Marine Conservation Zone Assessment

Site name:	Torbay MCZ UKMO 20130025
Protected feature(s):	Intertidal coarse sediments Intertidal mixed sediments Intertidal mud Intertidal mud and muddy sand Low energy intertidal rock Moderate energy intertidal rock Intertidal underboulder communities Peat and clay exposures Native oyster (*Ostrea edulis*) Seagrass beds Long-snouted seahorse (*Hippocampus guttulatus*)

Fishing activities assessed at this site:

Stage 1 Assessment
Bait collection: Digging with forks

Devon & Severn IFCA Inshore Fisheries and Conservation Authority

D&S IFCA Reference
TOR-MCZ-009

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Author/Reviewer	**Date**	**Comment**	**Version**
Sarah Curtin	12/03/2019	Final draft complete to be sent to NE.	1
Sarah Clark	15/04/2019	Review and QA'ing Complete	1.1

Contents

1. Introduction

This assessment has been undertaken by Devon & Severn Inshore Fisheries and Conservation Authority (D&S IFCA) in order to document and determine whether management measures are required to achieve the conservation objectives of marine conservation zones (MCZs). The IFCA's responsibilities in relation to management of MCZs are laid out in Sections 124 to 126, & 154 to 157 of the Marine and Coastal Access Act 2009.

2. MCZ site name(s), and location

Torbay MCZ (0 - 6nm) is an inshore site located in the south west of the UK. The site covers an area of coastline in South Devon between Oddicombe Beach and Sharkham Point, protecting a total area of 19.8 km^2. Beginning at the coastline, the boundary extends between 1 – 2.5 km out to sea, to a depth of 30m encompassing Hope's Nose near Torquay and Berry Head near Brixham.

Further information regarding the MCZ and its protected features can be found in the Torbay MCZ Factsheet[1].

3. Feature(s) / habitat(s) of conservation importance (FOCI/HOCI) and conservation objectives

Table 1 - Protected features relevant to this assessment

Feature	**General management approach**
Intertidal coarse sediments	Maintain in favourable condition
Intertidal mixed sediments	Maintain in favourable condition
Intertidal mud	Maintain in favourable condition
Intertidal mud and muddy sand	Maintain in favourable condition
Low energy intertidal rock	Maintain in favourable condition
Moderate energy intertidal rock	Maintain in favourable condition
Intertidal underboulder communities	Maintain in favourable condition
Peat and clay exposures	Maintain in favourable condition
Native oyster (*Ostrea edulis*)	Maintain in favourable condition
Seagrass beds	Recover in favourable condition
Long-snouted seahorse (*Hippocampus guttulatus*)	Recover in favourable condition

The conservation objectives for these features are that they are brought into, and remain, in favourable condition.

4. Gear/feature interaction in the MCZ categorised as 'red' risk and overview of management measure

- Seagrass beds were categorised as "red" risk against towed demersal gear. In January 2014 D&S IFCA introduced the Mobile Fishing Permit Byelaw, which prohibits the use of towed gear in certain areas of Torbay MCZ.

[1] MCZ Factsheet http://publications.naturalengland.org.uk/category/1721481

5. Activities under consideration

<u>Bait collection: Digging with forks</u>

During 2016 and 2017 D&S IFCA conducted survey visits to Torbay MCZ to identify the level of bait digging occurring (results can be found in Annex 3).

Bait digging on the intertidal is occurring at a low level for recreational purposes. D&S IFCA is not aware of any commercial bait diggers operating within Torbay MCZ. Bait digging is only known to occur at Broadsands, Goodrington and Hollicombe (Curtin, 2019). A full description of D&S IFCA's current understanding of the levels and distribution within the Torbay MCZ can be found in Curtin (2019).

See Davies (2016) for more information regarding fishing activities occurring in Torbay MCZ.

6. Is there a risk that activities are hindering the conservation objectives of the MCZ?

Yes,
Evidence:
To determine whether each pressure is capable of affecting (other than insignificantly) the site's feature(s), the sensitivity assessments and risk profiling of pressures from the advice on operations section of the Natural England's Conservation Advice Package were used (Natural England, 2015). Table 2 shows the fishing activities and pressures included for assessment. The justifications for the pressures chosen for inclusion in this assessment can be seen in **Error! Reference source not found.**.

