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

European Marine Site: Severn Estuary SPA

Fishing activities assessed: Bait collection

Gear/feature interactions assessed:

D&S IFCA Interaction ID	Fishing Activity	Supporting habitat(s)
HRA_UK9015022_AG40	Digging with forks	Coastal reedbeds
HRA_UK9015022_AW40		Freshwater and coastal grazing marsh
HRA_UK9015022_AE40		Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

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 and Severn Inshore Fisheries and Conservation Authority (D&S IFCA) the current level of effort of use of digging with forks has a likely significant effect on the interest features of the Severn Estuary SAC, and on the basis of this assessment whether or not it can be concluded that the current levels of activity relating to 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

The Severn Estuary is the largest coastal plain estuary in the United Kingdom and one of the largest estuaries in Europe. It has the second largest tidal range in the world and the tidal regime determines not only the structure of the estuary and individual habitats but also the conditions affecting it and the biological communities it therefore supports (Natural England and CCW, 2009). The Severn Estuary EMS includes both SAC and SPA designations which differ slightly in area although broadly overlap.

The Severn Estuary SAC includes the entire extent of the tidal influence from an upstream boundary between Frampton and Awre in Gloucestershire out seawards to a line drawn between Penarth Head in Wales and a location just west of Hinkley point in Somerset (Natural England and CCW, 2009). It includes subtidal and intertidal areas landward to the line of high ground and flood defences (banks and walls) that provide the limit of tidal inundation. The overall area of the European conservation designations is 73,715.4 ha of which roughly two thirds is composed of subtidal habitats and one third is composed of intertidal habitats. The Estuary is an over-arching feature of the EMS which incorporates all aspects of the physical, chemical and biological attributes of the estuary as an ecosystem (Natural England and CCW, 2009).

The estuary lies in the Severn Vale which includes the cities of Cardiff, Bristol, Newport and Gloucester, supporting a number of large-scale industries which exploit the estuaries natural resources.

2.1 Overview and qualifying features

Severn Estuary qualifies as a SPA under the EU Birds Directive for (Natural England, 2015):

- Annex I species
    - Bewick's swan (Cygnus columbianus)
- Regularly occurring migratory species
    - Greater white-fronted goose (Anser albifrons albifrons)
    - Dunlin (Calidris alpina alpina)
    - Redshank (Tringa totanus)
    - Shelduck (Tadorna tadorna)
    - Gadwell (Anas strepera)
- Internationally important assemblage >20,000 waterfowl, includes above species plus the following; Spotted redshank, Curlew, Whimbrel, Grey plover, Ringed plover, Tufted duck, Pochard, Pintail, Teal, Wigeon, Lapwing, Mallard and Shoveler (Natural England and CCW, 2009)
- Supporting habitats
    - Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
    - Coastal reedbeds
    - Freshwater and coastal grazing marsh
    - Intertidal mixed sediment
    - Intertidal mud
    - Intertidal rock
    - Intertidal sand and muddy sand
    - Intertidal seagrass beds
    - Subtidal seagrass beds

2.2 Conservation Objectives

The site's conservation objectives apply to the Special Protection Area and the individual species and/or assemblage of species for which the site has been classified.
The objectives 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 aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the populations of the qualifying features
- the distribution of the qualifying features within the site

3. Interest feature(s) of the EMS categorised as ‘red’ risk and overview of management measure(s)

The following features and sub-features of the Severn Estuary SAC have been identified as high risk in relation to towed gear through the application of the Natural England risk matrix:

- **1130 Estuaries (SAC feature)**
  - High-risk sub-feature: Sabellaria spp. reef
  - High-risk sub-feature: Seagrass
- **1170 Reefs (SAC feature)**
  - High-risk sub-feature: Sabellaria spp.

Management has been implemented to protect the *Sabellaria*. The D&S IFCA Mobile Fishing Permit byelaw prevents the use of towed gear throughout the whole of the portion of the Severn Estuary which sits within the D&S IFCA’s district. The document ‘Site Specific Assessment for Red High Risk Categories’ (D&S IFCA 2013) covers these actions. Seagrass only occurs in the Welsh portion of the district, so has been screened out of the D&S IFCA HRA’s process.

