

Evaluating sites sampled in June 2010 within Cardigan Bay with respect to ‘stony reef’ criteria outlined by JNCC.

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Background and rationale

Cardigan Bay was selected as an SAC primarily on the grounds of the resident local bottlenose dolphin populations (*Tursiops truncatus*). Seabed habitats (i.e. stony reefs, sandbanks and submerged caves) were not the primary focus of the designation but were included as quality features of the designated area.

In 2008 JNCC organized a workshop together with the regional conservation agencies to define the term ‘stony reef’ in practical terms to aid in the classification of these habitats. The stated aim was to ‘clarify the definition of ‘stony reef’ under the Habitats Directive and to help with recognizing those areas of the seabed which can be classed as stony reef, and those areas which would fall outside this definition’ (Irving 2009). The result of this workshop were summarized in a report in 2009 and represent the most recent unified view of the conservation agencies.

Several parameters abiotic and biotic parameters were evaluated as descriptors for the classification of stony reefs and four of these were felt most practical in deciding if a habitat comprised a ‘stony reef’ or not. These were: composition (referring to the sediment type), elevation, extent and biota (see Table 1). Each characteristic was given a four point grading from not representing a reef to high ‘reefiness’ (see Table 1).

Table 1. Summary of the main characterising features of a stony reef as outlined by the JNCC report (Irving 2009).

Characteristic	Not a ‘stony reef’	‘Resemblance’ to being a ‘stony reef’		
		Low ²	Medium	High
Composition:	<10%	10-40% Matrix supported	40-95%	>95% Clast supported
<i>Notes: Diameter of cobbles / boulders being greater than 64mm. Percentage cover relates to a minimum area of 25m². This ‘composition’ characteristic also includes ‘patchiness’.</i>				
Elevation:	Flat seabed	<64mm	64mm-5m	>5m
<i>Notes: Minimum height (64mm) relates to minimum size of constituent cobbles. This characteristic could also include ‘distinctness’ from the surrounding seabed. Note that two units (mm and m) are used here.</i>				
Extent:	<25m ²	←————— >25m ² —————→		
Biota:	Dominated by infaunal species			>80% of species present composed of epifaunal species

To evaluate if any of the sites surveyed within the SAC represented a stony reef the data on the percentage cover of cobbles and boulders recorded by the stills image camera

proved most useful. Samples taken by the grab samples were not included as on very rough grounds the grab tends to misfire and only retains a sample when it is deployed over softer ground. With the stills image data collected by SOS three of the four criteria put forward by JNCC could be adequately addressed (composition, elevation and biota). It should be noted that the most important overarching criteria is the composition of the sediment, in other word the percentage of stones present at a site to qualify as a stony reef (no stones no reef - 10% of stones have to be larger than 64 mm).

Due to the nature of the transect sampling, the extend of the patches could not be assessed and a more detailed survey would be required to firmly delineate reef patches and determine their size. However, judging from the video data, sites that did show stony reef like sediment composition are highly likely to have also met the minimum criteria of being larger than 25 m². (5 x 5 m is a relatively small area – large living room) for low to high ‘reefiness’ (Table 1)

With respect to sediment composition **no** site qualified as highly reef like. Overall **4** sites in the south eastern corner of the survey area exhibited medium ‘reefiness’, **8** sites low ‘reefiness’ and **34** sites did not represent a stony reef (Fig. 1).