Table 2 - Fishing activities and pressures included in this assessment.

Activity	Pressures
Shore-based activities (Bait collection)	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 target species
	Removal of non-target species

The relevant targets for favourable condition were identified within Natural England's Conservation Advice Supplementary Advice Tables (Natural England, 2015). Table 3 shows which targets were identified as relevant to the activity assessed. The impacts of pressures on features were assessed against these targets to determine whether the activities causing the pressures are compatible with the site's conservation objectives.

Table 3 - Relevant favourable condition targets for identified pressures.

Feature	Attribute	Target
Seagrass beds (intertidal and subtidal)	Extent and distribution	Recover the total extent and spatial distribution of seagrass beds
	Extent of supporting habitat	Maintain the area of habitat that is likely to support the sub-feature
	Distribution: presence and spatial distribution of seagrass bed communities	Recover the presence and spatial distribution of seagrass bed communities
	Structure: biomass	Recover the leaf/ shoot density, length, percentage cover, and rhizome mat across the feature at

		natural levels to ensure a healthy, resilient habitat
	Structure: rhizome structure and reproduction	Recover the extent and structure of the rhizome mats across the site, and conditions to allow for regeneration of seagrass beds
	Structure: sediment composition and distribution	Maintain the distribution of sediment composition types across the feature
	Structure: species composition of component communities	Recover the species composition of component communities
	Supporting processes: light levels	Maintain the natural light availability to the seagrass bed
Long-snouted seahorse; Native Oyster	Presence and spatial distribution of the species	Maintain the presence and spatial distribution of the species and their ability to undertake key life cycle stages and behaviours.
	Population: population size	Maintain the population size within the site.
	Population: recruitment and reproductive capability	Maintain the reproductive and recruitment capability of the species.
	Structure and function: biological connectivity	Maintain the connectivity of the habitat within sites and the wider environment to ensure larval dispersal and recruitments, and/ or to allow movement of migratory species.
	Supporting habitats: extent and distribution	Recover the extent and spatial distribution of the following supporting habitats: Long-snouted Seahorse; Seagrass and Native Oyster; Intertidal Low Energy Rock, Subtidal Mud, Moderate Energy Intertidal Rock, Intertidal Coarse Sediment and Intertidal Underboulder communities.
Intertidal coarse sediment; Intertidal mixed sediment; Intertidal sand and muddy sand; Intertidal mud; Intertidal underboulder communities; Low energy intertidal rock; and Moderate energy intertidal rock	Distribution: presence and spatial distribution of communities	Maintain the presence and spatial distribution of communities
	Structure: species composition of component communities	Maintain the species composition of component communities

Section 8 provides detail on the activity and a literature review to support this assessment.

7. Can D&S IFCA exercise its functions to further the conservation objectives of the site?

Yes,
Evidence: Monitoring and Control Arrangements

- Monitoring of activity levels through regular patrols
- Through the IFCA's Byelaw Review process, D&S IFCA will be reviewing all byelaws relating to hand working (including bait digging). Options for management will include, no action, voluntary measures and the consideration of a hand working Byelaw, which would allow the IFCA to monitor levels of this activity in the future and adapt to changes in effort/ environmental conditions if necessary. This might include a requirement to backfill holes/trenches**.**

8. Referenced supporting information to inform assessment

Bait digging has been found to have a range of impacts on both the sediment it occurs on, and the macrofaunal communities within it:

Impacts on sediment

Bait digging can occur to depths of up to 30-40cm, unearthing a deeper sediment that would usually remain undisturbed (Jackson and James, 1979). Changes can therefore occur in sediment characteristics as a result of bait digging. Undug sediment is found to have a higher organic content which is not driven by location. In unexploited sediments, a 10cm layer of well-mixed sand is created by bioturbation (primarily by lugworms), overlying a layer of sands and shell (Anderson and Meyer, 1986). The turning over of sediment by bait diggers and erosion of sediment mounds by tides and wave action leads to a loss of finer fractions and associated organic material. In addition, the depressions from holes dug may accumulate suspended sediment and organic matter resulting in an organically rich anoxic layer at the bottom of the depression (Fowler, 1999, Watson et al., 2017). The exposure and subsequent oxidisation of deep sediments by digging enables heavy metals, such as cadmium and lead, which are bound to sediment particles in reduced (anoxic) conditions, to become bioavailable (Howell, 1985).

