Areas with a ‘low resemblance’ to stony reef: an inshore MPA perspective

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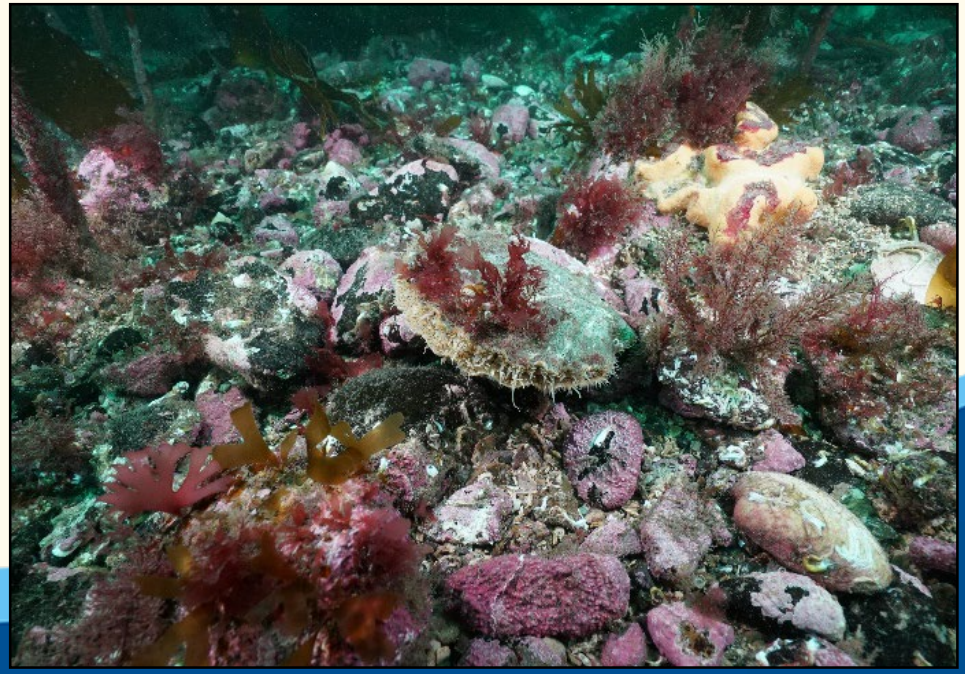

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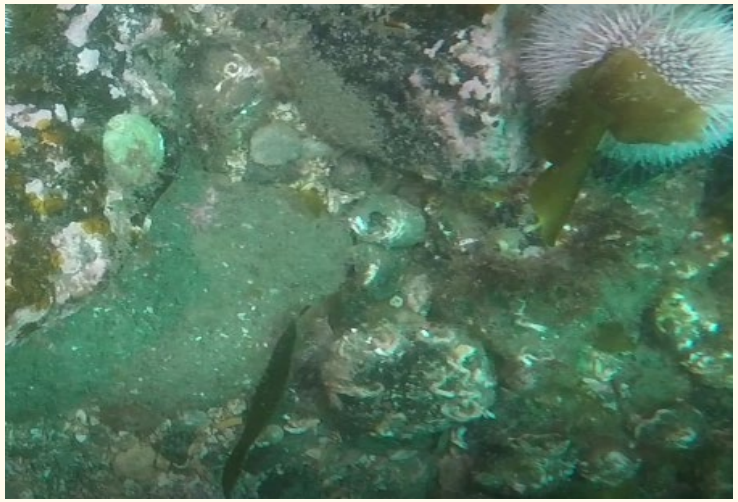
English Special Areas of Conservation with stony reef subfeature designated

- Berwickshire & North Northumberland Coast SAC
- The Wash and North Norfolk Coast SAC
- South Wight Maritime SAC
- Studland to Portland SAC
- Lyme Bay & Torbay SAC
- Morecambe Bay SAC
- Shell Flat and Lune Deep SAC
- Solway Firth SAC

No MCZ feature for stony reef it comes under other reef features
eg Allonby Bay MCZ

Stony reef conservation advice: Feature Description

- The description is based on Irving (2009) and JNCC priority habitat descriptions (2008)
- No distinction between levels of reef resemblance
- “However, the provision of hard surfaces, niches and crevices, between and below the constituent cobbles and boulders introduces three-dimensional diversity and abundant variations in aspect, shade, shelter and protection into what could otherwise be a featureless subtidal habitat.”



Stony reef conservation advice: Feature Framework

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ased on the best available information, including that gathered during monitoring of the feature's current condition.

