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

European Marine Site: Plymouth Sound & Estuaries

Fishing activities assessed: Static – pots/traps

Gear/feature interactions assessed:

D&S IFCA Interaction ID	Fishing Activity	Sub-feature(s)
HRA_UK0013111_AJ23	Fish traps	Allis shad
HRA_UK0013111_AJ21	Pots/ creels	Allis shad

(V.5 Updated June 2021)

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 additional management measures are required in order to ensure that fishing activity or activities will have no adverse effect on the integrity of the site.

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 fishtraps have a likely significant effect on the ‘allis shad’ of the Plymouth Sound & Estuaries EMS, and on the basis of this assessment whether or not it can be concluded that the fishtraps will not have an adverse effect on the integrity of this EMS.

This HRA represents a review of one of five HRAs, on the interaction of fish traps on features of the Plymouth Sound and Estuaries SAC, which were completed in January 2018 and sent to NE for their formal advice. As this was over two years ago and a Comprehensive Review of the Live Wrasse Fishery (a key pressure considered within the original HRA) has taken place, with changes in management of the fishery implemented over time, now is an appropriate time for a this HRA to be reviewed, and for formal advice to be requested from Natural England. To this effect, a resolution was passed by the D&S IFCA’s Byelaw and Permitting Subcommittee (B&PSC) on 18th June 2020 that the Habitat Regulation Assessments, relevant to the Live Wrasse Pot Fishery are reviewed by D&S IFCA Officers and submitted to Natural England for formal advice.

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)

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

- Previous fish trap vs shad HRA and Natural England's advice on the HRA (Annex 2)
- Site map(s) – sub-feature/feature location and extent (Annex 3)
- Fishing activity data (map(s), etc.) (Annex 4)
- Mobile fishing permit byelaw map (Annex 5)
- Pressures Audit Trail (Annex 6)
- Review of the Live Wrasse Fishery in Devon and Severn IFCA's District 2017–2020 (Annex 7)
- Paper provided to D&S IFCA's Byelaw and Permitting Sub-Committee, addressing concerns raised in the 2021 consultation on Amendments to the Permit Conditions to Manage the Live Wrasse Pot Fishery (Annex 8).
- South West Marine Plan

2. Information about the EMS

The Plymouth Sound & Estuaries EMS is made up of the Plymouth Sound & Estuaries SAC and the Tamar Estuaries Complex SPA (Figure 1, Annex 3). Plymouth Sound and its associated tributaries comprise a complex site of marine inlets. The ria systems entering Plymouth Sound (St John's Lake and parts of the Tavy, Tamar and Lynher), the large bay of the Sound itself, Wembury Bay, and the ria of the River Yealm are of international marine conservation importance because of their wide variety of salinity conditions and sedimentary and reef habitats. The high diversity of habitats and conditions gives rise to communities both representative of ria systems, and some very unusual features, including abundant southern Mediterranean-Atlantic species rarely found in Britain (English Nature, 2000). This site crosses the border between D&S IFCA and Cornwall IFCA.

2.1 Overview and qualifying features

Plymouth Sound and Estuaries qualifies as a SAC for the following Annex I habitats as listed in the EU Habitats Directive (Natural England, 2015a):

- Large shallow inlets and bays, the key sub-features are:
    - Intertidal rock
    - Circalittoral rock
    - Infralittoral rock
    - Subtidal mud
    - Subtidal sand
    - Subtidal seagrass beds
- Estuaries, the key sub-features are:
    - Circalittoral rock
    - Infralittoral rock
    - Intertidal mixed sediment
    - Intertidal mud
    - Intertidal rock
    - Intertidal seagrass beds
    - Lower-mid saltmarsh
    - Mid-upper saltmarsh
    - Pioneer saltmarsh
    - Subtidal mixed sediments
    - Subtidal mud
    - Subtidal sand
    - Subtidal seagrass beds
    - Transition & driftline saltmarsh
    - Upper saltmarsh
- Sandbanks which are slightly covered by seawater all the time, the key sub-features are:
    - Subtidal coarse sediment
    - Subtidal mixed sediment
    - Subtidal mud
    - Subtidal sand
    - Subtidal seagrass beds
- Atlantic salt meadows
- Mudflats & sandflats not covered by seawater at low tide, the key sub-features are:
    - Intertidal coarse sediment
    - Intertidal mixed sediments
    - Intertidal mud
    - Intertidal sand & muddy sand
    - Intertidal seagrass beds
- Reefs

- Circalittoral rock
- Infralittoral rock
- Intertidal rock

Plymouth Sound and Estuaries qualifies as a SAC for the following Annex II species as listed in the EU Habitats Directive (Natural England, 2015a):

- Allis shad (*Alosa alosa*)
- Shore dock (*Rumex rupestris*)

The Tamar Estuaries Complex qualifies as a SPA under the Birds Directive for (Natural England, 2015b):

- Nationally important populations of regularly occurring Annex 1 species, Avocets (*Recurvirostra avosetta*) and Little egrets (*Egretta garzetta*), the key supporting habitats are:
  - Annual vegetation of driftlines
  - Coastal reedbeds
  - Freshwater & coastal grazing marsh
  - Intertidal mixed sediments
  - Intertidal mud
  - Intertidal sand & muddy sand
  - Intertidal seagrass beds
  - Water column
  - Saltmarsh

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

The site's conservation objectives which apply to the **Special Protection Area** and the individual species and/or assemblage of species for which the site has been classified 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) (if applicable)

- Subtidal rock and reef communities were categorised as "red" risk against all demersal towed gear and towed dredges. In January 2014 D&S IFCA introduced the Mobile Fishing Permit Byelaw, which prohibits the use of towed gear within this EMS (Map Annex 5).
- Seagrass bed communities were categorised as "red" risk against towed demersal gear, dredges, intertidal handwork, crab tiling, and digging with forks. At that time, only subtidal seagrass beds were considered as a sub-feature of the site which would not be exposed to intertidal handwork, crab tiling or digging with forks. In January 2014 D&S IFCA introduced the Mobile Fishing Permit Byelaw, which prohibits the use of towed gear within this EMS (Map Annex 5).

4. Information about the fishing activities within the site

Fish traps are occurring in Plymouth Sound SAC. A pot fishery for live wrasse has developed in the Plymouth Sound, the wrasse being trapped for use as cleaner fish in salmon aquaculture in Scotland. The species targeted are four out of the five that are common in the south west: Ballan (*Labrus bergylta*), Goldsinny (*Ctenolabrus rupestris*), Corkwing (*Symphodus melops*) and Rock Cook (*Centrolabrus exoletus*). The fishery is thought to have begun in Plymouth around March 2015 and Devon and Severn IFCA were informed of the fishery by Cornwall IFCA in September 2016. There are up to four vessels each year that fish for wrasse in D&S IFCA's District. Whilst the fishery for wrasse could potentially take place year-round, fishers tend not to fish for wrasse in January and February each year, and the period May–mid-July is currently closed for fishing under D&S IFCA's Potting Permit Byelaw Conditions, amended in 2018 (see Section 4.2). Therefore the fishery typically operates between March–May and mid-July–December; this allows good time for a review of data and evidence collected on the wrasse fishery, with a window for adapting management via a review of Potting Permit Byelaw Conditions if required (as detailed in Section 4.1 – Section 4.3, below). The parlour pots used are specifically designed to catch wrasse (Figure 1). They are lightweight (3.7kg) and fitted with wrasse escape gaps. The traps measure 72Lx40Wx28H (cm).

Figure 1 – Wrasse pot used by fisherman ©D.Cresswell

In 2016 and the beginning of 2017 the four vessels had 120-200 pots each. The vessels' sizes ranged from 5m to up to 8m and work to depths of 12m maximum. They mostly worked within Plymouth Sound, south of the breakwater and along the shore from Mount Batten Breakwater down to the Mew Stone. Three of these vessels also fished within Cornwall IFCA's District from Fort

Picklecombe to Rame Head. Detailed information on the wrasse fishery can be seen in the PDFs attached at the end of Section 4.

D&S IFCA undertook a survey within the SAC in May 2016 (prior to the wrasse fishery becoming known to the Authority) to determine the level of potting activity occurring (Annex 4, Figure 1). A total of 24 buoys/bottles were unmarked and, of these, seven located near Batten Bay were thought to be no longer active as were covered with seaweed and five were located outside the SAC. Commercial vessel three was seen potting within the SAC using similar unmarked bottles to those found in the area. However, the vessels fishing for wrasse did not have potting permits at the time and therefore the unmarked buoys may have belonged to them.

A literature review and desk top research of wrasse and live wrasse fisheries was undertaken in late 2016/early 2017 (see embedded document) and the findings were reported to the D&S IFCA's Byelaw and Permitting Sub-Committee (B&PSC). Management of the Live Wrasse Fishery then proceeded as detailed in Section 4.1 – Section 4.3.

