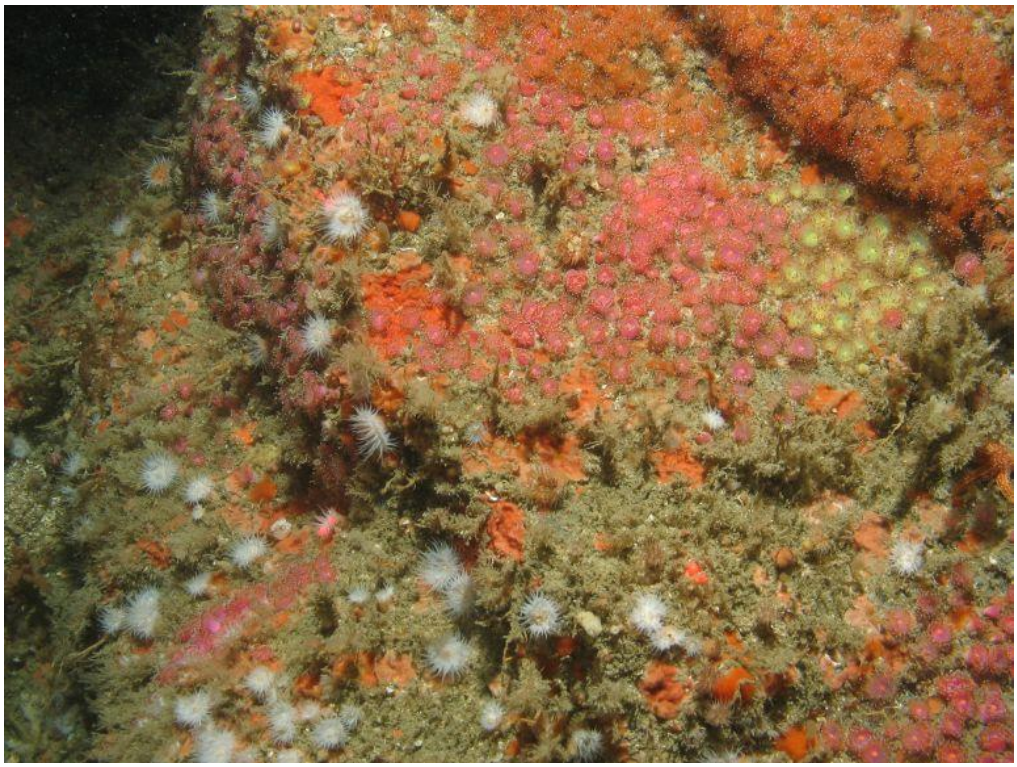


Inshore Special Area of Conservation (SAC): Lizard Point

SAC Selection Assessment

Version 2.3

Version Control

Version and date	Amendments made	Issued to and date
2.3 06 August 2010	Text amendment for pSAC to cSAC status	Submission to Europe (9th August 2010).
2.2 14 May 2010	Minor text amendments	Natural England Executive Board (14 May 2010)
2.1 6 May 2010	Text amendments	Director of Marine and Executive Director of External Affairs (11 May 2010).
2.0 21 April 2010	Text amendments following formal consultation	Internal review
1.0 December 2008	Drafted for Executive Board and submission to Defra for approval for consultation.	Made public available at start of informal dialogue (July 2009) and formal consultation (November 2009)

1. Introduction

This document provides detailed information about Lizard Point candidate SAC (cSAC) and evaluates its interest features according to the Habitats Directive selection criteria and guiding principles.

The advice contained within this document is produced to fulfil requirements of Natural England under the Conservation of Habitats and Species Regulations 2010, relating to the conservation of natural habitat types and species through identification of Special Areas of Conservation (SACs) in UK waters. Under these Regulations, Natural England is required to provide advice to Defra to enable the Secretary of State and Competent Authorities to enable them to fulfil their obligations under the Regulations.

Sites eligible for designation as Special Areas of Conservation (SACs) are selected on the basis of the criteria set out in Annex III (Stage 1) to the Habitats Directive and relevant scientific information. SACs are considered only if they host a Habitats Directive Annex I habitat or Annex II species. Socio-economic factors are not taken into account in the identification of sites to be proposed to the European Commission[1].

In addition to information on the Annex I habitats, this document contains i) a map of the site, ii) its name, location and extent, and iii) the data resulting from application of the criteria specified in Annex III (Stage 1) to the Habitats Directive and iv) a glossary of terms mentioned in the text. Natural England has adhered to the format established by the Commission for providing site information. This format is set out in the 'Natura 2000 Standard data form' (Commission of the European Community, 1995) (prepared by the European Topic Centre for Biodiversity and Nature Conservation on behalf of the European Commission to collect standardised information on SACs throughout Europe).