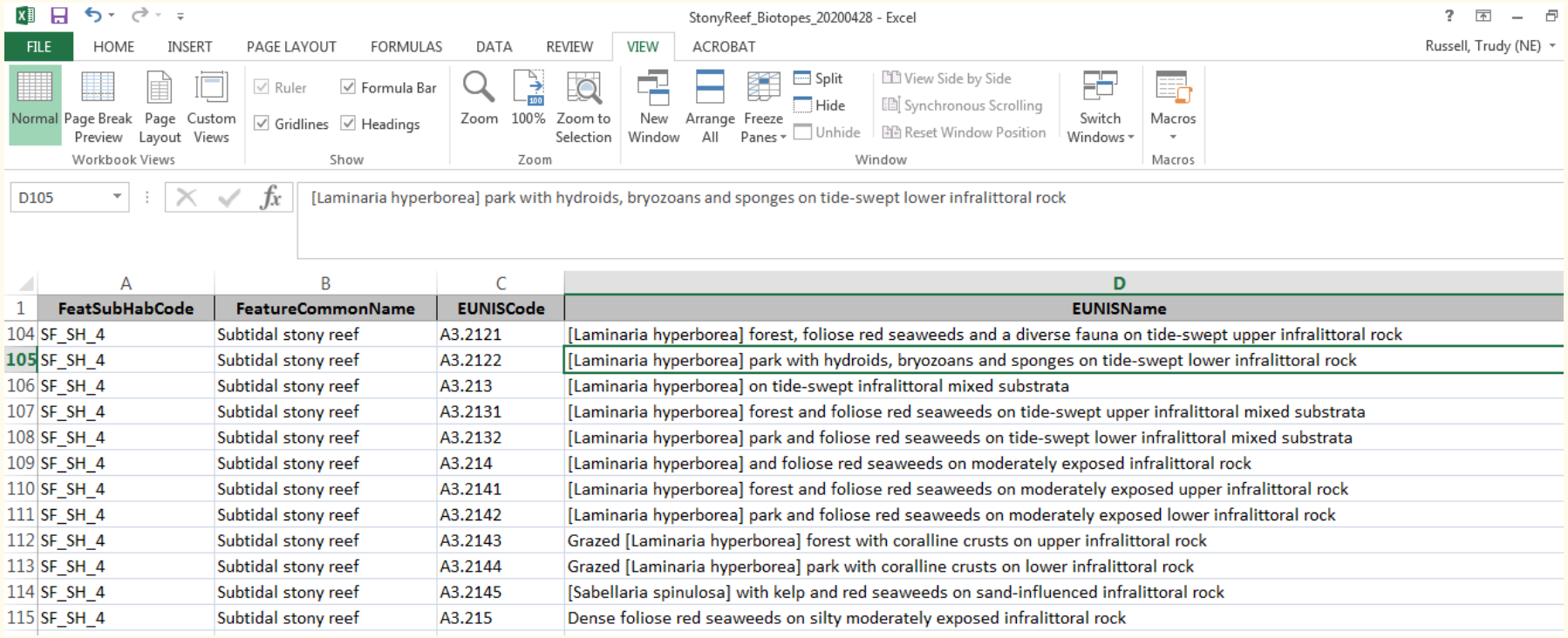
e	Attribute	Target	Season	Supporting notes
	Distribution: presence and spatial distribution of biological communities	Restore the presence and spatial distribution of stony reef communities	N/A	A variety of communities make up the habitat. Listed component communities reflect the habitat's overall character and conservation interest. Communities are described as biotopes using EUNIS or the Marine Habitat Classification. Communities include, but are not limited to, those that are notable or representative of the feature. Representative communities include, for example, those covering large areas and notable communities include those that are rare, scarce or particularly sensitive to pressure. Changes to the spatial distribution of communities across the feature could highlight changes to the overall feature (Joint Nature Conservation Committee (JNCC), 2004). Site-specifics: In the Lyme Bay reefs, the stony reef communities are predominantly characterised by high and moderate energy exposure (Jenkins and Eggleton, 2014), (Sheehan et al., 2013), (Vanstaen and Eggleton, 2011). A4.13 'Mixed faunal turf communities on circalittoral rock' and A4.312 'Large solitary ascidians and erect sponges on wave-sheltered circalittoral rock' are representative communities that occur, particularly in the east of Lyme Bay (Sheehan et al., 2013). The dominant notable biotope is A4.1311 '*Eunicella verrucosa* and *Pentapora fascialis* on wave-exposed circalittoral rock' and is characterised by the pink sea fan *Eunicella verrucosa* (Sheehan et al., 2013). A4.214 'Faunal and algal crusts on exposed to moderately exposed circalittoral rock' communities are found mainly on stony reefs in the west of Lyme Bay (Sheehan et al., 2013). Although there is some evidence of stony reef in the Mackerel Cove to Dartmouth reefs (Ross, 2011), data is limited and confidence in the communities present for this habitat type is low. Historical scallop dredging in the Lyme Bay area has resulted in reef degradation of stony reefs as well as loss of epifaunal species. Ongoing research suggests there is a trend towards recovery since the use of bottom-towed gear has been severely restricted in the site
	Extent and distribution	Maintain the total extent and spatial distribution of stony reef subject to natural variation in sediment veneer.	N/A	The extent describes the presence and area of the habitat. It's the total area of the habitat across the site as a whole, even where it's patchy. The distribution describes the more detailed location(s) and pattern of habitat across the site. The distribution will influence the component communities present, and also help increase the health and resilience of the feature. The extent of stony reef is unlikely to change over time, unless as a result of human activity. However, the reef boundaries may become indistinct if bedrock is covered by a thin layer of sediment (Joint Nature Conservation Committee (JNCC), 2004). Site-specifics: The total combined extent of reef across the entire site is provided at the reef feature level. In Lyme Bay stony reefs occur as mosaic habitats with bedrock reef and are often interspersed with patches of sand and gravel (Vanstaen and Eggleton, 2011), (Munro and Baldock, 2012). An area of mixed bedrock and stony reef has been identified south of Lyme Regis, covering part of Lanes Ground (Jenkins and Eggleton, 2014). Drop down video surveys have identified stony reef between Lyme Regis and West Bay in an area known as saw-tooth ledges (Sheehan et al., 2013). Further east, between West Bay and Abbotsbury another mosaic of bedrock and stony reef occurs (Jenkins and Eggleton, 2014), (Evans, 2013). Stony reefs have also been identitid in the vicinity of Beer Home ground (Sheehan et al., 2013). In the Mackerel Cove to Dartmouth Reefs area, drop down video surveys have identified stony reef occurring north-west of Hope's Nose (Ross, 2011). Acoustic surveys have identified further potential areas of stony reef occurring alongside bedrock reef in the Lyme Bay and Torbay SAC, however confidence in the underlying evidence is low and it is recommended that further work is undertaken to groundtruth these areas (Jenkins and Eggleton, 2014), (Vanstaen and Eggleton, 2011).