A review of wrasse ecology and fisheries

4.1 Management of the Live Wrasse Pot Fishery

Five initial management measures were established in July 2017, following a period of public consultation and consideration by D&S IFCA's B&PSC and the Full Authority. These management measures:

1. **To establish a Fully Documented Fishery**
   Under Paragraph 17 of the Potting Permit Byelaw, those permit holders who wish to engage in the Live Wrasse Pot Fishery are required to provide relevant fishery information to the Authority. The following information is required:
   1. The name and contact details of the Salmon Farm company, agent or associated company who the fishermen are supplying live wrasse to.
   2. Name and contact details of transport company.
   3. Transport documents for all those consignments sent to the Salmon Farm company.
   4. Number of pots actively being used in the Live Wrasse Fishery.
   5. Completion of weekly returns including information on the dates and times of hauling, location of strings, number of strings hauled, number of pots hauled, and the number of wrasse retained on board per day.

   Fishermen will also be required to allow D&S IFCA officers on board their vessels to collect catch data for the fishery.

2. **Pot Limitations**
   The maximum number of pots per permit holder shall not exceed 120.

3. **Marking of gear**
   a. Every pot used for the capture of live wrasse must be marked with a tag that is issued by D&S IFCA, to allow for identification of the wrasse pots and aid compliance of the effort restrictions.
   b. All strings of wrasse pots to be used to capture live wrasse must be marked with a buoy or dahn, and each buoy or dahn must be marked with WRA together with the vessels PLN. This is for identification purposes to differentiate wrasse pots from other potting gear used for the capture of Crustacea and Molluscs.
   c. Strings of pots used for the capture of live wrasse must be used solely for that purpose.

4. **Closed Season**

The period between 1st April and 30th June will be closed to the live wrasse pot fishery.

5. **Minimum and maximum conservation reference sizes**
   To introduce Minimum and Maximum Conservation Reference Sizes for five species of wrasse:
   a. Ballan and cuckoo wrasse less than 150mm or greater than 230mm
   b. Corkwing, rock cook and goldsinny wrasse less than 120mm or greater than 230mm

4.2 Initial Management Review Process (2017-2018):

- The Authority decided that if there is an increase in the number of vessels entering the Live Wrasse Fishery this will trigger a review of the permit conditions for the Live Wrasse Fishery, and may lead to further changes to the permit conditions, which may include a reduction in the number of pots per vessel.
- The Authority decided that a review of the management of the Live Wrasse Fishery was to be undertaken in November 2017. Data collected from fishermen and on-board surveys informed the review of the permit conditions for the Live Wrasse Fishery, In November 2017 a report on the analysis of the wrasse fishery data collected from on-board surveys and returns data from the fishermen (see link to PDF below) was presented to the D&S IFCA's B&PSC. The B&PSC recommended proposed changes to management measures for the Live Wrasse Fishery, which were implemented in August 2018 following a period of public consultation and consideration by the B&PSC and the Full Authority. The implemented changes were:
  - **to amend the slot size for corkwing to 140mm to 180mm**
  - **to change the closed season to May 1st to 15th July.**

Guidance for the live wrasse fishery:
Further to the regulatory conditions, D&S IFCA has developed additional guidance to support these measures and the fishery. This guidance is in the form of voluntary measures to be adopted by those fishermen participating in the Live Wrasse Fishery.

1. A series of small closed zones to the Live Wrasse Pot Fishery or 'No Wrasse Pot Zones' have been identified through discussions with the fishermen. These areas lie within the fishery area in the Plymouth Sound and associated area and include reef habitat known to be favoured by the wrasse species fished. Figures 2 and 3 (Annex 4) show the areas closed to the Live Wrasse Fishery, which were updated in 2018, in consultation with the fishers. There is also an eastern limit to the fishery to prevent its spread along the coast from Plymouth Sound, containing the effort and allowing for robust repeat monitoring.
2. Mount Batten Breakwater is known to be a popular angling mark and in order to remove any conflict with anglers in this area, fishermen are requested to keep their pots 30m from the pier.

Failure to meet all conditions set out in this policy statement may also trigger a review of the permit conditions. In addition to formal management under the Potting Permit conditions, the Authority may introduce further voluntary measures to support the management of the Live Wrasse Fishery. Failure to adhere to these voluntary measures may lead to a review of the permit conditions.

4.3 Further Live Wrasse Pot Fishery Management Review Processes (2018 – 2021)

In November 2018, the D&S IFCA's B&PSC was presented with the Live Wrasse Data Analysis Nov 2018 report (embedded below), a report on the Formal Review of the Live Wrasse Pot Fishery (embedded below), and a summary paper titled Current Research relating to the Live Wrasse Fisheries in the South West (embedded below). Members recommended that (subject to the findings of further evidence presented by D&S IFCA Officers) there should be no changes to the current management of the Live Wrasse Pot Fishery. Management includes both the Potting Permit Conditions and separate Policy & Guidance. Subsequently, in February 2019, the B&PSC

was presented with an addendum to the Live Wrasse Data Analysis (Nov 18) report. Members endorsed the findings of this report and recommended that existing management measures for the Live Wrasse Pot Fishery be maintained, and that a Comprehensive Review of the Live Wrasse Pot Fishery be undertaken at the end of 2019, reflecting the three years of data collected by that point.

Data collection for the Live Wrasse Pot Fishery in 2019 ended in December 2019, allowing for production of the Three Year Comprehensive Review of the Live Wrasse Fishery in D&S IFCA's District (embedded below), which was presented to the B&PSC in February 2020. The Three Year Comprehensive Review showed that while Landings Per Unit Effort (LPUE) and Catch Per Unit Effort (CPUE) appeared to be stable or increasing for most species, these measures showed a decline in rock cook over the 2017–2019 period. On this basis D&S IFCA's B&PSC recommended the prohibition of removal of rock cook from a fishery by all Potting Permit holders, including those prosecuting the Live Wrasse fishery. This change to the Potting Permit Byelaw Conditions was confirmed at the Byelaw and Permitting Sub-Committee meeting on 18th June 2020.

Data collection continued in 2020 and despite the difficulties posed by the COVID-19 pandemic D&S IFCA's Environment Officers completed observer surveys on approximately 6.3% of total fishing trips in 2020. The data were analysed in early 2021 for the Annual Review of the Live Wrasse Fishery in D&S IFCA's District (2017–2020) (Annex 7). This review used updated methods, adapted from Henly *et al.* (2021), which standardised monitoring data from D&S IFCA's fishery observer surveys using fishing locations and environmental data obtained from external sources. In doing so, the Annual Review identified the main drivers of variation in CPUE and LPUE for the four target species of wrasse, and highlighted considerations for management of the fishery.

The main drivers of variation in CPUE and LPUE differed between species. There was evidence of a decline in ballan wrasse CPUE and LPUE during the 2017–2020 period, particularly on the landward side of the breakwater and between 2017–2018. This decline was likely driven by the relatively high retention rate of ballan wrasse in combination with specific life history and behavioural characteristics that leave the species vulnerable to overfishing. There was no evidence of a decline in rock cook CPUE or LPUE across the 2017–2020 period. However, the updated methods used in the most recent report showed that rock cook CPUE and LPUE varied significantly between broad-scale fishing areas (significantly lower in the more sheltered areas). The spatial distribution of fishing and survey effort has varied markedly over the 2017–2020 period, and in 2019 and 2020 the majority of the observer surveys were conducted in more sheltered locations. Previous reports by D&S IFCA were unable to account for this geographic variation in CPUE and LPUE, which was therefore interpreted in precautionary terms as a decline in rock cook over the 2017–2019 period. Goldsinny wrasse showed seasonal and geographical variation in CPUE and LPUE that supports previous observations of goldsinny, and there was no evidence that these measures declined during the 2017–2020 period. Finally, there was a significant increase in corkwing wrasse CPUE across the 2017–2020 period. The change in corkwing CRS limits in 2018 has likely benefitted the species as a lower proportion of caught corkwing are being landed (lower retention rate, higher rate of return to sea) and mature individuals of each sex are likely being protected. There was also evidence of seasonal variation in corkwing CPUE and LPUE which may reflect the species' spawning season and associated activity levels. The report also highlighted that robust monitoring of the fishery relies on high quality observer surveys, which provide information that cannot be gained from fishers' returns forms.

The report was presented to the D&S IFCA's B&PSC with the following recommendations for management:

1. Continue to manage the fishery as outlined in the D&S IFCA's Policy Statement and Potting Permit Conditions for the Live Wrasse Fishery (24th June 2020), except in the case of rock

cook (2, below) and ballan wrasse (3, below), and except with regards to fishers returns forms (4, below).
2. Lift the prohibition on removal of rock cook from the fishery and reintroduce previous conservation reference size (CRS) limits of 12-23 cm.
3. Change the ballan wrasse CRS range from 15–23 cm to 18–26 cm.
4. Remove the requirement for wrasse fishers to submit returns forms.