4. Information about the fishing activities within the site

D&S IFCA has carried out a detailed review of the fishing activities taking place within the Severn Estuary EMS (Ross, 2015). D&S IFCA carried out bait digging surveys between 2012 and 2015 and IFCA and a further report specifically focussed on bait digging activity has been produced (West, 2019).

Most of the bait digging effort is focused on sandy and muddy shorelines for *Arenicola marina*. *Allita virens* tends to be targeted in areas of sediment in areas of pebbles or stones. D&S IFCA has not observed any sites where bait digging either occurs on or close to saltmarsh or where trampling of saltmarsh occurs whilst accessing bait digging areas. Furthermore, the Association of Severn Estuary Relevant Authorities (ASERA), in partnership with D&S IFCA, has produced a code of conduct which specifically requests bait diggers to avoid areas of *Sabellaria* reef and saltmarsh which is actively promoted by all ASERA members, including D&S IFCA.

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)	**Supporting habitat(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 species • Removal of target species **See Annex 5 for pressures audit trail**	
3. Is the feature potentially exposed to the pressure(s)?	Yes, there are no current management measures in place so theoretically an interaction could occur.	
4. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level?	If undertaken, bait digging on saltmarsh would cause major damage (Dyrynda 1995). However, this activity does not occur on this habitat so that the potential impacts are not direct (Boorman 2003). Indirect effects are possible through trampling of saltmarsh whilst accessing bait digging areas (Boorman 2003). The effects of trampling will depend on the condition of the saltmarsh, the intensity and frequency and longevity of the disturbance. Low-level chronic trampling of a saltmarsh in Wales over a period of 48 years resulted in increased species and community diversity. Another saltmarsh that was trampled for 17 years had fully recovered 12 years after the disturbance ceased (Headley and Sale 1999). However, in the Severn Estuary bait diggers have direct access to sand and mudflats without having to cross any areas of saltmarsh so trampling is not thought to occur at any of the bait digging areas.	
5. Is the potential scale or magnitude of any effect likely to be significant?	**Alone**	**No,** there is no likelihood of significant adverse effect on the interest features, as a stand-alone project.
	In-combination	**No**
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
N/A

9. Summary of consultation with Natural England
N/A

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

Boorman, L.A. (2003) Saltmarsh Review. An overview of coastal saltmarshes, their dynamic and sensitivity characteristics for conservation and management. JNCC Report, No. 334

Dyrynda, P. (1995). Impacts of bait dragging on the seabed within Poole Harbour. Report to Southern Sea District Fisheries Committee from the Marine Environmental Research Group, University of Wales, Swansea. Summarised on http://www.ukmarinesac.org.uk/activities/bait-collection/bc19.htm, accessed February 2019.

Headley A.D. and Sale F. (1999) The impact of trampling by student groups on saltmarsh vegetation, Field Studies 9(3): 513-530

Natural England and the Countryside Council for Wales' Conservation Advice – formal advice given under Regulation 33(2)(a) of the Conservation (Natural Habitats, &c.) Regulation 1994, as amended. June 2009.

Natural England (2015) Marine conservation advice for Special Area of Conservation: Severn Estuary (UK0013030)

Natural England's risk assessment Matrix of fishing activities and European habitat features and protected species.

Ross E.J. (2015) Fishing Activities Occurring in the Severn Estuary European Marine Site, Devon and Severn IFCA Report

Ross E.J (2013) Site Specific Assessment for Red High Risk Categories, Severn Estuary SAC. Devon and Severn IFCA

West E.J. (2019) Bait digging in the Severn Estuary European Marine Site, Data Analysis Report. Devon and Severn IFCA.