If the depressions/ holes are subsequently filled with the overturned sediment through the process of back or in-filling, then the effect of the disturbance is reduced, and recovery can occur within three weeks (Fowler, 1999). Recovery rates are therefore influenced by the energy of the site, and behaviour of the bait diggers. Coarse sand beaches with considerable wave action will recover more quickly than sheltered sites. Experimentally dug plots in a very sheltered location in the Menai Strait were still visible after a year, although this is thought to be due to the presence of boulder clay (Johnson, 1984). Other, less sheltered, sites have reported a timeframe of 25 days for holes to disappear (Johnson, 1984).

Impacts on target species

Both blow lugworm (*Arenicola marina*) and king ragworm (*Alitta virens*) are targeted by bait diggers throughout the D&S IFCA's District.

Relative to other exploited intertidal invertebrates, blow lugworms are thought to be very resilient to exploitation and disturbance because of their relative fecundity, widespread distribution and harvesting of adults does not affect the supply of juveniles from nursery beds elsewhere on the shore (Fowler, 1999). Bait diggers have been reported in the literature to remove 50-70% of *A.marina* present in each area where digging occurs (Heilgenberg 1987, Blake, 1979) but D&S IFCA's observations suggest this may be much lower in some areas, especially where large areas of lugworm exist, and holes are relatively well spread out.

A variety of responses by *A.marina* to exploitation have been reported in the literature. Olive (1993) describes the scenario which led to complete removal of all lugworms from a large area of a National Nature Reserve in Northumberland in 1984, with densities falling from >$40m^{-2}$ to <$1m^{-2}$ within a six-week period. When the site was closed to bait digging it repopulated within a matter of months, thanks to the presence of extensive non-exploited populations nearby. Similarly, lugworm populations in the Dutch Wadden Sea appear to be unaffected by large scale commercial exploitation, with an estimated 2×10^7 individuals taken annually. Blake (1979) reported that complete recolonisation occurred within one month after areas were experimentally dug out in Whitely Bay. In contrast, Cryer et al. (1987) found no recovery in worm densities after 6 months following experimental removal, although natural densities at the test site in South Wales were low (9-16 worms/m^{-2}) and the survey ran through the less productive winter months. Similarly, Harvard and Tindal (1991) found dug areas to recolonise over a period of several months. After 6 months lugworm in experimentally dug plots had only recovered to 21% of control site numbers. The capacity of a population to withstand bait digging activities therefore relies on several factors including the size of the exploited area relative to the total lugworm bed, the presence of other lugworm beds nearby, the presence of nursery areas, the relative exploitation of adult and juvenile lugworm, and the intensity and seasonality of bait digging (Olive, 1993). However, overall, they are thought to be resilient to bait digging.

King ragworm*, Alitta virens,* is a keystone intertidal species as prey for fish, birds, and crustaceans, is a predator of other invertebrates and has an important role in bioturbation of the sediment (Watson et al. 2017). *A.virens* are generally found in more sheltered sediment areas but they can also be found in more mixed sediments (E West, Pers. Obs.). It is suggested in the literature that individuals reach sexual maturity at 2 years, spawn and then die (Farrell, 1999). This life cycle provides a high population turnover enabling them to recover quickly (within one month) from bait digging, provided not all adults are taken from the area dug (Olive, 1993). On the Gann populations of *A.virens* are able to sustain prolonged and intense extraction throughout the year (Evans et al., 2015). However, some individuals can experience delayed maturation, such as the boulder clay population in the Menai Strait resulting in susceptibility to over digging (Olive 1993).

