network configuration (August 2011). Only recommended MCZs and reference areas considered "inshore" during planning work have been labelled here; refer to map FR_001a for offshore sites. Datum: WGS84; Projection: UTM30N.



0 30 60 km N




## Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)
- Zone within a rMCZ
- Recommended reference area
- FS project boundary

**Existing MPAs**

- SAC
- SPA
- SSSI

A full legend is provided in the appendices of the Finding Sanctuary Final Report and Recomendations (Aug 2011)

Map: FR_002b

Version: 06Sep11

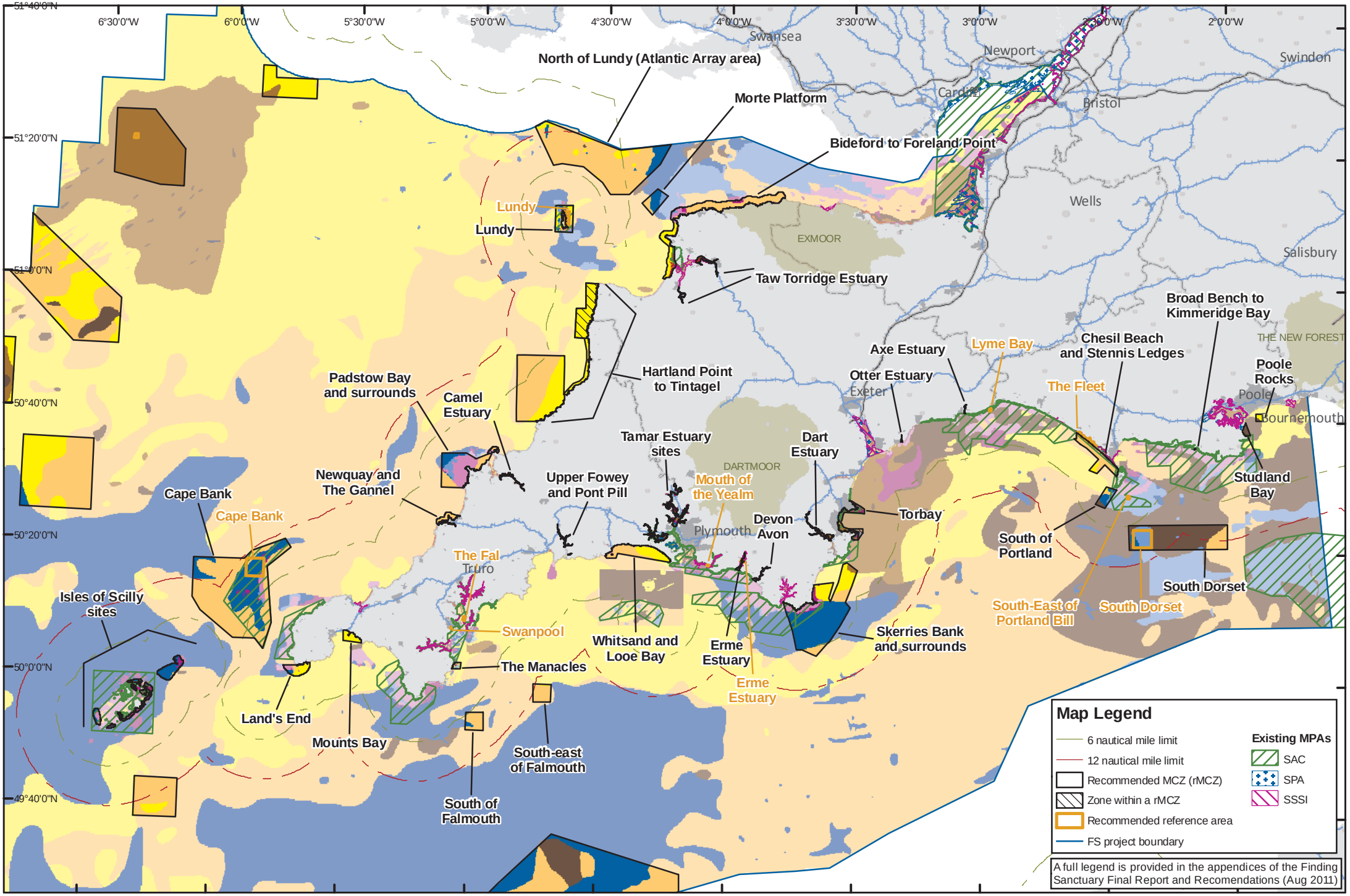
# Finding Sanctuary's MCZ Recommendations (inshore map)

This map shows the broad-scale habitats in Finding Sanctuary's network configuration (August 2011). Only recommended MCZs and reference areas considered "inshore" during planning work have been labelled here; refer to map FR_001b for offshore sites. Datum: WGS84; Projection: UTM30N.



0 30 60 km N

FINDING SANCTUARY



Map: FR_002c

Version: 06Sep11

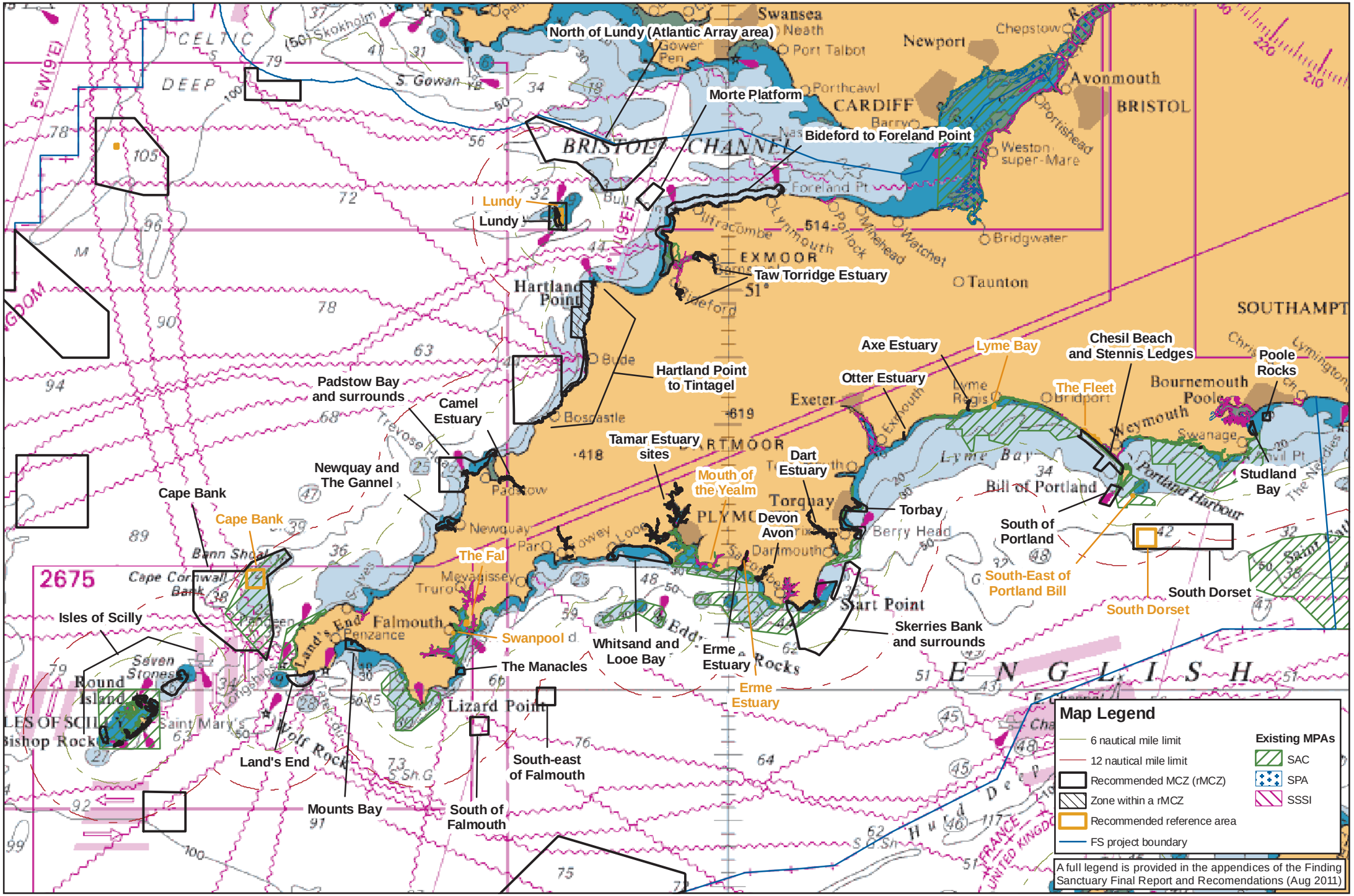
# Finding Sanctuary's MCZ Recommendations (inshore map)

This map shows Finding Sanctuary's network configuration (August 2011). Only recommended MCZs and reference areas considered "inshore" during planning work have been labelled here; refer to map FR_001c for offshore sites. Datum: WGS84; Projection: Mercator.



0 45 90 km

FINDING SANCTUARY



Map: FR_023a

Version:16Aug11

# Overview Map: Poole Rocks and Studland Bay rMCZs and surrounding coast

This is one of a series of maps showing Finding Sanctuary's final MCZ and reference area recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.



0 1.5 3 km N

FINDING SANCTUARY

2°2'0"W 2°0'0"W 1°58'0"W 1°56'0"W 1°54'0"W 1°52'0"W 1°50'0"W

50°43'0"N 50°42'0"N 50°41'0"N 50°40'0"N 50°39'0"N 50°38'0"N

Poole

Bournemouth

Branksome Chine

Lilliput

Canford Cliffs

Sandbanks

Studland

Poole Rocks

Studland Bay

## Map Legend

Recommended MCZ (rMCZ)

**Existing MPAs**

SAC

SPA

SSSI

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

Map: FR_026a

Version:16Aug11

# Overview Map: rMCZs and Recommended Reference Areas from Kimmeridge Bay to Chesil Beach

This is one of a series of maps showing Finding Sanctuary's final MCZ and reference area recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.



0 2.5 5 10 km

N

FINDING SANCTUARY

2°40'0"W 2°30'0"W 2°20'0"W 2°10'0"W

50°40'0"N 50°35'0"N 50°30'0"N 50°25'0"N 50°20'0"N

Abbotsbury Portesham Warmwell East Knighton Owermoigne Winfrith Newburgh Coombe Keynes Preston Osmington Langton Herring Nottington Chickerell Weymouth Weymouth East Lulworth West Lulworth Church Knowle Corfe Castle Kingston Worth Matravers Wyke Regis Easton Weston Southwell

The Fleet

Chesil Beach and Stennis Ledges

Broad Bench to Kimmeridge Bay

South-East of Portland Bill

South of Portland

South Dorset

South Dorset

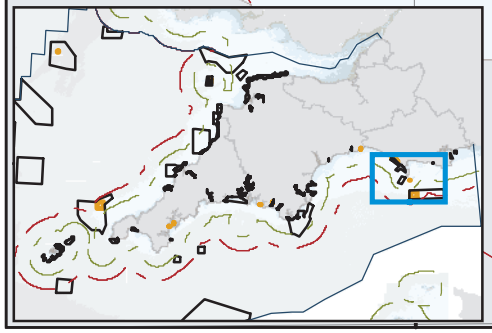
## Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)
- Recommended reference area

**Existing MPAs**

- SAC
- SPA
- SSSI

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



Map: FR_031a

Version:17Aug11

# Overview Map: Axe Estuary rMCZ and Lyme Bay Recommended Reference Area and surrounding coast

This is one of a series of maps showing Finding Sanctuary's Network Configuration at 1 June 2011. The blue rectangle on the small map in the bottom corner of this page indicates the location in the south west of the large zoomed map. Datum: WGS84; Projection: UTM30N.



0 0.4 0.8 1.6 km

N

FINDING SANCTUARY

3°4'0"W 3°2'0"W 3°0'0"W 2°58'0"W 2°56'0"W

50°44'0"N 50°43'0"N 50°42'0"N 50°41'0"N

Colyford

Axe Estuary

Axmouth

Seaton

Rousdon

Lyme Regis

Lyme Bay

## Map Legend

- Recommended MCZ (rMCZ)
- Recommended reference area

**Existing MPAs**

- SAC

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

Map: FR_041a

Version:16Aug11

# Overview Map: rMCZs and Recommended Reference Areas around the Fal and Helford

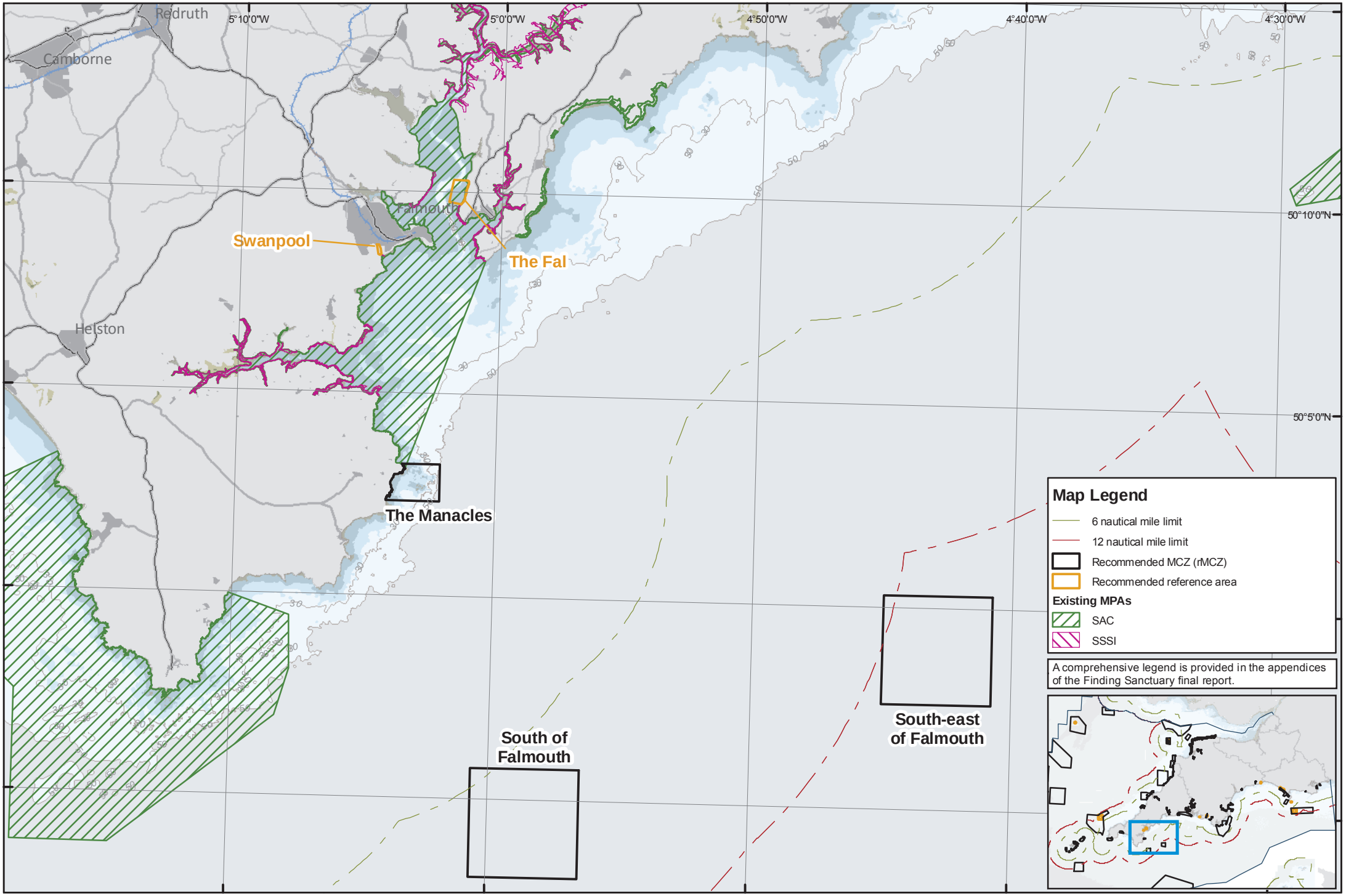
This is one of a series of maps showing Finding Sanctuary's final MCZ and reference area recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.



0 2.5 5 10 km

N

FINDING SANCTUARY



Map: FR_080

Version: 6Sep11

# Landings value of fishing vessels in the south-west (bottom trawls 2007-2010)

This map shows the landing values for 673 boats operating out of south-west ports using bottom towed gear. Data is derived from VMS, FisherMap, CFPO and MMO landings records. Datum: WGS84; Projection: UTM30N.



0 50 100 km

FINDING SANCTUARY

East of Celtic Deep

Celtic Deep

Celtic Deep

South of Celtic Deep

North-East of Haig Fras

East of Haig Fras

Greater Haig Fras

Greater Haig Fras

East of Jones Bank

North-West of Jones Bank

South-West Deeps (West)

Canyons

Canyons

South-West Deeps (East)

South of the Isles of Scilly

Western Channel

Gloucester

Swansea

Newport

Cardiff

Bristol

Swindon

Wells

Salisbury

EXMOOR

THE NEW FOREST

Poole

Exeter

Bournemouth

DARTMOOR

Plymouth

Truro

Brest

## Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- FS project boundary

**Net value of landings (2007-2010)**

**£ per 0.00625 degree square**

- 72 - 141
- 141 - 175
- 175 - 243
- 243 - 382
- 382 - 660
- 660 - 1,220
- 1,220 - 2,347
- 2,347 - 4,615
- 4,615 - 9,182
- 9,182 - 18,374

Map: FR_081

Version: 6Sep11

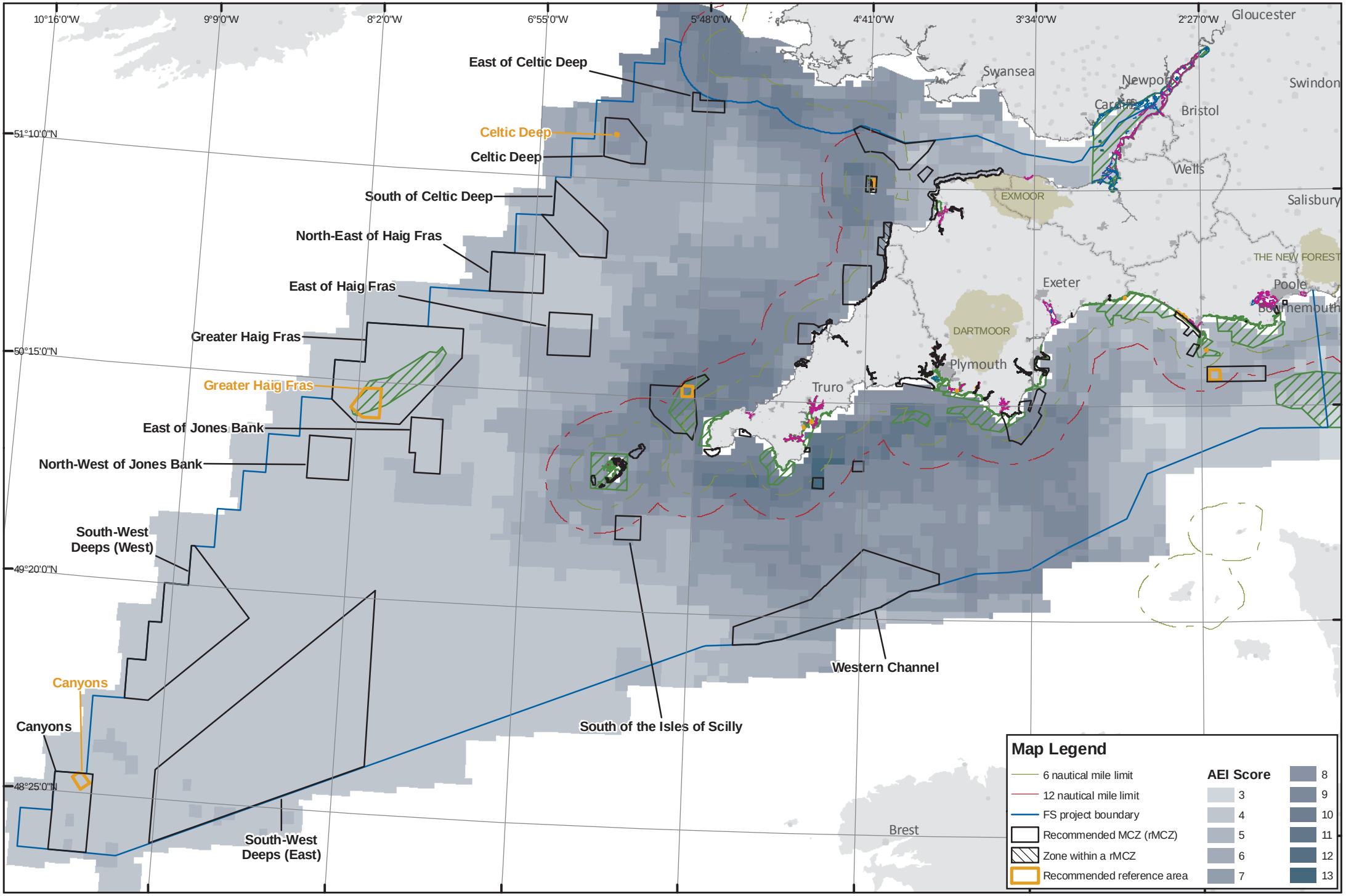
# Areas of additional pelagic ecological importance

This dataset was created from several NGO datasets and two data layers provided by JNCC. Data were classified based on JNCC recommended methodology were summed to produce the final score shown here. Datum: WGS84; Projection: UTM30N.