Annex 2: Natural England's consultation advice

Annex 3: Site Map

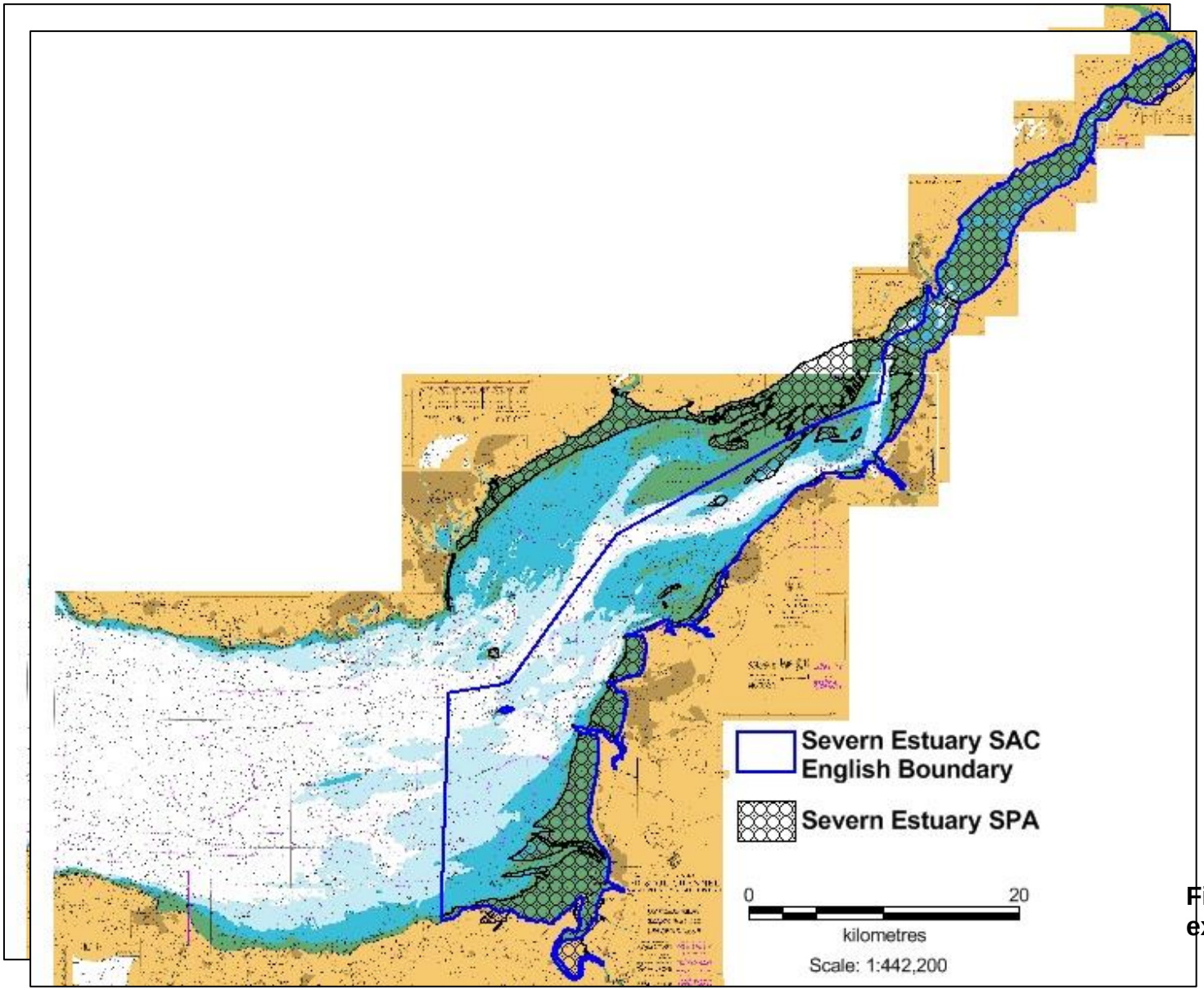


Figure 1 - Map showing the extent of the Severn Estuary SPA

Appendix 5 Map showing the extent of the "Atlantic salt meadow" feature of the Severn Estuary SAC