Additional populations of *A.virens* are usually present in adjacent subtidal areas that act as a source of juveniles. They are therefore considered to be resilient to bait digging activities (Fowler, 1999) and have been found to occur in higher densities where bait digging occurs (Watson et al., 2007). This may be as a result of a change in the macrofaunal community benefitting *A.virens*, due to its opportunistic nature (Evans *et al*., 2015). On the North East coast of England, a study found similar densities (~15m^2 during the summer, ~3m^2 during the winter) of *A. virens* in both exploited and unexploited populations (Blake, 1979). Recovery of a *A.virens* population will therefore depend on the age of maturity, the selectivity of the bait digger and the presence of refuge populations in adjacent areas.

Impacts on non-target species

Bait digging can have adverse effects on a wide variety of species as a result of physical damage, burial, smothering and/or exposure to desiccation or predation to non-target invertebrates. The impacts of bait digging on the macrofaunal community are well studied. Recovery of small short-lived invertebrates is usually quick, through migration into the dug areas (Fowler, 1999). For example, McLusky et al (1983) found a reduction of 80-100% for *Hydrobia ulvae* and almost 100% for *Macoma* after bait digging at a site in Scotland, however densities of these species recovered to indistinguishable from pre-disturbance within 3 weeks.

In contrast, populations of larger, long-lived invertebrates with infrequent recruitment may take much longer to become established due to their life history characteristics and fragile nature (Beukema, 1995). In some extreme cases local diversity may be reduced, which may be especially true in physically fragile environments such as eelgrass or mussel beds (Fowler, 1999). For example, Farrell (1999) reported the complete loss of the large sedentary worm *Amphitrite johnstoni* and *Harmathoe imbricate* from experimentally dug sites in Chichester harbour, with no real recovery seen a year after digging. Digging led to a sharp reduction in the total biomass of species recorded that was apparent only one month after digging. In Chichester harbour the complete loss of the large sedentary worm *Amphitrite johnstoni* and *Harmathoe imbricate* was observed from experimentally dug sites, with no real recovery seen a year after digging. Similarly, Beukema (1995) found that within a 1km^2 area of the Dutch Wadden Sea, the local lugworm stock declined by more than double over a four-year mechanical digging period. As a result of this decline, total zoobenthic biomass also declined, with short lived species showing a marked reduction during the digging period. Recovery of the benthos took several years, especially by the slower establishing species. However, if disturbance by digging is short term, benthic communities can recover within six months (Beukema, 1995).

Jackson and James (1979) investigated the effects of bait digging on cockle populations. They found that increased digging in an area caused higher cockle mortality, particularly on smaller individuals. The cause of mortality was due to burial/smothering as individuals that are buried cannot regain their normal position at the surface of the sediment and at a depth of 10cm individuals rarely survived. Shackley *et al*., (1995) also demonstrated these effects in the Burry Inlet, South Wales.

It is important to note that the effects on macrofaunal communities can differ substantially between estuaries. For example, the mud content of an estuary can affect the resilience of the communities to bait digging. Although Dernie et al. (2003) found that it was not possible to predict the recovery rates of assemblages based on percentage of silt and clay in the sediment, there was a good relationship between recovery rate and infilling rate, which is linked to the physical characteristics of the sediment. Clean sand habitats were the quickest to recover both in terms of physical and biological characteristics. Other studies have also found extended recovery times for estuaries with high mud content (Carvalho et al., 2013). The site-specific nature of the impacts of bait digging was also demonstrated by Watson et al. (2017). They found that responses were both site and disturbance type specific. Their data also showed that responses were not consistent between species (e.g. *C. volutator* and *P. ulvae*) or even between those within the same trophic group. They, therefore, concluded that bait collection alters the macrofaunal community and the associated sediment characteristics across large spatial scales, but with the caveat that the strength (and type) of the response is site specific.

Moshabi et al. (2015) also explored the impacts of bait digging on the macrofauna of intertidal mudflats. The fauna of their study area (the tidal mudflats of Kneiss Islands, Tunisia) was mainly composed of polychaetes, the more abundant families being the *Nereididae*, *Arenicolidae* (fishing target species) and the *Cirratulidae*. They found the number of taxa and abundance of individuals were affected by bait digging; the abundances estimated at the control stations were significantly higher than those estimated at the three stations before and after bait collection, with some polychaete species disappearing after one month of bait digging. This indicates that the intertidal macrozoobenthic biodiversity at the impacted stations is affected by the bait digging activity, or possibly by trampling. Trampling has been shown to negatively modify the abundance of some species (*Macoma balthica* and *Cerastoderma edule*) through direct mortality or burial (Rossi *et al*., 2007). However, the effects of trampling from bait diggers would be negligible compared to the footprint of public activity at potential bait digging sites. In addition, recovery can be fast for small invertebrates particularly during the growing season due to a continuous supply of larvae and juveniles.