0 50 100 km

FINDING SANCTUARY



Map: FR_082a

Version: 6Sep11

# Regions of high benthic biodiversity (species)

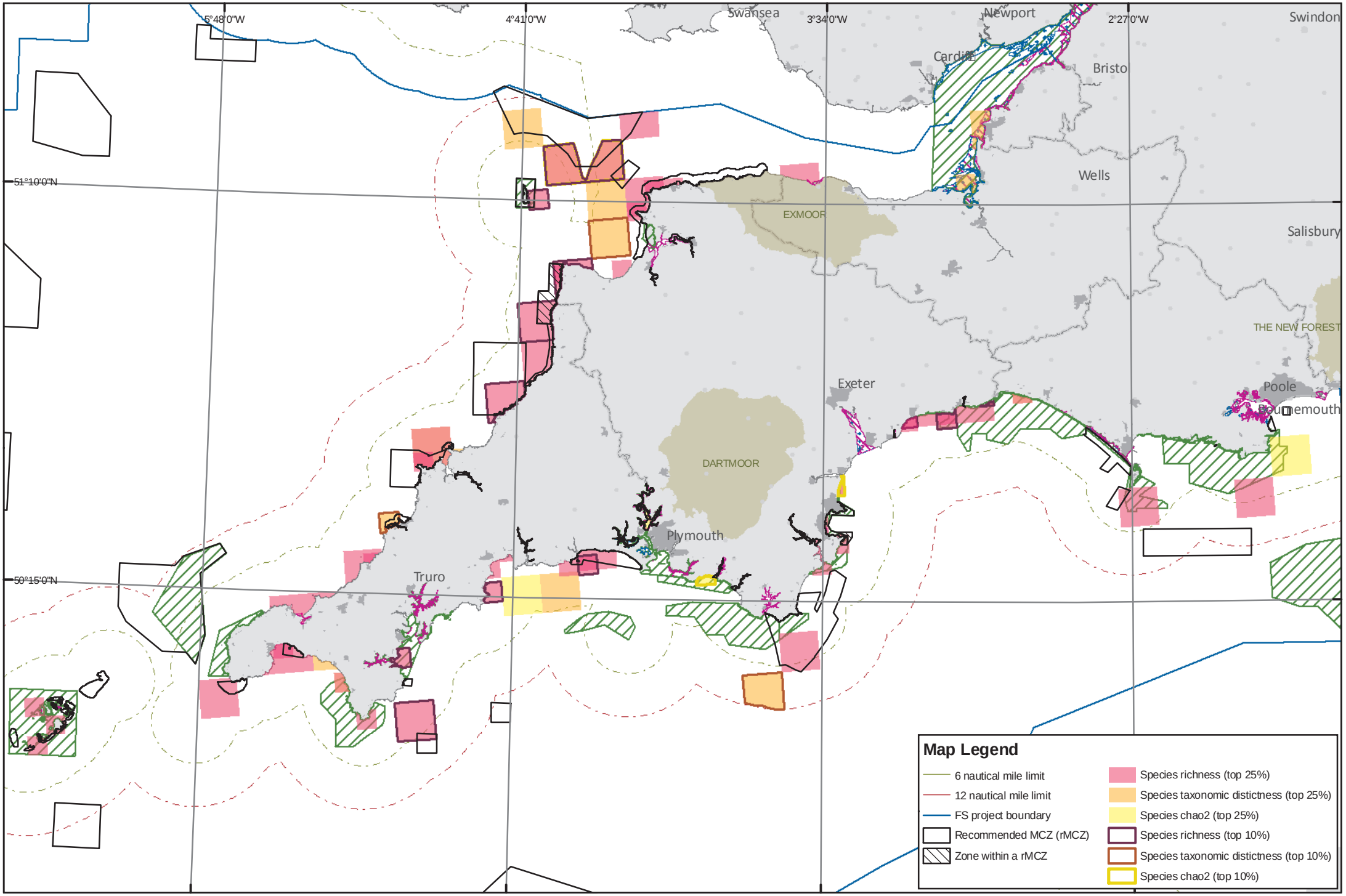
This map shows the top 10% and 25% of three species biodiversity metrics provided through MB102 task 2f (calculated from those records that fall within the study area). Datum: WGS84; Projection: UTM30N.



0 30 60 km

N

FINDING SANCTUARY



Map: FR_082b

Version: 6Sep11

# Regions of high benthic biodiversity (biotopes)

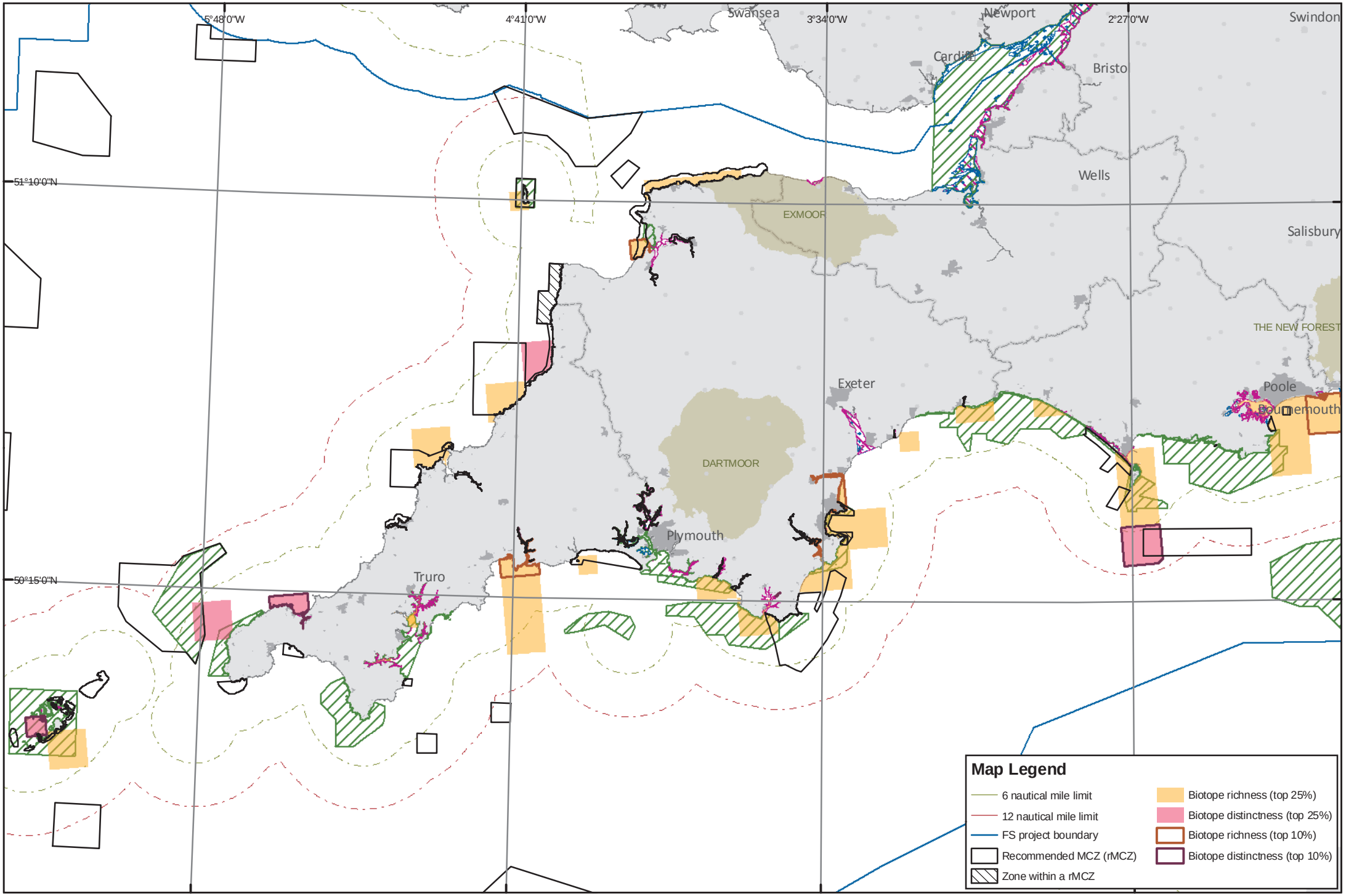
This map shows the top 10% and 25% of three biotope biodiversity metrics provided through MB102 task 2f (calculated from those records that fall within the study area). Datum: WGS84; Projection: UTM30N.



0 30 60 km

N

FINDING SANCTUARY



### II.2.6 Draft conservation objective summary

The tables on the following pages provide a summary of the draft conservation objectives for each rMCZ and each recommended reference area in the south-west. The vulnerability assessment process through which the draft conservation objectives were determined is described in part I.

In general, draft conservation objectives have been set for all ENG-listed features present within each site (species, habitats, geological and geomorphological features): The presence of these features was the basis on which the sites were selected. There are some exceptions, which are noted in the individual site reports. One exception that applies across the whole network is that no conservation objectives have been included for the FOCI habitat 'subtidal sands and gravels', either for inshore or offshore sites, even where the habitat has been recorded. It is a very widespread and broad-scale feature, and we consider that by including conservation objectives for broad-scale habitats listed in the ENG, any conservation requirements of this habitat would be met.

For some inshore sites, draft conservation objectives have also been included for non-ENG listed seabirds and cetaceans.

There are three draft conservation objective summary tables in this section: one for offshore rMCZs, one for inshore rMCZs, and one for recommended reference areas. In essence, the three tables contain the same information, but there are differences in presentation between them:

- The offshore rMCZ table simply lists site name, feature name, and whether the objective is 'maintain' in or 'recover' to 'favourable condition' (as defined in the national MCZ project Conservation Objective Guidance[17] or COG).
- The inshore rMCZ table essentially does the same, but has extra columns for common species names and comments.
- The reference area table splits features into two columns, depending on whether or not the site is large enough to meet the minimum viable size criteria for the feature. Features in both columns have draft conservation objectives, which are always 'recover to reference condition' – so there is no 'maintain / recover' column.

The full text of the draft conservation objectives (following the layout required in the COG) is in appendix 15.

On all three tables below, the different feature types are colour-coded as follows:

| |
|---|
| Broad-scale habitat (no colour) |
| FOCI habitat |
| FOCI species |
| Mobile species not listed in ENG |
| Geological / geomorphological feature |

[17] http://jncc.defra.gov.uk/PDF/MCZ%20Project%20Conservation%20Objective%20Guidance.pdf

*Table II.2.6a Conservation Objectives: summary table for offshore sites. In the last column, 'recover' stands for 'recover to favourable condition', and 'maintain' stands for 'maintain in favourable condition'. Where a question mark is recorded, the Joint Working Group discussed at length whether or not to include conservation objectives for seabirds or cetaceans (for the whole site or a zone within the site. However, the JWG could reach no agreement on whether or not this was appropriate (refer to the report from the 5th Joint Working Group meeting in May 2011).*

| Site name | Feature | Conservation Objective |
|---|---|---|
| **Canyons** | Deep-sea bed | recover |
| | Subtidal coarse sediment | recover |
| | Subtidal sand | recover |
| | Cold-water coral reefs | recover |
| | Seabirds ? | ? |
| | Cetaceans ? | ? |
| **South-West Deeps (West)** | Subtidal coarse sediment | recover |
| | Subtidal sand | recover |
| | Subtidal mixed sediments | recover |
| | Celtic sea relict sandbanks | maintain |
| | Seabirds (summer, zoned) ? | ? |
| **South-West Deeps (East)** | Subtidal coarse sediment | recover |
| | Subtidal sand | maintain |
| | Deep-sea bed | recover |
| | Celtic sea relict sandbanks | maintain |
| **North-West of Jones Bank** | Subtidal sand | recover |
| | Subtidal mud | recover |
| | Subtidal coarse sediment | recover |
| | Seabirds (zoned)? | ? |
| **Greater Haig Fras** | Moderate energy circalittoral rock | recover |
| | Subtidal coarse sediment | recover |
| | Subtidal mixed sediments | recover |
| | Subtidal mud | recover |
| | Subtidal sand | recover |
| | *Fragile sponge & anthozoan communities on subtidal rocky habitats* | *To be confirmed*[1] |
| | Haig Fras rock complex | maintain |
| **East of Jones Bank** | Moderate energy circalittoral rock | recover |
| | Subtidal mud | recover |
| | Subtidal sand | recover |
| **East of Haig Fras** | Moderate energy circalittoral rock | recover |
| | Subtidal coarse sediment | recover |
| | Subtidal sand | recover |
| **North East of Haig Fras** | Subtidal coarse sediment | recover |
| | Subtidal mixed sediments | recover |
| | Subtidal mud | recover |
| | Subtidal sand | recover |
| **South of Celtic Deep** | Subtidal coarse sediment | recover |
| | Subtidal mixed sediments | recover |
| | Subtidal mud | recover |
| | Subtidal sand | recover |

| | | |
|---|---|---|
| **Celtic Deep** | Subtidal mud | recover |
| | Mud habitats in deep water | recover |
| | Seabirds ? | ? |
| | Common dolphins ? | ? |
| **East of Celtic Deep** | Subtidal sand | recover |
| | Subtidal mud | recover |
| | Subtidal coarse sediment | recover |
| | Seabirds ? | ? |
| | Cetaceans ? | ? |
| **Western Channel** | Subtidal coarse sediment | recover |
| | Subtidal mixed sediments | recover |
| | Moderate energy circalittoral rock | recover |
| | Seabirds ? | ? |
| | Cetaceans ? | ? |
| **South of the Isles of Scilly** | Subtidal sand | recover |
| | Subtidal coarse sediment | recover |

[1]Pending check; presence of records outside SAC boundary to be confirmed.

*Table II.2.6b Conservation Objectives: summary table for inshore sites. Latin and common species names are listed in the second column. M = 'maintain in favourable condition', R = 'recover to favourable condition'. The individual parts of the Isles of Scilly rMCZ are listed separately at the end of the table, each has its own list of draft conservation objectives. Based on Local Group feedback, the draft conservation objectives lists for the Isles of Scilly sites include features that are listed as protected within the Isles of Scilly SAC (see appendix 11).These features are marked in red. This is inconsistent with other rMCZs, where features that are already protected by an existing designation have not been included here.*

| Site name / feature | Common name | Maintain / Recover | Comments |
|---|---|---|---|
| **Poole Rocks** | | | |
| Subtidal mixed sediments | | **M** | |
| Subtidal sand | | **M** | |
| Moderate energy circalittoral rock | | **M** | Included based on local knowledge and on the basis of charted sea feature. |
| *Gobius couchi* | Couch's goby | **M** | Single record, species difficult to identify. However, species is known to occur in Poole Bay (media reports), and the habitat in this site is appropriate. |
| *Ostrea edulis* | Native oyster | **M** | |
| **Studland Bay** | | | |
| Subtidal mixed sediments | | **M** | |
| Subtidal sand | | **M** | |
| Intertidal mud | | **M** | |
| Intertidal sand and muddy sand | | **M** | |
| Seagrass beds | | **R** | |
| *Hippocampus hippocampus* | Short snouted seahorse | **R** | |
| *Ostrea edulis* | Native oyster | **M** | |
| *Raja undulata* | Undulate ray | **R** | |
| **South Dorset** | | | |
| High energy circalittoral rock | | **R** | |
| Moderate energy circalittoral rock | | **R** | |
| Subtidal coarse sediment | | **M** | |
| Subtidal mixed sediments | | **M** | |
| Subtidal chalk | | **R** | |

| | | | |
|---|---|---|---|
| **Broad Bench to Kimmeridge Bay** | | | |
| Intertidal coarse sediment | | **M** | |
| Moderate energy intertidal rock | | **M** | |
| *Padina pavonica* | Peacock's tail seaweed | **M** | |
| *Paludinella littorina* | Sea snail | **M** | |
| **South of Portland** | | | |
| High energy circalittoral rock | | **M** | |
| Moderate energy circalittoral rock | | **M** | |
| Subtidal coarse sediment | | **M** | |
| Subtidal mixed sediments | | **M** | |
| Subtidal sand | | **M** | |
| Portland Deep | | **M** | ENG-listed geological / geomorphological feature |
| **Chesil Beach and Stennis Ledges** | | | |
| High energy infralittoral rock | | **R** | |
| Subtidal coarse sediment | | **R** | |
| Subtidal sand | | **R** | |
| High energy intertidal rock | | **M** | |
| Intertidal coarse sediment | | **M** | |
| *Eunicella verrucosa* | Pink sea-fan | **R** | |
| *Ostrea edulis* | Native oyster | **R** | |
| **Axe Estuary** | | | |
| Subtidal mixed sediments | | **M** | |
| Coastal saltmarshes and saline reedbeds | | **M** | |
| Intertidal coarse sediment | | **M** | |
| Intertidal mixed sediments | | **M** | |
| Intertidal mud | | **M** | |
| *Anguilla anguilla* | European eel | **? M / R (tbc)** | |

| | | | |
|---|---|---|---|
| **Otter Estuary** | | | |
| Subtidal sand | | **M** | |
| High energy infralittoral rock | | **M** | |
| Coastal saltmarshes and saline reedbeds | | **M** | |
| Intertidal coarse sediment | | **M** | |
| Intertidal mud | | **M** | |
| *Anguilla anguilla* | European eel | **? M / R (tbc)** | |
| **Torbay** | | | |
| Subtidal mud | | **R** | Probably sandy mud and muddy sand, not pure mud |
| Intertidal coarse sediment | | **M** | |
| Intertidal mixed sediments | | **M** | |
| Intertidal mud | | **M** | likely to be predominantly sandy habitat. |
| Intertidal sand and muddy sand | | **M** | |
| Low energy intertidal rock | | **M** | |
| Moderate energy intertidal rock | | **M** | |
| Intertidal under boulder communities | | **M** | |
| *Sabellaria alveolata* reefs | Honeycomb worm reefs | **M** | |
| Seagrass beds | | **R** | |
| *Hippocampus guttulatus* | Long snouted seahorse | **M** | |
| *Ostrea edulis* | Native oyster | **M** | |
| *Padina pavonica* | Peacock's tail seaweed | **M** | This is a single record older than 30 years but habitat is right for this species so kept this on the CO list. |
| *Paludinella littorina* | Sea snail | **M** | |
| *Gavia arctica* | Black throated diver | **M** | Only within zone around Berry Head. Wintering divers and grebes. |
| *Gavia immer* | Great northern diver | **M** | '' |
| *Podiceps cristatus* | Great crested grebe | **M** | '' |
| *Podiceps nigricollis* | Black necked grebe | **M** | '' |
| *Podiceps grisegena* | Red necked grebe | **M** | '' |
| *Podiceps auritus* | Slavonian grebe | **M** | '' |
| *Uria aalge* | Guillemot | **M** | '' |
| *Phocoena phocoena* | Harbour porpoise | **M** | '' |