[1] Following European Court of Justice 'First Corporate Shipping' judgement C-371/98 (7 November 2000)

2. Lizard Point: SAC Selection Assessment

1. Site name	2. Site centre location
Lizard Point	Degrees and minutes **5° 15' 21.41"W 49° 58' 03.24"N** Decimal degrees **5.25° W 49.97° N** (Datum: WGS84)
3. Site surface area **13,988 ha; 140 sq km** (UTM Zone 30 Northern hemisphere WGS84)	**4. Biogeographic region** Atlantic

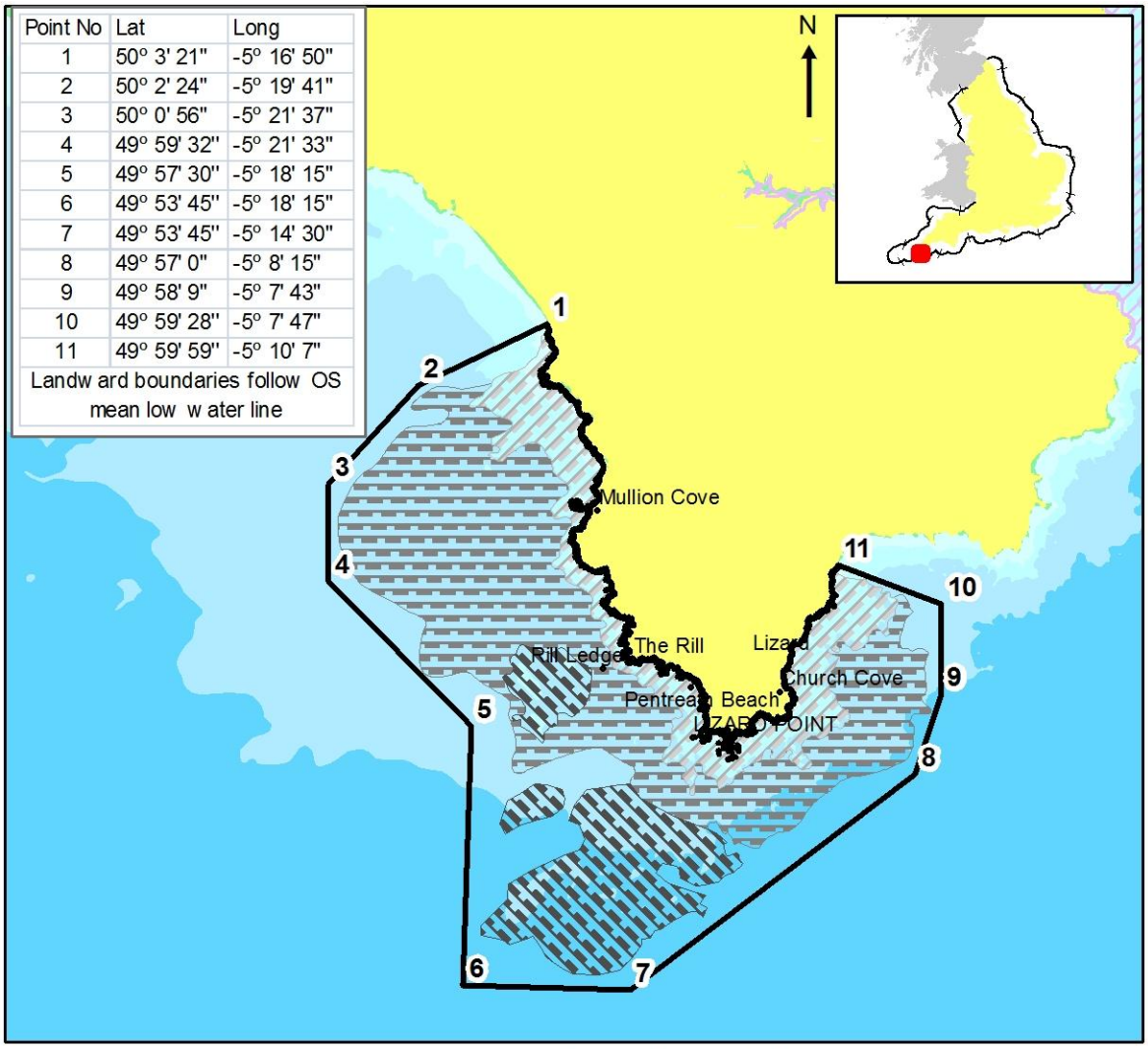
3. Interest feature(s) under the EU Habitats Directive

This site is listed for the features set out below. For further information please see European Commission, DG Environment, (2007): Interpretation Manual of European Union Habitats. EUR 27, July 2007:

http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/2007_07_im.pdf

1170 Reefs.

4. Map of candidate SAC boundary[2]



candidate Special Area of Conservation
Lizard Point
Special Areas of Conservation
candidate Special Area of Conservation
England 12nM Territorial Seas Limit
Annex I reefs
Flat Reef
Coastal Upstanding reef
Offshore Upstanding Reef
Depth Areas
Drying
<=10m
<=20m
<=50m
<=100m
Land

EU Site Code: UK0030374
Version number: 1.1
Longitude: 5° 15' 21" W
Latitude: 49° 58' 03"N
Projection: UTM 30N (WGS84)
Area of SAC: 139.88 sq km 13987.58 ha

