Fisheries in EMS Habitats Regulations Assessment for Amber and Green risk categories

European Marine Site: Braunton Burrows

Fishing activities assessed: Bait collection

Gear/feature interactions assessed:

D&S IFCA Interaction ID	Fishing Activity	Sub-feature(s)
HRA_UK0012570_L40	Digging with forks	Intertidal mudflats and sandflats

IFCA reference:
BBSAC_003

Contents

1. Introduction

1.1 Need for an HRA assessment

In 2012, the Department for Environment, Food and Rural Affairs (Defra) announced a revised approach to the management of commercial fisheries in European Marine Sites (EMS). The objective of this revised approach is to ensure that all existing and potential commercial fishing activities are managed in accordance with Article 6 of the Habitats Directive.

This approach is being implemented using an evidence based, risk-prioritised, and phased basis. Risk prioritisation is informed by using a matrix of the generic sensitivity of the sub-features of EMS to a suite of fishing activities as a decision making tool. These sub-feature-activity combinations have been categorised according to specific definitions, as red, amber, green or blue.

Activity/feature interactions identified within the matrix as red risk have the highest priority for implementation of management measures by the end of 2013 in order to avoid the deterioration of Annex I features in line with obligations under Article 6(2) of the Habitats Directive.

Activity/feature interactions identified within the matrix as amber risk require a site-level assessment to determine whether management of an activity is required to conserve site features. Activity/feature interactions identified within the matrix as green also require a site level assessment if there are “in combination effects” with other plans or projects.

Site level assessments are being carried out in a manner that is consistent with the provisions of Article 6(3) of the Habitats Directive. The aim of this assessment is to determine whether management measures are required in order to ensure that fishing activity or activities will have no adverse effect on the integrity of the site. If measures are required, the revised approach requires these to be implemented by 2016.

The purpose of this site specific assessment document is to assess whether or not in the view of Devon & Severn Inshore Fisheries and Conservation Authority (D&S IFCA) the fishing activities digging with forks have a likely significant effect on the ‘intertidal mudflats and sandflats’ of the Braunton Burrows SAC, and on the basis of this assessment whether or not it can be concluded that digging with forks will not have an adverse effect on the integrity of this EMS.

1.2 Documents reviewed to inform this assessment

- Natural England’s risk assessment Matrix of fishing activities and European habitat features and protected species[1]
- Reference list (Annex 1)
- Natural England’s consultation advice (Annex 2)
- Site map(s) – sub-feature/feature location and extent (Annex 3)
- Fishing activity data (map(s), etc.) (Annex 4)

[1] See Fisheries in EMS matrix: http://www.marinemanagement.org.uk/protecting/conservation/documents/ems_fisheries/populated_matrix3.xls

2. Information about the EMS

Braunton Burrows is one of the largest dune systems in Britain, about 5km long and 1.5km wide, with lime-rich dunes up to 30m high and extensive system of variably-flooded slacks, grassland and scrub, inland of a wide sandy foreshore. The foreshore consists mainly of sandy flats, rich in lime from broken shells, with some intertidal shingle grading to silt in the adjacent estuary. Devon and Severn IFCA will only be assessing fishing activities occurring within the intertidal.

2.1 Overview and qualifying features (Figure 2, Annex 3)

Braunton Burrows qualifies as a SAC for the following Annex I habitats as listed in the EU Habitats Directive (Natural England, 2014):

- Mudflats & sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats
- Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"); Shifting dunes with marram
- Fixed dunes with herbaceous vegetation ("grey dunes"); Dune grassland
- Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*); Dunes with creeping willow
- Humid dune slacks
- *Petalophyllum ralfsii*; Petalwort

Intertidal mudflats and sandflats: Most of the exposed sediment in the intertidal is classified as A2.231 'polychetes in littoral fine sand' and the mussel bed located on Sprat Ridge A2.72 'littoral mussel beds on sediment'.

2.2 Conservation Objectives

The site's conservation objectives which apply to the **Special Area of Conservation** and the natural habitat and/or species for which the site has been designated are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the Favourable Conservation Status of its qualifying features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of the qualifying species
- the structure and function (including typical species) of qualifying natural habitats
- the structure and function of the habitats of qualifying species
- the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

3. Interest feature(s) of the EMS categorised as 'red' risk and overview of management measure(s) (if applicable)

- No 'red' risk features within Braunton Burrows SAC.