| | | | |
|---|---|---|---|
| **Dart Estuary** | | | |
| Subtidal mud | | **M** | |
| Intertidal mud | | **M** | |
| Low energy intertidal rock | | **M** | |
| Coastal saltmarsh & saline reedbeds | | **M** | |
| Estuarine rocky habitats | | **M** | |
| Intertidal under boulder communities | | **M** | |
| *Alkmaria romijni* | Tentacled lagoon-worm | **M** | No records in our dataset but NE knowledge of recent survey finding this species, presence to be confirmed |
| *Anguilla anguilla* | European eel | **? M / R (tbc)** | |
| **Skerries Bank and surrounds** | | | |
| Subtidal coarse sediment | | **M** | |
| Subtidal mud | | **M** | |
| Subtidal sand | | **M** | |
| Moderate energy circalittoral rock | | **M** | |
| Moderate energy infralittoral rock | | **M** | |
| High energy infralittoral rock | | **M** | |
| Moderate energy intertidal rock | | **M** | |
| High energy intertidal rock | | **M** | |
| Intertidal coarse sediment | | **M** | |
| Intertidal mixed sediments | | **M** | |
| Intertidal mud | | **M** | |
| Intertidal sand and muddy sand | | **M** | |
| Intertidal under boulder communities | | **M** | |
| *Eunicella verrucosa* | Pink sea-fan | **M** | |
| *Hippocampus hippocampus* | Short snouted seahorse | **M** | |
| *Palinurus elephas* | Spiny lobster | **R** | |

| | | | |
|---|---|---|---|
| **Devon Avon Estuary** | | | |
| Subtidal mud | | **M** | |
| Subtidal sand | | **M** | |
| High energy infralittoral rock | | **M** | |
| Coastal saltmarshes and saline reedbeds | | **M** | |
| Intertidal coarse sediment | | **M** | |
| Intertidal mud | | **M** | |
| Intertidal sand and muddy sand | | **M** | |
| Moderate energy intertidal rock | | **M** | |
| *Alkmaria romijni* | Tentacled lagoon-worm | **M** | This is a single record but habitat is right for this species so kept this on the CO list. |
| *Anguilla anguilla* | European eel | **? M / R (tbc)** | |
| **Erme Estuary** | | | |
| Subtidal mud | | **M** | |
| Subtidal sand | | **M** | |
| Low energy infralittoral rock | | **M** | |
| Moderate energy infralittoral rock | | **M** | |
| High energy infralittoral rock | | **M** | |
| High energy intertidal rock | | **M** | |
| Intertidal coarse sediment | | **M** | |
| Intertidal mixed sediments | | **M** | |
| Low energy intertidal rock | | **M** | |
| Moderate energy intertidal rock | | **M** | |
| Estuarine rocky habitats | | **M** | |
| Sheltered muddy gravels | | **M** | |
| *Anguilla anguilla* | European eel | **? M / R (tbc)** | |

| | | |
|---|---|---|
| **Tamar estuary sites** | | |
| Intertidal biogenic reefs | | **M** |
| Intertidal coarse sediment | | **M** |
| Blue Mussel beds (including intertidal beds on mixed and sandy sediments) | | **M** |
| *Ostrea edulis* | Native oyster | **M** |
| *Osmerus eperlanus* | Smelt | **? M / R (tbc)** |
| *Anguilla anguilla* | European eel | **? M / R (tbc)** |
| **Whitsand and Looe Bay** | | |
| Subtidal coarse sediment | | **M** |
| Subtidal sand | | **M** |
| Moderate energy circalittoral rock | | **M** |
| High energy infralittoral rock | | **M** |
| High energy intertidal rock | | **M** |
| Intertidal coarse sediment | | **M** |
| Intertidal mixed sediments | | **M** |
| Intertidal sand and muddy sand | | **M** |
| Low energy intertidal rock | | **M** |
| Moderate energy intertidal rock | | **M** |
| Seagrass beds | | **M** |
| *Amphianthus dohrnii* | Sea-fan anemone | **M** |
| *Arctica islandica* | Ocean quahog | **M** |
| *Eunicella verrucosa* | Pink sea-fan | **M** |
| *Gobius cobitis* | Giant Goby | **M** |
| *Haliclystus auricula* | Stalked jellyfish | **M** |
| *Hippocampus guttulatus* | Long snouted seahorse | **M** |
| **Upper Fowey and Pont Pill** | | |
| Coastal saltmarshes and saline reedbeds | | **M** |
| Intertidal coarse sediment | | **M** |
| Intertidal mud | | **M** |
| Intertidal sand and muddy sand | | **M** |

| | | |
|---|---|---|
| Low energy intertidal rock | | **M** |
| Estuarine rocky habitats | | **M** |
| Sheltered muddy gravels | | **M** |
| *Anguilla anguilla* | European eel | **? M / R (tbc)** |
| **South-East of Falmouth** | | |
| Subtidal coarse sediment | | **R** |
| Subtidal sand | | **R** |
| **South of Falmouth** | | |
| Moderate energy circalittoral rock | | **R** |
| Subtidal coarse sediment | | **R** |
| **The Manacles** | | |
| Subtidal coarse sediment | | **M** |
| Subtidal macrophyte-dominated sediment | | **M** |
| Subtidal mixed sediments | | **M** |
| Subtidal sand | | **M** |
| Moderate energy circalittoral rock | | **M** |
| Moderate energy infralittoral rock | | **M** |
| Intertidal coarse sediment | | **M** |
| Intertidal mixed sediments | | **M** |
| Intertidal mud | | **M** |
| Intertidal sand and muddy sand | | **M** |
| Moderate energy intertidal rock | | **M** |
| Maërl beds | | **M** |
| *Amphianthus dohrnii* | Sea-fan anemone | **M** |
| *Eunicella verrucosa* | Pink sea-fan | **M** |
| *Haliclystus auricula* | Stalked jellyfish | **M** |
| *Leptopsammia pruvoti* | Sunset cup-coral | **M** |
| *Palinurus elephas* | Spiny lobster | **R** |
| *Cetorhinus maximus* | Basking sharks | **M** |
| *Phocoena phocoena* | Harbour porpoise | **M** |

| | | | |
|---|---|---|---|
| **Mounts Bay** | | | |
| Subtidal mixed sediments | | **M** | |
| Subtidal sand | | **M** | |
| High energy infralittoral rock | | **M** | |
| High energy intertidal rock | | **M** | |
| Intertidal coarse sediment | | **M** | |
| Intertidal mixed sediments | | **M** | |
| Intertidal sand and muddy sand | | **M** | |
| Moderate energy intertidal rock | | **M** | |
| Seagrass beds | | **M** | |
| *Arctica islandica* | Ocean quahog | **M** | |
| *Gobius cobitis* | Giant Goby | **M** | |
| *Haliclystus auricula* | Stalked jellyfish | **M** | |
| *Lucernariopsis campanulata* | Stalked jellyfish | **M** | |
| *Lucernariopsis cruxmelitensis* | Stalked jellyfish | **M** | |
| **Land's End** | | | |
| Subtidal coarse sediment | | **M** | |
| Subtidal sand | | **M** | |
| Moderate energy circalittoral rock | | **M** | |
| Moderate energy infralittoral rock | | **M** | |
| High energy circalittoral rock | | **M** | |
| High energy infralittoral rock | | **M** | |
| High energy intertidal rock | | **M** | |
| Intertidal coarse sediment | | **M** | |
| Intertidal mud | | **M** | more likely to be sand |
| Intertidal sand and muddy sand | | **M** | |
| *Eunicella verrucosa* | Pink sea-fan | **M** | |
| *Paludinella littorina* | Sea snail | **M** | |
| *Cetorhinus maximus* | Basking shark | **M** | |
| *Tursiops truncatus* | Bottlenose dolphin | **M** | |
| *Phocoena phocoena* | Harbour porpoise | **M** | |

| Seabirds | | M | Species to be confirmed |
|---|---|---|---|
| **Cape Bank** | | | |
| Moderate energy circalittoral rock | - | **R** | protected within SAC boundaries, some unprotected feature occurs within rMCZ |
| Subtidal coarse sediment | | **R** | |
| *Palinurus elephas* | Spiny lobster | **R** | |
| **Newquay and the Gannel** | | | |
| Subtidal coarse sediment | | **M** | |
| Subtidal mud | | **M** | |
| Subtidal sand | | **M** | |
| Coastal saltmarshes and saline reedbeds | | **M** | |
| High energy intertidal rock | | **M** | |
| Intertidal coarse sediment | | **M** | |
| Intertidal mud | | **M** | on exposed beaches, this is sand not mud |
| Intertidal sand and muddy sand | | **M** | |
| Low energy intertidal rock | | **M** | |
| Moderate energy intertidal rock | | **M** | |
| *Eunicella verrucosa* | Pink sea-fan | **M** | |
| *Gobius cobitis* | Giant Goby | **M** | |
| *Ostrea edulis* | Native oyster | **M** | |
| *Paludinella littorina* | Sea snail | **M** | |
| *Anguilla anguilla* | European eel | **? M / R (tbc)** | |
| **Padstow Bay and surrounds** | | | |
| Subtidal coarse sediment | | **M** | |
| Moderate energy circalittoral rock | | **M** | |
| Moderate energy infralittoral rock | | **M** | |
| High energy circalittoral rock | | **M** | |
| High energy infralittoral rock | | **M** | |
| High energy intertidal rock | | **M** | |
| Intertidal coarse sediment | | **M** | |
| Intertidal mud | | **M** | likely to be sand |

| | | |
|---|---|---|
| Intertidal sand and muddy sand | | **M** |
| Moderate energy intertidal rock | | **M** |
| *Arctica islandica* | Ocean quahog | **M** |
| *Eunicella verrucosa* | Pink sea-fan | **M** |
| *Haliclystus auricula* | Stalked jellyfish | **M** |
| *Lucernariopsis cruxmelitensis* | Stalked jellyfish | **R** |
| *Palinurus elephas* | Spiny lobster | **M** |
| *Tursiops truncatus* | Bottlenose dolphin | **M** |
| *Fulmarus glacialis* | Fulmar | **M** |
| *Uria aalge* | Guillemot | **M** |
| *Fratercula arctica* | Puffin | **M** |
| *Alca torda* | Razorbill | **M** |
| *Rissa tridactyla* | Kittiwake | **M** |
| **Camel Estuary** | | |
| Coastal saltmarshes and saline reedbeds | | **M** |
| Intertidal coarse sediment | | **M** |
| Intertidal mud | | **? M / R (tbc)** |
| Low energy intertidal rock | | **M** |
| Estuarine rocky habitats | | **M** |
| *Anguilla anguilla* | European eel | **? M / R (tbc)** |

| | | | |
|---|---|---|---|
| **Hartland Point to Tintagel** | | | |
| Subtidal coarse sediment | | **M** | |
| Subtidal sand | | **M** | |
| High energy infralittoral rock | | **M** | |
| Coastal saltmarshes and saline reedbeds | | **M** | |
| High energy intertidal rock | | **M** | |
| Intertidal coarse sediment | | **M** | |
| Intertidal mixed sediment | | **M** | |
| Intertidal mud | | **M** | unlikely to be present, this is probably sand |
| Intertidal sand and muddy sand | | **M** | |
| Moderate energy intertidal rock | | **M** | |
| Fragile sponge&anthozoan communities on subtidal rocky habitats | | **M** | |
| *Sabellaria alveolata* reefs | Honeycomb worm reefs | **M** | No records in our dataset but there is pers. comm. of MarClim records near Bude, to be pursued |
| *Eunicella verrucosa* | Pink sea-fan | **? M / R (tbc)** | |
| *Padina pavonica* | Peacock's tail seaweed | **M** | |
| **Lundy** | | | |
| *Palinurus elephas* | Spiny lobster | **R** | |
| Mud habitats in deep water | | **M** | |
| *Puffinus puffinus* | Manx shearwater | **M** | |
| *Uria aalge* | Guillemot | **M** | |
| *Alca torda* | Razorbill | **M** | |
| *Fratercula arctica* | Puffin | **M** | |
| **North of Lundy (Atlantic Array area)** | | | |
| Moderate energy circalittoral rock | | **M** | In NW, probably coarse sediment |
| Subtidal coarse sediment | | **M** | |
| Subtidal mixed sediments | | **M** | |
| Subtidal sand | | **M** | |

| | | |
|---|---|---|
| **Morte Platform** | | |
| High energy circalittoral rock | | **M** |
| Moderate energy circalittoral rock | | **M** |
| Subtidal coarse sediment | | **M** |
| **Bideford to Foreland Point** | | |
| Subtidal coarse sediment | | **M** |
| Subtidal sand | | **M** |
| Moderate energy infralittoral rock | | **M** |
| High energy circalittoral rock | | **R** |
| High energy infralittoral rock | | **M** |
| High energy intertidal rock | | **M** |
| Intertidal coarse sediment | | **M** |
| Intertidal mixed sediments | | **M** |
| Intertidal mud | | **M** |
| Intertidal sand and muddy sand | | **M** |
| Low energy intertidal rock | | **M** |
| Moderate energy intertidal rock | | **M** |
| *Sabellaria alveolata* reefs | | **M** |
| *Eunicella verrucosa* | Pink sea-fan | **M** |
| *Paludinella littorina* | Sea snail | **M** |
| *Phocoena phocoena* | Harbour porpoise | **M** |
| *Halychoerus grypus* | Grey Seals | **M** |
| *Uria aalge* | Guillemot | **M** |
| *Alca torda* | Razorbill | **M** |
| **Taw Torridge Estuaries** | | |
| Subtidal mud | | **M** |
| Subtidal sand | | **M** |
| Coastal saltmarshes and saline reedbeds | | **M** |
| Intertidal coarse sediment | | **M** |
| Intertidal sand and muddy sand | | **M** |
| Low energy intertidal rock | | **M** |
| *Anguilla anguilla* | European eel | **? M / R (tbc)** |

| **Isles of Scilly sites** *RED = feature protected by SAC;* | *BLACK = feature is not protected by SAC* | |
|---|---|---|
| **Bristows to the Stones** | | |
| High energy infralittoral rock | **R** | Based on local data |
| High energy circalittoral rock | **R** | Based on local data |
| Moderate energy circalittoral rock | **R** | |
| Moderate energy infralittoral rock | **R** | |
| Subtidal coarse sediment | **M** | |
| Subtidal mixed sediments | **M** | |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | **R** | |
| *Eunicella verrucosa* | **R** | Based on local data |
| *Palinurus elephas* | **R** | Based on local data |
| **Men a Vaur to White Island** | | |
| Subtidal sand | **M** | |
| Moderate energy circalittoral rock | **M** | |
| Moderate energy infralittoral rock | **M** | |
| High energy infralittoral rock | **M** | |
| High energy circalittoral rock | **M** | Based on local data |
| High energy intertidal rock | **M** | |
| Intertidal coarse sediment | **M** | |
| Intertidal mud | **M** | |
| Intertidal sand and muddy sand | **M** | |
| Moderate energy intertidal rock | **M** | Based on local data |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | **M** | |
| Intertidal under boulder communities | **M** | |
| Seagrass beds | **M** | |
| Tide-swept channels | **M** | Based on local data |
| *Amphianthus dohrnii* | **M** | |

| | | |
|---|---|---|
| *Eunicella verrucosa* | **M** | |
| *Haliclystus auricula* | **M** | |
| *Lucernariopsis campanulata* | **M** | |
| *Palinurus elephas* | **R** | |
| **Tean** | | |
| Subtidal macrophyte-dominated sediment | **M** | |
| Subtidal mixed sediments | **M** | |
| Subtidal sand | **M** | |
| Moderate energy infralittoral rock | **M** | |
| High energy infralittoral rock | **M** | |
| High energy intertidal rock | **M** | |
| Intertidal coarse sediment | **M** | |
| Intertidal mud | **M** | Check accuracy of record for IoS |
| Intertidal sand and muddy sand | **M** | |
| Moderate energy intertidal rock | **M** | Based on local data |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | **M** | |
| Intertidal under boulder communities | **M** | |
| Seagrass beds | **M** | |
| Tide-swept channels | **M** | Based on local data |
| A stalked jellyfish (2 species) | **M** | Based on local data; to be confirmed by LG |
| ***Tean non-disturbance area*** | | |
| Subtidal macrophyte-dominated sediment | **M** | |
| Subtidal mixed sediments | **M** | |
| Moderate energy infralittoral rock | **M** | |
| Intertidal coarse sediment | **M** | |
| Moderate energy intertidal rock | **M** | Based on local data |

| | | |
|---|---|---|
| Fragile sponge & anthozoan communities on subtidal rocky habitats | **M** | Based on local data |
| Intertidal under boulder communities | **M** | Based on local data |
| Seagrass beds | **M** | |
| Tide-swept channels | **M** | Based on local data |
| A stalked jellyfish (2 species) to be confirmed by LG | **M** | Based on local data |
| **Hanjague to Deep Ledge** | | |
| Subtidal mixed sediments | **M** | |
| Subtidal sand | **M** | |
| Low energy circalittoral rock | **M** | |
| Low energy infralittoral rock | **M** | |
| Moderate energy circalittoral rock | **M** | |
| Moderate energy infralittoral rock | **M** | |
| High energy infralittoral rock | **M** | Based on local data |
| High energy circalittoral rock | **M** | Based on local data |
| High energy intertidal rock | **M** | |
| Intertidal coarse sediment | **M** | |
| Moderate energy intertidal rock | **M** | Based on local data |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | **M** | |
| Intertidal under boulder communities | **M** | Based on local data |
| *Amphianthus dohrnii* | **M** | |
| *Eunicella verrucosa* | **M** | |
| *Leptopsammia pruvoti* | **M** | Based on local data |
| *Palinurus elephas* | **R** | |

| | | |
|---|---|---|
| **Higher Town** | | |
| Subtidal macrophyte-dominated sediment | **M** | |
| Subtidal mixed sediments | **M** | |
| Subtidal sand | **M** | |
| Moderate energy infralittoral rock | **M** | |
| High energy infralittoral rock | **M** | |
| Intertidal coarse sediment | **M** | |
| Intertidal mud | **M** | Check the accuracy of this record |
| Intertidal mud and muddy sand | **M** | Check the accuracy of this record |
| Low energy intertidal rock | **M** | |
| Moderate energy intertidal rock | **M** | Based on local data |
| Intertidal under boulder communities | **M** | |
| Peat & clay exposures | **M** | |
| Seagrass beds | **M** | |
| Tide-swept channels | **M** | Based on local data |
| *Haliclystus auricula* | **M** | |
| *Lucernariopsis campanulata* | **M** | |
| **Lower Ridge to Innisvouls** | | |
| Subtidal macrophyte-dominated sediment | **M** | |
| Subtidal mixed sediments | **M** | |
| Subtidal sand | **M** | |
| High energy circalittoral rock | **M** | |
| High energy infralittoral rock | **M** | |
| Moderate energy circalittoral rock | **M** | |
| Moderate energy infralittoral rock | **M** | |
| Moderate energy intertidal rock | **M** | Based on local data |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | **M** | |
| Tide-swept channels | **M** | Based on local data |
| Seagrass beds | **M** | To be checked |
| *Eunicella verrucosa* | **M** | |
| *Amphianthis dohrnii* | **M** | Based on local data |
| *Palinurus elephas* | **R** | Based on local data |