Stony reef conservation advice: Feature Framework

- [Maintain OR Recover] the total extent of stony reef [at / to Xkm² / ha], and spatial distribution as defined on the map [subject to natural variation in sediment veneer].
- “In the supplementary site information, describe the natural character of the reef, including the natural change in sediment veneers.”
- [Maintain OR Recover] the surface and structural complexity provided by geogenic structures (ie cobbles, boulders) and the structural organisation of the substrate.
- “Structural and surface complexity, interstitial spaces, fissures and crevices are all examples of aspects that should be considered. This helps to determine the presence of stony reef as opposed to coarse subtidal sediment.”

Stony reef conservation advice: Eunis list

- 212 codes on the list (75 intertidal)
- Created for all features during conservation advice update
- Only includes rock codes



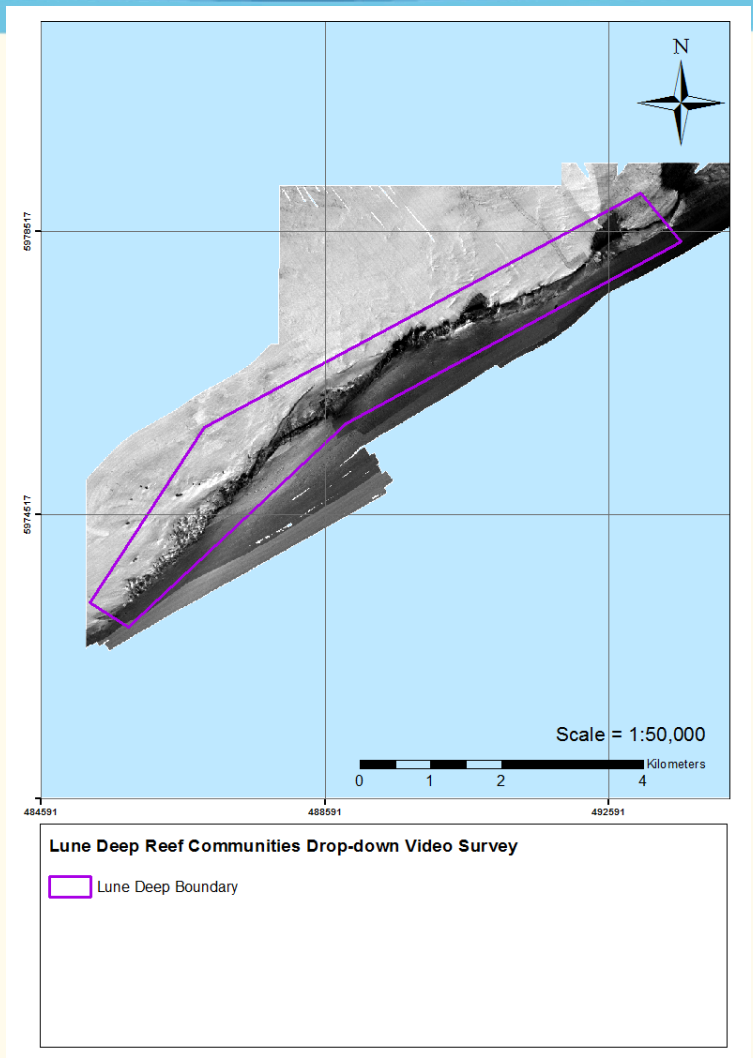
	A	B	C	D
1	FeatSubHabCode	FeatureCommonName	EUNISCode	EUNISName
104	SF_SH_4	Subtidal stony reef	A3.2121	[Laminaria hyperborea] forest, foliose red seaweeds and a diverse fauna on tide-swept upper infralittoral rock
105	SF_SH_4	Subtidal stony reef	A3.2122	[Laminaria hyperborea] park with hydroids, bryozoans and sponges on tide-swept lower infralittoral rock
106	SF_SH_4	Subtidal stony reef	A3.213	[Laminaria hyperborea] on tide-swept infralittoral mixed substrata
107	SF_SH_4	Subtidal stony reef	A3.2131	[Laminaria hyperborea] forest and foliose red seaweeds on tide-swept upper infralittoral mixed substrata
108	SF_SH_4	Subtidal stony reef	A3.2132	[Laminaria hyperborea] park and foliose red seaweeds on tide-swept lower infralittoral mixed substrata
109	SF_SH_4	Subtidal stony reef	A3.214	[Laminaria hyperborea] and foliose red seaweeds on moderately exposed infralittoral rock
110	SF_SH_4	Subtidal stony reef	A3.2141	[Laminaria hyperborea] forest and foliose red seaweeds on moderately exposed upper infralittoral rock
111	SF_SH_4	Subtidal stony reef	A3.2142	[Laminaria hyperborea] park and foliose red seaweeds on moderately exposed lower infralittoral rock
112	SF_SH_4	Subtidal stony reef	A3.2143	Grazed [Laminaria hyperborea] forest with coralline crusts on upper infralittoral rock
113	SF_SH_4	Subtidal stony reef	A3.2144	Grazed [Laminaria hyperborea] park with coralline crusts on lower infralittoral rock
114	SF_SH_4	Subtidal stony reef	A3.2145	[Sabellaria spinulosa] with kelp and red seaweeds on sand-influenced infralittoral rock
115	SF_SH_4	Subtidal stony reef	A3.215	Dense foliose red seaweeds on silty moderately exposed infralittoral rock