Theme ID: 1452108
Grid Ref: SW666125
Version: 6.0
Plotted: 22/07/2010
Plot ID: 4.0

Scale 1:200,000 Map 1 of 1
0 1.25 2.5 5 Kilometers

Candidate Special Area of Conservation Directive 92/43/EEC
Submitted to the EC by the Secretary of State for Environment, Food and Rural Affairs. Date: 20/08/2010
Depth areas © British Crown and SeaZone Solutions Limited. All rights reserved. Product licence No. PGA062006.004. This product has been derived in part from material obtained from the UK Hydrographic Office (UKHO) with permission of the Controller of Her Majesty's Stationary Office and the UKHO.
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NATURAL ENGLAND

[2] Larger copies of maps are available on request from Natural England, Regulatory Services, Floor 1 West, Northminster House, Peterborough. PE1 1UA

5. Site summary

5.1 Reefs

Lizard Point is unique in terms of its underlying geology, with no other existing SAC in the surrounding area offering such a variety of bedrock origins. The Lizard Point site consists of rugged inshore and offshore areas of submerged bedrock and boulders of complex geological origin, separated by extensive areas of thin, coarse mobile sediment covering flat sedimentary bedrock to the south and east, and the flat metamorphic bedrock to the west. The inshore upstanding rocky reef extends out to approximately 2 km offshore and extends along the coastal margin for a distance of approximately 24 km from Pedngwinian Point in the west to Carrick Lûz (just beyond Kennack Cove) in the east. The coastline is characterised by rock cliffs punctuated by a few sandy coves (Church Cove, Poldhu Cove, Pollurian Cove, Kynance Coves and Pentreath Beach in the west and Kennack Cove in the east).

There are two areas of upstanding offshore reef extending from approximately 3.5 to 9 km offshore and extending down to depths of 80 m in some areas. The first area centres on 'The Boa', a cluster of upstanding rock outcrops between ~ 0.7 and 1.7 nautical miles (nm) southwest of Rill Point. This small reef system rises by 20 to 30 m from the ambient seabed to about 10 m below chart datum (BCD). The second (known locally as Carn Andra) is a much more extensive area, starting with a prominent outcrop about 1 nm due south of 'The Boa', rising from 44 to 25 m BCD, and extending to the southeast, south and southwest. Here there are numerous lesser peaks but generally high seabed slope, indicating complex topography. Both areas are good examples of a moderate to high-energy circalittoral reef system.

Large banner type sandbanks (Stride A H, 1982) are associated with some of the larger rocky outcrops, though these do not qualify as the Annex I feature 'Sandbanks which are slightly covered by sea water all the time'.

The site's south-westerly position on the British coast means that the sublittoral zone is exposed to the full force of the waves and tidal swells coming in from the Atlantic, as well as experiencing full salinity, given the absence of any major source fresh-water runoff from the land.

Algae cover much of the exposed infralittoral rock, with some coarse sand and pebble deposits in gullies. Assemblages typically consist of a canopy of the kelps with an understorey of foliose red, green and brown algae. The edible sea urchin *Echinus esculentus* is the most conspicuous member of the epifauna in this zone.

Tideswept circalittoral rock surfaces are populated mostly by suspension feeding species whereas horizontal circalittoral rock surfaces in less than 25 m support foliose red and brown algae. Deeper and more sheltered aspects are often covered with a thin organic veneer of hydroids, encrusting sponges and bryozoans.

5.2 Lizard Point cSAC Annex 1 Habitat Comparison

The Lizard Point cSAC is situated within the Western English Channel and Celtic Sea Regional Sea (Defra, 2004). Listed below are existing SACs within the same area that also contain reefs as a qualifying Annex I habitat. A brief summary of the type of reef at each location is included.

Table 5.1 Regional SACs comprising reef habitat

Site	Description of relevant qualifying features
Isles of Scilly Complex SAC	Hard bedrock reef, both infralittoral and circalittoral, in some cases extending well beyond 50 m depth. Exposure levels vary at this site: some reefs are very exposed, others sheltered. The surrounding waters are full salinity and the feature is subject to minimal coastal influence. The topographic complexity of the reefs is low. The southwesterly position of the islands leads to a range of warm-water species being present, including sunset cup-coral *Leptopsammia pruvoti*, pink sea-fans *Eunicella verrucosa*, and Weymouth carpet-coral *Hoplangia durotrix*.
Lundy SAC	A granite and slate reef system, exposed to a wide range of wave action and tidal stream strength. Combined with significant topographical variation, this has resulted in a diverse complex of biological communities. The full salinity reefs are both infralittoral and circalittoral (>50 m depth), and are highly influenced by coastal processes. Several communities at their northern limit of distribution occur here. Fragile long-lived species, such as the soft coral *Parerythropodium coralloides*, sea-fans *Eunicella verrucosa* and erect branching sponges, are present, as are all five British species of cup-coral.
Plymouth Sound & Estuaries SAC	Intertidal and subtidal low energy reefs, including some composed of limestone. This relatively soft rock is extensively bored by the bivalve *Hiatella arctica* and the Spionid worms *Polydora spp*., and harbours a rich fauna. In the sublittoral this steep-sided reef is dominated by a dense hydroid and bryozoan turf interspersed with anemones and ascidians. The sublittoral is of particular importance for its kelp- and animal-dominated habitats. Abundant populations of the slow growing, long-lived, nationally important pink sea-fan *Eunicella verrucosa* also occur at this site. The reef feature is in full salinity and subject to strong coastal influence.
Fal and Helford SAC	The hard bedrock reefs at this site are of low to medium topographic complexity and exist as patches of sublittoral rock (an uncommon habitat within marine inlets). They are subject to strong coastal influence, with parts of the reef experiencing reduced/variable salinity. The energy levels at this site are moderate. Within the marine inlets, sponge and seasquirt communities dominate deep sheltered bedrock reef. On the exposed open coast, dense kelp forests occur in shallower water, along with aggregations of jewel anemones *Corynactis viridis*, and Devonshire cup corals *Caryophyllia smithii*. In some deeper locations, pink sea fans *Eunicella verrucosa* occur. The maximum depth of reef systems in the Fal and Helford is around 30 m bcd.

