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

Intertidal handwork: Handworking (access from land and vessel)

Devon & Severn IFCA Inshore Fisheries and Conservation Authority

D&S IFCA Reference
TOR-MCZ-008
Version 2 12 March 2019

	Version Control History			
Version	**Author**	**Date**	**Comment**	**Reviewer**
1	Stephanie Davies	December 2016	First version of handworking activities on features of MCZ	Sarah Clark
2	Sarah Curtin	March 2019	Handworking activities after analyses of survey data	Sarah Clark

Contents

Introduction

This assessment has been undertaken by Devon & Severn Inshore Fisheries and Conservation Authority (D&S IFCA) 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.

1. 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].

2. 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.

3. 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

4. Activities under consideration

Intertidal hand-gathering:

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

Hand-gathering (access from land) on the intertidal is occurring at a low level for recreational purposes. There are very few shellfish beds to gather from on this site and no intertidal classified harvesting shellfish beds. D&S IFCA is not aware of any commercial hand gatherers operating within Torbay MCZ. Hand gathering is only known to occur at Goodrington, Preston and Torre Abbey. 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).

Currently, the only classified shellfish harvesting area within Torbay MCZ is for the *Mytilus edulis* carried out by Brixham Sea Farm Ltd, which is not located in the intertidal zone, see Figure 2.

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

5. 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 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 annex 2

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

Activity	Pressures
Shore-based activities (Handworking)	Abrasion/disturbance of the substrate on the surface of the seabed
	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.

6. 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-gathering. D&S IFCA is considering a permitting byelaw that covers hand-gathering, which would allow the IFCA to monitor levels of this activity in the future and adapt permit conditions to changes in effort/ environmental conditions if necessary.

7. Referenced supporting information to inform assessment

Hand gathering from land is occurring within the MCZ and there is potential for disturbance of the substrate, habitat damage through stone turning and trampling and change in community composition through the removal of target species.

Removal of target species
Winkles are common in mid and low tide levels on almost all rocky shores. Harvesting can reduce local numbers and average size. However, populations are generally not under serious threat from collection as they are commonly found and only a small proportion of the population is being exploited. In addition, hand gatherers target the largest individuals, which are no longer contributing to recruitment due to infestation by parasitic flukes (McKay and Fowler, 1997).

Razor clams are a relatively slow growing and long-lived species. They reach sexual maturity at approximately four to five years and have intermittent recruitment making them susceptible to exploitation (Murray et al., 2017). The removal of razor clams can affect both the population density and size/age structure as larger and older individuals are removed. Robinson and Richardson (1998) found that densities of razor clams were higher (by around 40%) at a control site in Ireland compared to a fished site. However, this was based on hydraulic and suction dredging which would harvest a higher number of individuals than hand gatherers. In contrast Clark and Tully (2011) reported long term trends in the absolute abundance of razor clams as stable and even increasing in various sites in Ireland. This suggests that environmental factors are an important component in the response of fished stocks. Commercial hand gathering for razor clams does not take place and there are no classified shellfish harvesting areas for this species.

Abrasion/disturbance of seabed
Winkles are removed from the surface of the substrate rather than being dug resulting in little to no abrasion or disturbance.

Salting for razor clams can increase the salinity content within the sediment which could have detrimental effects to benthic species in the immediate area. However, intertidal species are commonly exposed to stressful environments and as a result are extremely resilient to changes in salinity (Berger and Kharazova, 1997). In addition, the salinity content of the sediment is rapidly decreased by the flood tide therefore eliminating any potential impacts on the benthic community and supporting habitat (Constantino et al., 2009). Constantino et al., (2009) found that salinity levels within the sediment returned to pre-harvesting levels after a few hours and the abundance of macro and meio fauna between control and experimental areas showed similar fluctuations.

Hand gatherers on the rocky shore can damage ecosystems through trampling (Brosnan and Crumrine 1994, Fletcher and Frid 1996). Foliose algal species can decline, and barnacles and mussels may be crushed or dislodged. Fletcher and Frid (1996) found changes in algal community composition within 1-2 months in areas of sustained trampling. However, the majority of hand gatherers observed were salting for razor clams on the beach, therefore the number of individuals on the rocky shore will be minimal. In addition, Goss-Custard & Verboven (1993) observed that hand gatherers on the Exe Estuary generally remained in the same area for much of the tidal cycle, hence moving very little and causing minimal disturbance. The effects of trampling due to hand gathering activities would be minor in comparison to that caused by public activities such as dog walkers or people rock pooling.