Assessing from Monitoring

- Due to shallow nature of in-shore sites full acoustic surveys are often prohibitively expensive
- Site selection based on obvious high reefiness areas
- Casework is often when low reefiness areas are found

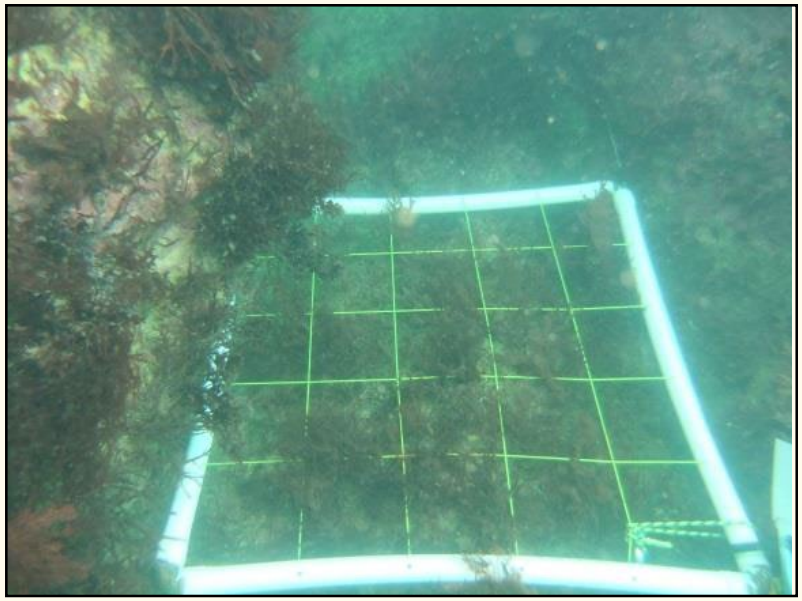
Assessing from Monitoring: Acoustics & DDV

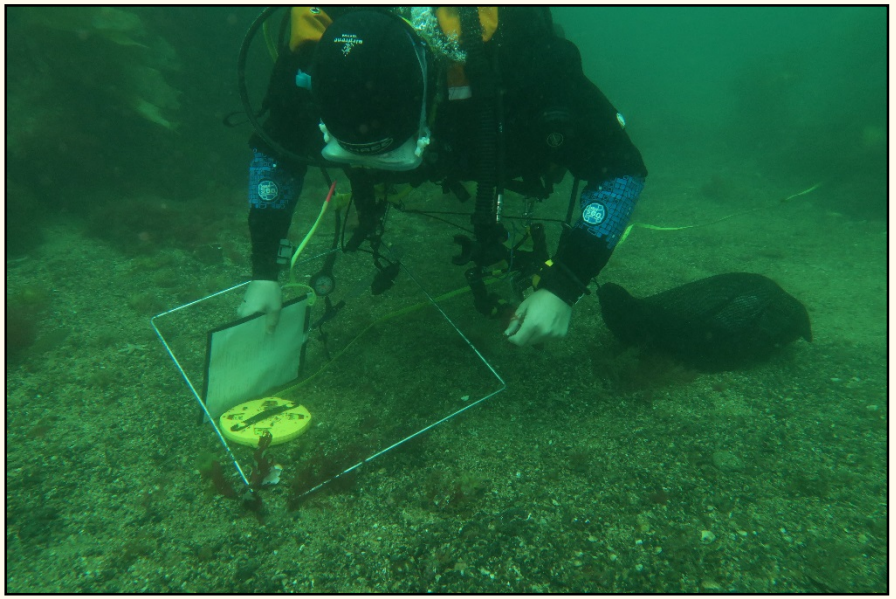
- This work is done by partners and consultants not in-house, therefore limited experience
- Generally only confident in surveys with good coverage of both acoustic and DDV data
- Often areas of mixed sediment and areas of cobbles and boulders appear to be very similar in acoustic datasets
- High patchiness and boundary areas often have wide transition zone so biotope mapping difficult, biotope matrix…