Haig Fras has been submitted to, and approved by, the European Commission and is now a Site of Community Importance. It awaits designation by the UK Government as an SAC.

SAC	Notable characteristics of Reef interest feature
Haig Fras cSAC	The site is an isolated, fully submarine bedrock outcrop located in the Celtic Sea, 95 km north west of the Isles of Scilly. The rocky outcrop is approximately 45 km long and in one area rises to a peak that lies just 38 m beneath the sea surface. It is the only substantial area of rocky reef in the Celtic Sea beyond the coastal margin. The rock is granite, mostly smooth with occasional fissures. It supports a variety of fauna ranging from jewel anemones *Corynactis viridis* and Devonshire cup coral *Caryophyllia smithii* near the peak of the outcrop, to encrusting sponges, crinoids and ross coral *Pentapora foliacea* towards the base of the rock (where boulders surround its edge). The surrounding seabed is approximately 100 m deep

Natural England are also proposing Lands End and Cape Bank cSAC, Prawle Point to Plymouth Sound and Eddystone cSAC, and Lyme Bay and Torbay cSAC within the Western English Channel and Celtic Sea Regional Sea.

SAC	Notable characteristics of Reef interest feature
Lands End and Cape Bank cSAC	The Lands End and Cape Bank site lies to the west of the Land's End peninsula and extends to almost 25 km from the coast. The reefs are fully submarine, upstanding features which are composed of almost entirely of granite. The site has two main reef areas, the coastal margin reefs running along the coast and offshore upstanding reef which extends in a broad, arching crescent roughly aligned with the coastline. The inshore reefs are notable for their topographic complexity, which results in high biological and biotope diversity. The reef is dominated by tide-swept kelp forest and kelp parks with dense foliose red algae. The crescent shaped system of offshore upstanding rocky reefs forms the major feature of conservation interest at the site. The reef is characterised by high biodiversity tide-swept communities such as sponges, faunal and algal turfs and crustose communities.
Prawle Point to Plymouth Sound and Eddystone cSAC	The Prawle Point to Plymouth Sound and Eddystone site lies off the south coast of England. The site comprises a mosaic of two areas containing Annex I 'reef' habitat. The reef habitats comprise complex outcropping bedrock, boulders and rocky gullies, fissures, crevices and pinnacles. They support a wide variety of reef fauna and flora commonly showing excellent examples of zonation from the infralittoral down to deeper water communities. The site is known to support some species rarely encountered in south-western waters such as the cushion star *Porania pulvillus*, the slipper lobster *Scyllarus arctus* and the sea fan anemone *Amphianthus dohrnii*. Furthermore, the presence of relatively large numbers of warm-water species, e.g. *Alcyonium glomeratum* and *Holothuria forskali*, in addition to more typical English Channel fauna indicates the area spans across a biogeographical boundary. The site also supports the most extensive and highest density beds of the sea fan *Eunicella verrucosa* and probably the most extensive and widespread colonies of the nationally rare sunset coral *Leptopsammia pruvoti*. The Eddystone Reefs area extends down into deep waters and supports good examples of deeper water reef species (such as the starfish *Porania pulvillus* and the parchment tube worm *Phyllochaetopterus anglicus*) that may not be so frequent on the more common inshore reefs.
Lyme Bay and Torbay cSAC	The Lyme Bay and Torbay site lies off the south coast of England. The site comprised from two areas containing Annex I 'reef' and 'sea cave' habitat. The reefs exhibit a large amount of geological variety, ranging from limestone, cementstone ledges, sandstone outcrops, slates and granites as well as areas of boulder and cobble reef. Biogenic reef features comprising of *Mytilus edulis* reefs also occur within this site. Many of the bedrock reefs exhibit topographic complexity which adds to the habitats created by the features. The sea caves occur in several different rock types, and at levels from above the high water mark of spring tides down to permanently flooded caves lying in the infralittoral zone.