8. 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 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.	NE advised that the 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, therefore no in-combination effect thought to be possible.	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.	
Digging with forks	This activity has not yet been assessed. However, due to the low level of commercial handworking activity no in-combination effect thought to be possible. The interaction of in-combination effect for bait digging will be taken into account at a later date (See TOR-MCZ-009).	

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

9. NE consultation response

Natural England was consulted on a previous version of this assessment.

NE Formal Advice for Torbay MCZ_Inte

10. Conclusion

Access from land may result in trampling to the substratum but will not alter the extent and distribution of the features assessed. The significance of trampling would be negligible compared to the footprint of public activity at potential handgathering sites. Based on the level of activity, the removal of species will not significantly alter the presence & spatial distribution of communities, abundance of typical species or species composition of component communities. Activity occurring is only for recreational purposes and on a low scale. Therefore, D&S IFCA concludes that there is no significant risk of the activities hindering the achievement of the conservation objectives for Torbay MCZ.

11. 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 Intertidal underboulder communities Low energy intertidal rock Moderate energy intertidal rock Peat and clay exposures Seagrass beds	Extent and distribution Presence and spatial distribution of communities Presence and abundance of typical species Species composition of component communities	Commercial fishing; Intertidal handwork: Handworking (access from land and vessel)	• Abrasion/disturbance of the substrate on the surface of the seabed • Removal of target species • Removal of non-target species	Hand gathering is occurring at a low level at Goodrington, Preston and Torre Abbey (Curtin, 2019). No abrasion as not digging. No significant impacts found to sediment or benthic communities from salting for razor clams (Constantino et al., 2009). Activity occurring is thought to be recreational only. Devon and Severn IFCA are not aware of any commercial activity.	No, as activity occurring is at a low level No commercial activity was observed taking place during the surveys.	Yes, Management measures could include: 1. Monitor activity levels 2. Enforcement of byelaws 3. Monitoring and review of current byelaws

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; Intertidal handwork: Handworking (access from land and vessel)	• Abrasion/disturbance of the substrate on the surface of the seabed • Removal of target species • Removal of non-target species	See above	See above	Yes, Management measures could include: 4. Monitor activity levels 5. Enforcement of byelaws 6. Monitoring and review of current byelaws

12. References

Brosnan DM and Crumrine LL (1994). Effects of human trampling on marine rocky shore communities. Journal of Experimental Marine Biology and Ecology. 177: 79-97.

Berger VJ, Kharazova AD (1997) Mechanisms of salinity adaptations in marine molluscs. Hydrobiologia 355: 115–126.

Cefas (2015) Classification zone map - Brixham https://www.cefas.co.uk/cefas-data-hub/food-safety/classification-and-microbiological-monitoring/england-and-wales-classification-and-monitoring/classification-zone-maps/.

Clarke S and Tully O (2011). Long-term effects of hydraulic dredging for Razor Clam (Ensis siliqua) on benthic invertebrate communities in the North West Irish Sea. Irish Marine Institute.

Constantino R, Gaspar MB, Pereira F, Carvalho S , Cúrdia J, Matias D, Monteiro CC (2009). Environmental impact of razor clam harvesting using salt in Ria Formosa lagoon (Southern Portugal) and subsequent recovery of associated benthic communities. Aquatic Conservation: Marine and Freshwater Ecosystems.19:542-553.

Davies S (2016). Torbay MCZ Fishing Activities Report. Devon and Severn IFCA Report.

Fletcher H and Frid, CLJ (1996). Impact and management of visitor pressure on rocky intertidal algal communities. Aquatic Conservation: Marine and Freshwater Ecosystems. 6: 287-297.

Ghazanshahi J, Huchel, TD, Devinny JS (1983). Alteration of Southern California Rocky Shore Ecosystems by Public Recreational Use. Journal of Environmental Management. 16: 379-394.

Goss-Custard JD and Verboven N (1993). Disturbance and feeding shorebirds on the Exe estuary. Wader Study Group Bulletin. 68: 59-66.

McKay DW and Fowler SL (1997). Review of Winkle *Littorina littorea* harvesting in Scotland. Scottish Natural Heritage Review. No. 69.