4. Information about the fishing activities within the site

Digging with forks on the intertidal occurs for the collection of sand eels. Digging for sand eels occurs at a low level. It is carried out on Sprat Ridge during the winter by one person for recreational use only. Due to the location, bait digging is only carried out on Sprat Ridge during big spring tides. The individual goes bait digging only a couple of times a year. Bait digging does not occur on the mussel bed associated with the feature assessed.

The boundary of Sprat Ridge is subject to the natural variation in the sediment distribution and thus the site boundary used for Sprat Ridge in Annex 3, Figure 2 is not a definite site boundary.

5. Test for Likely Significant Effect (LSE)

5.1 Table 1: Assessment of LSE

1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?	**No**
2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)	• Abrasion/disturbance of the substrate on the surface of the seabed • Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion • Removal of non-target • Removal of target species **See Annex 5 for pressures audit trail**
3. Is the feature potentially exposed to the pressure(s)? Table continues on the next page…	**Yes,** there are currently no D&S IFCA management measures prohibiting the use of digging with forks in Braunton Burrows SAC. Bait digging occurs on a low level during the winter by one individual for sand eels.

4. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level?	There is a small amount of literature available on the effects of trampling in the intertidal sediments. Rossi et al. (2007) noted the effect of trampling on benthic infauna of an intertidal mudflat. Low levels of trampling, which amounted to passes by five individuals twice a month, saw no change in sediment properties and microphytobenthos biomass but reduced the abundance of adult *Macoma baltica* and size II *Cerastoderma edule*, although small (size I) *C. edule* showed no effects and juvenile *M. baltica* increased in abundance. Sheehan et al. (2010) investigated the effects of trampling on intertidal mudflat macrofauna. Trampling was conducted 3 times a week for 1 month. The abundance and diversity of macro-infauna was found to be lower as a result of trampling, and areas with a greater proportion of fine particles were most affected. Johnson et al. (2007) examined the effects of trampling on nematodes in mudflats. Plots were trampled 6 times over a 2 week period which significantly reduced nematode abundance. This might have been caused by meiofauna burrowing deeper into the sediment. However, 12-36 hours after activity ceased, species numbers had returned to control levels. Johnson et al. (2007) attributed the fast recovery to the dynamic nature of intertidal mudflats, which frequently experience natural disturbance. Disturbance by hand cockle raking on a sandflat found a decrease in fauna abundance and communities in raked plots showed community changes relative to control plots 14 days after the initial disturbance and small raked plots recovered after 56 days (Kaiser et al., 2001). Dernie et al. (2003) found clean sand communities had the most rapid recovery rate following disturbance from digging, with muddy sand communities having the slowest physical and biological recovery rates. Bait digging for sand eels is believed to occur on mobile sand on Sprat Ridge (A2.231 'polychetes in littoral fine sand'). Bait digging does not occur on the mussel bed. Impacts from disturbance on intertidal sediments are extremely localised. Bait digging only impacts a small area in a high energy environment where sediment movement is likely to occur naturally on most tides. Therefore, the attributes presence, spatial distribution and species composition of mudflat and sandflat communities are not thought to be significantly affected.	
5. Is the potential scale or magnitude of any effect likely to be significant?	**Alone**	**No**, there are low levels of this activity occurring on a small area of the site. **Taking into consideration the levels of activity, D&S IFCA conclude that there would be little to no effect/ impact on the feature.**

	In-combination	**No, see section 8 for more information**
6. Have NE been consulted on this LSE test? If yes, what was NE's advice?	**No**, not at this stage.	

6. Appropriate Assessment

An Appropriate Assessment is not required as the TLSE concluded that this activity would not have a significant effect, either alone or in-combination.

6.1 Potential risks to features

Table 2: Summary of Impacts

Feature/Sub feature(s)	**Conservation Objective**	**Potential pressure (such as abrasion, disturbance) exerted by gear type(s)**	**Potential ecological impacts of pressure exerted by the activity/activities on the feature** *(reference to conservation objectives)*	**Level of exposure of feature to pressure**	**Mitigation measures**

7. Conclusion

N/A

8. In-combination assessment

8.1 Other fishing activities

The following fishing activities are either occurring or have not been ruled out as occurring at low levels in the Braunton Burrows SAC.

Longlines – Activity is occurring at a low level on Sprat Ridge. Officers have recorded 18 full longlines and 3 single posts. Metal stakes are fixed into the sediment. Fishing occurs over the winter period by one individual. Due to commercial longlining and bait digging both occurring at a low level, no in-combination effect thought to be possible.