Assessing from Monitoring: Diving

- In-house dive team & contractors
- Sites predetermined – from historic surveys, DDV, local knowledge
- Typically given target biotope or habitat description to find, therefore almost never covers low reef
- Data collection – mainly species composition, no assessment of sediment/rock composition currently

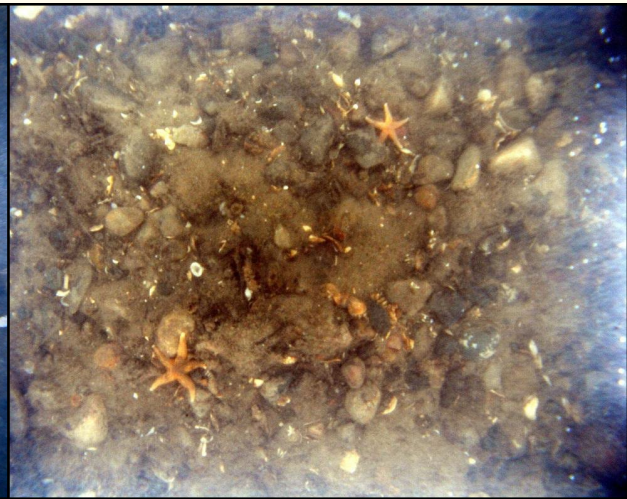




Walney Extension Offshore Wind Farm

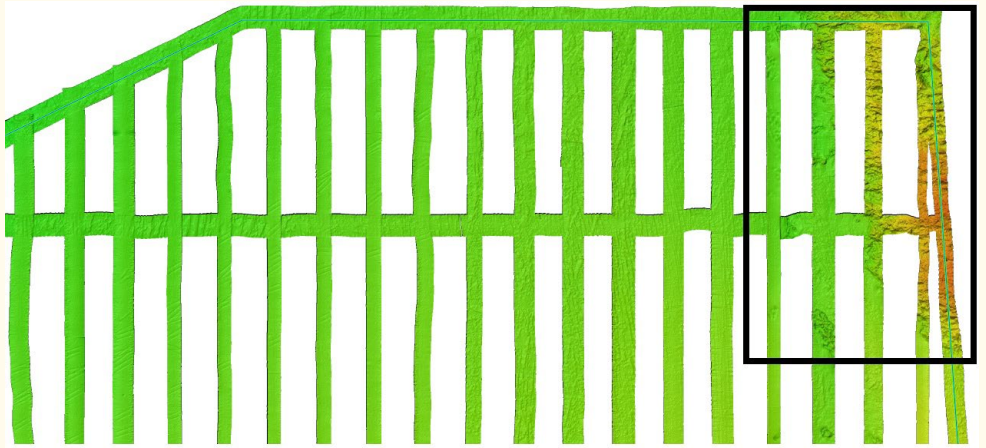
- Original cable route proposal (2011) showed some low reefiness/potential stony reef in/near Lune Deep SAC.
- It had large clast sizes and good rock % coverage but the levels of epifaunal growth were low so we were unsure of its annex 1 representivity for a while and it was debated.
- In the end we said it was and the consultants agreed and a second cable route was identified which avoided it.

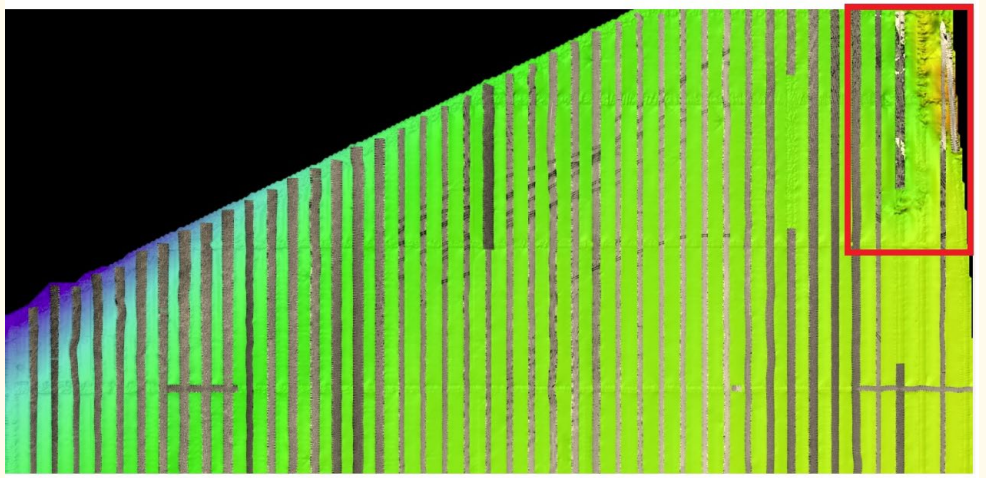




Shell Flat Fisheries Assessment

- Area team recently consulted on an MMO HRA for fishing for Shell Flat and Lune Deep SAC.
- Found a little patch of rock in the Shell Flat portion of the site.
- Multibeam and backscatter data which shows the patch as being rocky/coarse seabed but no drop down video to determine whether it is or not.
- Other images from general area show fairly impoverished rock with low reefiness