Natural England (2015) Torbay MCZ Draft Marine Conservation Advice

Robinson RF and Richardson CA (1998). The direct and indirect effects of suction dredging on a razor clam (Ensis arcuatus) population. ICES Journal of Marine Science. 55: 970-977

Shalack JD, Power AJ, Walker RL (2011). Hand Harvesting Quickly Depletes Intertidal Whelk Populations,". American Malacological Bulletin. 29(1/2)

Annex 1: Site Map(s)

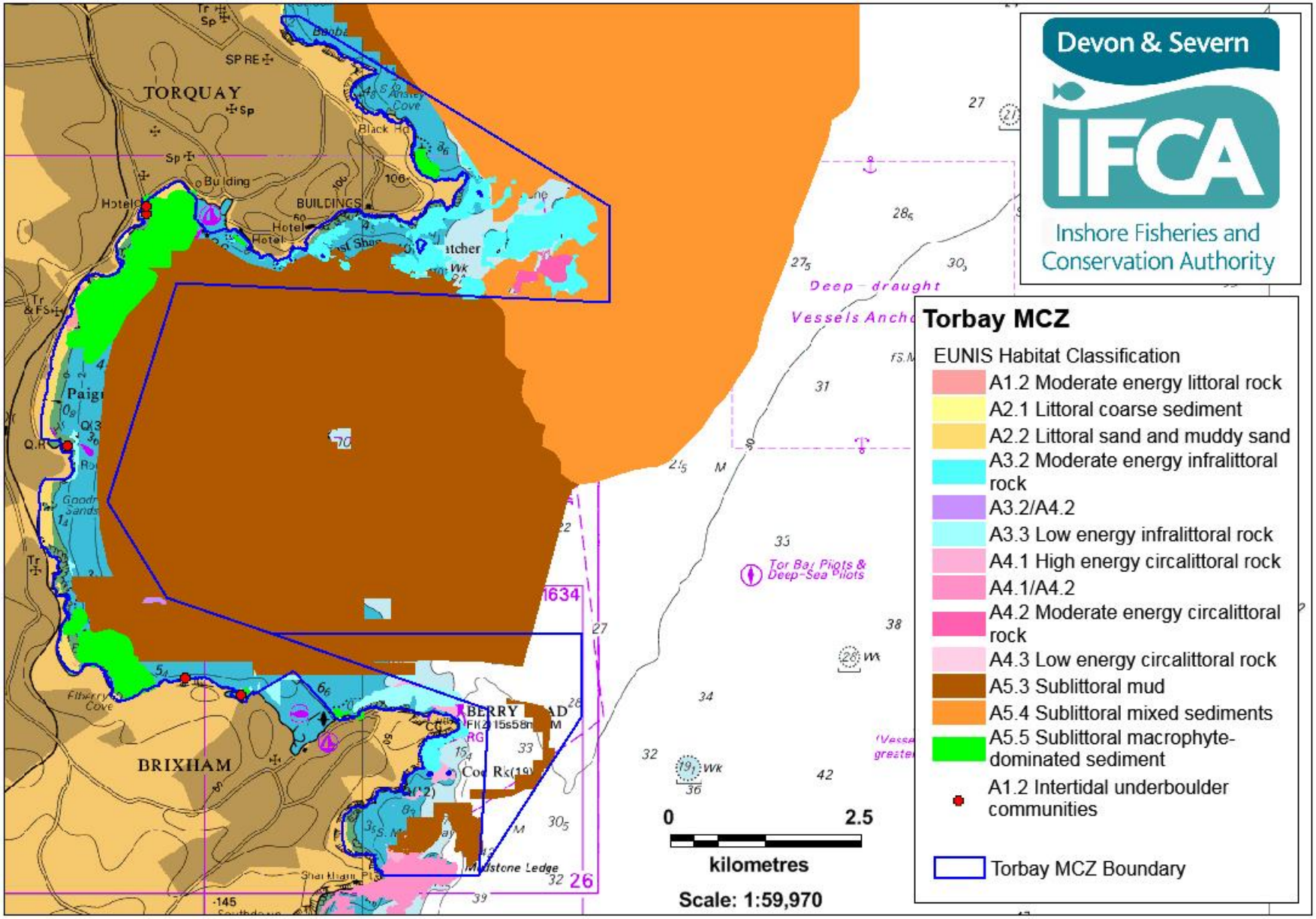
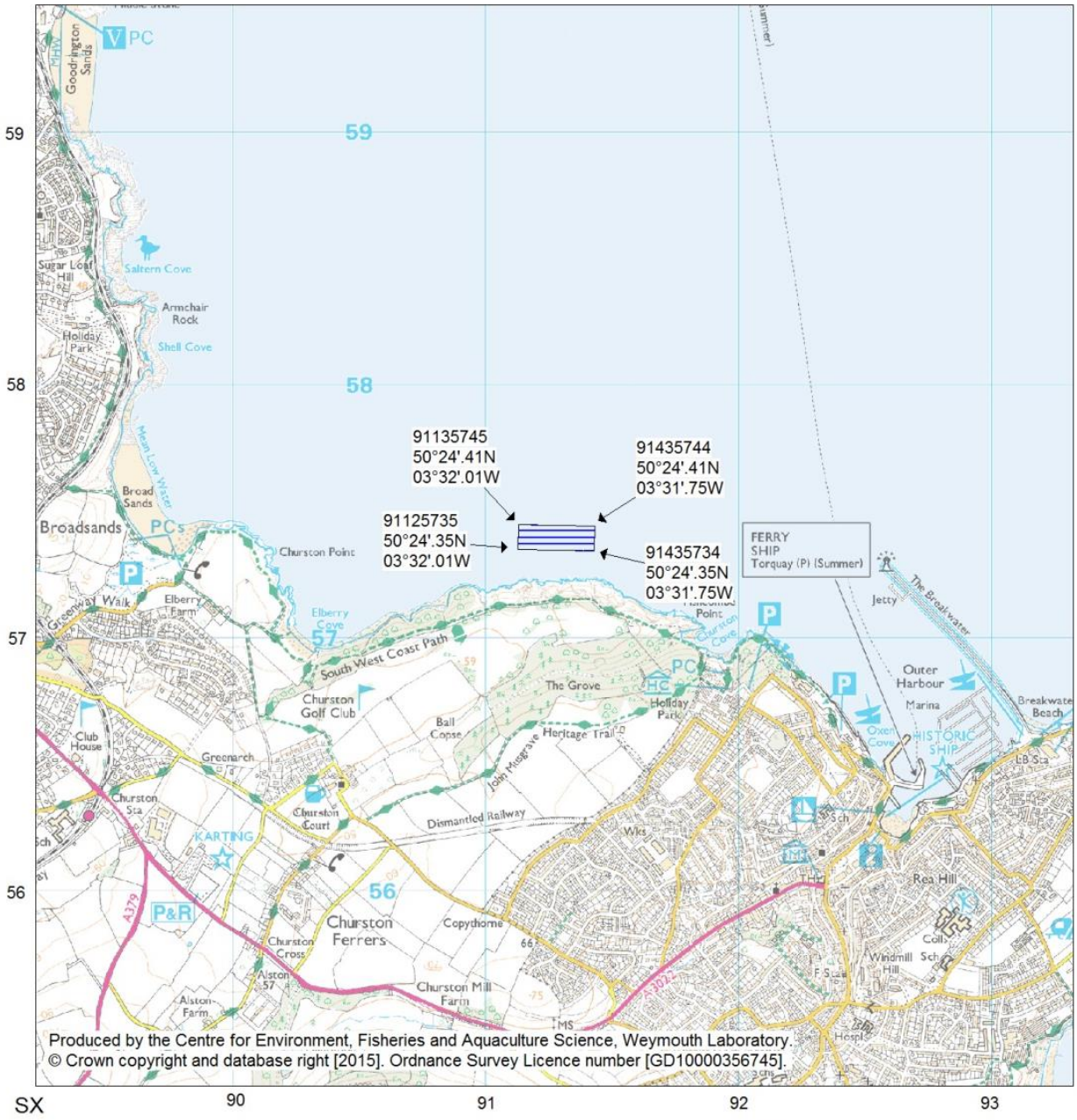