The B&PSC reviewed the evidence and recommended the following proposed changes to management measures for the Live Wrasse Fishery:

That D&S IFCA will continue to manage the fishery for 12 months as outlined in the D&S IFCA's Policy Statement and Potting Permit Conditions for the Live Wrasse Fishery (24th June 2020), except:

- **To change the ballan wrasse CRS range from 15 – 23cm to 18 – 26cm.**
- **To remove the requirement for wrasse fishers to submit returns forms.**

The change to ballan wrasse CRS range was subject to public consultation for a period of four weeks (14th April – 12th May). Removal of a requirement to submit returns forms does not affect the Potting Permit Conditions so was not subject to consultation. In July 2021, the B&PSC reviewed the available evidence alongside the results of the consultation on the Potting Permit Conditions, and approved the proposed changes to ballan wrasse CRS range. The change to the ballan wrasse CRS range is a precautionary measure in case of future increases in fishing effort: the decline in ballan CPUE and LPUE identified in Henly *et al.* (2021) occurred between 2017 – 2018, following a period of high fishing pressure. As outlined elsewhere, including in Henly *et al.* (2021), the fishing effort in Plymouth Sound has declined substantially since then. D&S IFCA advocates that the proposed ballan CRS range would help to safeguard the ballan population should fishing effort increase (though there are currently only two permit holders for the 2021 season, compared to four in 2017).

To date, fishing has largely taken place outside of the voluntary closed areas which were implemented in April 2018 (Annex 4). However, over the course of 2019 and 2020 a total of six incursions into a closed area in the south of Jennycliff Bay are known to have occurred (cell M12). These incursions occurred on days that an observer was monitoring the vessel, though it was not possible to determine the location of fishing relative to the closed area until after the fact. The fisher involved typically used six strings of pots in areas along the eastern coast of Plymouth Sound, from Batten Bay to Renney Rocks, and regularly re-shot his gear in locations near to the site of hauling; it is therefore possible that the fisher was also fishing in the closed area on other days. The fisher was informed of their non-compliance and strings were then moved accordingly. Given the general compliance of the voluntary closed areas it would undermine the fishers to make the closed areas mandatory. Having voluntary closed areas allows D&S IFCA to involve the stakeholders resulting in a valued co-management approach that is thought to improve compliance over entirely top-down imposition of management measures.

Conversely, compliance with the returns forms aspect of the Fully Documented Fishery is relatively low, which prevents thorough examination of the returns data. The main advantage to accurate returns data would be the availability of fine-scale information on wrasse landings over time. Fortunately, this information is available on transport documents provided by the salmon farm agent, though admittedly at a coarser temporal resolution (approximately every week or fortnight, sometimes monthly), rather than daily (though fishers do not always report daily totals). Given the issues of low compliance and inaccurate reporting, the primary value of these returns forms has been in aiding D&S IFCA's understanding of the spatial distribution of fishing effort in each year.

D&S IFCA's officers have reviewed the requirement to submit returns forms, and have identified two further constraints associated with these data, which apply even to fully-completed returns data: (i)

the spatial scale of reporting of wrasse catches means that it is not possible to estimate the numbers of wrasse caught in each grid cell (since total wrasse retained are reported for the trip, not for each string) and, critically, (ii) recent analyses have demonstrated that robust monitoring and management of this fishery requires species-specific data on catch and landings per unit effort, which are not available from these fishers' returns forms. Species-specific data are only available from the observer surveys carried out by D&S IFCA's officers, which have provided a four-year dataset collected with standardised methods that is therefore comparable with future data collected by observers.

In 2020 D&S IFCA developed a method of observing catch using D&S IFCA's enforcement vessel. This method proved more efficient than in previous years and allowed observer surveys to continue despite the complications caused by the Covid 19 pandemic. The requirement for fishers to submit returns forms has been removed, which will reduce the associated administrative and time cost of monitoring, and allow greater focus on monitoring via observer surveys. The observer surveys provide much richer and more reliable data, and are especially efficient when carried out from D&S IFCA's RIB; using the RIB as an observer platform reduces the time taken to conduct each survey, is seen as safer than surveys on board fishing vessels, and can be effectively combined with other patrol and enforcement work.

Other fishing activities within the Plymouth Sound and Estuaries EMS are described in the Fishing Activity Report (Gray, 2015).

4.4 Pots/creels

These are occurring at a medium level within Plymouth Sound. D&S IFCA has a Potting Permit Byelaw and currently twenty permits are issued for commercial vessels with the base port of Plymouth and two for the river Yealm. During D&S IFCA enforcement patrols pots are frequently hauled in this area to be checked for escape gaps. The level of activity increases slightly in the summer with recreational/visiting potters, especially towards the mouth of the Yealm, where many of the holiday makers launch from.

The South Devon Potting Effort Survey identified no potting activity within the EMS (Clark, 2008). D&S IFCA's Potting and Netting Survey 2014 (unpublished data) identified two vessels that work within the SAC, off Yealm head. The first, a 5.8m vessel with 200 parlour pots and the second, a 6.1m vessel with 200 parlour pots, although the majority of area worked for both vessels is outside the SAC (Annex 4 Figure 3) A total of four other vessels responded that work from Plymouth, but outside the SAC. Target species include lobsters, brown crab and spider crab. It is worth noting that the response rate for the 2014 survey was approximately 22% (for potting and netting combined), so may not represent all activity in Plymouth Sound.

D&S IFCA undertook a survey within the SAC in May 2016 to determine the level of activity occurring (Annex 4, Figure 6). A total of six commercial vessels were found to pot within the SAC with 23 buoys between them. Four buoys near Yealm Head belonged to two recreational permit holders. A total of 24 buoys/bottles were unmarked and of this, seven located near Batten Bay were thought to be no longer active as covered with seaweed and five were located outside the SAC. Commercial

vessel three (Annex 4, Figure) was seen outside the breakwater potting within the SAC using similar unmarked bottles to those found in the area. Commercial vessel three was seen potting within the SAC using similar unmarked bottles to those found in the area. However, the vessels fishing for wrasse did not have potting permits at the time and therefore the unmarked buoys may have belonged to them.

Figure 1 and 2 (Annex 4) shows the MMO sightings data for potting within this site, which demonstrates a low level of activity.

Other fishing activities within the Plymouth Sound and Estuaries EMS are described in the Fishing Activity Report (Gray, 2015).

5. Test for Likely Significant Effect (LSE)

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)	**SAC** • Removal of target species (sensitive) **See Annex 6 for pressures audit trail.**	
3. Is the feature potentially exposed to the pressure(s)?	**Yes,** D&S IFCA has a Potting Permit Byelaw and through this can gauge where any future changes or developments in this activity occur within Plymouth Sound and Estuaries EMS. D&S IFCA has brought in management measures for the wrasse fishery (see section 4). The Dockyard Port of Plymouth Order 1999 prohibits fishing in some areas of the SAC.	
4. What are the potential effects/impacts of the pressure(s) on the feature, taking into account the exposure level?	Up to four commercial vessels annually are known to pot for wrasse within the SAC. This year (2021-22) the fishery will comprise of 2–3 vessels. The river Tamar is considered to be home to an important spawning population (Hillman, 2003) and adult fish migrating to spawning grounds/ juveniles leaving could potentially interact with the fishing activity from by-catch. The selectivity of pots results in low incidental by-catch. By-catch recorded in wrasse pots has been conger eels, small crustaceans and starfish (pers. observation). All unintentionally caught shad must be returned to the water immediately. The survivability of Allis shad to catch and release is unknown. Whilst there have been some records of by-catch of shad by anglers and netters (Hillman, 2003) the IFCA is not aware of any reports of catches or by-catches of shad in recent years. The activities assessed are not thought to significantly affect the presence and spatial distribution of species, population size, recruitment and reproductive capability.	
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	**See section 8 for more information.**
6. Have NE been consulted on this LSE test? If yes, what was NE's advice?	D&S IFCA received formal advice from NE on a TLSE and HRA in 2016, then again in 2020 for a revised version. The formal advice supported the outcome of those assessments. NE's comments on the 2020 revised HRA are available in Annex 2. This iteration has not yet been consulted on.	

6. Appropriate Assessment

Potential risks to features

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

Table 2: Summary of Impacts

7. Conclusion

N/a

8. In-combination Assessment

8.1 Other Fishing Activities

As shad is a mobile and migratory species, there is possibility for the species to be affected by accidental by-catch from fisheries outside of the Plymouth Sound and Estuaries EMS. However, these are considered outside the scope of this assessment and the fishing activities addressed below are only those occurring within the EMS.

The following fishing activities are either occurring or have not been able to have been ruled out as occurring in the Plymouth Sound and Estuaries EMS.

Handworking – Activity occurs on the intertidal and not believed to interact with shad. Therefore, no in-combination effect thought to be possible.

Crab tiling – Activity occurs on the intertidal and not believed to interact with shad. Therefore, no in-combination effect thought to be possible.

Digging with forks – Activity occurs on the intertidal and not believed to interact with shad. Therefore, no in-combination effect thought to be possible.

Shrimp push nets – Activity occurs on the intertidal and not believed to interact with shad. Therefore, no in-combination effect thought to be possible.

Drift, gill, trammel & entangling nets – There are records of catches of shad from inshore drift nets, including bass and gill nets around south west England (Hillman, 2003). D&S IFCA is not aware of shad catches in recent years. Drift netting occurring on a medium level, with several small dories drift netting for herring. Fixed nets (gill, trammel and entangling) are known to occur within and close to Plymouth Sound and Estuaries SAC. Due to the level of fishing activity and likelihood of capture in pots, it is thought that no in-combination effects of by-catch will lead to the conservation objectives not being met for shad.

Cuttlepots - Activity not occurring, therefore no in-combination effect thought to be possible.