Seagrass beds and saltmarsh habitat can also be damaged by bait digging as it loosens and uproots plants and may result in beds being washed away. Digging for ragworm can also occur within mussel beds on sediment areas. The physical disturbance can cause the mats of mussels to break up and be washed away, resulting in loss of habitat for a wide variety of species (Fowler, 1999). There are no biogenic reefs located within the MCZ and the seagrass are subtidal and will therefore not be affecting by the bait digging activities.

9. In-combination assessment

Table 4 - Relevant activities occurring in or close to the site

Plans and Projects		
Activity	**Description**	**Potential Pressure(s)**
Brixham Sea Farm	Existing mussel farm in Torbay. The farm site is to the west of Brixham Harbour between Fishcombe Cove and Elberry Cove, measuring 300m by 100m. The long lines are set 2m below the surface supported by 200 litre plastic floats. Ropes to encourage seed mussel to settle are attached to the long lines and hang down clear of the seabed.	Siltation rate changes, including smothering
Scallop ranching	Scallop nursery area for growing on spat up to	NE advised that the

	40 mm in pearl nets and lantern nets before seeding them on the seabed. The longlines will be suspended in the water column approximately 3-5m under the water and supported with floats. The lantern nets are tied to the longline and hang beneath it with the scallops in them.	site was to be located 200m south from the MCZ boundary to avoid the operation causing damage or disturbance to the designated features of the site.
Other activities being considered		
Fishing Activities	**Description**	**Potential Pressure(s)**
Towed demersal trawls: Dredges; Pots/creels; Static and passive nets	These activities are not believed to be occurring on the intertidal features assessed.	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 target species. Removal of non-target species.
Commercial diving	Due to the low level of commercial diving activity no in-combination effect thought to be possible.	
Handworking (access from land and boat)	Due to the low level of handworking activity no in-combination effect thought to be possible.	

D&S IFCA concludes there is no likelihood of significant adverse effect on the interest features from in-combination effects addressed within Table 4.

10. NE consultation response

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

11. Conclusion

Evidence from the literature detailed in section 8 suggests that bait digging could have an effect on the sediment characteristics, populations of the target species and the macrofaunal communities associated with the habitat.

Bait digging is known to be occurring at Broadsands, Goodrington and Hollicombe (Curtin, 2019) on A2.2 littoral sand and muddy sand (Annex 1 and 3). Currently bait digging is not believed to occur on the intertidal coarse sediment. Intertidal underboulder communities are present at Hollicombe, Goodrington and near Brixham, however these are located away from where the bait digging activity occurs. The seagrass beds located within the MCZ are subtidal and will therefore not be impacted by the bait digging activities. From the survey interviews conducted only three bait diggers confirmed that they back filled their holes, this may have impacts on the sediment characteristics and recovery of the macrofaunal community as described in section 8 above. It is not believed that bait digging is causing significant levels of disturbance at its current levels/intensity.

Through the IFCA's Byelaw Review process, D&S IFCA will be reviewing all byelaws relating to hand working (including bait digging). Options for management will include, no action, voluntary measures, and the potential introduction of a Hand Working Permit Byelaw, which would allow the IFCA to monitor levels of this activity in the future and adapt to changes in effort/ environmental conditions if necessary. If a Hand Working Permit Byelaw is introduced, Permit Conditions might include a requirement for bait diggers to backfill holes/trenches, which would reduce any impact on sediment characteristics and allow for recovery. Therefore, D&S IFCA concludes that there is no significant risk of the activities hindering the achievement of the conservation objectives.