| | | |
|---|---|---|
| *Leptopsammia pruvoti* | **M** | |
| **Peninnis to Dry Ledge** | | |
| Subtidal coarse sediment | **M** | |
| Subtidal mixed sediments | **M** | |
| Subtidal sand | **M** | |
| Moderate energy circalittoral rock | **M** | |
| Moderate energy infralittoral rock | **M** | |
| High energy infralittoral rock | **M** | |
| High energy circalittoral rock | **M** | Based on local data |
| Intertidal coarse sediment | **M** | |
| Intertidal mixed sediments | **M** | |
| Intertidal mud | **M** | Check the accuracy of this record |
| Intertidal sand and muddy sand | **M** | '' |
| Low energy intertidal rock | **M** | |
| Moderate energy intertidal rock | **M** | |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | **M** | |
| Intertidal under boulder communities | **M** | |
| *Amphianthus dohrnii* | **M** | |
| *Arctica islandica* | **M** | |
| *Eunicella verrucosa* | **M** | |
| *Gobius cobitis* | **M** | |
| *Haliclystus auricula* | **M** | |
| *Leptopsammia pruvoti* | **M** | |
| *Lucernariopsis campanulata* | **M** | |
| *Palinurus elephas* | **R** | |
| *Paludinella littorina* | **M** | |
| **Plympton to Spanish Ledge** | | |
| Subtidal sand | **M** | |
| Moderate energy circalittoral rock | **M** | |
| Moderate energy infralittoral rock | **M** | |
| High energy circalittoral rock | **M** | Based on local data |
| High energy infralittoral rock | | |
| High energy intertidal rock | **M** | |
| Intertidal sand and muddy sand | **M** | |
| Moderate energy intertidal rock | **M** | |
| Fragile sponge & | **M** | |

| | | |
|---|---|---|
| anthozoan communities on subtidal rocky habitats | | |
| Intertidal under boulder communities | **M** | |
| *Amphianthus dohrnii* | **M** | |
| *Eunicella verrucosa* | **M** | |
| *Leptopsammia pruvoti* | **M** | |
| *Palinurus elephas* | **R** | Based on local data |
| **Smith Sound Tide Swept Channel** | | |
| Subtidal sand | **M** | |
| Moderate energy circalittoral rock | **M** | Based on local data |
| Moderate energy infralittoral rock | **M** | |
| High energy infralittoral rock | **M** | |
| High energy intertidal rock | **M** | |
| Moderate energy intertidal rock | **M** | Based on local data |
| Tide-swept channels | **M** | Based on local data |
| *Cruoria cruoriaeformis* | **M** | |
| *Eunicella verrucosa* | **M** | Based on local data |
| *Amphianthus dohrnii* | **M** | Based on local data |
| *Gobius cobitis* | **M** | |
| *Lucernariopsis cruxmelitensis* | **M** | |
| *Palinurus elephas* | **R** | Based on local data |
| ***Smith Sound non-disturbance area*** | | |
| High energy infralittoral rock | **M** | |
| Moderate energy infralittoral rock | **M** | |
| Moderate energy intertidal rock | **M** | Based on local data |
| Tide-swept channels | **M** | Based on local data |
| *Eunicella verrucosa* | **M** | Based on local data |
| *Amphianthus dohrnii* | **M** | Based on local data |
| *Palinurus elephas* | **R** | Based on local data |
| **Gilstone to Gorregan** | | |
| High energy infralittoral rock | **M** | |
| High energy circalittoral rock | **M** | Based on local data |
| Moderate energy circalittoral rock | **M** | |
| Moderate energy infralittoral rock | **M** | |
| Subtidal coarse sediment | **M** | |
| High energy intertidal rock | **M** | Based on local data |
| Moderate energy intertidal rock | **M** | Based on local data |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | **M** | |
| Tide-swept channels | **M** | Based on local data |

| | | |
|---|---|---|
| *Eunicella verrucosa* | **M** | |
| *Amphianthus dohrnii* | **M** | |
| *Gobius cobitis* | **M** | |
| *Haliclystus auricula* | **M** | |
| *Palinurus elephas* | **R** | |
| *Paludinella littorina* | **M** | |
| **Bishop to Crim** | | |
| High energy circalittoral rock | **M** | |
| High energy infralittoral rock | **M** | " |
| Moderate energy circalittoral rock | **M** | " |
| Moderate energy infralittoral rock | **M** | " |
| Subtidal coarse sediment | **M** | |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | **M** | Based on local data |
| *Eunicella verrucosa* | **M** | |
| *Palinurus elephas* | **R** | Based on local data |

*Table II.2.6c Conservation Objectives: summary list for recommended reference areas. All features listed have a draft conservation objective of 'recover to reference condition', irrespective of which column they are listed in. For features in the right-hand column, the site does not meet minimum viable size guidelines listed in the ENG, so these features are only counted towards the representation figures in section II.2.9 if explicitly stated (see footnotes and site reports).*

| Site name | Viable size guidelines met | Viable size guidelines not met |
|---|---|---|
| **The Canyons** | | |
| *Broad-scale habitats* | Deep-sea bed | |
| *FOCI habitats* | Cold water coral reefs | |
| **Greater Haig Fras** | | |
| *Broad-scale habitats* | Moderate energy circalittoral rock<br>Subtidal coarse sediment<br>Subtidal mixed sediments<br>Subtidal mud<br>Subtidal sand | |
| **Celtic Deep** | | |
| *Broad-scale habitats* | | Subtidal mud |
| *FOCI habitats* | Mud Habitats in Deep Water | |
| **South Dorset** | | |
| *Broad-scale habitats* | High energy circalittoral rock<br>Moderate energy circalittoral rock<br>Subtidal mixed sediments | |
| *FOCI habitats* | Subtidal chalk | |
| **South-East of Portland Bill** | | |
| *Broad-scale habitats* | | High energy circalittoral rock |
| *FOCI habitats* | Blue Mussel beds | |
| **The Fleet** | | |
| *Broad-scale habitats* | | Subtidal coarse sediment<br>**Coastal saltmarshes and saline reedbeds**[1]<br>**Intertidal coarse sediments**[1]<br>**Intertidal mud**[1]<br>**Intertidal sediments dominated by aquatic angiosperms**[1] |
| *FOCI habitats* | | Seagrass Beds |
| *FOCI species* | | *Tenellia adspersa*[2] |
| **Lyme Bay** | | |
| *Broad-scale habitats* | | High energy infralittoral rock<br>Subtidal mixed sediments<br>**Intertidal coarse sediments**[1] |
| *FOCI habitats* | *Sabellaria alveolata* reefs | |
| *FOCI species* | *Haliclystus auricula*<br>*Padina pavonica* | |

| | | |
|---|---|---|
| **Erme Estuary** | | |
| *Broad-scale habitats* | | Low energy infralittoral rock<br>Subtidal mud<br>**Coastal saltmarshes and saline reedbeds**[1]<br>**Intertidal mixed sediments**[1]<br>**Intertidal mud**[1] |
| *FOCI habitats* | Sheltered muddy gravels | |
| *FOCI species* | *Anguilla anguilla*[3] | |
| **Mouth of the Yealm** | | |
| *Broad-scale habitats* | | **High energy intertidal rock**[1]<br>**Intertidal coarse sediments**[1]<br>**Moderate energy intertidal rock**[1] |
| *FOCI habitats* | | Estuarine rocky habitats[4]<br>Seagrass Beds[4] |
| **The Fal**[5] | | |
| *Broad-scale habitats* | | Subtidal coarse sediment<br>Subtidal macrophyte-dominated sediment<br>Subtidal sand<br>**Intertidal coarse sediments**[1]<br>**Low energy intertidal rock**[1] |
| *FOCI habitats* | Maërl Beds<br>Seagrass Beds | |
| *FOCI species* | *Lithothamnion corallioides*<br>*Ostrea edulis*<br>*Phymatolithon calcareum*<br>*Anguilla anguilla*[3] | *Cruoria cruoriaeformis*<br>*Gobius couchi*<br>*Grateloupia montagnei* |
| **Swanpool**[6] | | |
| *FOCI species* | | *Victorella pavida* |
| **Cape Bank** | | |
| *Broad-scale habitats* | High energy circalittoral rock<br>High energy infralittoral rock<br>Moderate energy circalittoral rock<br>Moderate energy infralittoral rock<br>Subtidal coarse sediment | |
| *FOCI species* | *Palinurus elephas*[7]<br>*Eunicella verrucosa*[7] | |

| **Lundy** | | |
|---|---|---|
| *Broad-scale habitats* | | Moderate energy circalittoral rock<br>Moderate energy infralittoral rock<br>Subtidal coarse sediment<br>Subtidal sand |
| *FOCI habitats* | Fragile sponge & anthozoan communities on subtidal rocky habitats | Mud Habitats in Deep Water |
| *FOCI species* | *Amphianthus dohrnii*<br>*Leptopsammia pruvoti*<br>*Phymatolithon calcareum* | *Eunicella verrucosa*<br>*Palinurus elephas* |

[1] None of the intertidal broad-scale habitats are represented in recommended reference areas that meet the minimum size guideline (5km), but recent SAP and SNCB advice has recognised that the size guideline is not realistic for intertidal habitats. The intertidal habitats have been highlighted in green to show that we are considering these to be represented within the current set of recommended reference areas, i.e. they are counted towards the figures presented in section II.2.9, unlike the other features listed in the right hand column.

[2] The minimum patch size for *Tenellia adspersa* is the whole feature (to be interpreted as meaning the whole lagoon that the species is found in). As this recommended reference area does not cover the entire Fleet Lagoon, this site does not meet the minimum size guidance for this species. However, the site is included as a replicate for this species in section II.2.9.

[3] The European eel is included in draft conservation objectives for estuarine sites on the basis of evidence provided by the Environment Agency (see appendix 8). No minimum viable patch size for the species is included in the ENG. Both sites with eel listed have been counted as replicates in section II.2.9.

[4] The Mouth of the Yealm recommended reference area only covers the intertidal. Estuarine rocky habitats and seagrass beds may be present in the intertidal, or they might only be found only in the subtidal area. If the latter is the case, the features should come off the list for this site.

[5] The Fal recommended reference area is a little smaller than the minimum size requirement of 1km for *Cruoria cruoriaeformis*, *Gobius couchi* and *Grateloupia montagnei*, and the site is not counted as a replicate for these species in section II.2.9. Enlarging this site westwards, however, would not capture more of the same habitat (maërl and seagrass beds), as the depth increases to the west – so enlarging the site to meet the minimum size guidelines would probably not provide more habitat suitable for these species.

[6] The Swanpool Lagoon in Falmouth is the only place in English waters where the trembling sea mat *Victorella pavida* has been recorded. It would need to be a reference area in order to meet the ENG. However, the site falls above the OS Boundary Line mean high water line, which is the line we use to define the limit of our study region. The site is counted as a replicate for the species in section II.2.9.

[7] There are no records in our spatial datasets of these species within the boundaries of this site, but a recent NE SAC survey (Natural England, 2010) confirmed the presence of both species on Cape Bank. We therefore assume these species are represented within this site.

### II.2.7 Summary of the contribution of existing protected areas

There are 46 relevant existing marine protected areas in the south-west region, most of which are small, coastal sites. They consist of Natura 2000 sites (Special Areas of Conservation – SACs, and Special Protection Areas for birds, SPAs) and Sites of Special Scientific Interest (SSSIs). They are shown on map FR_003.

Existing protected areas contribute significantly towards meeting the network design principles. This has been taken into account when assessing the performance of the network as a whole, especially in relation to intertidal broad-scale habitats (see section II.2.8 and charts II.2.8.a to II.2.8.d).

A national 'gap analysis' has been carried out by the SNCBs, quantifying what the existing sites contribute to the replication and adequacy targets in the ENG. The full gap analysis report for the region contains figures summarising how the existing MPAs contribute towards the adequacy and replication targets in the ENG. While we have not replicated the figures and tables here, a table describing the broad-scale habitats and FOCI protected in existing protected areas can be found in appendix 11.

Map: FR_003

Version: 6Sep11

# Existing and proposed MPAs in the south-west

This map shows existing and planned marine protected areas in the south-west. Many sites overlap, so label colours match the legend symbology. Please refer to Finding Sanctuary's final report for more detail. Datum: WGS84; Projection: UTM30N.



0 35 70 km N

FINDING SANCTUARY

Tamar Estuaries Complex
Tamar-Tavy Estuary
Lynher Estuary
Plymouth Sound Shores & Cliffs
Yealm Estuary
Erme Estuary
Plymouth Sound and Estuaries
Salcombe to Kingsbridge Estuary
Wembury Point
Prawle Point to Plymouth Sound & Eddystone

Severn Estuary
Severn Estuary
Severn Estuary/Mor Hafren
Severn Estuary/ Môr Hafren
Porlock Ridge & Saltmarsh
Berrow Dunes
Bridgwater Bay
Lundy NTZ
Lundy
Taw-Torridge Estuary

Lyme Bay designated area
Exe Estuary
Exe Estuary
Exe Estuary
Dawlish Warren
Otter Estuary
Torbay to Lyme Bay
Poole Harbour
Poole Harbour
Portland Harbour Shore
Christchurch Harbour
Poole Harbour
Chesil Beach & The Fleet
Chesil and the Fleet
Chesil Beach & the Fleet
Chesil Beach & The Fleet
Studland to Portland
Wight-Barfleur
Torbay to Lyme Bay

Hayle Estuary & Carrack Gladden
Upper Fal Estuary & Woods
Malpas Estuary
Saltern Cove
Lands End and Cape Bank
Swanpool
Rosemullion
Lower Fal & Helford Intertidal
Fal and Helford
Pool of Bryher & Popplestone Bank (Bryher)
St Martin's Sed. Shore
Isles of Scilly Complex
Isles of Scilly
Lizard Point

50°40'0"N
50°0'0"N
49°20'0"N
6°10'0"W
5°0'0"W
3°50'0"W

**Main label types used:**
SAC
SPA
SSSI
Ramsar site

Finding Sanctuary project area
Lundy no take zone

**Other existing MPAs**
SSSIs
SPA
Lyme Bay Designated Area
Ramsar sites

**Marine Natura 2000 sites**
SAC
Planned SAC (cSACs, dSACs, pSACs)

## II.2.8 ENG-related statistics for the network configuration

***Introduction***

The network-level statistics here reflect features that are protected within existing MPAs, rMCZs and rRAs, unless indicated otherwise. Where rMCZs overlap with existing protected areas, features that are already protected in the existing MPA are not counted towards the figures for the rMCZ.

We have presented statistics relating to the network design principles followed by the ENG, except for network level viability (e.g. average size, average maximum and minimum dimensions) - as we do not consider the viability principle particularly meaningful at the network level. Site-level reports (sections II.3 and II.4) map the size and dimensions of each rMCZ and recommended reference area. Recommended reference areas are included in this section where they contribute features that are otherwise not protected within the surrounding rMCZ or existing MPA.

Figures have only been reported for features named specifically in the ENG, i.e. the EUNIS level 3 broad-scale habitats and species/habitat FOCI. We have not reported figures against any measures of 'areas of additional ecological importance' (such as predictable seasonal fronts) or mobile FOCI. Instead, we are providing interactive PDF maps with this report that overlay the outlines of the network configuration over data layers describing features of additional ecological importance, and the mobile FOCI data we received from the data gathering contract MB102.

***Statistical methods***

Network statistics were calculated using ESRI ArcGIS version 9.3.1 in ETRS89/LAEA (European Terrestrial Reference System 1989 with Lambert Azimuthal Equal Area projection). As the reporting datasets were composed from multiple sources we calculated our own version of the figures in the gap analysis report. Following this, the EUNIS level 3 broad-scale habitat dataset, FOCI habitats and FOCI species datasets were split into those habitats protected in existing MPAs and those not.
Prior to calculations, two versions of the network configuration were created. One where rMCZs and rRAs were amalgamated into a single shape for generating network level statistics and one where relevant rMCZs and rRAs were copied into new feature classes for the generation of individual site statistics.

Note that the figures in the national gap analysis for existing MPAs take into account non-spatial data. For example, in the replication figures, sites are counted as a replicate whenever a given feature is listed for protection under the existing designation, even if there are no records of that feature in the national GIS data layers.

The network level statistics were generated by intersecting the broad-scale habitat, FOCI and geological data layers with the overall network shape. Pivot tables were created showing those habitats that were represented within existing MPAs and within the MCZ network. These were then used to generate tables II.2.8b, d, h, i, l and o.

The individual site statistics were generated in the same way, using feature classes that kept rMCZs separate. The pivot tables generated also included the site names, enabling the site statistical tables to be created.

The replication figures for the network level reports (II.2.8c, e, f and k) were calculated by summing the appropriate conservation objectives from tables II.2.6a and II.2.6b.

***General statistics***

Table II.2.8a shows the number of sites and the area covered within the network, split into existing MPAs, rMCZs and recommended reference areas. Existing marine protected areas consist of SACs, SPAs and SSSIs with marine components. The total area listed below only includes that which intersects the Finding Sanctuary study area.

*Table II.2.8a. General statistics for the network, all areas are in km$^2$.*

| | **Existing MPAs** | **rMCZs** | **Recommended reference areas** |
|---|---|---|---|
| Total area | 3,173.79 | 16,823.60 | 241.13[2] |
| Number of sites | 46 | 45[1] | 13 |

[1] There are 45 rMCZs, one (Isles of Scilly Sites rMCZ) consists of 11 spatially distinct areas, and three further ones consist of two spatially distinct areas (Tamar Estuary Sites, Upper Fowey and Pont Pill, and the Taw Torridge Estuary).

[2] Reference areas fall within rMCZs and existing MPAs, as such this figure should not be added to the total area protected.

The total footprint of the MPA network (MCZs, reference areas and existing protected areas) is 19,078.42 km$^2$ - 20.1% of the total area available.

***Broad-scale habitats: representativity, replication and adequacy***

The figures for broad-scale habitats within the network are presented separately for subtidal and intertidal habitats in tables II.2.8b to II.2.8c and charts II.2.8a to II.2.8d. Subtidal broad-scale habitat representativity, adequacy and replication targets are very well met by the network (tables II.2.8b and II.2.8c and charts II.2.8a and II.2.8b). Reviewing the figures calculated from the combined EUNIS level 3 habitat layer, all subtidal broad-scale habitats listed in the ENG are present in the network (table II.2.8b). Only three habitat types do not fully meet adequacy and replication targets. These are: Low energy circalittoral rock, Subtidal biogenic reefs and Deep-sea bed.

Low-energy circalittoral rock is mapped only in small patches on the combined EUNIS level 3 habitat layer. Given the coarse resolution of the modelled data, these small patches come with a degree of uncertainty, and we have not focussed on meeting any targets for this habitat.

Subtidal biogenic reefs are not represented at all in the figures presented here, as it is not found in the combined broad-scale habitat dataset. However, we have represented several FOCI habitats in the network that are considered to fall within this broad category (Ecological Network Guidance table 6, p. 38). These are cold-water coral reefs (in The Canyons rMCZ), blue mussel beds, *Sabellaria spinulosa* reefs, and *Sabellaria alveolata* reefs (table II.2.8f and II.2.8g).

The Deep-sea bed broad-scale habitat is only replicated in two sites. This habitat only occurs in one location in the far south-west (off the continental shelf break) and meeting the 'minimum 3-5 replicates' target would be artificial. No adequacy target is included in the ENG for this habitat. The SAP had previously advised that there is a case for including all of the study area beyond the shelf

break in the network, as this broad-scale habitat is so rare in southern UK waters. Some stakeholder representatives have questioned the rationale for this, as the actual extent of the shelf break and deep sea habitat is large (extending far beyond UK waters). Overall, rMCZs cover almost half of the available deep-sea bed habitat within the study region.

Stakeholder discussions around two sites led to areas within them not being counted towards broad-scale habitat targets. Within the Skerries Bank rMCZ the broad-scale habitats inside trawling corridors are not counted, and within the Bideford to Foreland Point rMCZ the area within a potential dredge channel has not been counted.