Figure 1 - Torbay MCZ habitat types.

Brixham - Mytilus spp.

Scale - 1:25000



Classification: Status
Class A | Class B | Class C | Prohibited | LT Class B | Seasonal Class B/C

Classification of Bivalve Mollusc Production Areas: Effective from 1 September 2015

The areas delineated above are those classified as bivalve mollusc production areas under EU Regulation 854/2004.

Further details on the classified species and the areas may be obtained from the responsible Food Authority. Enquiries regarding the maps should be directed to: Shellfish Microbiology, CEFAS Weymouth Laboratory, Barrack Road, The Nothe, Weymouth, Dorset DT4 8UB.
(Tel: 01305 206600 Fax: 01305 206601)

N.B. Lat/Longs quoted are WGS84

Food Authority: Torbay Borough Council

Figure 2 - Classified shellfish harvesting areas for Mytilus edulis in Brixham (Cefas, 2015).

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	**OUT** – Not likely to occur during handworking.
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 Intertidal Handwork Survey

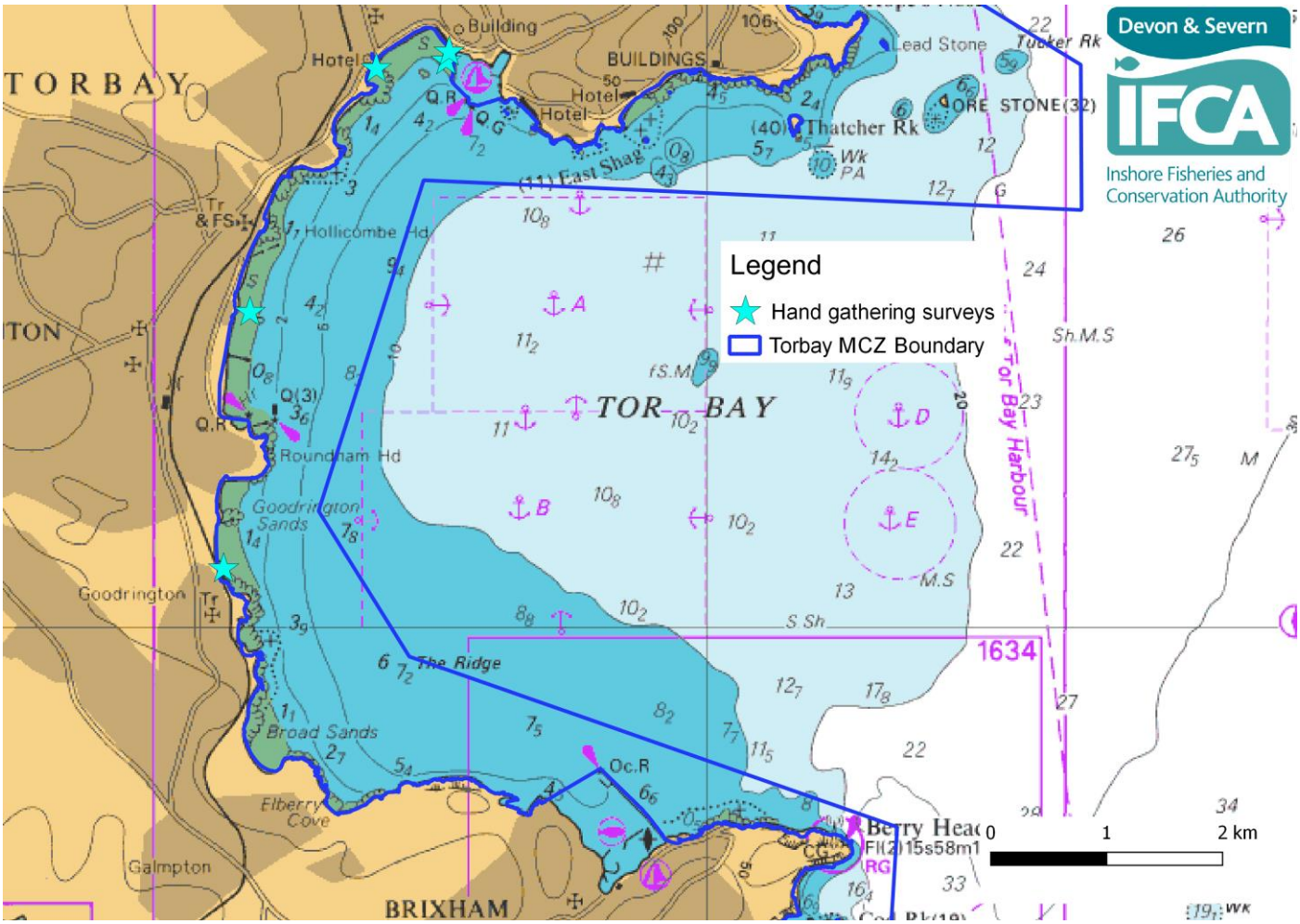


Figure 3. Location of hand gatherers observed during the 2016 and 2017 surveys.