12. Summary table

Feature or habitat of Conservation interest	**Conservation objectives/ Target attributes** (Natural England, 2015)	**Activity**	**Potential pressures from activity and sensitivity of habitats to pressures.** (Natural England, 2015)	**Potential exposure to pressures and mechanism of impact significance**	**Is there a risk that the activity could hinder the achievement of conservation objectives of the site?**	**Can D&S IFCA exercise its functions to further the conservation objectives of the site?** **If yes, list management options**
Intertidal coarse sediment Intertidal mixed sediment Intertidal mud Intertidal sand and muddy sand	Extent and distribution Presence and spatial distribution of communities Presence and abundance of typical species Species composition of component communities	Commercial fishing; Bait collection: Digging with forks	• 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 target species • Removal of non-target species	Bait digging is only known to occur on littoral sand and muddy sand at Broadsands, Goodrington and Hollicombe (Curtin, 2019). Activity occurring is at a low frequency. Bait digging can cause a change in sediment characteristics by unearthing and turning over the deeper more anoxic layers (Fowler, 1999, Howell, 1985). Effect of disturbance is reduced if holes are backfilled and recovery can take place within three weeks (Fowler, 1999). Target species of lugworm and king ragworm have been shown to be resilient to bait digging activities with populations recovering relatively quickly (within a couple of months) (Blake, 1979, Olive, 1993, Fowler, 1999).	No bait digging currently occurring on intertidal coarse sediment. At the current levels of activity, D&S IFCA conclude that there is no significant risk of the activities hindering the achievement of the conservation objectives.	Yes, Management measures could include: 1. Monitor activity levels through future bait digging surveys 2. Monitoring and review of byelaws relating to hand working (including bait digging). Options for management will include, no action, voluntary measures and the potential introduction of a hand working Byelaw, which would allow the IFCA to monitor levels of this activity in the future and adapt to changes in effort/ environmental conditions if necessary. If the IFCA did introduce

Intertidal underboulder communities Low energy intertidal rock Moderate energy intertidal rock Peat and clay exposures Seagrass beds				Digging can have adverse effects on a wide variety of species as a result of physical damage, burial, smothering and/or exposure to desiccation or predation to non-target invertebrates. Small short-lived invertebrates recover the quickest, but recovery is generally site specific (Dernie *et al*., 2003, Watson *et al*., 2017).	Currently bait digging does not occur in the vicinity of the features assessed	formal management this may include the requirement to back fill holes and trenches
Native oyster (*Ostrea edulis*) Long-snouted seahorse (*Hippocampus guttulatus*)	Presence & spatial distribution of the species (maintain) Population size (maintain) Recruitment & reproductive capability (maintain) Supporting habitats: extent & distribution (maintain)	Commercial fishing; Bait collection: Digging with forks	• 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 target species • Removal of non-target species	See above	See above	See above

13. References

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Annex 1: Site Map(s)