Commercial diving – Activity not believed to interact with shad. Therefore, no in-combination effect thought to be possible.

Beach seine/ ring nets – There are no records of beach seine nets, but it has not been able to be ruled out. No in-combination effect thought to be possible. Ring nets are occurring in Plymouth Sound which resulted in D&S IFCA developing a Monitoring and Control Plan (MCP) for netting activity vs allis shad. The actions from the MCP for ring-netting in Plymouth Sound and Estuaries SAC included; monitoring the number of vessels operating in Plymouth Sound via permits issued, and semi-quantitative catch observations of ring-netting activities in Plymouth Sound in 2019 (as agreed by Natural England, Annex 2). At the beginning of 2020 there were two permit holders based in Plymouth which identified ring-netting as a gear type. This is a drop from four permit holders in 2018. There were another three permit holders which ring-net however, these were based in Cornwall and are not thought to fish in Plymouth Sound.
A total of three observer trips were carried out on a ring-netter based in Plymouth, one in December 2019 and two in January 2020. The trips were not entirely in Plymouth Sound; Bigbury Bay and Whitsand were also visited as is common during ring-net operations. No fish were caught on any of the observer trips. More information on the fishery was gathered during the trips. The

skipper stated he had only seen one shad in the 15 years he had been ring-netting. Other crew had either seen no shad or one shad in the time they had been fishing.

The fishery only happens over the winter months, usually starting in November and ending by March and is very much controlled by the weather. The fishery can only happen in calm conditions due to the nature of the catching process; this winter has been a poor winter wind wise for the fishery. Much of the fishing is done outside of the Sound if possible, this is due to the amount of marine traffic in the area and various debris on the seabed which rip the nets. Much of the fishing is carried out in Bigbury Bay and Whitsands. If fishing is carried out in the Sound it is often done behind the breakwater, in the Jenny Cliff area or Cawsands.

In December 2019 D& S IFCA issued paper netting surveys to all commercial and recreational netting permit holders from the base ports of Plymouth, Salcombe, Fowey, Mevagavissy, Looe and Saltash in order to gain more depth information on netting effort within the SAC. Of the 49 surveys sent there were 14 responses. From the responses, a total of eight vessels net within the SAC, all from the base port of Plymouth. Static nets including gill, trammel and tangle nets are set. The number of times nets were set from the eight vessels was calculated. Gillnets are set approximately 476 times, and tangles nets approx.137 times in a year. There was a seasonal variation in netting, with the majority of effort focused between May and October, peaking in August. The species targeted by the netters includes red mullet, cod, pollack, herring, bass, mullet, sole, plaice, flounder, turbot, brill, monkfish, skates and rays, brill and sand eels. Shad was not listed as a targeted or bycatch species by any of the respondents.

Bycatch questionnaires were also sent to all commercial and recreational netting permit holders. Only one response was received from a netter in the Plymouth area who confirmed shad is not generally caught as a bycatch species.

Due to the level of fishing activity it is thought that no in-combination effects of bycatch will lead to the conservation objective not being met for shad.

Purse seine – There are no records of this activity taking place, but it has not been able to be ruled out. Therefore, no in-combination effect thought to be possible.

Fyke and stakenets – There are no records of these activities taking place, but they have not been able to be ruled out. Therefore, no in-combination effect thought to be possible.

Longlines – Activity occurs at a very low level, with one long-liner operating around the mouth of the Tamar. Although there are records of shad catches from anglers and inshore drift nets, D&S IFCA is not aware of shad catches in recent years. Due to the low level of fishing activity it is thought that no in-combination effects will lead to the conservation objectives not being met for shad.

Handlines, Jigging and trolling – There are records of catches of shad from recreational river anglers in the area (Hillman, 2003). However, there are no records of these activities taking place commercially, but they have not been able to be ruled out. Therefore, no in-combination effect thought to be possible.

Therefore, in light of the above considerations 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

Plymouth Sound and Estuaries EMS is a busy site, with other commercial ongoing plans/projects from different sectors where impacts could combine. Although shad by-catch in some fisheries has been recorded, the reason for their decline is thought to be factors other than any impact associated with fishing (Potts and Swaby, 1993; Gubbay and Knapman, 1999). These are considered to be obstructions (such as weirs or dams) which have restricted shad to the lower reaches of the river and prevented shad reaching historic spawning grounds (Aprahamian *et al.*, 1998), in particular Gunnislake Weir (Gratton and Kibel, 2015). Additionally, habitat destruction through the removal of gravel beds, low water flows and poor water quality are other factors related to the decline (Aprahamian *et al.*, 1998).

Currently there are proposed plans or projects in Plymouth Sound and Estuaries EMS which could theoretically interact with the sub-features addressed. These activities have been included following the informal advice from Natural England.

Description: Maintenance dredging within Western Mill Lake and North Yard at HMNB Devonport which is carried out twice yearly; the current marine license extends to 2028. Includes trailer suction hopper dredging carrying out the majority of maintenance and additional small-scale dredging techniques: plough, grab and submersible pump dredging. A maximum amount of 500,000m³ of silt and 50,000m³ of sand will be removed during the 10 year license period.

Pressures:

- Barrier to species movement
- Changes in suspended solids (water clarity)
- Collision BELOW water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures)
- Deoxygenation
- Habitat structure changes - removal of substratum (extraction)
- Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.
- Introduction of other substances (solid, liquid or gas)
- Introduction or spread of non-indigenous species
- Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC.
- Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.
- Underwater noise changes
- Vibration

In-combination assessment: Current levels of activity is not believed to restrict shad migration, therefore, it is thought that no in-combination effects will lead to the conservation objectives not being met for shad.

Description: Previously, D&S IFCA has granted dispensation for annual Marine Biological Association (MBA) scientific survey work on research vessel Sepia within the EMS to fish for scientific purposes. Activity involving 4m beam trawl in West Mud (Tamar) and Yealm Mouth, demersal otter trawl in Bigbury bay, and rectangle dredge in New Ground (Plymouth Sound), Mewstone and Stoke Point. Following further review of this dispensation for interactions with all sensitive features, the only activity now allowed for the MBA under exemption from D&S IFCA Byelaws is demersal otter trawl in Bigbury Bay.

Pressures:

- Barrier to species movement
- Litter
- Removal of non-target species

- Removal of target species
- Visual disturbance

In-combination assessment: Following a separate HRA and MCZ assessment for this activity, D&S IFCA concludes that it is unlikely that in-combination effects will lead to the conservation objectives not being met for the features assessed.

Description: Thanckes Oil Jetty demolition and construction of Yonderberry Jetty on River Tamar, including capital dredging for a berth pocket and navigational channel.

Pressures:

- Barrier to species movement
- Changes in suspended solids (water clarity)
- Collision BELOW water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures)
- Deoxygenation
- Habitat structure changes - removal of substratum (extraction)
- Hydrocarbon & PAH contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.
- Introduction of other substances (solid, liquid or gas)
- Introduction or spread of non-indigenous species
- Removal of non-target species
- Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC.
- Transition elements & organo-metal (e.g. TBT) contamination. Includes those priority substances listed in Annex II of Directive 2008/105/EC.
- Underwater noise changes
- Vibration
- Visual disturbance

In-combination assessment: Current levels of activity is not believed to restrict shad migration, therefore, it is thought that no in-combination effects will lead to the conservation objectives not being met for shad.

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

The original assessment (version 1) was formally signed off by Natural England on 03/05/2016. The activities (cuttlepots and fishtraps) were not believed to be occurring at that time. A reassessment for fishtraps was sent for informal advice to Natural England in April 2017 (version 2) after new information revealed an emergent Live Wrasse Pot Fishery. Version 3 contained amendments from the informal advice received from Natural England, and updated management measures. Version 4 (August 2020) accounted for the changes that occurred in the two years since version 3 (2018-2020), including the completion of the Comprehensive Review of the Live Wrasse Fishery and changes in management of the fishery implemented over time. This version (version 5; 2021) accounts for recent assessments of the fishery (Henly and Stewart, 2021a, 2021b; Henly *et al.*, 2021), in addition to changes to relevant management measures. Cuttlepots have been assessed in a separate HRA.

10. Integrity test

It can be concluded that the activities assessed in this HRA, fish traps, alone or in-combination, do not adversely affect the assessed sub-features of the Plymouth Sound and Estuaries SAC and that future activity, at the levels anticipated, will not foreseeably have an adverse effect on these sub-features of the site. Due to the D&S IFCA's Potting Permit Byelaw the number of potters in the District can be monitored. The permitting system allows for adaptive management and changes have been made to the permit conditions, via a consultation.

Annex 1: Reference list

Aprahamian, M., Lester, S., and Aprahamian, C. 1998. Shad conservation in England and Wales. Research and Development Technical Report W110. Environment Agency.

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Potts, G. W., and Swaby, S. 1993. Marine Fishes on the EC Habitats and Species Directive. Confidential report to the Joint Nature Conservation Committee.