Handworking – The collection of mussels occurs at a low level on Sprat Ridge. Management measures are in place to monitor the mussel bed and close it to the removal of mussels if needed. Bait digging occurs on the intertidal sediments and would theoretically not interact with the mussel beds. Therefore no in-combination effect thought to be possible.

The following activities have been ruled out as not occurring: crab tiling, static pots/ traps, static fixed nets, passive nets, beach seine/ ringnets, shrimp push nets, fyke and stakenets and bait dragging.

D&S IFCA concludes there is no likelihood of significant adverse effect on the interest features from in-combination effects with other fishing activities addressed within section 8.1.

8.2 Other activities

Currently there are no known proposed plans or projects in Braunton Burrows which could theoretically interact with the intertidal sub-features addressed.

Other*:* The impact of future plans or projects will require assessment in their own right, including accounting for any in-combination effects, alongside existing activities.

D&S IFCA concludes there is no likelihood of significant adverse effect on the interest features from in-combination effects with other plans or projects addressed within section 8.2.

9. Summary of consultation with Natural England

Natural England were consulted in January 2016 regarding the inclusion of plans/projects for in-combination assessments.

Natural England were consulted in February 2016 for advice on assessing activities within Braunton Burrows SAC without a conservation advice package.

10. Integrity test

Conclusion of adverse effect/non-adverse effect either alone or in-combination. This will be reliant on the consideration of mitigation measure(s) documented in the AA and summarised here in conclusion.

Annex 1: Reference list

Dernie, K.M., Kaiser, M.J. and Warwick, R.M. (2003) Recovery rates of benthic communities following physical disturbance. Journal of Animal Ecology, 72, 1043-1056.

Johnson, G.E.L., Attrill, M.J., Sheehan, E.V. and Somerfield, P.J., (2007) Recovery of meiofauna communities following mudflat disturbance by trampling associated with crab-tiling. Marine Environmental Research, 64, 409-416.

Kaiser, M.J., Broad, G. and Hall, S.J. (2001) Disturbance of intertidal soft-sediment benthic communities by cockle and hand raking. Journal of Sea Research, 45, 119-130.

MAGIC (2016) Multi-Agency Geographic Information for the Countryside interactive map http://magic.defra.gov.uk/MagicMap.aspx?chosenLayers=sacPIndex,sacIndex,vmlBWIndex,25kBWIndex,50kBWIndex,250kBWIndex,miniscaleBWIndex&box=239892:132120:249587:137589&useDefaultbackgroundMapping=false

Natural England (2014) Marine conservation objectives for Special Area of Conservation: Braunton Burrows (UK0012570)

Rossi, F., Forster, R.M., Montserrat, F., Ponti, M., Terlizzi, A., Ysebaert, T. and Middelburg, J.J., (2007) Human trampling as short-term disturbance on intertidal mudflats: effects on macrofauna biodiversity and population dynamics of bivalves. Marine Biology, 151, 2077-2090.

Sheehan, E.V., Coleman,R.A., Thompson, R.C. and Attrill, M.J. (2010) Crab-tiling reduces the diversity of estuarine infauna. Marine Ecology Progress Series, 411, 137-148.

Annex 2: Natural England’s consultation advice

N/A Natural England has not been consulted at this stage.