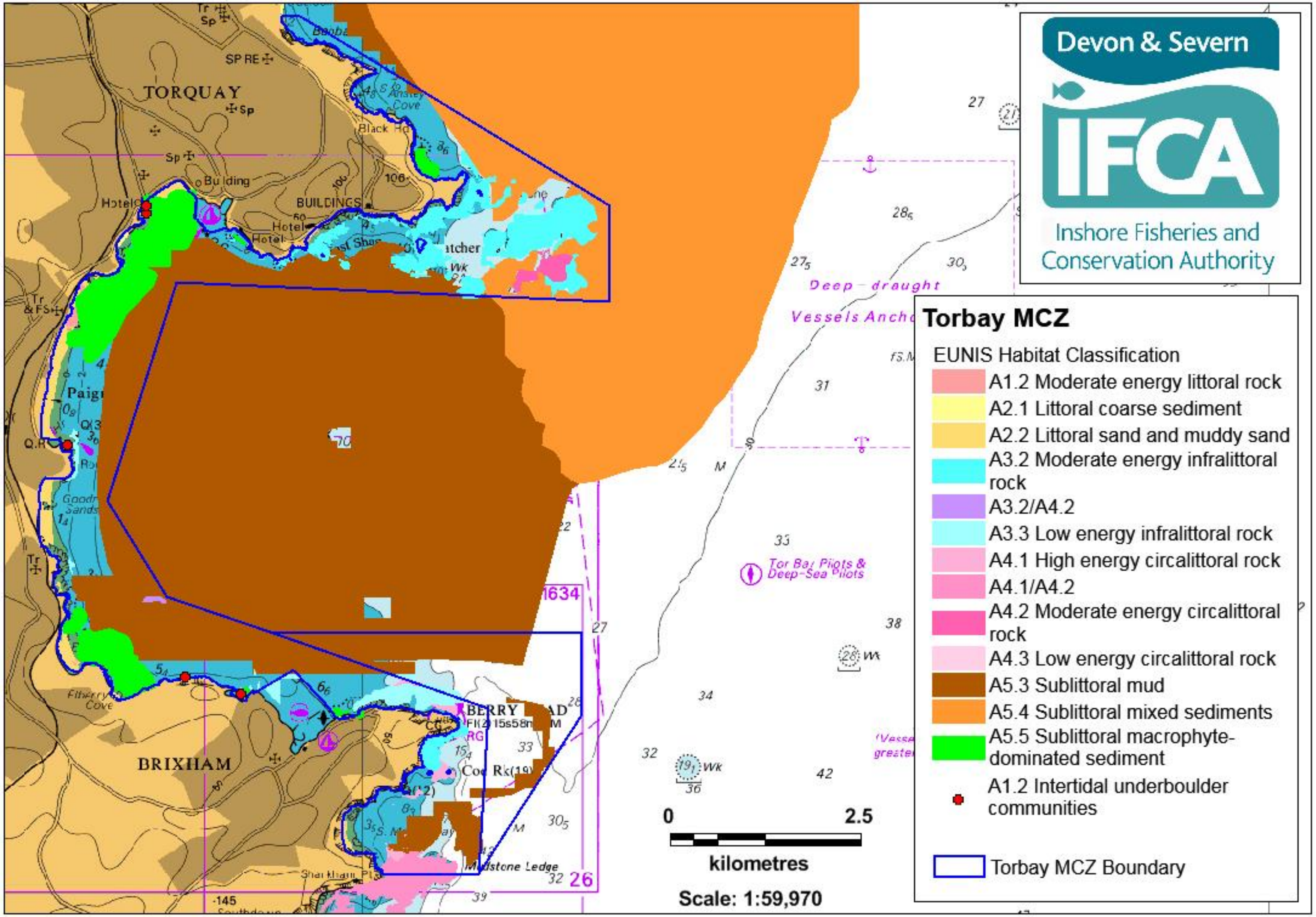

Figure 1 - Torbay MCZ habitat types.

Annex 2: Pressures audit trail

Fishing Activity Pressures: Shore-based activities	**Intertidal coarse sediment**	**Intertidal mixed sediment**	**Intertidal mud**	**Intertidal sand and muddy sand**	**Intertidal under-boulder communities**	**Low energy intertidal rock**	**Moderate energy intertidal rock**	**Screening Justification**
Abrasion/disturbance of the substrate on the surface of the seabed	NS	S	S	S	S	S	S	**IN** – Need to consider spatial scale/intensity of activity to determine likely magnitude of pressure
Deoxygenation	NS	NS	NS	NS	NS	IE	NS	**OUT** – Insufficient activity levels to pose risk at level of concern
Habitat structure changes – removal of substratum (extraction)	S	S	S	S	S	S	S	**OUT** – Not believed to occur with activities assessed.
Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.	NS	NS	NS	NS	NS	NS	NS	**OUT** - Insufficient activity levels to pose risk of large-scale pollution event
Introduction or spread of non-indigenous species	IE	S	IE	S	S	S	S	**OUT** - Activity operates in local area only so risk considered extremely low
Litter	IE	IE	IE	IE	IE	IE	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	NS	S	S	S	S	S	S	**IN** – Need to consider spatial scale/intensity of bait digging to determine likely magnitude of pressure.
Removal of non-target species				S		S	NS	**IN** – Need to consider spatial scale/intensity of activity to determine likely magnitude of pressure
Removal of target species		S	S	S	NA	S	S	**IN** – Need to consider spatial scale/intensity of activity to determine likely magnitude of

								pressure
Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC.	IE	NS	NS	NS	NS	NS	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.	IE	NS	NS	NS	NS	NS	NS	**OUT** - Insufficient activity levels to pose risk of large-scale pollution event