Annex 2: Previous HRA and Natural England's consultation advice

NE M&CP response for nets vs allis shad

Plym SAC & SPA shad vs fishtraps v4 final.pc

320633_NE advice to DS IFCA_FishTraps 202

Annex 3: Site Map

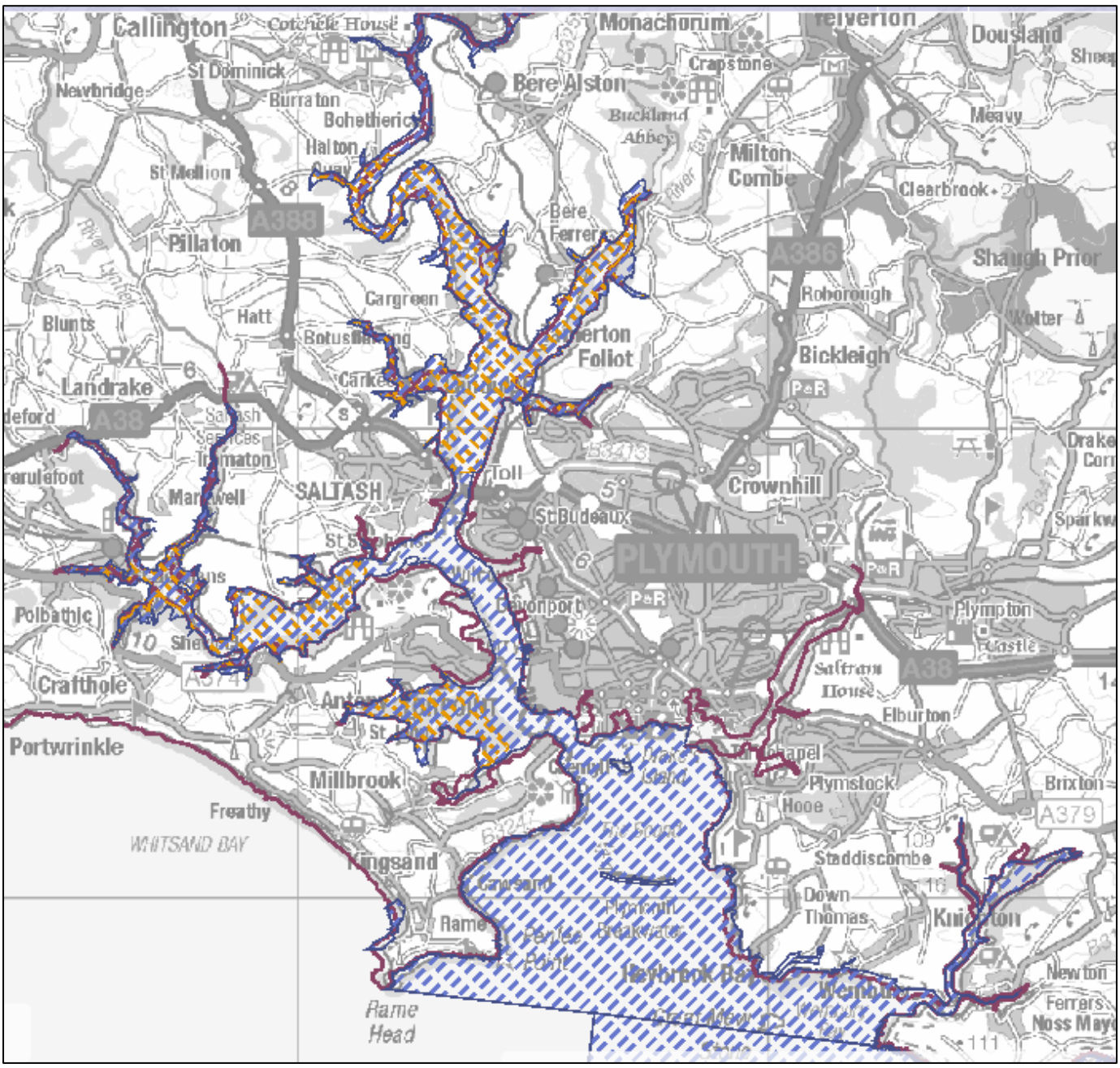


Figure 1 - Area of SAC (blue hatched) and SPA (Orange hatched) (MAGIC, 2015)