*Table II.2.8b. Subtidal broad-scale habitats represented in the network. All area figures are in km$^2$. Total area available shows the total area of habitat in the study region. Red text highlights targets that have not been met.*

| **Habitat Name** | ENG target | Total area available | Existing MPAs | rMCZs and rRAs | Total area protected |
|---|---|---|---|---|---|
| High energy infralittoral rock | 15 - 31% | 727.56 | 463.49 | 61.19 | 524.68 (72.1%) |
| Moderate energy infralittoral rock | 17 - 32% | 314.19 | 142.22 | 13.04 | 155.25 (49.4%) |
| Low energy infralittoral rock | 16 - 32% | 7.79 | 4.30 | 0.47 | 4.77 (61.2%) |
| High energy circalittoral rock | 11 - 25% | 1294.31 | 398.86 | 48.26 | 447.12 (34.5%) |
| Moderate energy circalittoral rock | 13 - 28% | 18778.99 | 744.90 | 1931.44 | 2676.34 (14.3%) |
| Low energy circalittoral rock[1] | 16 - 32% | 3.50 | 0.61 | 0 | 0.61 (17.4%) |
| Subtidal coarse sediment | 17 - 32% | 28623.73 | 54.89 | 4871.03 | 4925.92 (17.2%) |
| Subtidal sand | 15 - 30% | 33567.34 | 146.25 | 6760.47 | 6906.72 (20.6%) |
| Subtidal mud | 15 - 30% | 6295.15 | 95.37 | 1209.67 | 1305.05 (20.7%) |
| Subtidal mixed sediments | 16 - 32% | 3569.19 | 127.15 | 504.59 | 631.74 (17.7%) |
| Subtidal macrophyte-dominated sediment | No target | 20.26 | 14.70 | 1.12 | 15.82 (78.1%) |
| Subtidal biogenic reefs[2] | No target | 0 | 0 | 0 | 0 |
| Deep-sea bed | No target | 1594.84 | 0 | 782.27 | 782.27 (49.0%) |

[1] Low energy circalittoral rock has a very limited distribution in the South-west.

[2] We do not have subtidal biogenic reefs mapped as broad-scale habitats, however areas of *Sabellaria* reef and blue mussel bed have been captured as habitat FOCI.

*Table II.2.8c. Replication of subtidal broad-scale habitats. Replication refers to the number of sites within the network that contain the habitat and has been calculated from the conservation objectives derived from the vulnerability analysis and the gap analysis of existing protected areas. Red text highlights a shortfall in meeting ENG targets.*

| **Habitat Name** | Existing MPAs | rMCZs and rRAs | **Total replicates** |
|---|---|---|---|
| High energy infralittoral rock | 11 | 11 | **22** |
| Moderate energy infralittoral rock | 11 | 7 | **18** |
| Low energy infralittoral rock | 5 | 2 | **7** |
| High energy circalittoral rock | 8 | 7 | **15** |
| Moderate energy circalittoral rock | 11 | 17 | **28** |
| Low energy circalittoral rock[1] | 1 | 0 | **1** |
| Subtidal coarse sediment | 7 | 28 | **35** |
| Subtidal sand | 6 | 29 | **35** |
| Subtidal mud | 4 | 14 | **18** |
| Subtidal mixed sediments | 4 | 14 | **18** |
| Subtidal macrophyte-dominated sediment | 2 | 1 | **3** |
| Subtidal biogenic reefs[2] | 0 | 0 | **0** |
| Deep-sea bed[3] | 0 | 2 | **2** |

[1] Low energy circalittoral rock has a very limited distribution in the South-west.
[2] We do not have subtidal biogenic reefs mapped as broad-scale habitats, however areas of *Sabellaria* reef and blue mussel bed have been captured as habitat FOCI.
[3] Deep-sea bed only occurs in one part of the south-west, so the replication target cannot be met.

Charts are included that describe how the network performs against the ENG broad-scale habitat targets. Charts II.2.8a and II.2.8c show percentage figures in comparison to ENG targets. Charts II.2.8b and II.2.8d show actual areas covered, using a logarithmic scale (base 10) on the y-axis. Logarithmic scales were chosen as the area of different habitats covered vary widely and presenting these on a linear scale limit the usability of the charts. Note that the use of a log scale dictates that values less than 1 $km^2$ will not be visible and the relative distance between large and small values will be compressed.

Chart II.2.8a. Percentage of subtidal broad-scale habitat represented with lower and upper ENG adequacy targets shown. The figures are derived from those shown in table II.2.8b. There are no ENG adequacy targets for the subtidal macrophyte-dominated sediment or deep-sea bed habitats.

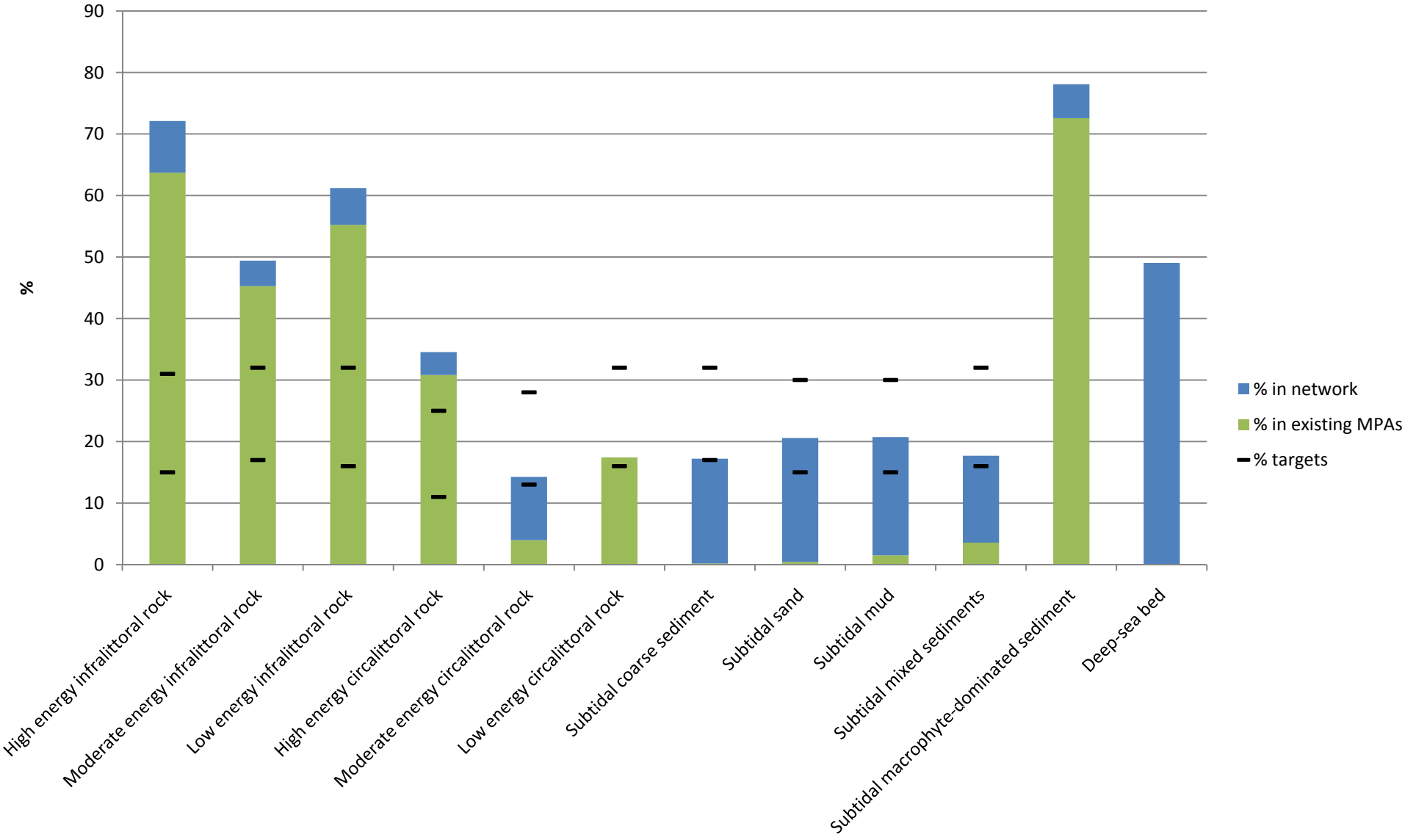
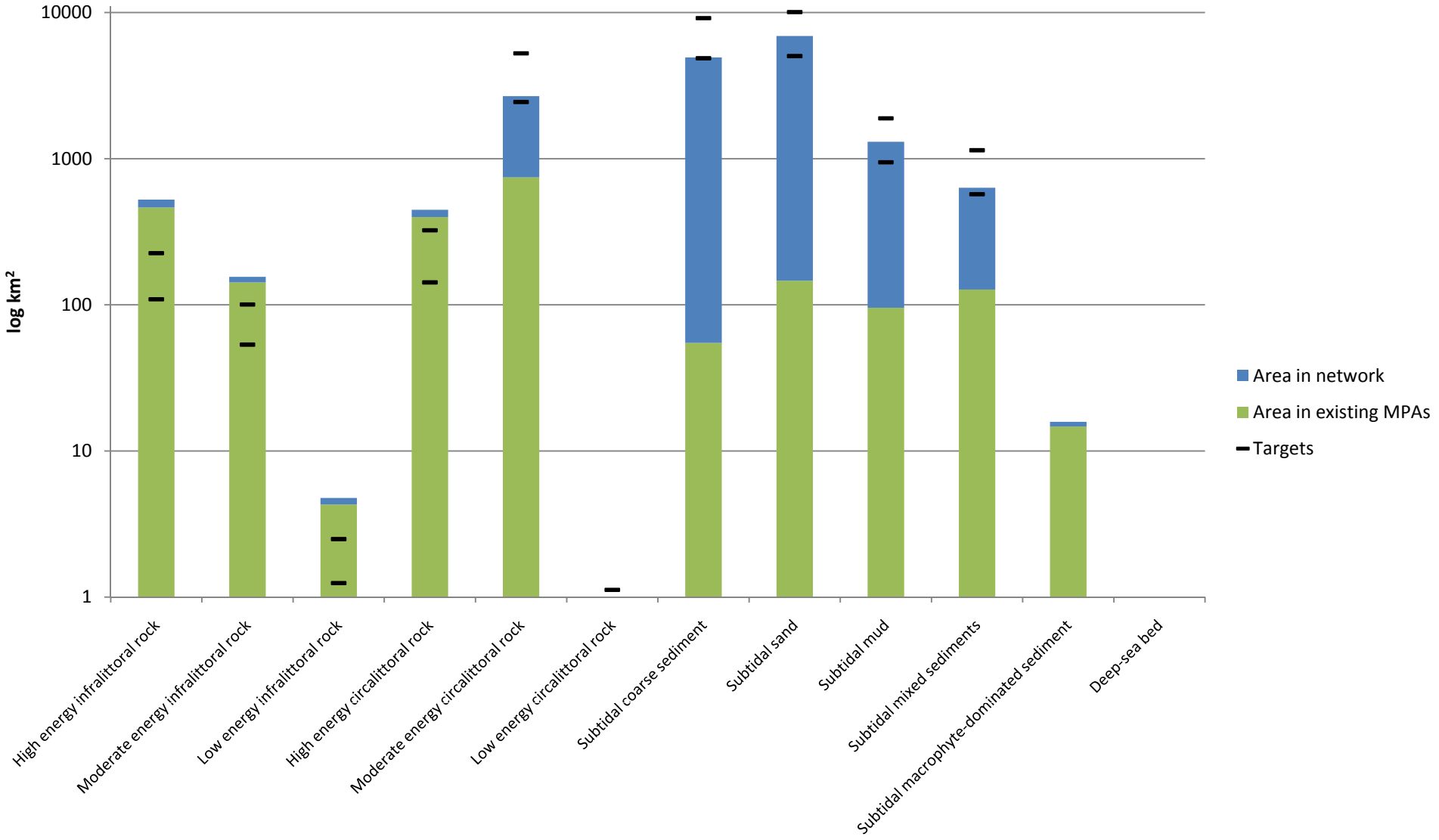


Chart II.2.8b. Area of subtidal broad-scale habitat represented with lower and upper ENG adequacy targets shown. The figures are the same as those shown in table II.2.8b. The y axis is represented as a logarithmic scale as the area of habitats represented vary significantly - as a result any areas less that 1km$^2$ are not visible. There are no ENG adequacy targets for the subtidal macrophyte-dominated sediment or deep-sea bed habitats.



Intertidal broad-scale habitat representativity is also well achieved (table II.2.8d and charts II.2.8c and II.2.8d). Eight out of ten intertidal broad-scale habitats listed in the ENG are represented in the network, using figures from the combined EUNIS level 3 habitat layer. The two habitats that are not represented are intertidal sediments dominated by aquatic angiosperms and intertidal biogenic reefs. Both consist of very small areas within the broad-scale habitat dataset and have not been priorities at this level. Instead, we focussed on the FOCI habitats that are considered to fall within these categories (Ecological Network Guidance table 6, p. 38). For intertidal sediments dominated by aquatic angiosperms we have represented the FOCI habitat seagrass beds, and for intertidal biogenic reefs we have represented *Sabellaria alveolata* reefs.

Adequacy and replication targets are also well met for intertidal broad-scale habitats (table II.2.8e). Existing protected areas contribute significantly to these targets.

*Table II.2.8d. Intertidal broad-scale habitats represented in the network. All area figures are in km$^2$. Total area available shows the total area of habitat in the study region.*

| **Habitat Name** | ENG target | Total area available | Existing MPAs | rMCZs and rRAs | Total area protected |
|---|---|---|---|---|---|
| High energy intertidal rock | 21 - 38% | 7.26 | 0.23 | 3.80 | 4.02 (55.4%) |
| Moderate energy intertidal rock | 21 - 38% | 4.94 | 0.97 | 0.88 | 1.85 (37.5%) |
| Low energy intertidal rock | 22 - 39% | 3.28 | 1.23 | 0.38 | 1.61 (49.3%) |
| Intertidal coarse sediment | 25 - 42% | 19.37 | 2.56 | 4.16 | 6.73 (34.7%) |
| Intertidal sand and muddy sand | 25 - 42% | 11.50 | 6.74 | 1.38 | 8.12 (70.6%) |
| Intertidal mud | 25 - 42% | 169.96 | 122.03 | 19.86 | 141.89 (83.5%) |
| Intertidal mixed sediments | 25 - 42% | 4.50 | 0.13 | 2.01 | 2.14 (47.6%) |
| Coastal saltmarshes and saline reedbeds[1] | No target | 3.07 | 2.55 | 0.37 | 2.93 (95.4%) |
| Intertidal sediments dominated by aquatic angiosperms | No target | 0.02 | <0.01 | <0.01 | <0.01 (0.3%) |
| Intertidal biogenic reefs | No target | 0.05 | <0.01 | 0.01 | 0.01 (15.4%) |

[1] This overlaps with the habitat 'coastal saltmarsh' which is not listed in the ENG as a Habitat of Conservation Importance, but has been included in the figures provided in the national gap analysis.

*Table II.2.8e. Replication of intertidal broad-scale habitats. Replication refers to the number of sites within the network that contain the habitat and has been calculated from the conservation objectives derived from the vulnerability analysis and the gap analysis of existing protected areas. Red text highlights a shortfall in meeting ENG targets.*

| **Habitat Name** | Existing MPAs | rMCZs and rRAs | **Total replicates** |
|---|---|---|---|
| High energy intertidal rock | 2 | 10 | **12** |
| Moderate energy intertidal rock | 5 | 13 | **18** |
| Low energy intertidal rock | 5 | 10 | **15** |
| Intertidal coarse sediment | 3 | 21 | **24** |
| Intertidal sand and muddy sand | 7 | 15 | **22** |
| Intertidal mud | 16 | 16 | **32** |
| Intertidal mixed sediments | 2 | 10 | **12** |
| Coastal saltmarshes and saline reedbeds[1] | 7 | 9 | **16** |
| Intertidal sediments dominated by aquatic angiosperms[2] | 0 | 0 | **0** |
| Intertidal biogenic reefs[2] | 0 | 1 | **1** |

[1] This overlaps with the habitat 'coastal saltmarsh' which is not listed in the ENG as a Habitat of Conservation Importance, but has been included in the figures provided in the national gap analysis.

[2] There are only very small areas of these habitats within the broad-scale habitat data layer, however seagrass beds and Sabellaria reef have been captured as habitat FOCI.

Chart II.2.8c. Percentage of intertidal broad-scale habitat represented with lower and upper ENG adequacy targets shown. The figures are derived from those shown in table II.2.8d. There are no ENG adequacy targets for the coastal saltmarshes and saline reedbeds, intertidal sediments dominated by aquatic angiosperms or intertidal biogenic reef habitats.

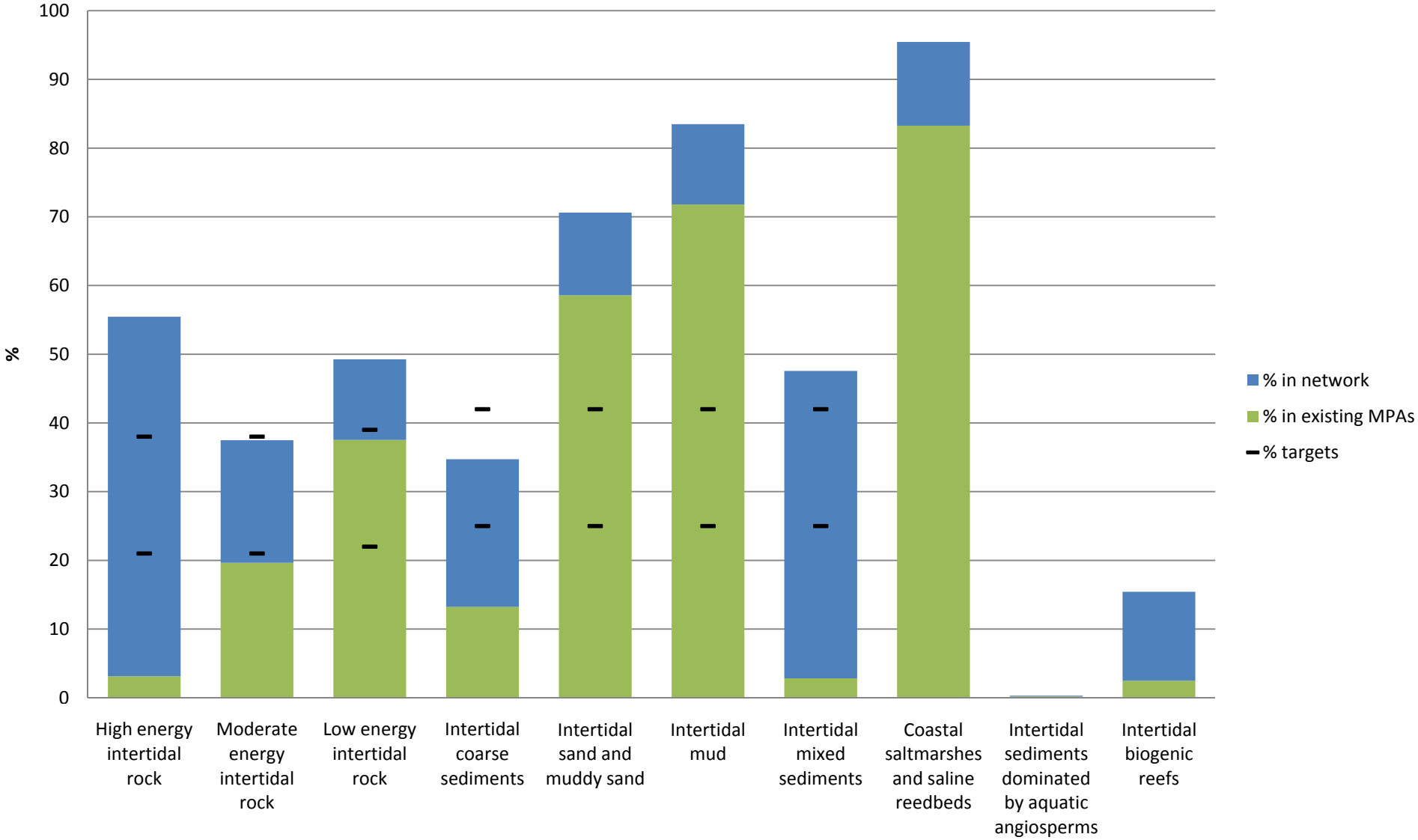
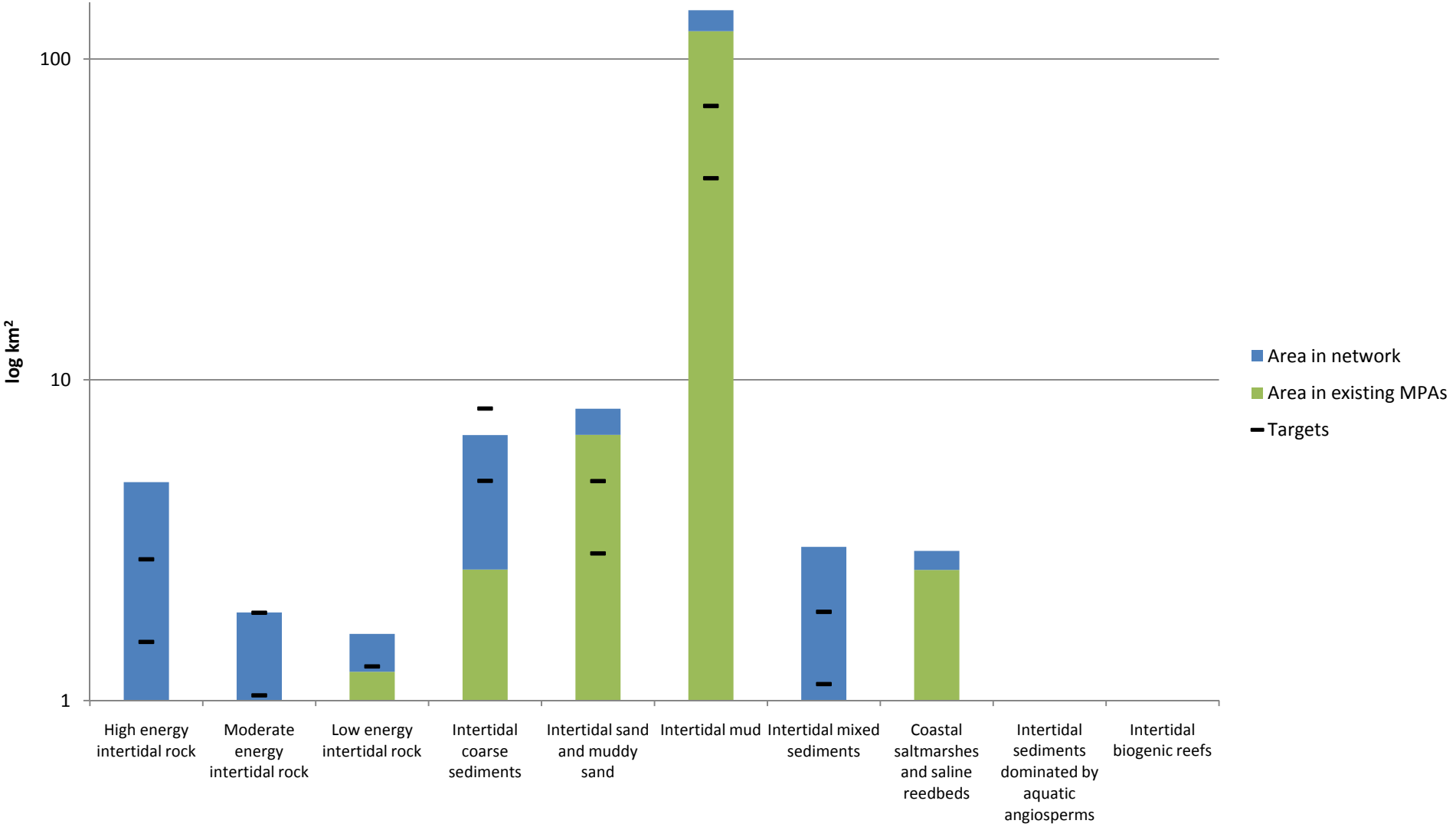