Annex 3: Site Map

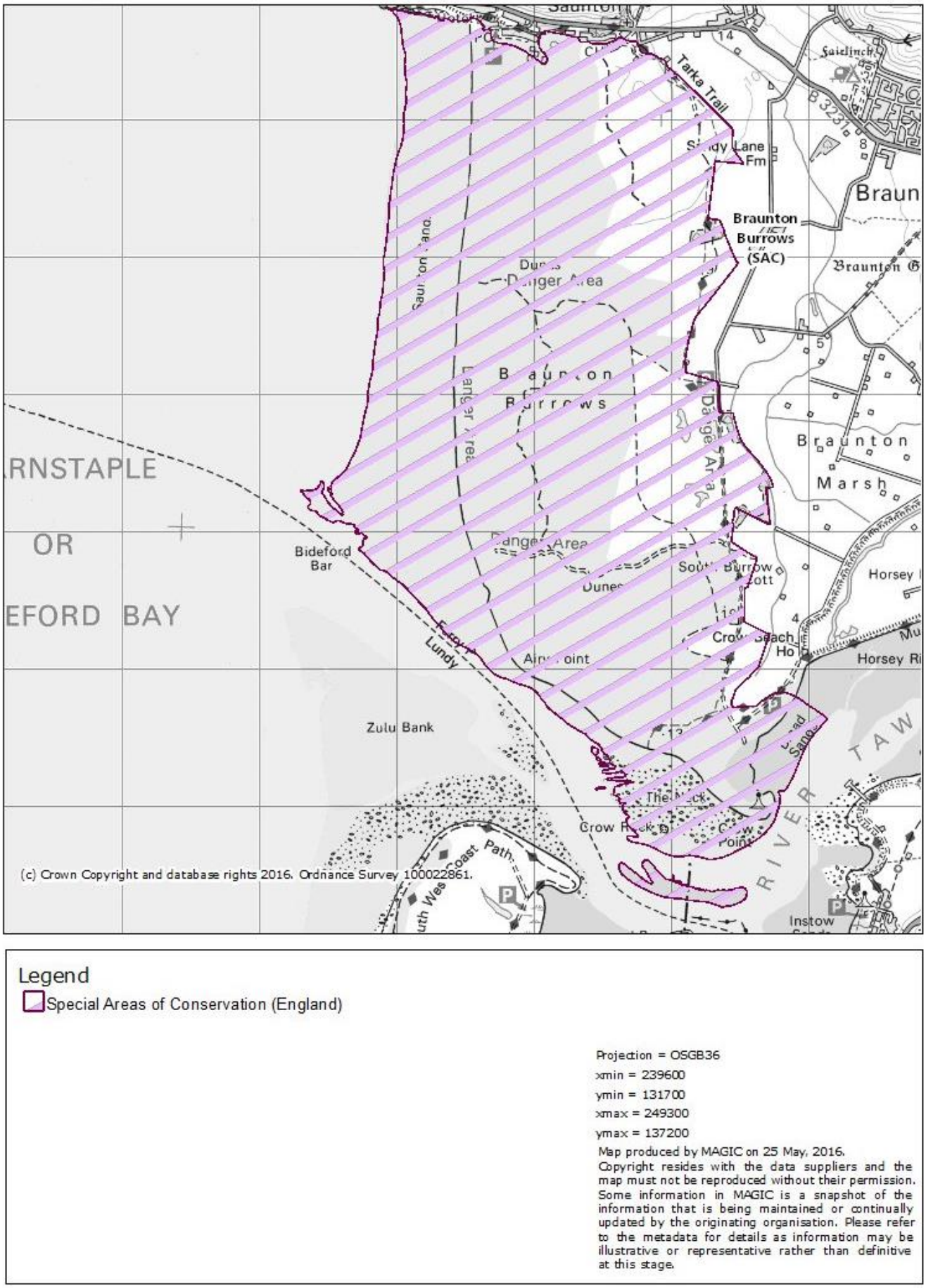

Figure 1 - Area of Braunton Burrows SAC (MAGIC, 2016)

Figure 2 - Area of Braunton Burrows SAC

Annex 4: Fishing activity maps

N/A no fishing activity maps available.

Annex 5: Pressures Audit Trail

Shore-based activities Pressure(s)	**Feature:** Intertidal sand and muddy sand	**Screening Justification**
Abrasion/disturbance of the substrate on the surface of the seabed	**Sensitivity: S**	**IN** – Need to consider spatial scale/intensity of activity to determine likely magnitude of pressure
Genetic modification & translocation of indigenous species	**Sensitivity: IE**	**OUT** - the activity operates in local area only so risk considered extremely low
Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.	**Sensitivity: NS**	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Introduction of other substances (solid, liquid or gas)	**Sensitivity: IE**	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Introduction or spread of non-indigenous species	**Sensitivity: S**	**OUT** – The activity operates in local area only so risk considered extremely low
Litter	**Sensitivity: IE**	**OUT** - Insufficient activity levels to pose risk at level of concern
Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	**Sensitivity: S**	**IN** – Penetration/ disturbance of the substrate would occur from digging
Physical change (to another seabed type)	**Sensitivity: S**	**OUT** - Insufficient activity levels of bait digging and no removal of mussels to pose risk at level of concern to the mussel bed & intertidal sediment.
Removal of non-target species	**Sensitivity: S**	**IN** – Mortality from low incidental by-catch and trampling
Removal of target species	**Sensitivity: S**	**IN** – Removal of target species associated with activity e.g. sand eels