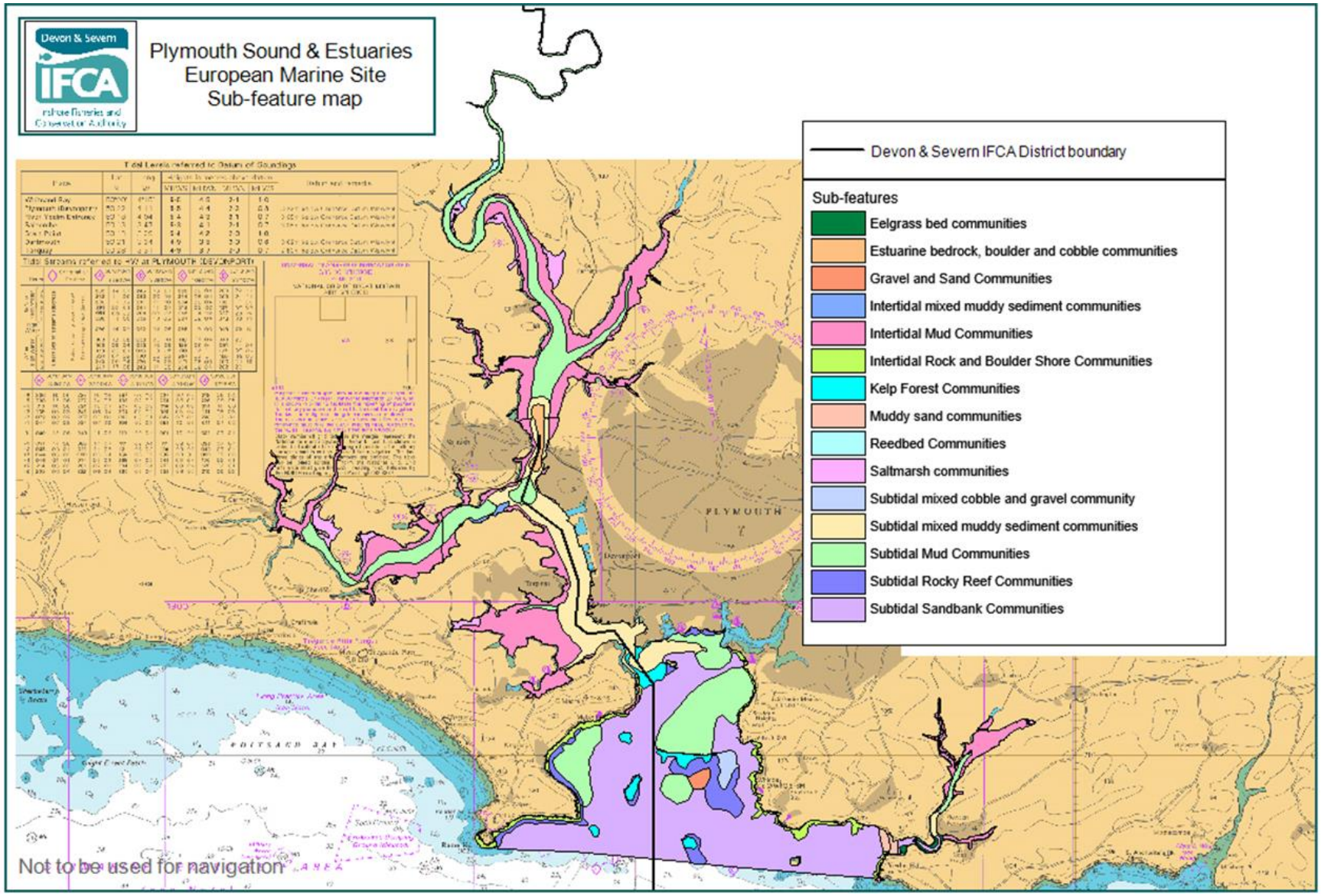


Figure 2 - Plymouth Sound & Estuaries EMS sub-features

Annex 4: Fishing activity maps

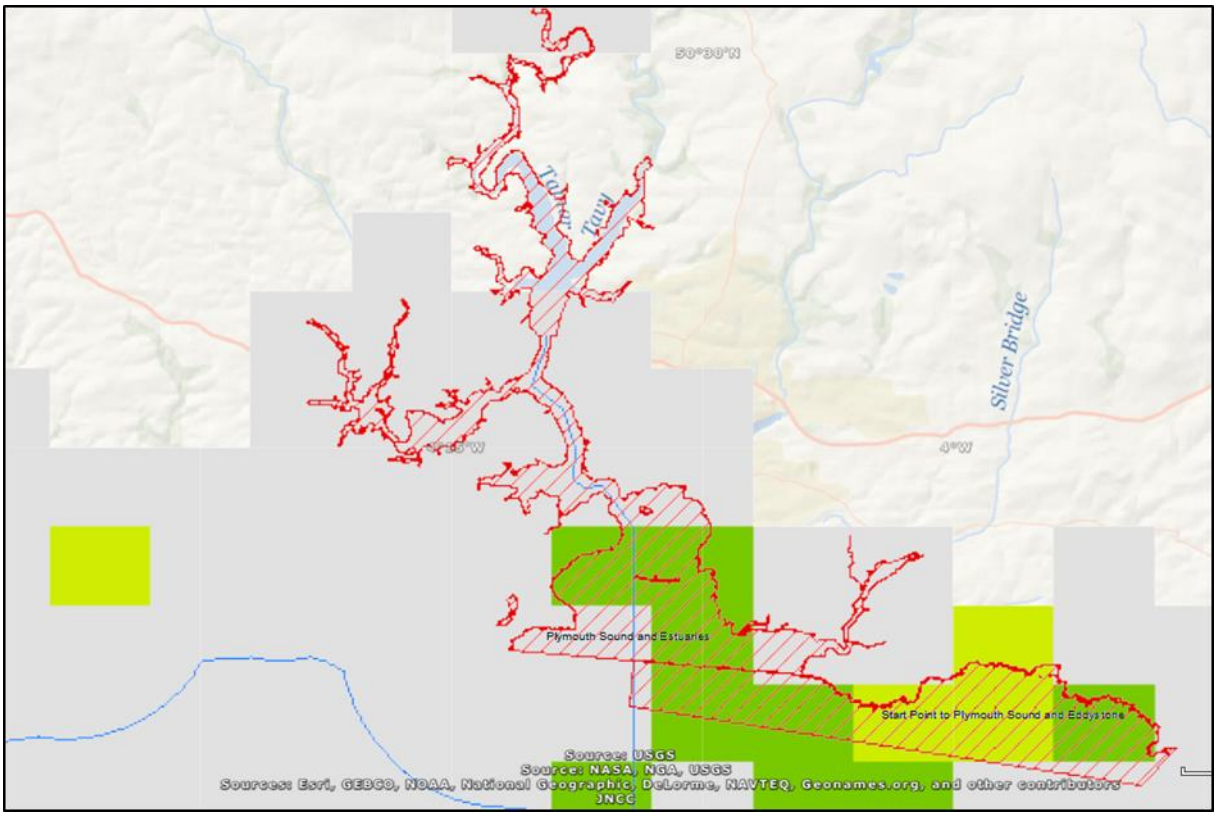


Figure 1 - MMO sightings data for potting, 2007-2009

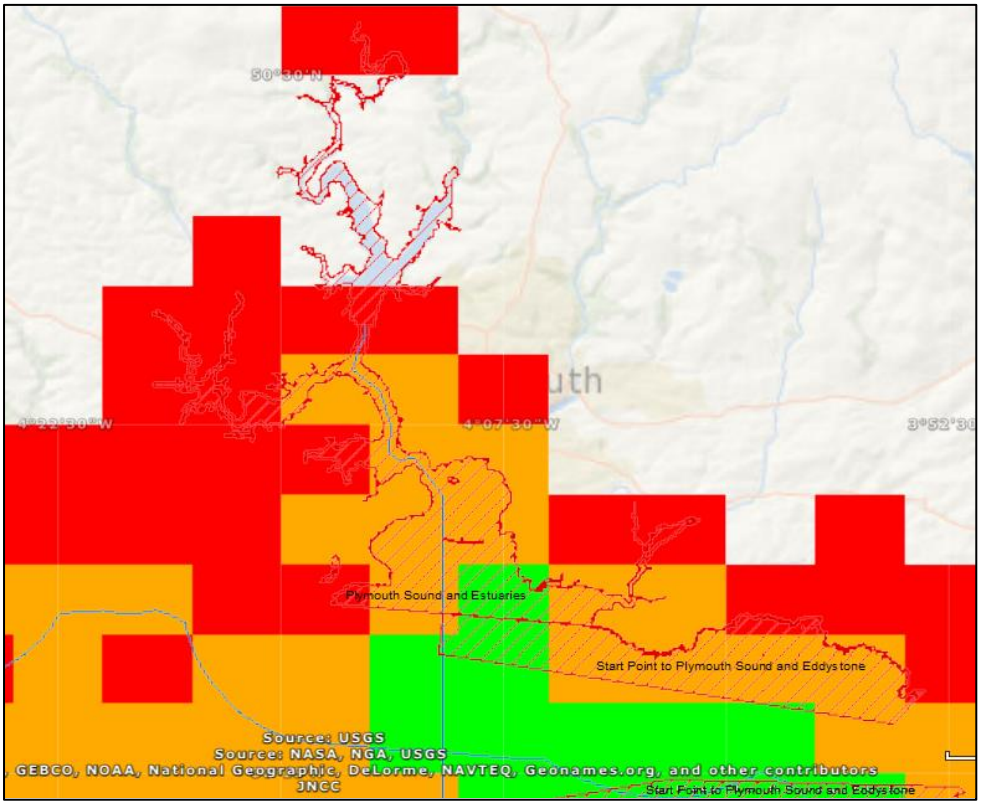


Figure 2 - MMO Sightings Data confidence 2007-2009

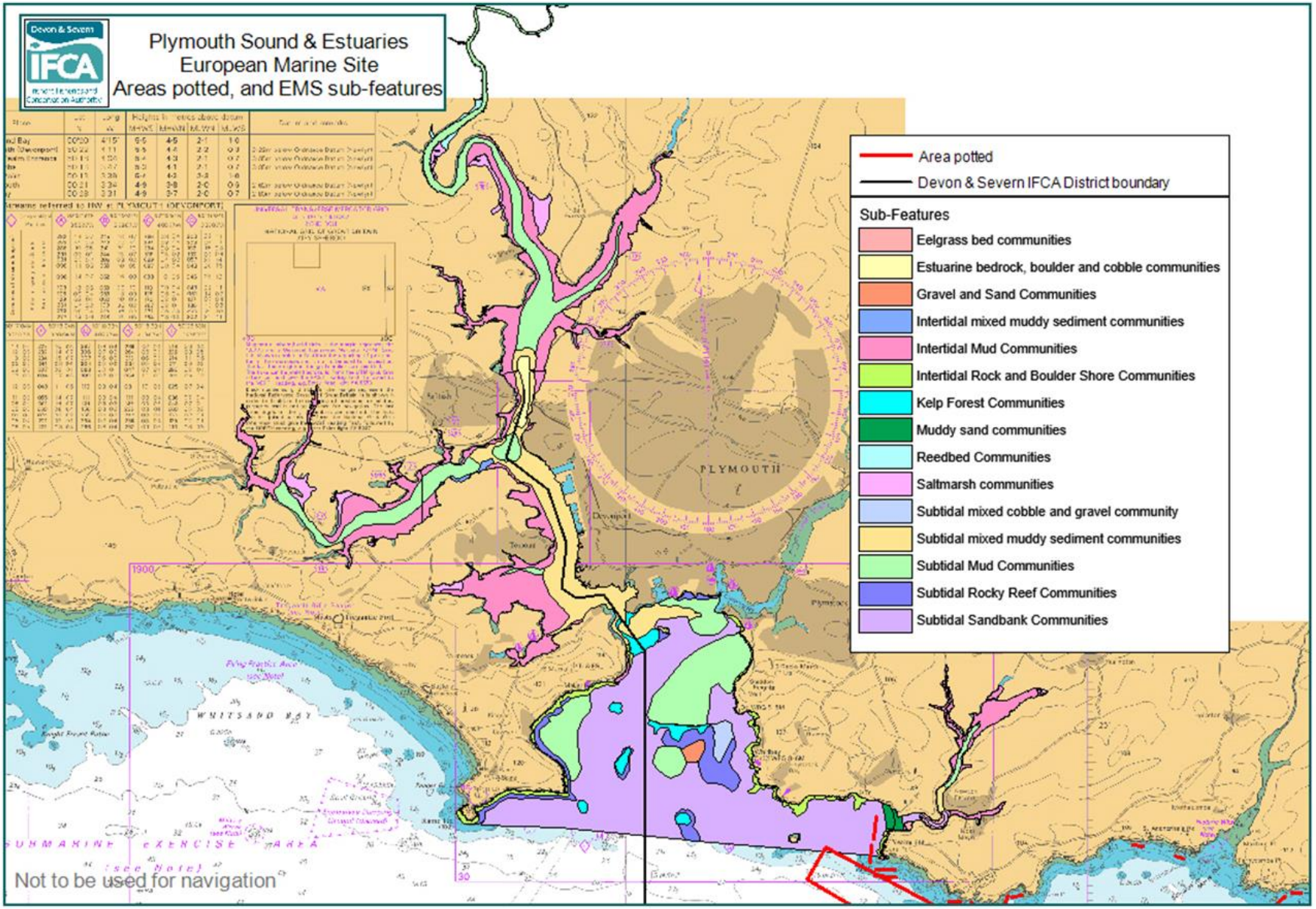


Figure 3 - Areas fished with pots, according to the responses to D&S IFCA's Potting & Netting Survey 2014 (one respondent drew lines to represent strings of pots, the second drew a box to show the area fished).