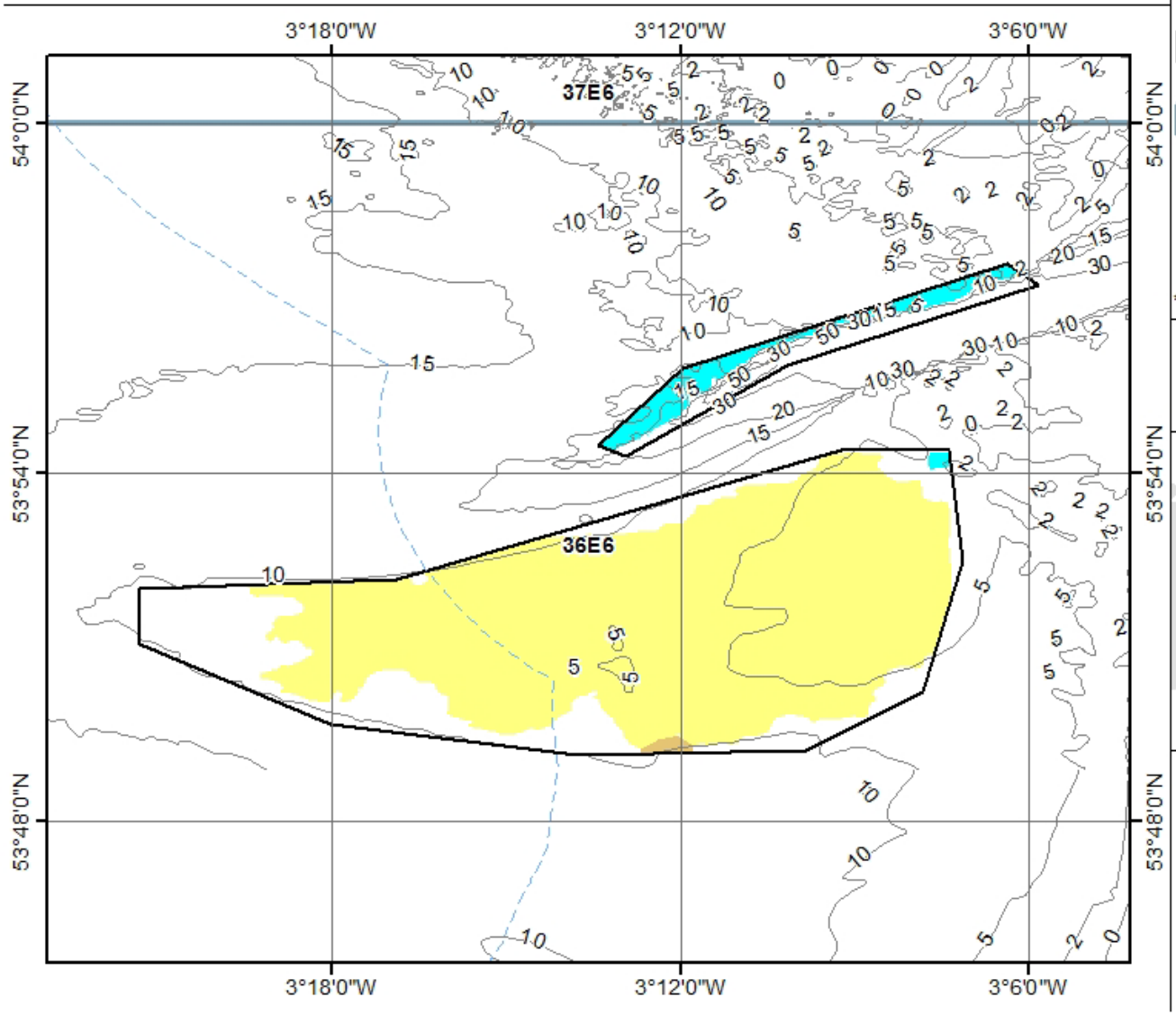




Marine Management Organisation

Shell Flat and Lune Deep: Special Area of Conservation

Designated Features



Bathymetry Contours (UKHO)

6 Nautical Mile Limit (1983) (UKHO)

Shell Flat and Lune Deep SAC

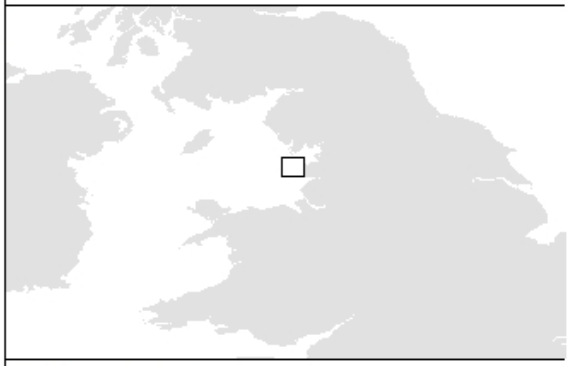
ICES Statistical Rectangles

Habitat Type

- Subtidal sand (A5.2)
- Subtidal mud (A5.3)
- Circalittoral rock (A4)