Chart II.2.8d. Area of intertidal broad-scale habitat represented with lower and upper ENG adequacy targets shown. The figures are the same as those shown in table II.2.8d. The y axis is represented as a logarithmic scale as the area of habitats represented vary significantly - as a result any areas less that 1km$^2$ are not visible. There are no ENG adequacy targets for the coastal saltmarshes and saline reedbeds, intertidal sediments dominated by aquatic angiosperms or intertidal biogenic reef habitats.



***Habitats of Conservation Importance: representativity, replication and adequacy***

The network has achieved good replication of Habitats of Conservation Importance, within the confines of the data available and the distribution of the species in the region. Table II.2.8f shows which FOCI habitats are represented in the network, and how many sites they are replicated within. The table accounts for existing protected areas (data from the gap analysis) as well as rMCZs. Note that most of the FOCI habitat data dates from 1980 onwards.

At first glance, table II.2.8f shows that thirteen out of twenty two Habitats of Conservation Importance do not meet the targets for replication within the network, and of those thirteen, seven are not represented at all. However, closer inspection of the data shows that for many of these habitats, we have either no records or only a very limited number of records within the region. Bearing in mind these limitations, the network performs well for habitat FOCI. The bullet points below provide summary comments for those habitats which do not meet their targets.

- Cold-water coral reefs are only recorded in one small patch, within The Canyons rMCZ.

- There are no records of Coral Gardens, Deep-sea sponge aggregations, File shell beds, Littoral Chalk communities, Horse Mussel (*Modiolus modiolus*) beds, Sea pen and burrowing megafauna communities, or Native oyster (*Ostrea edulis*) beds in our region within the datasets we have available. Whilst we have no records describing Native oyster beds, we are aware of this feature existing in the Fal, where we have many records of the species (which are protected by the existing SAC).

- We only have six records of Peat and clay exposures in our datasets. One single record is located in Poole Harbour (outside the SSSI/SPA boundaries), three records are located in the Salcombe to Kingsbridge estuaries SSSI (but the habitat is not listed in the designation), and two in the Isles of Scilly SAC (again, the habitat is not protected by the existing designation). One of the Isles of Scilly records is located within one of the rMCZs in that area and one replicated is counted within the network.

- Our data only shows Ross worm (*Sabellaria spinulosa*) reefs along the coast of Dorset. Several records are located within the Studland to Portland dSAC (but the habitat is not listed as protected). An older version of the gap analysis listed this habitat as protected within the Lyme Bay to Torbay cSAC, though this has been removed in the most recent edition.

- We have a very limited dataset for subtidal chalk. The habitat is listed as protected within the Plymouth Sound and Estuaries SAC (though we have no records for the habitat in this area). We have additional records for the habitat located within the South Dorset rMCZ, and there is one single additional record located within the Lyme Bay portion of the Lyme Bay and Torbay cSAC (where it is not listed as a protected feature).

- The only location where we have records of tide-swept channels is the Isles of Scilly, where we have records of the BAP habitat from recent Seasearch data (provided through Cornwall Wildlife Trust), and additional polygon data for the habitat mapped by the Isles of Scilly Local Group. Tide-swept channels are considered protected within the Isles of Scilly SAC, though this record was omitted from the official gap analysis. As such, there is one replicated counted in the network.

- Maërl beds have a limited distribution within the study area. The best examples of maërl beds in the area are found in the Fal and Helford estuaries where they are listed in the Fal and Helford SAC. We have also captured additional records in The Manacles rMCZ.

The interactive PDF supplied with this report allows the exploration of the exact location of the FOCI records referred to above.

Note that subtidal sands and gravels was not treated as a FOCI habitat during the planning process - it was not included on FOCI maps or reported against during stakeholder meetings. This is a very broad category and we were confident that the network would meet the requirements for this habitat through focussing on the relevant broad-scale habitat targets. There are three conservation objectives written for this habitat, resulting in three replicates in table II.2.8f, however the habitat is found in more than half of the rMCZs and covered by conservation objectives for the relevant broad-scale habitats.

The gap analysis provided us with replication figures (within existing MPAs) for three additional habitats, which although they are not on the FOCI list in the ENG, are considered of wider conservation importance. These are coastal saltmarsh, intertidal mudflats, and saline lagoons. We have included these figures here for context, and consider the coastal saltmarsh figures particularly relevant, given that the ENG stipulates replication targets for a broad-scale habitat called 'Coastal saltmarshes and saline reedbeds'. Although the target for this broad-scale habitat has been met, the replication figures for coastal saltmarsh in table II.2.4g might better reflect how well the feature is represented within the network (Ecological Network Guidance table 6, p. 38).

For additional information we have included a table showing the number of records of habitat FOCI represented within rMCZs (table II.2.8h). Records of habitats protected within existing MPAs have not been counted and the total number of 'unprotected' records is shown for reference. Table II.2.8i shows the equivalent for area figures calculated using polygonal FOCI habitat data and the percentage of total unprotected habitat captured.

Table II.2.8j shows all the point records for habitat FOCI in the region (including those representing habitats that are already protected within existing MPAs), broken down by decade. Polygonal data is not included in this table, as all habitat polygon data we have falls in the 2000s bracket.

*Table II.2.8f. Replication of FOCI habitats (the number of rMCZs and existing protected areas within which records of FOCI habitats are located). Habitats highlighted in green have met their replication target.*

| Habitat name | Total replicates | Replicates in eMPAs | Pre 1980 replicates |
|---|---|---|---|
| Blue mussel beds[1] | 3 | 1 | |
| Cold-water coral reefs[1] | 1 | | |
| Coral gardens[2] | | | |
| Deep-sea sponge aggregations[2] | | | |
| Estuarine Rocky Habitats | 7 | 3 | |
| File shell beds[2] | | | |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | 14 | 11 | |
| Intertidal underboulder communities | 8 | 4 | |
| Littoral chalk communities[2] | | | |
| Maërl Beds | 2 | 1 | |
| Horse Mussel *(Modiolus modiulus)* beds[2] | | | |
| Mud Habitats in Deep Water[1] | 2 | | |
| Sea-pen and burrowing megafauna communities[2] | 1 | 1 | |
| Native oyster (*Ostrea edulis*) beds[2] | | | |
| Peat and clay exposures[1] | 1 | | |
| Honeycomb worm (*Sabellaria alveolata*) reefs | 4 | 1 | |
| Ross worm (*Sabellaria spinulosa*) reefs[1] | | | |
| Seagrass beds | 8 | 4 | |
| Sheltered muddy gravels | 4 | 2 | |
| Subtidal chalk[1] | 2 | 1 | |
| Subtidal sands and gravels[3] | 3 | 3 | |
| Tide-swept channels[1] | 1 | 1 | |

[1] Habitats with a limited distribution, a very small number of records or where all locations are already protected and further work to incorporate them into the network is not needed, not possible or not appropriate.
[2] There are no records for this habitat in the Finding Sanctuary area.
[3] Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

*Table II.2.8g. Non-ENG habitats within the gap analysis.*

| Habitat | Replicates in existing MPAs |
|---|---|
| Coastal saltmarsh | 9 |
| Intertidal mudflats | 6 |
| Saline lagoons | 2 |

*Table II.2.8h. Number of point records of Habitats of Conservation Importance in the south-west region and within the network. This table reflects the number of currently 'unprotected' records, not those that are protected within existing MPAs.*

| Habitat | Total unprotected records | | Records captured in network | |
|---|---|---|---|---|
| | All | Pre-80 | All | Pre-80 |
| Blue mussel beds | 25 | 1 | 1 | |
| Cold-water coral reefs | | | | |
| Coral gardens | | | | |
| Deep-sea sponge aggregations | | | | |
| Estuarine Rocky Habitats | 76 | | 23 | |
| File Shell beds | | | | |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | 5 | 1 | 1 | 1 |
| Intertidal underboulder communities | 26 | | 8 | |
| Littoral chalk communities | | | | |
| Maërl Beds | 97 | | | |
| Horse mussel (*Modiolus modiulus*) beds | | | | |
| Mud Habitats in Deep Water | 40 | 14 | 29 | 14 |
| Sea-pens and burrowing megafauna communities | | | | |
| Native oyster (*Ostrea edulis*) beds | | | | |
| Peat and clay exposures | 9 | | 1 | |
| Honeycomb worm (*Sabellaria alveolata*) reefs | 21 | 1 | 3 | |
| Ross worm (*Sabellaria spinulosa*) reefs | 12 | | | |
| Seagrass beds | 65 | | 9 | |
| Sheltered muddy gravels | | | | |
| Subtidal chalk | 6 | | 4 | |
| Subtidal sands and gravels | | | | |
| Tide-swept channels | 11 | | 7 | |

*Table II.2.8i. Area of Habitats of Conservation Importance in the south-west region and within the network. This table reflects the number of currently 'unprotected' records, not those that are protected within existing MPAs.*

| Habitat | Total unprotected area | Area captured in network |
|---|---|---|
| Blue mussel beds | 0.12 | |
| Cold-water coral reefs | | |
| Coral gardens | | |
| Deep-sea sponge aggregations | | |
| Estuarine Rocky Habitats | 0.01 | <0.01 (15.5%) |
| File Shell beds | | |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | | |
| Intertidal underboulder communities | <0.01 | |
| Littoral chalk communities | | |
| Maërl Beds | 9.38 | 1.01 (10.8%) |
| Horse mussel (*Modiolus modiulus*) beds | | |
| Mud Habitats in Deep Water | 103.56 | 101.42 (97.9%) |
| Sea-pens and burrowing megafauna communities | | |
| Native oyster (*Ostrea edulis*) beds | | |
| Peat and clay exposures | | |
| Honeycomb worm (*Sabellaria alveolata*) reefs | 0.02 | |
| Ross worm (*Sabellaria spinulosa*) reefs | 0.95 | |
| Seagrass beds | 16.33 | 1.83 (11.2%) |
| Sheltered muddy gravels | 0.49 | 0.07 (14.8%) |
| Subtidal chalk | | |
| Subtidal sands and gravels[1] | 58267.48 | 10665.43 (18.3%) |
| Tide-swept channels | | |

[1] Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

*Table II.2.8j. Age distribution of habitat FOCI records. This table includes those records that fall within the protection afforded by existing marine protected areas. Only habitats for which we have point data have been included on this table. Note that all habitat polygon data falls in the 2000s bracket and is not included.*

| Habitat | 1970s | 1980s | 1990s | 2000s | Total |
|---|---|---|---|---|---|
| Blue Mussel Beds | 1 | 22 | 3 | 1 | 27 |
| Estuarine Rocky Habitats | 4 | 67 | 10 | | 81 |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | 7 | 5 | 28 | 99 | 139 |
| Intertidal underboulder communities | | 26 | 23 | 22 | 71 |
| Maërl Beds | | 32 | 9 | 106 | 147 |
| Mud Habitats in Deep Water | 14 | 6 | 6 | 14 | 40 |
| Peat and Clay Exposures | | 3 | | 6 | 9 |
| Honeycomb worm (*Sabellaria alveolata*) reefs | 1 | 34 | 11 | | 46 |
| Ross worm (*Sabellaria spinulosa*) reefs | | | 5 | 7 | 12 |
| Seagrass beds | 1 | 61 | 16 | 521 | 599 |
| Subtidal chalk | | | 2 | 4 | 6 |
| Tide-swept channels | | | | 11 | 11 |

***Species of Conservation Importance: representativity, replication and adequacy***

The network has achieved good replication of Species of Conservation Importance, within the confines of the data available and the distribution of the species in the region. Table II.2.8k shows which benthic FOCI species are represented in the MPA network, and how many sites they are replicated within. For the existing protected areas, the gap analysis stated the number of replicate sites for each species, but no indication was given of the age of records within those sites.

At first glance, table II.2.8k shows that 16 out of 29 benthic Species of Conservation Importance do not meet the targets for replication within the network, and of those 16, 4 are not represented at all. Closer inspection of the data shows that for many of these species, we only have a very limited number of records in the region, or no records at all. Bearing in mind these limitations, the network performs well for benthic species FOCI. The bullet points below provide summary comments for those species which do not meet their targets.

- The lagoon sandworm *Armandia cirrhosa* is only recorded in one location in our region, the Fleet lagoon, where it is already has protected status through the SAC designation.

- The fan mussel *Atrina pectinata* has been recorded in several locations along the far south-west coastline of our study region, including in the Isles of Scilly. The majority of the records are historic (including from as far back as the 19$^{th}$ Century). More recent records are located within estuaries, bays and inlets in south Cornwall, and most of these locations already have protected status (though the fan mussel is not listed as protected within them). This includes records within the Fal and Helford SAC, the Eddystone portion of the Prawle Point to Plymouth Sound & Eddystone cSAC, the Plymouth Sound SAC, and the Salcombe to Kingsbridge Estuaries SSSI.

- We have a single record of Defonlin's lagoon snail *Caecum armoricum* in the Fleet lagoon, where the species is already protected through the SAC designation.

- There are only 2 locations in the south-west with records of the burgundy maërl paint weed *Cruoria cruoriaeformis*. There is one replicate in the network, within the Isles of Scilly rMCZ. It has also been recorded in the Fal/Helford SAC, where it is not listed as a protected species, however it is associated with maërl beds, and maërl beds are a listed protected feature within the SAC. Given the maërl is protected, we might consider the Fal/Helford as another replicate.

- There are only five records of *Gammarus insensibilis*, the lagoon sand shrimp. Three of these are off Chesil Beach and, as this is a lagoon species, can be considered a positional error - they are likely to fall within the Fleet lagoon, where the SAC already affords protection for this species. The other records are inside Poole Harbour and outside Christchurch harbour.

- There are only two single records of the amphipod shrimp *Gitanopsis bispinosa* in our region, both of which might be considered serendipitous records. These have not influenced the location of rMCZs.

- There are a limited number of records of Couch's goby, *Gobius couchi*. These include two SACs, though the species is not specifically listed as protected (the Fleet lagoon and the Fal/Helford). There is a single replicate from a single record in the Poole Rocks rMCZ.

- Grateloup's little-lobed weed (*Grateloupia montagnei*), like the burgundy maërl paint weed, is a red seaweed associated with maërl beds. Most of the records in the south-west are located in the Fal/Helford, where the maërl beds are protected by the SAC designation. This indicates that the associated red seaweeds are unlikely to need additional protection (even though they are not specifically listed as protected species in the SAC). In addition to the Fal/Helford records, the only other records in the region are located in the Isles of Scilly (two records within one of the rMCZs), and a single record in the estuary near Salcombe.

- We have limited records of *Hippocampus guttulatus* in the study area, however The Seahorse Trust has indicated that these species are more widespread than our point data indicates.

- *Lithothamnion corallioides* and *Phymatolithon calcareum* are species of maërl. We have focussed on meeting the targets for the FOCI habitat, maërl beds, than for the individual maërl species. Outside the Fal/Helford SAC (where the species is already protected), the other location where a large number of records of *L. corallioides* are present is in Poole Bay. A small number of additional individual records exist.

- The largest concentration of records of the stalked jellyfish *Lucernariopsis campanulata* are found in the Isles of Scilly, where records are located in three of the rMCZs. Additional records are in Mounts Bay, which is a rMCZ. The other records are within the Fal/Helford SAC, Plymouth Sound SAC, an additional three records off North Cornwall, and one record in Whitsand Bay.

- We only have four records of *Nematostella vectensis* (the starlet sea anemone), two in Poole harbour and one in the Fleet lagoon (the species is protected in both locations through existing designations), and an additional record just north of Weston-super-Mare.

- The gooseneck barnacle, *Pollicipes pollicipes,* has only been recorded in a single location in the region - the Land's End peninsula (i.e. the coastline between Newlyn and St. Ives), including at Land's End itself and Tater Du.

- The lagoon sea slug *Tenellia adspersa* has only been recorded in the Fleet, where it is protected through the SAC designation (an additional record exists in our data, off Chesil Beach, but as this is a lagoon species, this is likely to be a positional error).

- The trembling sea mat *Victorella pavida* has only been recorded in one location in the south-west - Swanpool lagoon in Falmouth. This is already a SSSI, which protects the species. The lagoon lies above the mean high water line (OS Boundary Line) used to delimit our study region, so technically it might be seen to lie outside our planning area.

The interactive PDF supplied to the SAP along with this report allows the exploration of the location of the FOCI records referred to above.

For additional information we have included a table showing the number of records of benthic species represented within rMCZs (table II.2.8l). Records of species protected within existing MPAs have not been counted and the total number of 'unprotected' records is shown for reference. The table also includes figures calculated from the seahorse distribution polygon data that was mapped by the Seahorse Trust - (this is in a separate row, labelled *Hippocampus sp.*). Refer to Appendix 8 for details of data sources.