The Lizard Point site is unique in terms of its underlying geology, with no other existing SAC in the surrounding area offering such a variety of bedrock.

6. Site boundary

The boundary around the Lizard Point cSAC has been drawn using the guidance provided by JNCC (2008) and was defined through GIS mapping with further consideration against the guidelines (Appendix 1). The key parts of this guidance are that the site boundary should be defined as simply as possible with a minimum number of straight lines, and should include the minimum area necessary to ensure protection for the Annex I habitat of interest. More complex shapes drawn more tightly around feature of interest are favoured over simple square/rectangular boundaries, to reduce the area of 'non-interest-feature' included within the site boundary. Where it is justified to protect the features of the site from the effects of mobile gear on the seabed at some distance from a vessel on the surface, a margin in proportion to the water depth may be added to the extent of the feature when defining the site boundary.

7. Assessment of interest feature(s) against selection criteria

A full explanation of the application of the site selection criteria can be found on JNCC's website at www.jncc.gov.uk/page-4165.

7.1 Reefs

Annex III selection criteria (Stage 1A):

7.1.1 Representativity (a)

The coastal margin upstanding reef habitats are of high topographical complexity reef and are characterised by kelp-dominated biotopes. In terms of the biological assemblages inhabiting the upstanding coastal rocky reefs, there is some difference between those on the west and east of Lizard Point given the differences in relative exposure and energy levels, with biotopes on the west conforming to 'High Energy' biotope classes and those on the east to 'Moderate Energy'.

The two offshore upstanding reef areas are good examples of moderate to high-energy circalittoral reef systems. Here there are numerous small peaks but generally high seabed slope, indicating complex topography. The area is characterised by tide-swept, wave exposed circalittoral rock biotopes as well as sand-tolerant fauna on sand-scoured or covered circalittoral rock. As with the upstanding coastal margin rocky reefs, the shallowest areas are characterised by foliose brown and red algae, the deeper tide-swept slopes by anemones, soft corals, hydroids and echinoderms, and the scour tolerant communities at the slope bases.

The area of flat bedrock reef between the coastal margin and offshore upstanding reefs rings the whole of the Lizard Point. The rock is exposed at the seabed surface, and has well developed jointing, providing numerous gullies and fissures that tend to trap mobile sediments. In the northwest there is a notable silted covering of the bedrock, while to the east and southeast the sediment covering becomes thicker, though rock still shows at the seabed surface and flora and fauna that grow on the surface of rock are still common.

Collectively the site presents a wide range of species and habitats that are representative examples of the marine diversity in UK waters.

The Lizard Point site is graded A (excellent representativity)

7.1.2 Area of habitat (b)

The area of Annex I reef habitat enclosed by the site boundary is approximately 12,595 hectares (ha) which is approximately 90 % of the total site area.

An evaluation of relative surface area is approximate as no accurate total extent figure is available for Annex I reef habitat for UK waters. The closest approximation available for the entire resource (bedrock, cobble and biogenic reef) in UK waters is 7,180,000 hectares. This total extent figure gives the following thresholds for the grades of this criterion (Commission of the European Community, 1995)

A – extents between 1,077,000 and 7,180,000 ha (15-100% of total resource)
B – extents between 143,600 and 1,077,000 ha (2-15% of total resource)
C – extents less than 143,600 ha (0-2% of total resource)

The site contains less than 1% of the national Annex I reef resource, and is graded C.

7.1.3 Conservation of structure and functions (c)

Degree of conservation of structure
Survey information indicates that the biological and physical structure of the reefs are intact (Cefas, 2008). The area is fished by static gear (crab / lobster pots) on a seasonal basis, mainly from May to November. Some active sets of gear were found during the survey, but no abandoned pots or any evidence of habitat damage attributable to potting/creel fishing or any other anthropogenic activity were found. In addition no accumulations of anthropogenic litter were recorded.

The Lizard is graded I (excellent structure).

Degree of conservation of functions
The area has a long history of potting for edible crabs and lobsters, netting mainly for monkfish (*Lophius* sp.) , rays (*Raja* sp.), turbot (*Psetta maxima*), brill (*Scophthalmus rhombus*), cod (*Gadus morhua*), Pollack (*Pollachius pollachius*), ling (*Molva molva*) Spider crabs (*Maia squinado*), seining for grey mullet (*Chelon labrosus & Liza sp)*) and angling/hand lining for bass *(Dicentrarchus labrax*) and 'wreck' fish, although the physical removal of the habitat is unlikely as a result of these fishing activities. There is commercial fishing from trawling and scallop dredging which have the potential to damage the reef habitat.

Fishing up to the 6 mile limit by larger UK and/or foreign vessels has increased in terms of frequency, and the number of pots and nets have increased to a level which leaves little room for further expansion (Cefas, 2008).

Shipping has the potential to impact the site in a detrimental way for despite the many measures provided to promote and assist shipping safety (e.g. lighting, buoyage and a traffic separation scheme) accidents still occur leading to pollution and physical damage.