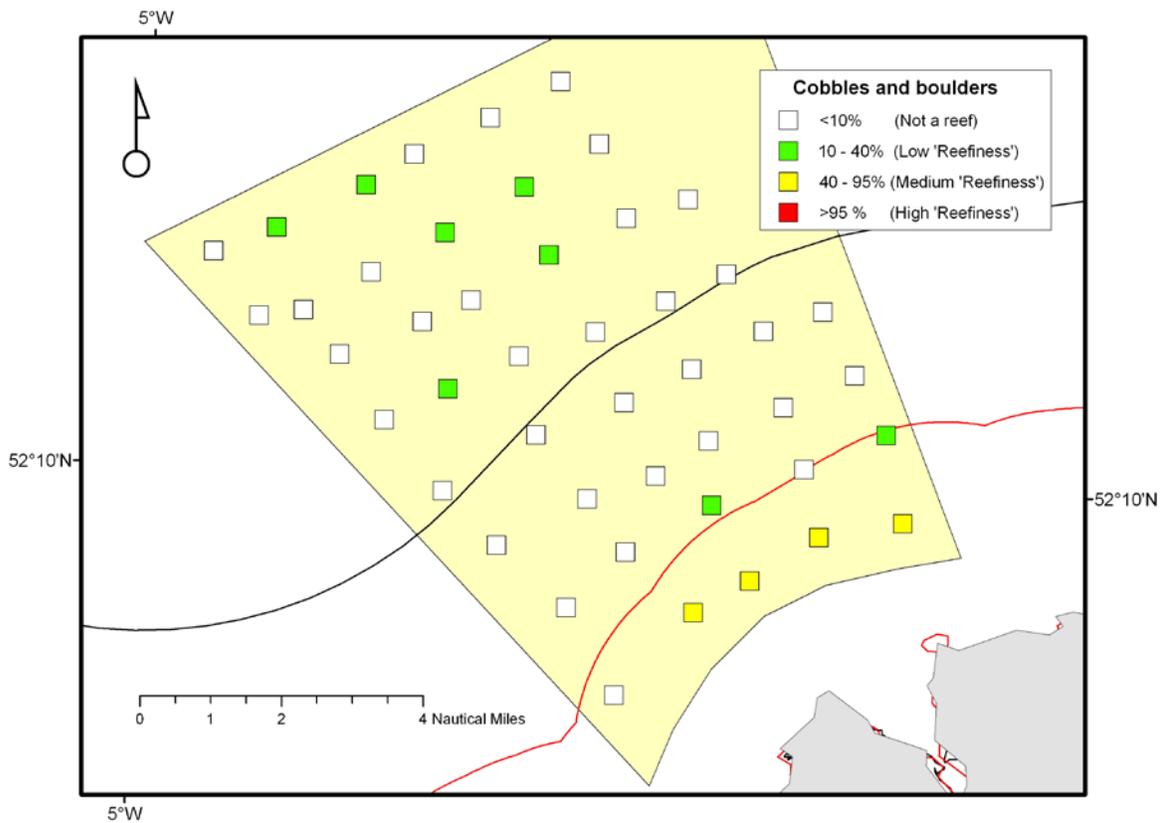


Fig. 1 Percentage of cobble and boulder coverage according to ‘stony reef’ criteria outlined by JNCC

The elevation of the reef like areas was not directly measured. However video data clearly showed that none of the reef areas showed above 5m elevations. Thus sites can only be classified as exhibiting medium 'reefiness' with respect to elevation. The maximum height of boulders seen within the video and stills were estimated to be approximately 0.3-0.5m.

Biota was judged to be a qualitative indicator of conservation value by the JNCC report. However no clear criteria with respect to biota was set other than the presence of epibenthic organisms. There is some reference to rare species within the document but no clear definition or species list were given within the report. The four near shore sites showed the highest number of species and individuals of emergent epifauna thus supporting the notion of these areas being the most reef like (see Fig. 2 and 3).

Eight sites located within the survey area were classified with respect to their composition as exhibiting low 'reefiness' (Figure 1). The JNCC report explicitly states that if a low 'reefiness' score in any of these four characteristics has been determined then a strong justification would be required for this site to be considered as contributing to the Marine Natura site Network and thus should be considered within the habitat directive.

Recommendation

The four stations within the southern area of the surveyed area that showed 'medium reefiness' should remain closed to scallop dredging to ensure the quality of these habitats. The areas which showed 'low reefiness' could be opened to fishing if there are no major valid concerns with respect to conservation efforts. The sites were classified as exhibiting low reefiness due to the low percentage cover of stones and cobbles thus and increase in reefiness due to protection can not be expected.

To ease policing and delineating the reef area giving it enough of a buffer zone to address uncertainties due to point source sampling we would recommend that the area up to the 3 nm limit remains closed to scallop dredging.