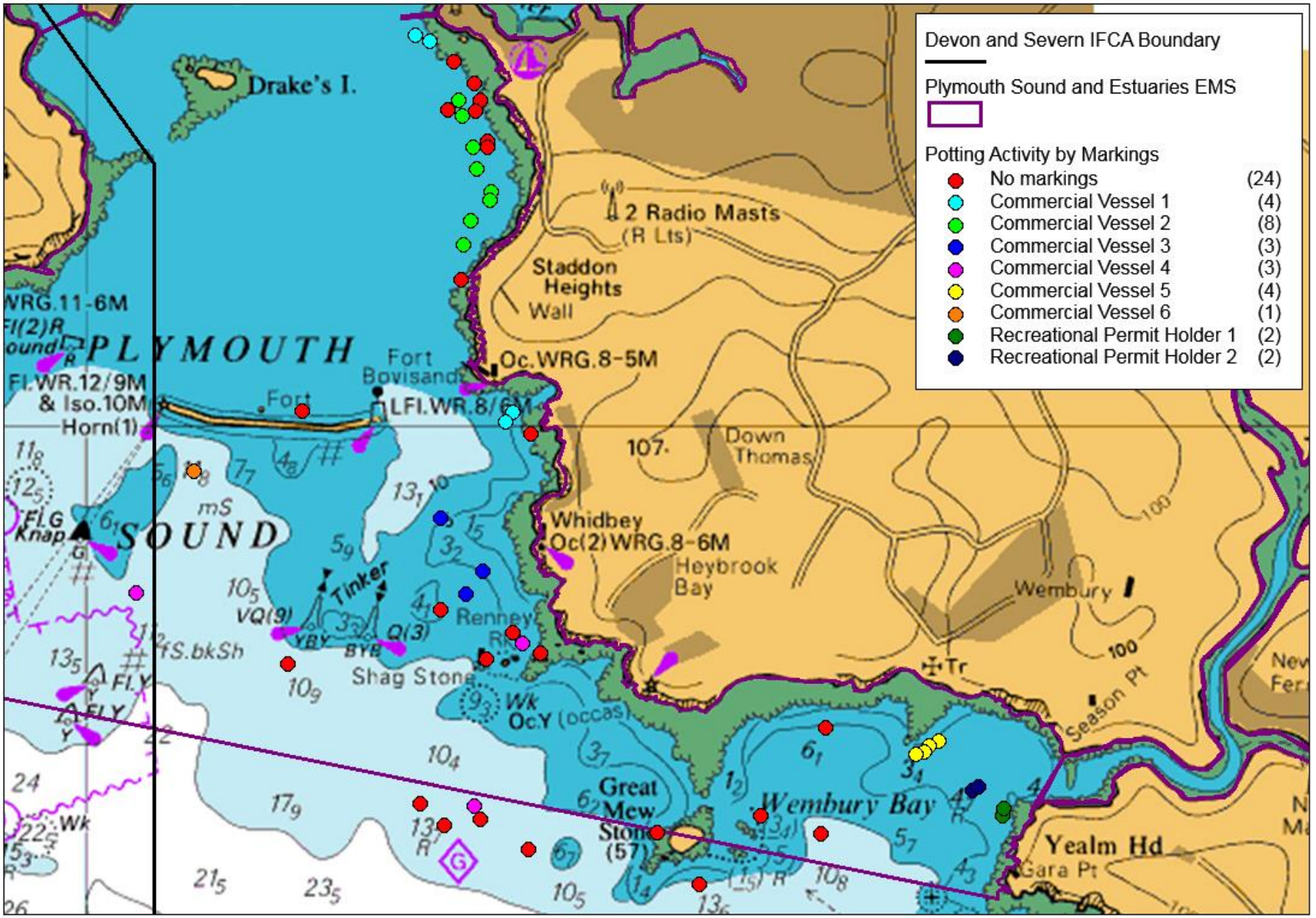


Figure 4 - Potting activity (markings on buoys) recorded within and near Plymouth Sound and Estuaries EMS in May 2016.

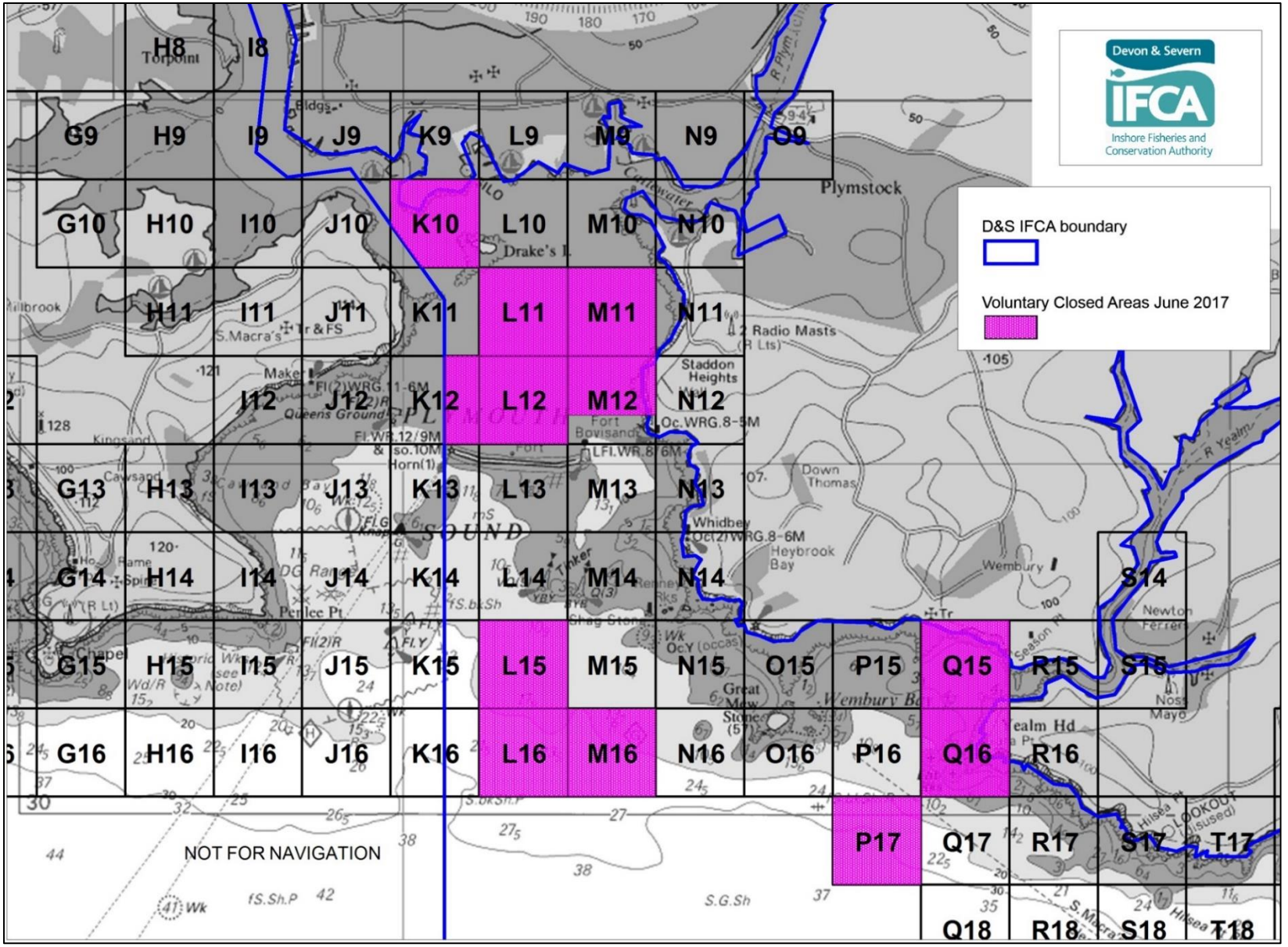


Figure 5 - Voluntary closed areas to the Live Wrasse Fishery (implemented end of June 2017)