Other activities at the site including scuba diving, angling and pleasure boating (yachting) all of which are unlikely to have an impact on the area.

The Lizard Point cSAC is graded I (excellent prospects).

Restoration possibilities
The reef habitats of the Lizard Point site have not been demonstrated to be damaged. As the sites has been graded I for both the conservation of structure and the conservation of function sub-criteria, there is no formal requirement to assess the restoration possibilities.

Overall
The overall grade for the conservation of structure and function criterion is grade A (excellent conservation value)

7.1.4 Global assessment (d)

Overall the site represents an excellent example of good quality reef habitat. The suggested grades for Stage 1A criteria are A, C and A respectively.

The site is graded A (**Site holds an outstanding example of the Annex I habitat in a European context)**

7.2 Summary of scores for Stage 1a criteria

	Representativity (a)	Relative surface (b)	Structure and function (c)	Global assessment (d)
Lizard Point	**A**	**C**	**A**	**A**

8. Sites to which this site is related

None.

9. Supporting scientific documentation

The most important sources of background information on the biology and geophysical nature of this area are listed in table 9.1 below:

Table 9.1 – survey information used to underpin the Selection Assessment.

Reference	Description
HOLME N A, 1966. The bottom fauna of the English Channel. Part ii. Journal of Marine Biological Association UK, 46 pp. 401-493.	Anchor dredge samples.
DIPPER F, 1981. Sublittoral survey of the Scilly Isles and south Cornwall. Nature Conservancy Council, CSD. Report No. 364.	Diver surveys using semi-quantitative recording methods.
HISCOCK K, 1981. South-West Britain sublittoral survey. Final report. Nature Conservancy Council, CSD Report No. 327.	Diver surveys using semi-quantitative recording methods.
CEFAS, 2008. Acquisition of survey data and preparation of Site Briefing Statements for Proposed Marine Special Areas of Conservation within the 0-12 Nautical Mile Zone. Contract No. FST20/18/030	Two multidisciplinary (acoustic and sampling) surveys were conducted in 2007 as part of work to identify the site boundary. A total of 180 km of acoustic survey lines (sidescan sonar and multibeam bathymetry) were run at the Lizard Point site. This equated to coverage of 72 km^2 with sidescan sonar within a total area of search of 210 km^2. Digital video and stills data were collected at 18 sites and a single scallop dredge site was also sampled..

10. Site overview and conservation interest

The Lizard Point site consists of rugged areas of submerged bedrock and boulders of complex geological origin, (which appear to be a southward continuation of the land), surrounded by extensive areas of thin, coarse mobile sediment covering flat sedimentary bedrock to the south and east, and the flat metamorphic bedrock to the west. The exposed upstanding rocky reef extends to approximately 7 km offshore in depths from 0 to 80 m and its boundary with the surrounding sediments mirrors that of the present coastline.

The upstanding rocky reef system in the coastal margin of Lizard Point stretches for about 24 km around the coast and is a significant feature of conservation interest at the site. Here algae cover much of the exposed infralittoral rock, with limited coarse sand and pebble deposits in gullies. Assemblages typically consist of a canopy of the kelps *Laminaria saccharina* and *L. hyperborea* (often heavily encrusted with the hydroid *Membranipora membranacea* and hosting epiphytic red filamentous algae such as *Heterosiphonia plumosa*), with an understory of foliose red, green and brown algae including *Dilsea carnosa*, *Dictyopteris membranacea*, *Delesseria sanguinea* and *Drachiella spectabilis*. The edible sea urchin *Echinus esculentus* is the most conspicuous member of the epifauna in this zone.

Four reef biotopes were recorded in the coastal upstanding rocky reef system. These are described in the table below:

Biotope code	Biotope description
IR.HIR.KFaR.LhypR.Pk	*Laminaria hyperborea* park with dense foliose red seaweeds on exposed lower infralittoral rock
IR.HIR.KFaR.FoR.Dic	Foliose red seaweeds with dense *Dictyota dichotoma* and/or *Dictyopteris membranacea* on exposed lower infralittoral rock
IR.MIR.KR.Lhyp	*Laminaria hyperborea* on tide-swept, infralittoral rock
IR.HIR.KFaR.LhypR.Ft	*Laminaria hyperborea* forest with dense foliose red seaweeds on exposed upper infralittoral rock

The area of flat bedrock reef that lies beyond the coastal fringing upstanding rocky reef is fairly diverse in terms of its habitats, spanning the infralittoral and circalittoral zones, with both high and moderate-energy biotopes represented. The tideswept circalittoral rock surfaces are populated mostly by suspension feeding species, notably the soft corals such as dead-man's fingers *Alcyonium digitatum*, ascidians, particularly *Stolonica socialis*, sea anemones including jewel anemones *Corynactis viridis*, sandaled anemones *Actinothoe sphyrodaeta* and Devonshire cup coral *Caryophyllia smithii*, as well as encrusting and massive sponges, especially the rock-boring *Cliona celata* at greater depths. The high-energy biotopes are predominantly 'Kelp with cushion fauna' (KFa) communities in the infralittoral and 'mixed faunal turf communities' (XFa) in the circalittoral. Moderate energy communities are limited to the circalittoral zone, predominantly 'Echinoderms and crustose' (EcCr) set of communities.