*Benthic habitat data clipped to MCZ

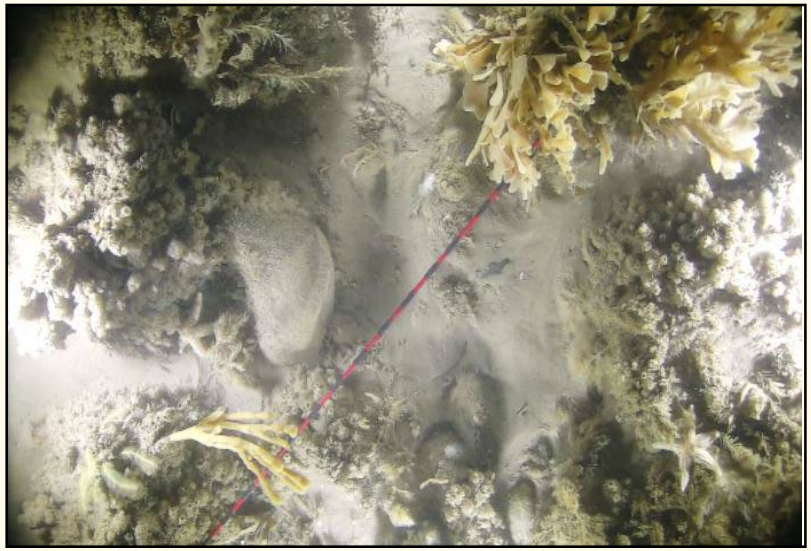
Date: 16/01/2020
Coordinate System: GCS ETRS 1989
Datum: ETRS 1989
Units: Degree



Document Name: Shell Flat and Lune Deep Feature Map

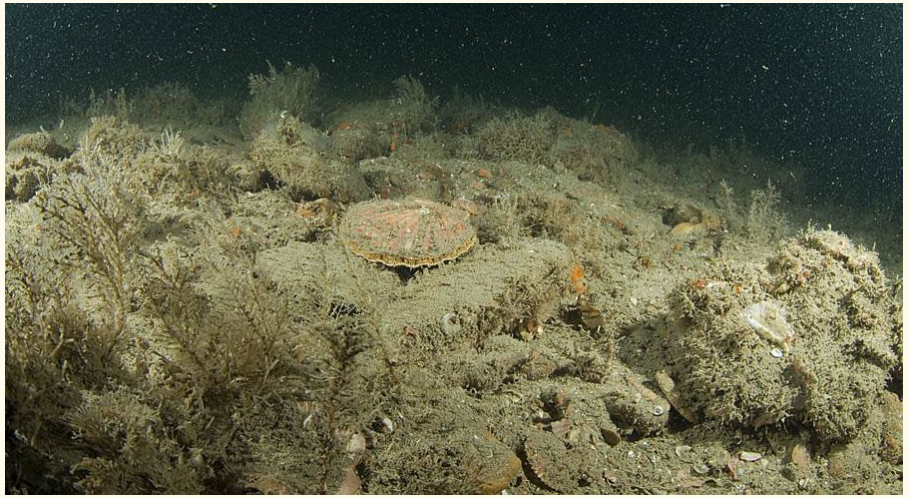
Shell Flat Fisheries Assessment

- Advised the MMO that in the absence of any evidence to the contrary they should be precautionary and consider the rocky/coarse area as annex 1 stony reef
- NWIFCA “would need clear evidence of this patch being reef to support amendment to current byelaw”
- Site leads “Are seeking further internal advice from specialists as to whether it is possible that the protection of the reef feature can be removed from the Shell Flat proportion of this site- effectively turning the area into ‘site fabric’ “