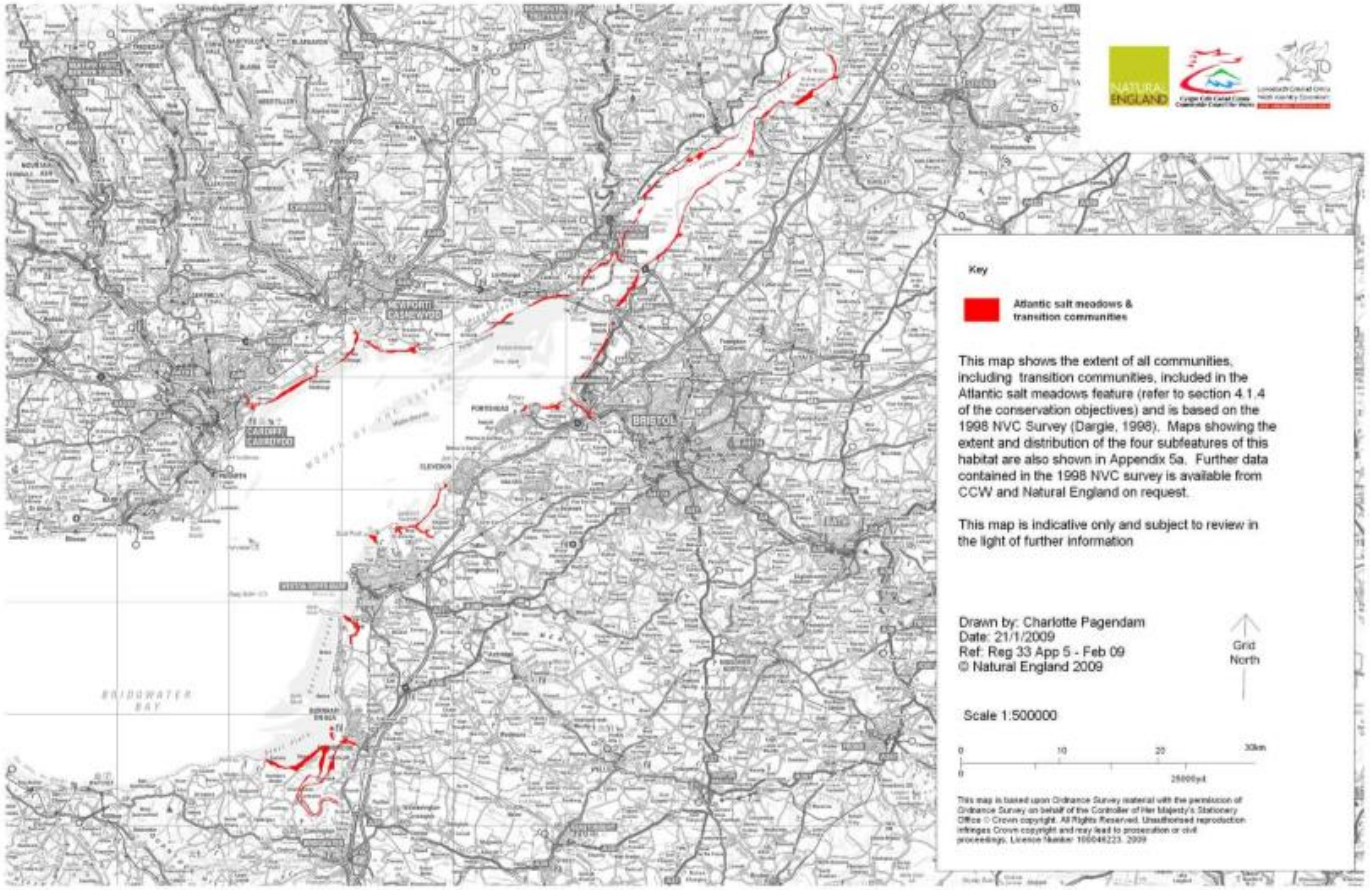


Figure 2. Location of saltmarsh in the Severn Estuary European Marine Site, from the Natural England Regulation 33 Advice.