Of the nine reef biotopes which were recorded in the flat bedrock reef section, the two most characteristic are described in the table below:

Biotope code	Biotope description
CR.HCR.Xfa.ByErSp	Bryozoan turf and erect sponges on tideswept circalittoral rock (Plate 3)
CR.MCR.EcCr.CarSp	*Caryophyllia smithii*, sponges and crustose communities on wave-exposed circalittoral rock (Plate 4)

The offshore upstanding rocky reef areas at the Lizard Point site are an important topographic feature despite their modest extent relative to the whole Lizard Point site. The largest and most central upstanding rocky reef also has an associated 'banner' sandbank on its northern flank, resulting from the interaction between strong tidal currents and the local topography, and consequent sediment deposition on the reef's leeward side.

The reefs themselves are good examples of wave exposed and tide swept reefs of the upper and lower circalittoral, which is of significant conservation interest. The shallowest areas support some foliose red algae, but typically the communities are of anemones, sponges and solitary corals. The horizontal circalittoral rock surfaces no deeper than c. 25 m can also sustain foliose red and brown algae such as *Drachiella spectabilis*, *Delesseria sanguinea* and *Dictyopteris membranacea*. Deeper and more sheltered aspects are often covered with a thin organic veneer of hydroids, encrusting sponges and bryozoans, as well as erect examples such as the oaten pipes hydroid *Tubularia indivisa*, sea chervil *Alcyonidium diaphanum,* ross coral *Pentapora folicaea* and occasionally the pink sea-fan *Eunicella verrucosa*.

Seven reef biotopes were identified on this reef type with the three most characteristic described in the table below:

Biotope code	Biotope description
CR.HCR.Xfa.CvirCri	*Corynactis viridis* and a mixed turf of crisiids, *Bugula*, *Scrupocellaria*, and *Cellaria* on moderately tide-swept exposed circalittoral rock (Plate 5)
CR.MCR.EcCr.CarSp	*Caryophyllia smithii*, sponges and crustose communities on wave-exposed circalittoral rock (Plate 6)
CR.MCR.EcCr.UrtScr	*Urticina felina* and sand-tolerant fauna on sand-scoured or covered circalittoral rock

Mobile fauna occurring throughout the reef include high concentrations of large echinoderms such as *Echinus esculentus*, the cotton spinner sea cucumber *Holothuria forskali*, and common and spiny star fish *Asterias rubens* and *Marthasterias glacialis*, as well as European spiny lobster *Palinurus elephas*, squat lobster *Munida rugosa,* edible brown crab *Cancer pagurus*, and the cuckoo wrasse *Labrus mixtus*.

11. Photographic plates

Plate 1: IR.HIR.KFaR.LhypR *Laminaria hyperborea* kelp forest characteristic of the coastal upstanding rocky reefs at Lizard Point

Plate 2: IR.HIR.KFaR.FoR A dense turf of foliose red algae characteristic of the coastal upstanding rocky reefs at Lizard Point.

Plate 3: CR.HCR.Xfa.ByErSp Bryozoan turf with erect sponges biotope characteristic of the flat bedrock reefs at Lizard Point

Plate 4: CR.MCR.EcCr.CarSp Devonshire cup corals and the sponge *Polymastia boletiformis* characteristic of the flat bedrock reefs at Lizard Point.

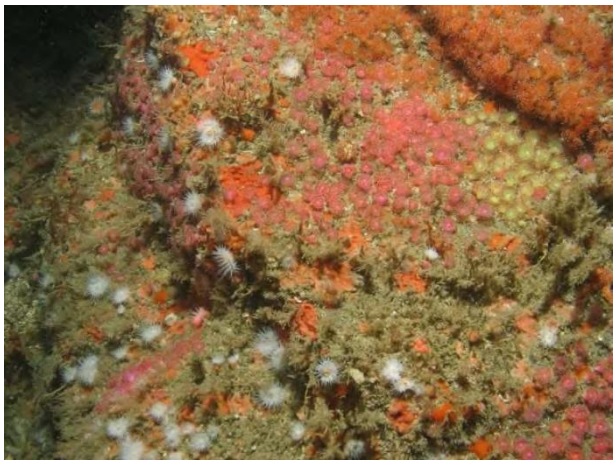

Plate 5: CR.HCR.Xfa.CvirCri. Jewel anemones and bryozoan turf characteristic of the tideswept offshore upstanding rocky reefs at Lizard Point

Plate 6: CR.MCR.EcCr.CarSp Devonshire cup corals, sponges and dead man's fingers characteristic of the offshore upstanding rocky reefs at Lizard Point.

12. References

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13. Glossary

Biotic Relating to, produced by, or caused by living organisms.

Biotope The physical habitat with its biological community; a term which refers to the combination of physical environment and its distinctive assemblage of conspicuous species.