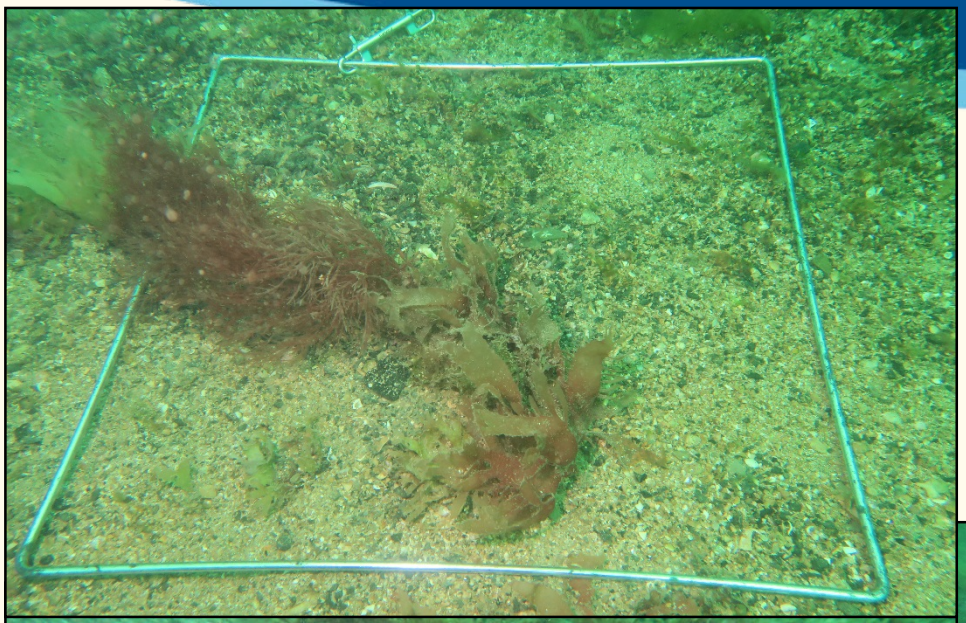


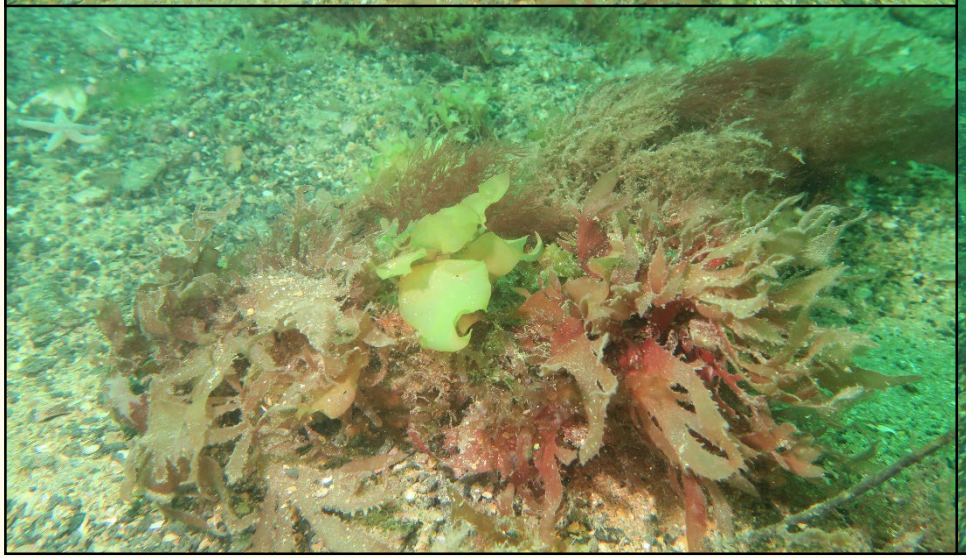
Lyme Bay Fishery Closure

- A 60 nm^2 area was closed to all bottom towed gear in July 2008 following voluntary closures from 2001
- Lots of monitoring was undertaken to assess the effects including a diver study focusing on stony reef
- Newly closed areas showed signs of sponge & *Alcyonium* recovery
- Reef species also colonised areas previously considered to be sediment, veneer habitats more widespread in the site

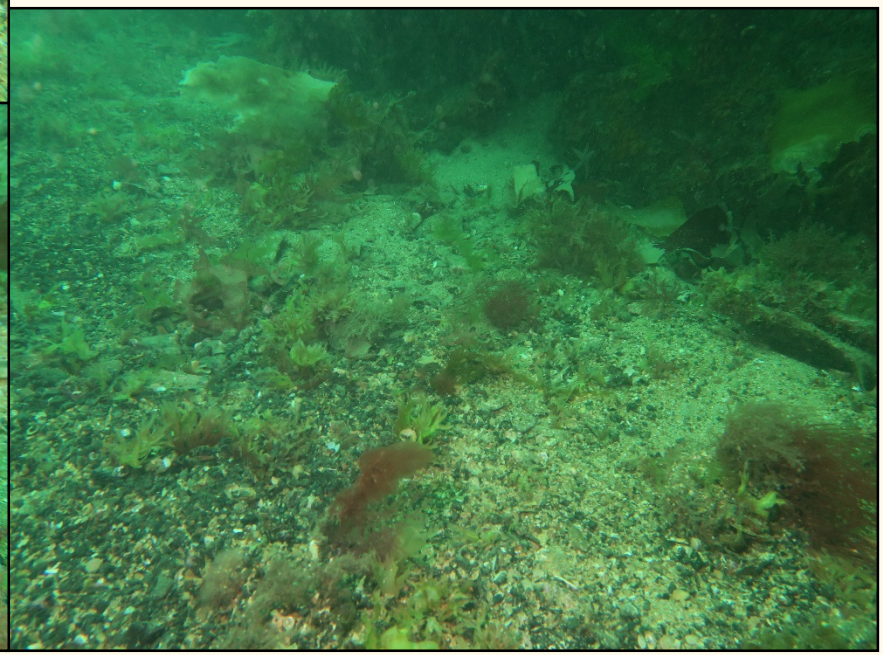


Plymouth SAC: Duke Rock South survey site
Low Reef? Veneer?





Biotope code:
SS.SMp.KSwSS.LsacR.CbPb Red seaweeds and kelps on tide-swept mobile infralittoral cobbles and pebbles



Any Questions?

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