Table II.2.8m shows all the point records for benthic species FOCI in the region (including those representing species that are already protected within existing MPAs), broken down by decade. All polygonal information we hold for species distribution dates from 2000 and later, and is not included in this table. It consists of the Seahorse Trust polygon data referred to above, and additional localised polygon data for the distribution of *Eunicella verrucosa* off Dorset (the *E. verrucosa* polygon data does not overlap with any rMCZs).

Table II.2.8n shows replication figures for mobile FOCI. Information sources are found in the footnotes. We have not considered the mobile FOCI data provided through the national data layers contract (MB102), as the scale is too coarse to be meaningful.

Note that during meetings and in stakeholder communications the spiny lobster, *Palinurus elephas*, was often referred to as crawfish.

*Table II.2.8k. Number of replicates of Species of Conservation Importance in the south-west region and within the network. This table reflects the number of currently 'unprotected' records, not those that are protected within existing MPAs. Green rows indicate that ENG targets have been met for that species. Note that the gap analysis did not include information on the age of records within existing protected areas.*

| Species name | Total replicates | Replicates in eMPAs | Pre 1980 replicates |
|---|---|---|---|
| *Alkmaria romijni* (Tentacled lagoon-worm)[1] | 3 | 1 | |
| *Amphianthus dohrnii* (Sea-fan Anemone) | 3 | 1 | |
| *Arctica islandica* (Ocean quahog) | 4 | | 1 |
| *Armandia cirrhosa* (Lagoon Sandworm)[1] | 1 | 1 | |
| *Atrina pectinata* (Fan Mussel)[1] | | | |
| *Caecum armoricum* (Defolin's lagoon snail)[1] | 1 | 1 | |
| *Cruoria cruoriaeformis* (Burgundy maërl paint weed)[1,2] | 1 | | |
| *Eunicella verrucosa* (Pink Sea-fan) | 18 | 8 | |
| *Gammarus insensibilis* (Lagoon sand shrimp)[1] | 1 | 1 | |
| *Gitanopsis bispinosa* (Amphipod shrimp)[1] | | | |
| *Gobius cobitis* (Giant Goby) | 4 | | |
| *Gobius couchi* (Couch's goby)[1] | 1 | | |
| *Grateloupia montagnei* (Grateloup's little-lobed weed)[1,2] | | | |
| *Haliclystus auricula* (stalked jellyfish) | 5 | | 2 |
| *Hippocampus guttulatus* (Long snouted seahorse) | 1 | | |
| *Hippocampus hippocampus* (Short snouted seahorse) | 3 | | |
| *Leptopsammia pruvoti* (Sunset Cup Coral) | 6 | 5 | |
| *Lithothamnion corallioides* (Coral Maërl)[1,3] | 1 | 1 | |
| *Lucernariopsis campanulata* (stalked jellyfish)[1] | 2 | | 1 |
| *Lucernariopsis cruxmelitensis* (stalked jellyfish) | 3 | | 1 |
| *Nematostella vectensis* (Starlet sea anemone)[1] | 2 | 2 | |
| *Ostrea edulis* (Native Oyster) | 7 | 1 | 2 |
| *Padina pavonica* (Peacock's tail) | 3 | | 2 |
| *Palinurus elephas* (Spiny Lobster) | 6 | | 1 |
| *Paludinella littorina* (Sea snail) | 7 | 1 | 2 |
| *Phymatolithon calcareum* (Common Maërl)[3] | 1 | 1 | |
| *Pollicipes pollicipes* (Gooseneck Barnacle)[1] | | | |
| *Tenellia adspersa* (Lagoon sea slug)[1] | 1 | 1 | |
| *Victorella pavida* (Trembling sea mat)[1] | 1 | | |

[1] Species with a very small number of records or where all locations are already protected and further work to incorporate them into the network is not needed, not possible or not appropriate.
[2] Red seaweeds that are associated with maërl beds.
[3] Coral maërl - included in habitat FOCI.

*Table II.2.8l. Number of records of Species of Conservation Importance in the south-west region and within the network. This table reflects the number of currently 'unprotected' records, not those that are protected within existing MPAs.*

| Species name | Total unprotected records | | Records captured in network | |
|---|---|---|---|---|
| | All | Pre-80 | All | Pre-80 |
| *Alkmaria romijni* | 16 | | 1 | |
| *Amphianthus dohrnii* | 52 | 1 | 17 | 1 |
| *Arctica islandica* | 59 | 20 | 9 | 2 |
| *Armandia cirrhosa* | 1 | | | |
| *Atrina pectinata* | 64 | 26 | | |
| *Caecum armoricum* | | | | |
| *Cruoria cruoriaeformis* | 8 | 2 | 3 | |
| *Eunicella verrucosa* | 353 | 51 | 119 | 19 |
| *Gammarus insensibilis* | 2 | | | |
| *Gitanopsis bispinosa* | 2 | | | |
| *Gobius cobitis* | 88 | 23 | 14 | 5 |
| *Gobius couchi* | 14 | 3 | 2 | |
| *Grateloupia montagnei* | 8 | | 3 | |
| *Haliclystus auricula* | 127 | 60 | 23 | 9 |
| *Hippocampus guttulatus* | 23 | 9 | 2 | |
| *Hippocampus hippocampus* | 10 | | 2 | |
| *Hippocampus sp.*[1] | 386.39 $km^2$ | | | |
| *Leptopsammia pruvoti* | 6 | | 2 | |
| *Lithothamnion corallioides* | 17 | 2 | | |
| *Lucernariopsis campanulata* | 31 | 18 | 7 | 5 |
| *Lucernariopsis cruxmelitensis* | 9 | 5 | 3 | 1 |
| *Nematostella vectensis* | 2 | | | |
| *Ostrea edulis* | 191 | 30 | 22 | 6 |
| *Padina pavonica* | 35 | 27 | 8 | 6 |
| *Palinurus elephas* | 73 | 32 | 25 | 8 |
| *Paludinella littorina* | 44 | 8 | 7 | 2 |
| *Phymatolithon calcareum* | 150 | 10 | 1 | |
| *Pollicipes pollicipes* | 11 | 2 | | |
| *Tenellia adspersa* | 1 | | | |
| *Victorella pavida*[2] | 102 | | 102 | |

[1] Polygon data for the distribution of seahorses in the south-west as provided by the Seahorse Trust (local knowledge).

[2] Records of *Victorella pavida* technically fall outside of the study area. As Swanpool is the only location in the UK where this species is found, it has been considered as a suitable location for a recommended reference area.

*Table II.2.8m. Age distribution of non-mobile species FOCI records. This table includes those records that fall within the protection afforded by existing marine protected areas. Note that all species polygon data falls in the '2000s' bracket and is not included.*

| Benthic Species of Conservation Importance | 18th Century | 19th Century | 1900s | 1910s | 1920s | 1930s | 1940s | 1950s | 1960s | 1970s | 1980s | 1990s | 2000s | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Alkmaria romijni* | | | | | | | | | | | 12 | 4 | | 16 |
| *Amphianthus dohrnii* | | | | | | | | | 1 | | 3 | 5 | 44 | 53 |
| *Arctica islandica* | 1 | 6 | 2 | 1 | | | 2 | 1 | 2 | 5 | 12 | 12 | 15 | 59 |
| *Armandia cirrhosa* | | | | | | | | | | | | 3 | | 3 |
| *Atrina pectinata* | | 15 | 10 | 1 | | | | | | 1 | 2 | 18 | 18 | 65 |
| *Caecum armoricum* | | | | | | | | | | | 1 | | | 1 |
| *Cruoria cruoriaeformis* | | | | | | | | | | 2 | 6 | | | 8 |
| *Eunicella verrucosa* | | 4 | 4 | | 1 | 1 | | | 28 | 82 | 91 | 115 | 649 | 975 |
| *Gammarus insensibilis* | | | | | | 2 | | | | | 2 | | 1 | 5 |
| *Gitanopsis bispinosa* | | | | | | | | | | | | 2 | | 2 |
| *Gobius cobitis* | | | 2 | | | | | 10 | 2 | 9 | 8 | 52 | 5 | 88 |
| *Gobius couchi* | | | | | | | | | 2 | 1 | 6 | 2 | 3 | 14 |
| *Grateloupia montagnei* | | | | | | | | | | | 8 | | | 8 |
| *Haliclystus auricula* | | 1 | 5 | | | | | 3 | 9 | 42 | 30 | 15 | 22 | 127 |
| *Hippocampus guttulatus* | | 1 | 1 | | 1 | 1 | | 1 | 4 | 1 | 2 | 7 | 5 | 24 |
| *Hippocampus hippocampus* | | | | | | | | | | | 1 | | 10 | 11 |
| *Leptopsammia pruvoti* | | | | | | | | | | 1 | 13 | 5 | 57 | 76 |
| *Lithothamnion corallioides* | | | | | | | | | 2 | 3 | 27 | 4 | 11 | 47 |
| *Lucernariopsis campanulata* | | | 3 | | | | | | 8 | 7 | 7 | 1 | 5 | 31 |
| *Lucernariopsis cruxmelitensis* | | | | | | | | | 1 | 4 | 1 | 1 | 2 | 9 |
| *Nematostella vectensis* | | | | | | | | | | | 4 | 1 | | 5 |
| *Ostrea edulis* | | 15 | 4 | | 12 | | 4 | 7 | 10 | 27 | 113 | 65 | 134 | 391 |
| *Padina pavonica* | | 4 | 3 | | 1 | | | | 5 | 14 | | 3 | 5 | 35 |
| *Palinurus elephas* | | 1 | 4 | 2 | | | | 5 | 11 | 9 | 12 | 3 | 26 | 73 |
| *Paludinella littorina* | | 1 | 2 | 2 | | | | | 2 | 2 | 1 | 10 | 25 | 45 |
| *Phymatolithon calcareum* | | 1 | 2 | | | | | 1 | 11 | 10 | 31 | 7 | 142 | 205 |
| *Pollicipes pollicipes* | | 2 | | | | | | | | | 3 | | 6 | 11 |
| *Tenellia adspersa* | | | | | | | | | | | | 1 | 1 | 2 |
| *Victorella pavida* | | | | | | | | | | | | 102 | | 102 |

*Table II.2.8n. Replication of mobile Species of Conservation Importance. These figures have been calculated from the conservation objectives developed during the vulnerability assessment process.*

| Mobile Species of Conservation Importance | Replicates |
|---|---|
| *Osmerus eperlanus (*Smelt)[1] | 1 |
| *Anguilla anguilla (European eel)*[2] | 10 |
| *Raja undulata* (Undulate ray)[3] | 1 |

[1] Environment Agency surveys have found smelt in the Tamar Estuary.

[2] Information supplied by the Environment Agency indicates that migratory species including eel are common to all of the estuaries along the south coast of Cornwall and Devon.

[3] A recent report from the Shark trust indicates that Studland Bay is a breeding area for undulate ray (Richardson, 2011).

***Geological and geomorphological features***

The ENG lists geological and geomorphological features of importance, as well as coastal Geological Conservation Review (GCR) sites, which should be considered for MCZ designation.
The geological datasets have not been a driver in our planning process. Nevertheless, all three geological and geomorphological features of importance that fall within our region are represented within the network, one of them in full (table II.2.8o).

*Table II.2.8o. Geological and geomorphological features of interest.*

| Feature | Total area available ($km^2$) | Area within rMCZs ($km^2$) |
|---|---|---|
| Celtic Sea relict sandbanks | 1308.38 | 550.53 (42.1%) |
| Haig Fras rock complex | 74.73 | 74.73 (100%) |
| Portland Deep | 15.85 | 8.72 (55.0%) |

When our planning process started, no geographical boundary data existed for the GCR sites listed in the ENG. As this only became available late in the process, GCR sites were not considered during the stakeholder meetings. Nevertheless, the network intersects with the following coastal Geological Conservation Review (GCR) sites: Axmouth to Lyme Regis Undercliffs, Eastern Isles, Northam Burrows, Rame Head & Whitsand Bay, Slapton Ley/Hallsands to Beesands, Tean.

***Connectivity***

In order to provide a visual representation of how the network is performing against the ENG connectivity criteria, we have presented a series of five maps (FR_004 to FR_008) showing 20km and 40km buffers (representing 40km and 80km connectivity) around each of the EUNIS level 2 habitats found within the rMCZs and existing marine protected areas. We have not included a connectivity buffer map for the EUNIS level 2 habitat 'Deep sea', as this habitat is only found beyond the shelf break, and the entire patch that occurs within our region would fall within the 40km buffer.

FR_004 and FR_005 represent the EUNIS level 2 habitats intertidal rock (shown in green) and intertidal sediment (shown in orange). Where these habitats exist in an MCZ or existing MPA they are highlighted in a brighter version of that habitats colour. At this scale it is difficult to see these coastal habitats, so we have enlarged them slightly to aid visibility (this hasn't affected the calculation of the buffers). The habitats highlighted in FR_006, FR_007 and FR_008 are easier to see and have not been enlarged to the same degree.

Map: FR_004

Version: 02Sep11

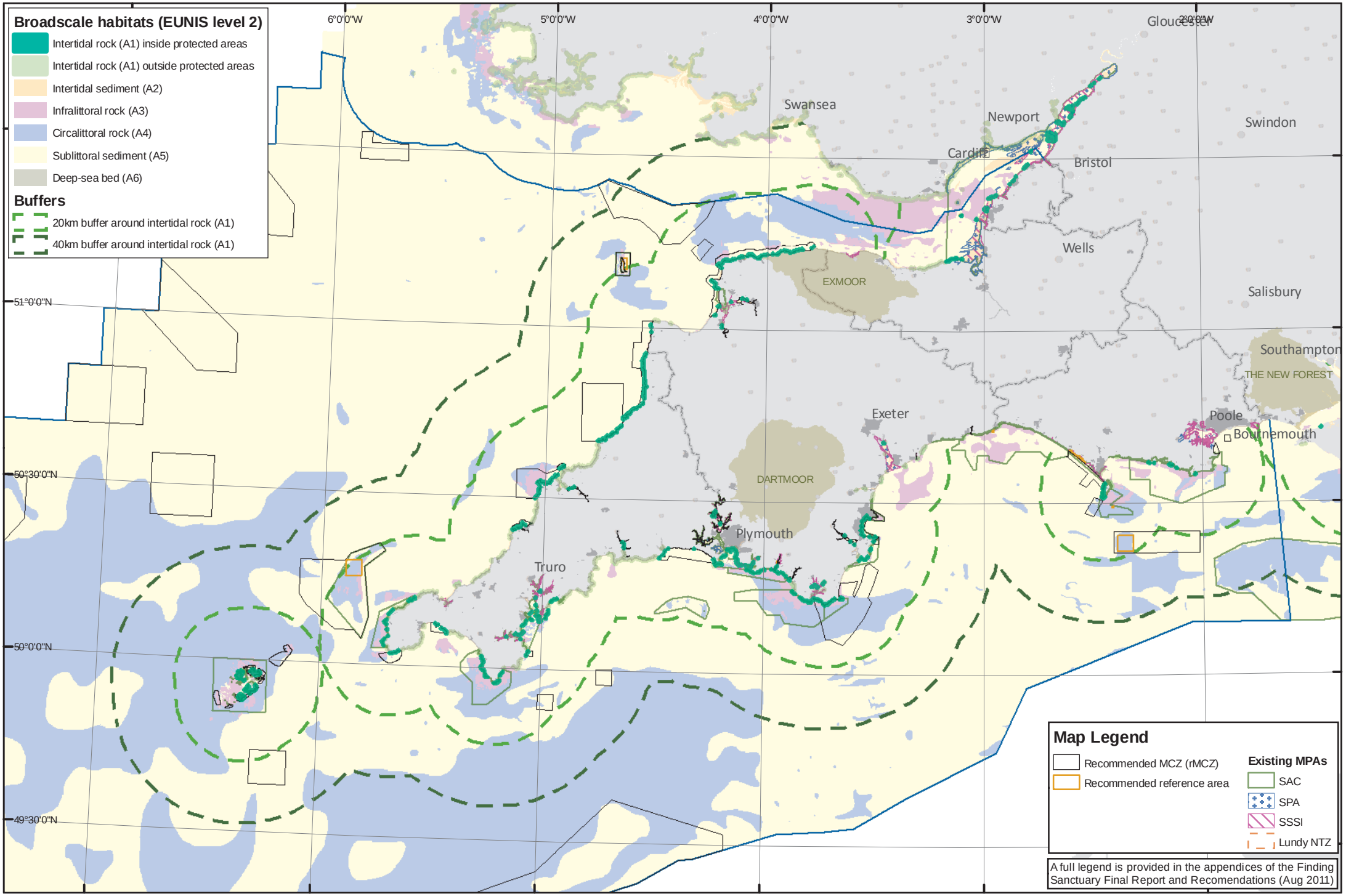
# Network connectivity - intertidal rock (A1)

Map showing 20 and 40 km buffers (representing 40km and 80km connectivity) around all of the EUNIS level 2 habitat intertidal rock that is covered within pMCZs and existing MPAs. Datum: WGS84; Projection: UTM30N.



0 35 70 km N

FINDING SANCTUARY




A full legend is provided in the appendices of the Finding Sanctuary Final Report and Recomendations (Aug 2011)

Map: FR_005

Version: 02Sep11

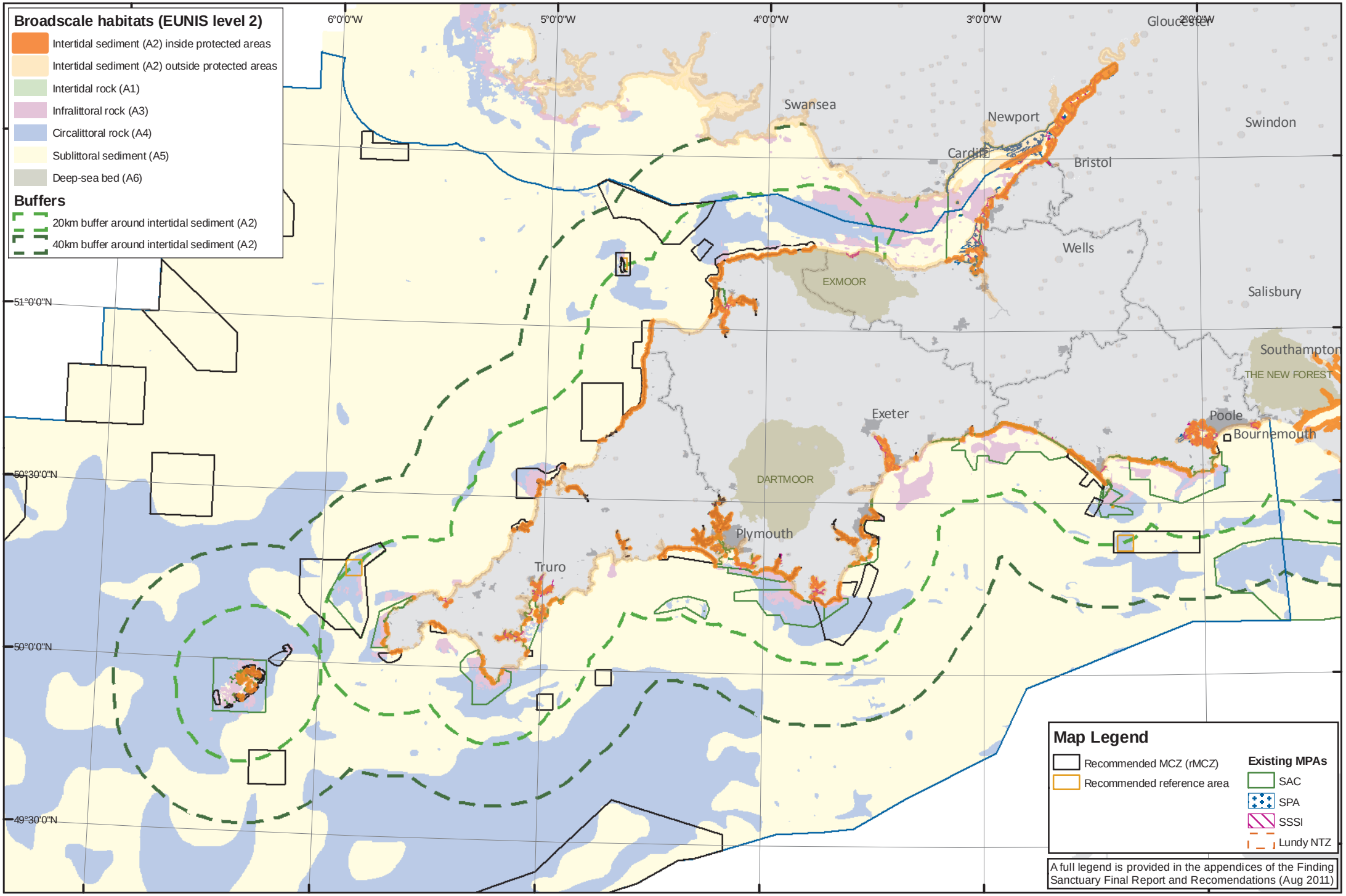
# Network connectivity - intertidal sediment

Map showing 20 and 40 km buffers (representing 40km and 80km connectivity) around all of the EUNIS level 2 habitat intertidal sediment that is covered within pMCZs and existing MPAs. Datum: WGS84; Projection: UTM30N.