Bivalves A class of molluscs which are laterally flattened and have a shell made of two hinged valves.

Bryozoans are tiny colonial animals that generally build stony skeletons of calcium carbonate, superficially similar to coral (although some species lack any calcification in the colony and instead have a mucilaginous structure).

Crinoids A class of echinoderms having a cup-shaped body with feathery arms, attached to the substratum, sometimes by a stalk.

Crustose Forming a thin crust on the substratum**.**

Epifauna Animals living on the surface of the seabed.

Foliose Bearing leaves or leaf-like structures.

Fauna Animal life in an area.

GIS Geographic Information System

Habitat The place in which a plant or animal lives.

Hydroids Solitary and colonial animals with a cylindrical body which is closed at one end with a mouth surrounded by tentacles at the other.

Infauna Bethic animals which live within the seabed.

Potting The setting of traps (pots) on the seabed to fish for lobsters, crabs etc.

Static gear Any gear which is set in position and not moved during the fishing process.

Trawling Towing equipment behind a vessel for commercial fishing principally for cod, plaice and sole. Bottom trawls collect demersal (living on or near the seabed) species and mid-water trawls collect pelagic (living in the water column) species. Examples of towed gears include beam trawls, dredges and trawl nets.

Appendix 1

Guidelines on drawing boundaries (taken from JNCC, 2008)

1 Introduction

Previous UK guidance on defining SAC boundaries states that "as a general principle, site boundaries have been drawn closely around the qualifying habitat types … for which the sites have been selected, taking into account the need to ensure that the site operates as a functional whole for the conservation of the habitat type… and to maintain sensible management units". Further "the seaward boundaries of the sites have been drawn as straight lines, to ensure ease of identification on charts and at sea" (Brown *et al*, 1997, McLeod *et al,* 2005). The guidance presented below is an expansion of previous guidance on defining boundaries for marine SACs, specifically for sites which are not connected to the coastline, and which may be in deep water (200 m to more than 1000 m).

2 Guidance

Actual site boundaries will be determined on a site specific basis, following the general guidance set out below.

2.1. The habitat area of interest will be identified and mapped. In many cases in waters away from the coast, this will involve some form of modelling, such as use of seabed geological data (interpolated from seismic tracks and samples), interpreted sidescan sonar, acoustic and/or bathymetric data.

2.2 The minimum area necessary in order to ensure the essential level of protection for the Annex I habitat of interest will be defined. More complex site shapes drawn more tightly around feature of interest are favoured over simple square/rectangular boundaries (to reduce the area of 'non-interest-feature' included within the site boundary). However, boundaries should still be as simple as possible, using a minimum number of straight lines and vertices. Contrary to previous JNCC boundary guidance (JNCC, 2004) site boundary co-ordinates do not have to be defined by whole degrees and minutes. It is recommended that site boundary coordinates will be provided in degrees, minutes, seconds.

2.3 Where habitat of interest occurs in a number of separate 'pieces' with 'non-interest-feature' habitat between, the preference is to include all 'pieces' within a site boundary to enable effective conservation of the feature of the site and to maintain its ecological function. However, where small, isolated instances of habitat occur at some distance from the main location of the habitat, these may be excluded from the site if their inclusion would result in large areas of 'non-interest-feature' being included within the site boundary.

2.4 The area defined under 2 above may then be extended if necessary in the following circumstances:

i). to ensure an essential level of protection from potentially damaging activities at the site, taking into account water depth at the site and possible location of mobile gear on the seabed in relation to location of a vessel at the sea surface. Activities which are location specific, always subject to prior consent and have clear reliable methods of enforcement are already controlled under existing procedures such as licensing of these activities. Mobile activities which may affect seabed habitats, such as fishing and anchoring, are not subject to prior consent procedures and therefore need special consideration. The length of warp used by boats when trawling is largely determined by water depth. The following table gives the appropriate distance beyond the seabed extent of the habitat by which the site boundary at the sea surface may be extended (based on generalised trawl warp lengths, SERAD, 2001):

Water Depth	Ratio warp length: depth	Approx. length of trawl warp	Boundary extension to be added to the habitat area of interest
Shallow waters (≤ 25 m)	4:1	100 m at 25 m depth	4 * actual depth
Continental shelf (50-200 m)	3:1	600 m at 200 m depth	3 * actual depth
Deep waters (200 to over 1000 m)	2:1	2000 m at 1000 m depth	2 * actual depth

Note that the margin is incorporated as a minimum measure to reduce the likelihood of habitat damage from demersal fishing. However, these boundaries are SAC boundaries, not management boundaries. Ultimately Competent Authorities are responsible for considering which management actions might need to be taken under the Offshore Marine Conservation (Natural Habitats, &c.) Regulations to reduce the risk of damage to the features associated with human activities, whether within or outside the site boundary. As a consequence, future management measure may have different boundaries to the SAC site boundary.

ii). For mobile habitats (for example, sandbanks), to ensure the minimum area necessary to allow conservation of the structure and functions of the habitat. Such extension will be determined on scientific understanding of the structure and functions of the habitat.