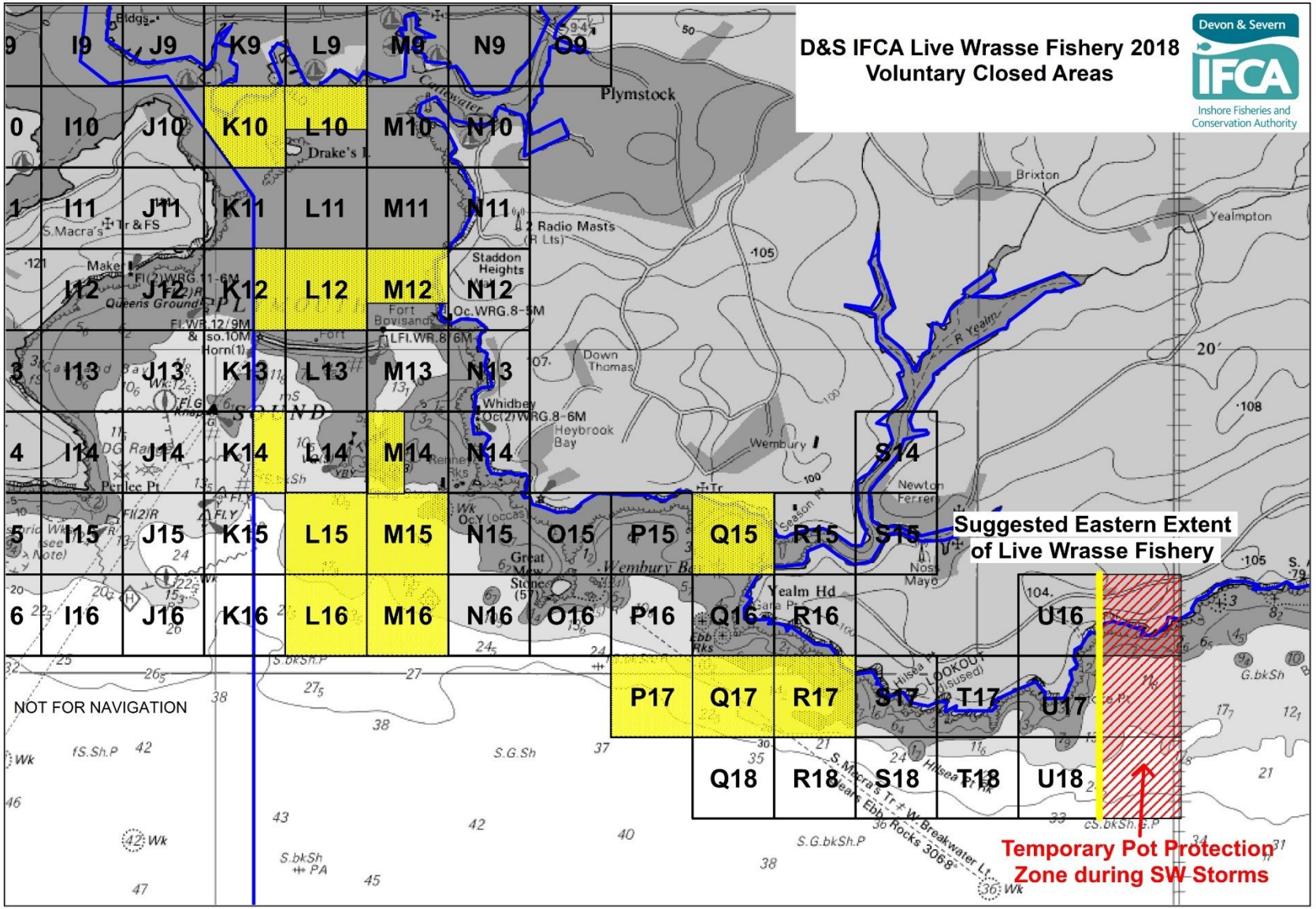
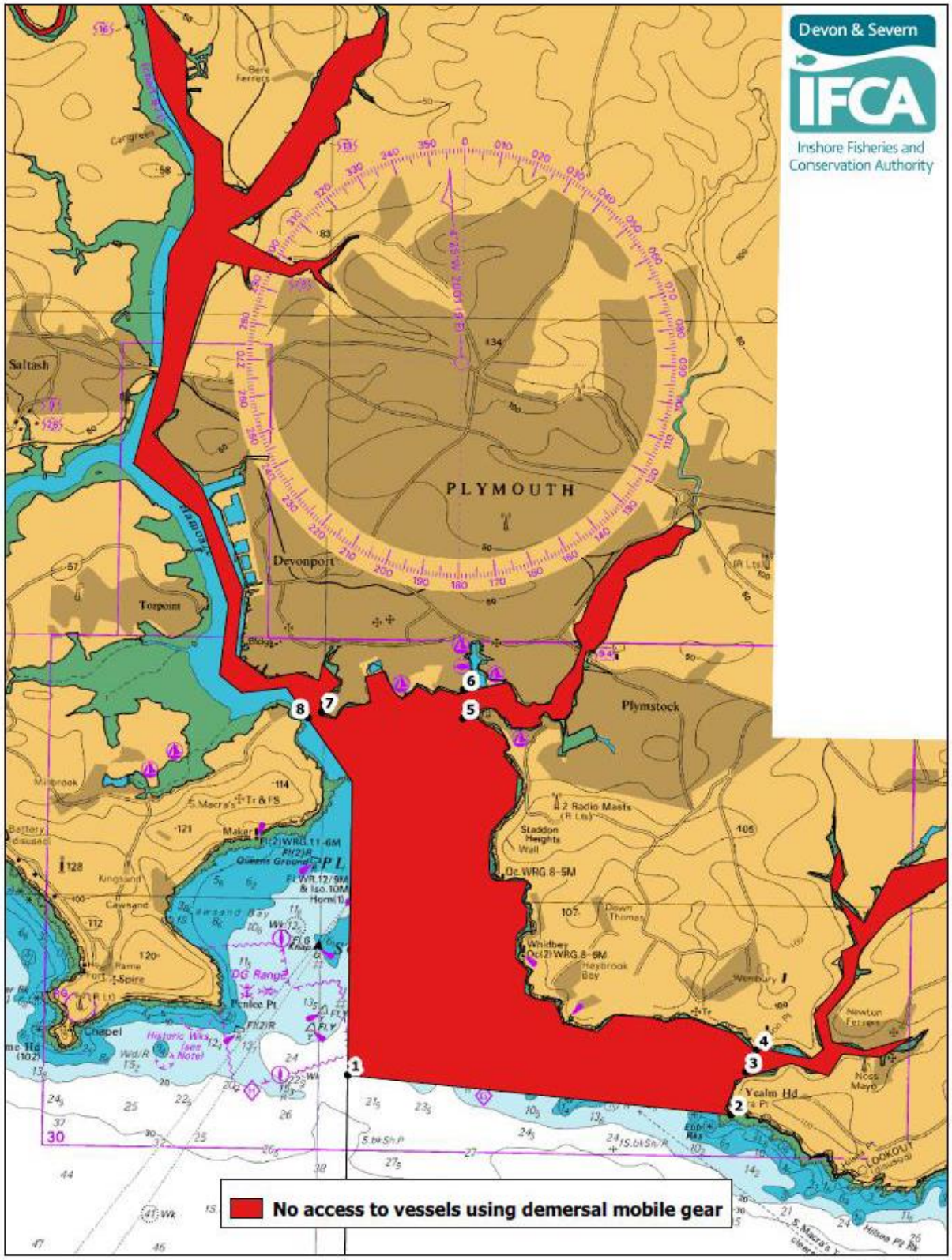


Figure 6 - Voluntary closed areas (yellow boxes) to the Live Wrasse Fishery (implemented 2018, superseding previous closed areas)

Annex 5: Mobile Fishing Permit Byelaw map

Annex 4 of D&S IFCA's Mobile Fishing Permit Conditions 2020)

Annex 4 Plymouth Sound and Estuaries - No access to vessels using demersal mobile gear



Latitude and Longitude positions marked on Figure 1 (Annex 5) above:

Point Number	Latitude			Longitude		
1	50°	18.484’	N	004°	09.600’	W
2	50°	18.192’	N	004°	04.458’	W

Landward boundary follows mean high water to Yealm Estuary Closing Line

Point number	Latitude			Longitude		
3	50°	18.560’	N	004°	4.268’	W
4	50°	18.749’	N	004°	4.133’	W

Landward boundary follows mean high water to Plym Estuary Closing Line

Point number	Latitude			Longitude		
5	50°	21.556’	N	004°	8.130’	W
6	50°	21.801’	N	004°	8.130’	W

Landward boundary follows mean high water to Tamar Estuary Closing Line

Point number	Latitude			Longitude		
7	50°	21.592’	N	004°	10.026’	W
8	50°	21.540’	N	004°	10.206’	W

Point 8 returning to point 1 is the Western District boundary.

Annex 6: Pressures Audit Trail

Traps Fishing Pressure(s)	Sub-feature Allis shad	Screening Justification
Barrier to species movement	S	**OUT** – Insufficient activity levels to pose risk at level of concern
Collision BELOW water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures)	S	**OUT** – Insufficient activity levels to pose risk at level of concern
Deoxygenation	S	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Genetic modification & translocation of indigenous species	IE	**OUT** – Hybrid shad are known to occur at mixed spawning grounds between allis and twaite shad, but by no impact from the activity and the fleet 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.	IE	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Introduction of other substances (solid, liquid or gas)	IE	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Introduction or spread of non-indigenous species	IE	**OUT** - Fleet operates in local area only so risk considered extremely low
Litter	IE	**OUT** - Insufficient activity levels to pose risk at level of concern
Removal of non-target species	S	**OUT** – Other species removed by fishing activity not thought to effect shad
Removal of target species	Revised pressure – no sensitivity currently available	**IN** – Potential mortality of shad from low incidental by-catch.
Synthetic compound contamination (incl. pesticides, antifoulants, pharmaceuticals). Includes those priority substances listed in Annex II of Directive 2008/105/EC.	IE	**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	**OUT** - Insufficient activity levels to pose risk of large scale pollution event
Underwater noise changes	S	**OUT** - Insufficient activity levels to pose risk at level of concern
Visual disturbance	IE	**OUT** - Insufficient activity levels to pose risk at level of concern

Annex 7: Review of the Live Wrasse Fishery in Devon and Severn IFCA's District 2017–2020

The Live Wrasse Fishery 2017-2020 v1

SummaryReport_WrasseReview2017-202

Annex 8: Paper provided to D&S IFCA's Byelaw and Permitting Sub-Committee, addressing concerns raised in the 2021 consultation on Amendments to the Permit Conditions to Manage the Live Wrasse Pot Fishery

B&PSC Wrasse & Potting Formal Cons