Annex 3: Summary of Results of the D&S IFCA Bait Digging Survey

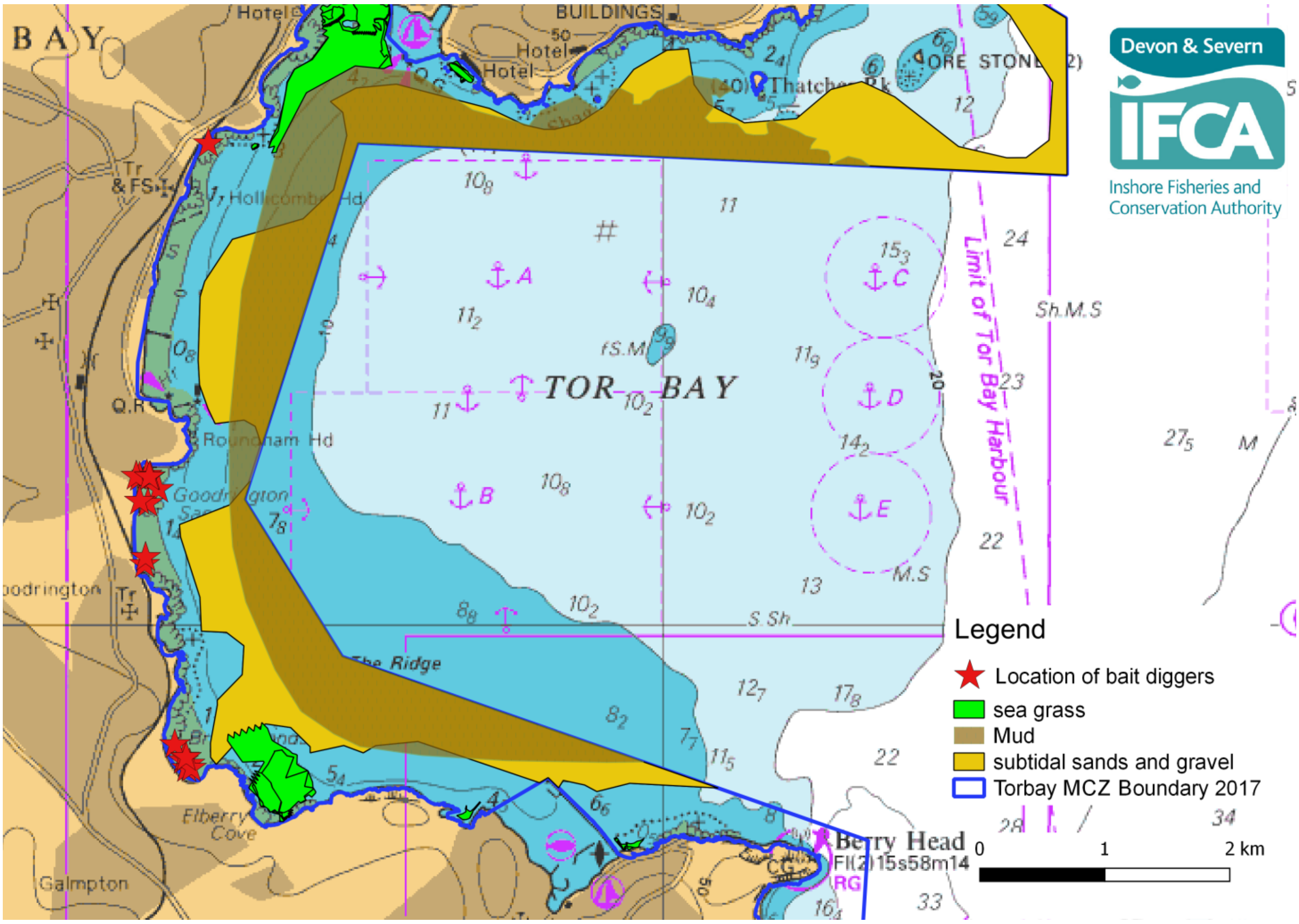

Figure 2 - Location of bait diggers observed during the 2016 and 2017 surveys.