0 35 70 km N

FINDING SANCTUARY




A full legend is provided in the appendices of the Finding Sanctuary Final Report and Recomendations (Aug 2011)

Map: FR_006

Version: 02Sep11

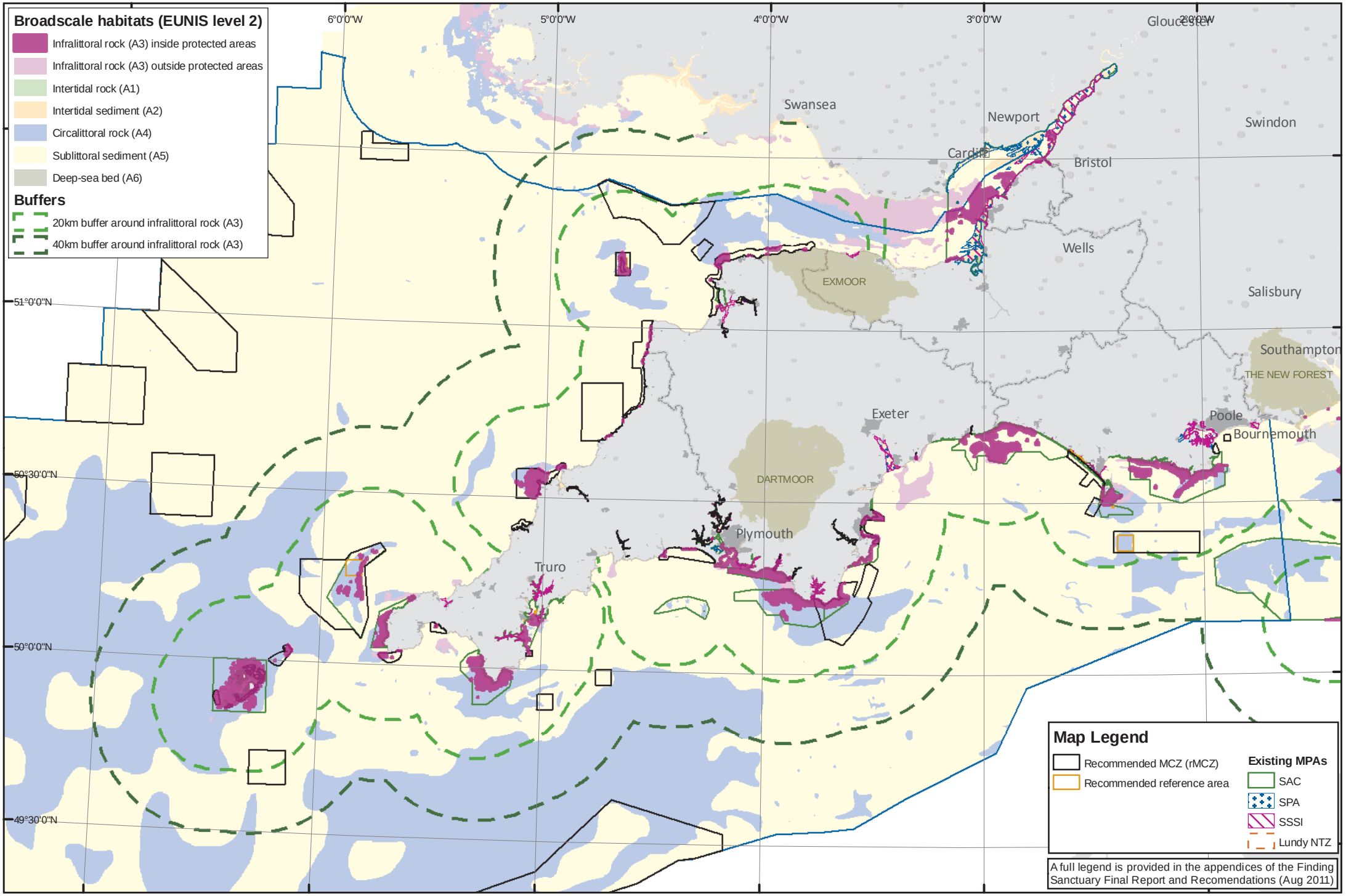
# Network connectivity - infralittoral rock

Map showing 20 and 40 km buffers (representing 40km and 80km connectivity) around all of the EUNIS level 2 habitat infralittoral rock that is covered within pMCZs and existing MPAs. Datum: WGS84; Projection: UTM30N.



0 35 70 km N

FINDING SANCTUARY




A full legend is provided in the appendices of the Finding Sanctuary Final Report and Recomendations (Aug 2011)

Map: FR_007

Version: 02Sep11

# Network connectivity - circalittoral rock

Map showing 20 and 40 km buffers (representing 40km and 80km connectivity) around all of the EUNIS level 2 habitat circalittoral rock that is covered within pMCZs and existing MPAs. Datum: WGS84; Projection: UTM30N.



0 50 100 km N

FINDING SANCTUARY

## Broadscale habitats (EUNIS level 2)

- Circalittoral rock (A4) inside protected areas
- Circalittoral rock (A4) outside protected areas
- Intertidal rock (A1)
- Intertidal sediment (A2)
- Infralittoral rock (A3)
- Sublittoral sediment (A5)
- Deep-sea bed (A6)

## Buffers

- 20km buffer around circalittoral rock (A4)
- 40km buffer around circalittoral rock (A4)

8°0'0"W 7°0'0"W 6°0'0"W 5°0'0"W 4°0'0"W 3°0'0"W 2°0'0"W

50°30'0"N 50°0'0"N 49°30'0"N 49°0'0"N 48°30'0"N 48°0'0"N

Gloucester Swansea Newport Cardiff Bristol Swindon Wells EXMOOR Salisbury THE NEW FOREST Exeter Poole Bournemouth DARTMOOR Plymouth Truro Brest

## Map Legend

- Recommended MCZ (rMCZ)
- Recommended reference area

**Existing MPAs**

- SAC
- SPA
- SSSI
- Lundy NTZ

A full legend is provided in the appendices of the Finding Sanctuary Final Report and Recomendations (Aug 2011)

Map: FR_008

Version: 02Sep11

# Network connectivity - sublittoral sediment

Map showing 20 and 40 km buffers (representing 40km and 80km connectivity) around all of the EUNIS level 2 habitat sublittoral sediment that is covered within pMCZs and existing MPAs. Datum: WGS84; Projection: UTM30N.



0 50 100 km

N

FINDING SANCTUARY

## Broadscale habitats (EUNIS level 2)

- Sublittoral sediment (A5) inside protected areas
- Sublittoral sediment (A5) outside protected areas
- Intertidal rock (A1)
- Intertidal sediment (A2)
- Infralittoral rock (A3)
- Circalittoral rock (A4)
- Deep-sea bed (A6)

## Buffers

- 20km buffer around sublittoral sediment (A5)
- 40km buffer around sublittoral sediment (A5)

8°0'0"W 7°0'0"W 6°0'0"W 5°0'0"W 4°0'0"W 3°0'0"W 2°0'0"W

50°30'0"N 50°0'0"N 49°30'0"N 49°0'0"N 48°30'0"N 48°0'0"N

Gloucester Swansea Newport Swindon Cardiff Bristol Wells EXMOOR Salisbury THE NEW FOREST Exeter Poole Bournemouth DARTMOOR Plymouth Truro Brest

## Map Legend

- Recommended MCZ (rMCZ)
- Recommended reference area

**Existing MPAs**

- SAC
- SPA
- SSSI
- Lundy NTZ

A full legend is provided in the appendices of the Finding Sanctuary Final Report and Recomendations (Aug 2011)

***Areas of additional ecological importance***

The third progress report indicated some of the difficulties in applying the ENG guidelines for areas of additional importance. Nevertheless, many of the sites within the network configuration occur in these areas.

The network includes 10 rMCZs with estuaries: The Axe, Otter, Dart, Devon Avon, Erme, Tamar Estuary sites, Upper Fowey and Pont Pill, Newquay and the Gannel, the Camel, and the Taw Torridge Estuary. Estuaries are of additional ecological importance because of their high levels of productivity and ecological function as spawning and nursery areas. The set included in the network represents a range of sizes and types of estuary (including rias and bar-built estuaries).

In the offshore, the network includes several sites that intersect areas of higher than average observed bird densities, frontal activity (indicative of high pelagic productivity), and topographic interest features : the Celtic Deep, East of Celtic Deep, Western Channel, Greater Haig Fras and Canyons rMCZs are of note. Further inshore, the South of Falmouth and South-East of Falmouth rMCZs coincide with an area of higher than average pelagic productivity.

Many of the rMCZs, especially in the inshore, also coincide with areas of higher than average benthic biodiversity, both compared against a national and a regional average.

A biophysical interactive PDF is provided alongside this report which allows visual assessment of the overlaps between the sites in the current network and areas of high benthic biodiversity, high pelagic interest and seasonal thermal fronts.

## II.2.9 Recommended reference areas summary

The ENG stipulates that each listed broad-scale habitat and FOCI needs to be represented within a reference area, with additional guidelines describing minimum reference area or feature patch sizes:

- Broad-scale habitats need to be represented in reference areas with a minimum dimension of 5km, although the patch of habitat can be smaller. The Working Group considered it unrealistic to have reference areas of this dimension close to the shoreline and since the publication of the ENG, both the SAP and SNCBs have advised that intertidal broad-scale habitats can be represented in smaller reference areas. This has resulted in a preference for finding larger recommended reference areas away from the coastline to represent subtidal broad-scale habitats, and smaller areas nearer the coast to represent FOCI.
- FOCI each have their own minimum viable size guidelines - a minimum patch size of each feature needs to be represented in a reference area (refer to tables 7 and 8 in the ENG).

Because most of our FOCI data consists of point samples, we do not know what patch sizes are present where. In order to do our best to develop reference areas that meet the viability criterion for FOCI, we have instead ensured that (as far as possible) the size of the reference area is big enough to contain the minimum patch size for a feature.

The conservation objectives for all ENG features within the boundaries of a recommended reference area are, by default, 'recover to reference condition'. Within reference areas, management of human activities will apply within the whole site, not to individual features (see the draft reference

area guidance document[18]). All ENG features present in a site should be included on the conservation objectives list, even if the minimum size guidelines are not met for all of them. As an example, most of the small inshore recommended reference areas contain subtidal broad-scale habitats. These will have conservation objectives, though if they are smaller than the 5km size guideline they won't contribute to the ENG replication target. Table II.2.6c shows the viable ENG-listed seafloor features contained within each of the recommended reference areas.

Table II.2.9a shows that our current set of reference areas represent 9 subtidal broad-scale habitats, 8 intertidal broad-scale habitats, 9 FOCI habitats and 10 FOCI species. If the ENG were followed to the letter, only the first column would count towards these figures. However, given the acknowledgement that the 5km guideline for intertidal broad-scale habitats is unrealistic, the 8 intertidal broad-scale habitats in the second column are also counted. Tables II.2.9a to II.2.9d contain more detailed descriptions on a feature-by-feature basis.

The only three subtidal broad-scale habitats not represented in the current set of recommended reference areas are low energy infralittoral and circalittoral rock (both of which have a very limited distribution), and subtidal macrophyte-dominated sediment (which we can assume is adequately represented at the FOCI level, by having represented seagrass beds and maërl beds). The only two intertidal broad-scale habitats not represented are intertidal sand and muddy sand, and intertidal biogenic reefs (table II.2.9b). The latter can be assumed to be represented through intertidal *Sabellaria alveolata* reefs in the Lyme Bay recommended reference area.

Of the FOCI habitats present in the study region, 9 are represented in the set of recommended reference areas, whilst 5 are not represented (table II.2.9c). There are no records of the remaining 6 habitats in the Finding Sanctuary area.

Of the 29 FOCI species on the ENG list, 10 are represented in the set of recommended reference areas (table II.2.9d). An additional three (the red seaweeds *Grateloupia montagnei* and *Cruoria cruoriaeformis,* and Couch's goby *Gobius couchi*) are present in the Fal recommended reference area, which is slightly smaller than the minimum size requirement of 1km. Enlarging this site westwards would probably not provide more habitat suitable for these species (maërl and seagrass beds), as the depth increases to the west. The lagoon sea slug *Tenellia adspersa* has been recorded in The Fleet recommended reference area, but as the site only covers part of the lagoon, it has not been counted.

Conservation objectives for the features listed in reference areas are found in tables II.2.6a to II.2.6c. Only one of the mobile FOCI, European eel (*Anguilla anguilla*) is found within recommended reference areas - there are replicates in the Fal rRA and the Erme rRA.

[18] http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

*Table* II.2.9a. *Replication of subtidal broad-scale habitats within the current set of recommended reference areas. Red text highlights targets that have not been met.*

| Habitat | Minimum viable patch size | Replicates in recommended RAs |
|---|---|---|
| High energy infralittoral rock | 5 km | 1 |
| Moderate energy infralittoral rock | 5 km | 1 |
| Low energy infralittoral rock | 5 km | |
| High energy circalittoral rock | 5 km | 2 |
| Moderate energy circalittoral rock | 5 km | 3 |
| Low energy circalittoral rock | 5 km | |
| Subtidal coarse sediment | 5 km | 2 |
| Subtidal sand | 5 km | 1 |
| Subtidal mud | 5 km | 1 |
| Subtidal mixed sediments | 5 km | 2 |
| Subtidal macrophyte-dominated sediment | 5 km | |
| Deep-sea bed | 5 km | 1 |

*Table* II.2.9b. *Replication of intertidal broad-scale habitats within the current set of recommended reference areas. Red text highlights targets that have not been met.*

| Habitat | Minimum viable patch size[1] | Replicates in recommended RAs |
|---|---|---|
| High energy intertidal rock | 5 km | 1 |
| Moderate energy intertidal rock | 5 km | 1 |
| Low energy intertidal rock | 5 km | 1 |
| Intertidal coarse sediments | 5 km | 4 |
| Intertidal sand and muddy sand | 5 km | |
| Intertidal mud | 5 km | 2 |
| Intertidal mixed sediments | 5 km | 1 |
| Coastal saltmarshes and saline reedbeds | 5 km | 2 |
| Intertidal sediments dominated by aquatic angiosperms | 5 km | 1 |
| Intertidal biogenic reefs[2] | 5 km | |

[1] Intertidal broad-scale habitats present in sites that are smaller than the minimum have been counted as represented – see main text for explanation.

[2] Intertidal biogenic reefs can be assumed to be represented through intertidal *Sabellaria alveolata* reefs in the Lyme Bay recommended reference area.

*Table* II.2.9c. *Replication of FOCI habitats within the current set of recommended reference areas. Red text highlights targets that have not been met.*

| Habitat | Minimum viable patch size | Replicates in recommended RAs |
|---|---|---|
| Blue Mussel beds | 0.5 km | 1 |
| Cold-water coral reefs | Whole feature | 1 |
| Coral gardens[1] | None given | |
| Deep-sea sponge aggregations[1] | 5 km | |
| Estuarine rocky habitats | 0.5 km | |
| File shell beds[1] | 0.5 | |
| Fragile sponge & anthozoan communities on subtidal rocky habitats | 0.5 km | 1[2] |
| Intertidal underboulder communities | 0.5 km | |
| Littoral chalk communities[1] | 1 km | |
| Maërl Beds | 0.5 km | 1 |
| Modiolus modiolus beds[1] | 0.5 km | |
| Mud Habitats in Deep Water | 1 km | 1 |
| Sea-pen and burrowing megafauna communities | 1 km | |
| Ostrea edulis beds[1] | 0.5 km | |
| Peat and clay exposures | 0.5 km | |
| *Sabellaria alveolata* reefs | 0.5 km | 1 |
| *Sabellaria spinulosa* reefs | 0.5 km | |
| Seagrass Beds | 0.5 km | 1 |
| Sheltered muddy gravels | 0.5 km | 1 |
| Subtidal chalk | 0.5 km | 1 |

[1] There are no records for this habitat in the Finding Sanctuary area, so this feature has been greyed out.
[2] The replicate for this feature is from records prior to 1980.

*Table* II.2.9d. *Replication of FOCI species within the current set of recommended reference areas. Red text highlights targets that have not been met.*

| Species | Common name | Min. patch size | Replicates |
|---|---|---|---|
| *Alkmaria romijni* | Tentacled lagoon-worm | 0.5 | |
| *Amphianthus dohrnii* | Sea-fan Anemone | 0.5 | 1 |
| *Arctica islandica* | Ocean quahog | 0.5 | |
| *Armandia cirrhosa* | Lagoon Sandworm | Whole feature | |
| *Atrina pectinata* | Fan Mussel | 0.5 | |
| *Caecum armoricum* | Defolin's lagoon snail | 1 | |
| *Cruoria cruoriaeformis*[1] | Burgundy maërl paint weed | 1 | |
| *Eunicella verrucosa* | Pink Sea-fan | 5 | 1 |
| *Gammarus insensibilis* | Lagoon sand shrimp | 0.5 | |
| *Gitanopsis bispinosa* | Amphipod shrimp | 1 | |
| *Gobius cobitis* | Giant Goby | 1 | |
| *Gobius couchi*[2] | Couch's goby | 1 | |
| *Grateloupia montagnei*[3] | Grateloup's little-lobed weed | 1 | |
| *Haliclystus auricula* | Stalked jellyfish | 0.5 | 1 |
| *Hippocampus guttulatus* | Long snouted seahorse | 0.5 | |
| *Hippocampus hippocampus* | Short snouted seahorse | 0.5 | |
| *Leptopsammia pruvoti* | Sunset Cup Coral | 0.5 | 1 |
| *Lithothamnion corallioides* | Coral Maërl | 0.5 | 1 |
| *Lucernariopsis campanulata* | Stalked jellyfish | 1 | |
| *Lucernariopsis cruxmelitensis* | Stalked jellyfish | 1 | |
| *Nematostella vectensis* | Starlet sea anemone | 0.5 | |
| *Ostrea edulis* | Native Oyster | 0.5 | 1 |
| *Padina pavonica* | Peacock's tail | 0.5 | 1 |
| *Palinurus elephas*[4] | Spiny Lobster | 5 | 1 |
| *Paludinella littorina* | Sea snail | 1 | |
| *Phymatolithon calcareum* | Common Maërl | 0.5 | 2 |
| *Pollicipes pollicipes* | Gooseneck Barnacle | 0.5 | |
| *Tenellia adspersa*[5] | Lagoon sea slug | Whole feature | 1 |
| *Victorella pavida*[6] | Trembling sea mat | Whole feature | 1 |

[1, 2, 3] Species is present within the Fal recommended reference area, which has a minimum dimension of 0.71km, slightly less than the required 1km.

[4] This is counted as represented within Cape Bank recommended reference area. Although our spatial data does not show this species within the site, Natural England have recently recorded it (Natural England, 2010).

[5] This feature is represented in the Fleet Lagoon, only part of which is covered by a reference area.

[6] *Victorella pavida* is only found within Swanpool Lagoon in Falmouth. This may not be considered an area within the project boundary, as it lies above the OS Boundary Line mean high water line.