Annex 4: Fishing Activity Information

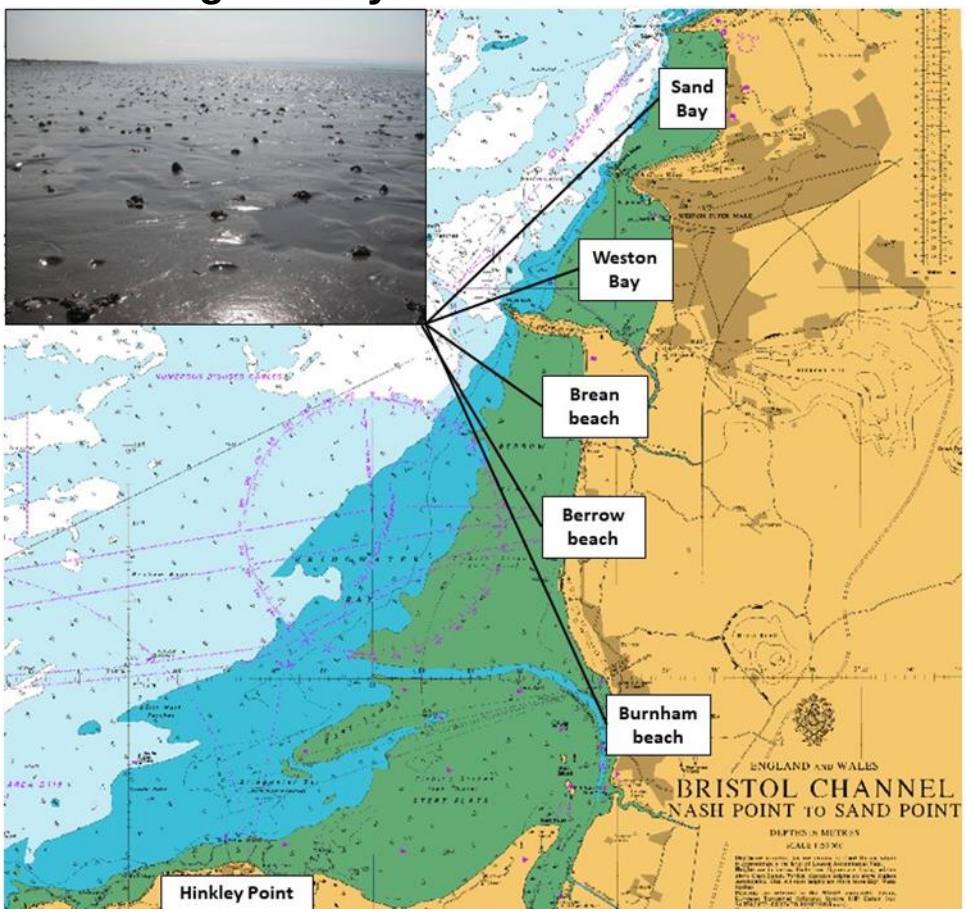


Figure 3. Survey locations for bait digging for lugworm (Weston Bay to Burnham-On-Sea) and ragworm (Hinkley Point) (see West 2019)

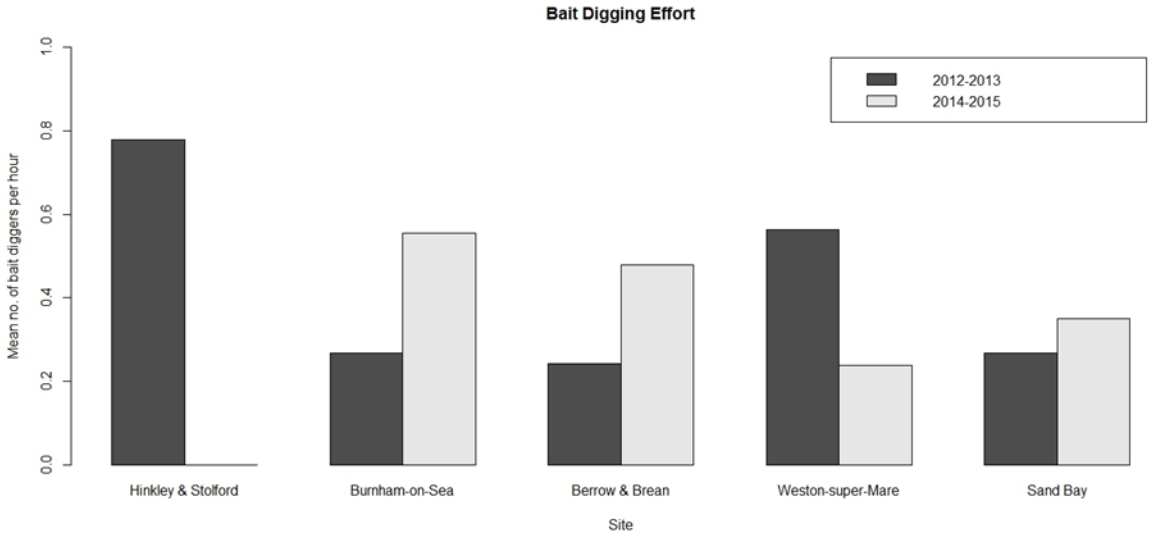
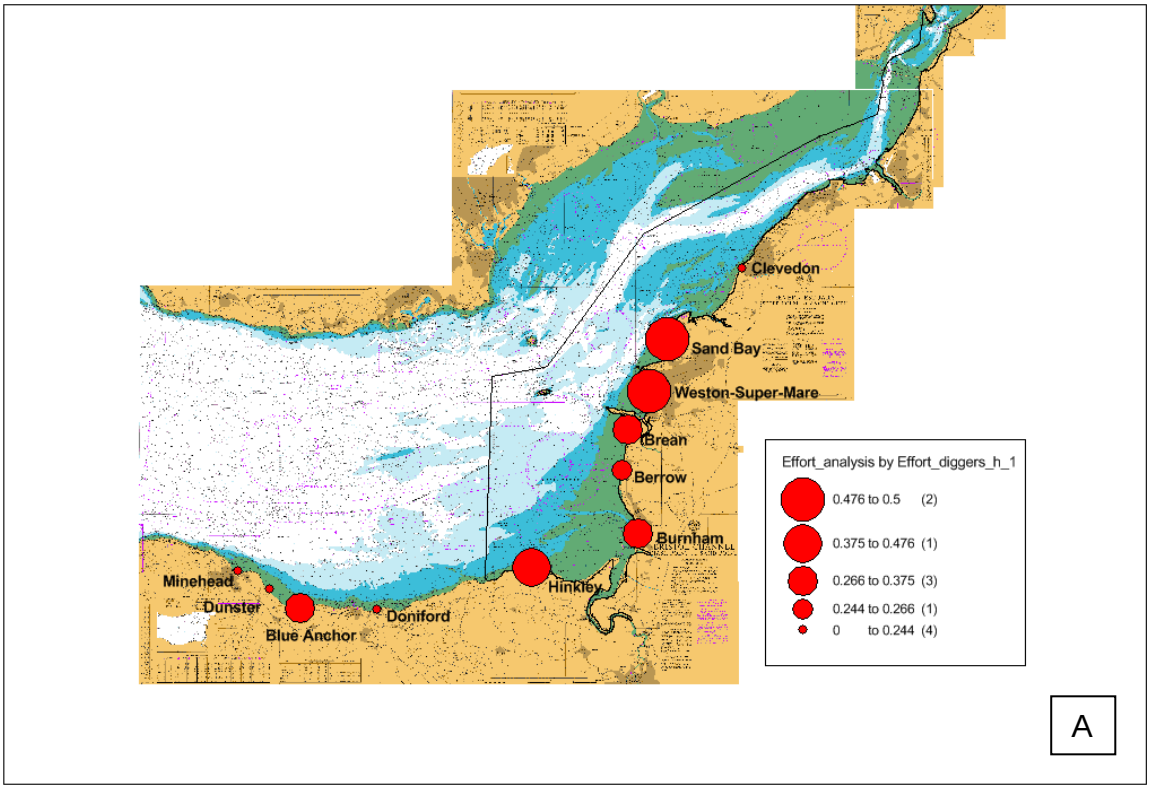


Figure 4. Mean number of bait diggers per hour for both sampling years (see West 2019)



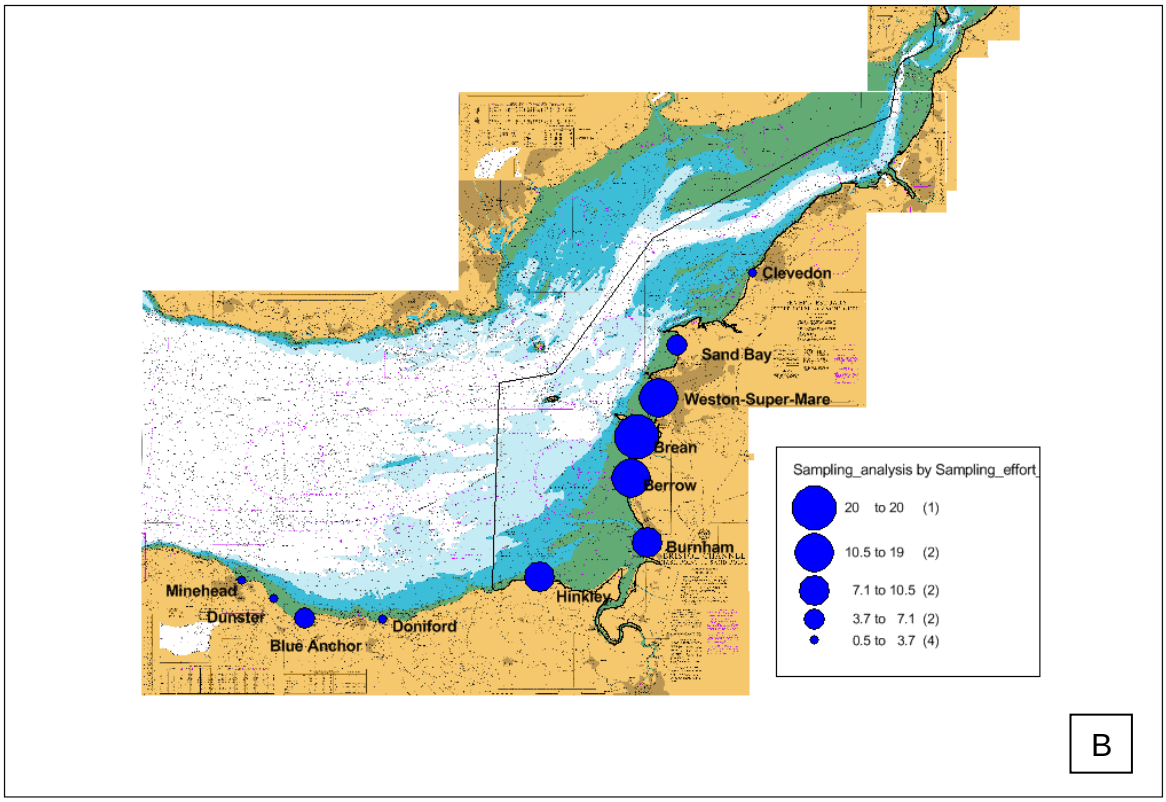


Figure 5 – Survey results 2012-2015, Popularity of different locations in the Severn Estuary for bait digging; A) bait digging intensity (number of bait diggers per sampling hour) and B) sampling effort across the sites.

Annex 5: Pressures Audit Trail

Pressure(s): Shore-based activities	SPA Supporting habitat(s)			Screening Justification
	Coastal reedbeds	Freshwater and coastal grazing marsh	Atlantic salt meadows	
Abrasion/disturbance of the substrate on the surface of the seabed	**NA**	**NA**	**S**	**IN** – Need to consider spatial scale/intensity of activity to determine likely magnitude of pressure
Changes in suspended solids (water clarity)	**NA**	**NA**		**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Deoxygenation	**NA**	**NA**	**NS**	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Habitat structure changes - removal of substratum (extraction)	**NA**	**NA**	**S**	**OUT** – Sediment is not removed from the habitat
Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.	**NA**	**NA**	**NS**	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Introduction of other substances (solid, liquid or gas)	**NA**	**NA**	**IE**	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Introduction or spread of non-indigenous species	**NA**	**NA**	**S**	**OUT** – Activity operates in local area only so risk considered extremely low
Litter	**NA**	**NA**	**IE**	**OUT** – Activity not thought to be associated with litter
Nutrient enrichment	**NA**	**NA**	**NS**	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	**NA**	**NA**	**S**	**IN** – Need to consider spatial scale/intensity of activity to determine likely magnitude of pressure
Physical change (to another seabed type)	**NA**	**NA**	**S**	**OUT** – Activity not believed to change habitat type
Removal of non-target species	**NA**	**NA**		**IN** – Need to consider intensity of activity
Removal of target species	**NA**	**NA**	**S**	**IN** – Need to consider intensity of activity
Siltation rate changes (Low), including smothering (depth of vertical sediment overburden)	**NA**	**NA**		**OUT** – Activity not believed to change rate of siltation
Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC.	**NA**	**NA**	**NS**	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.	**NA**	**NA**	**NS**	**OUT** - Insufficient activity levels to pose risk of large scale pollution event