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.4 Updated June 2020)

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

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

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 wild wrasse has developed in Plymouth 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 D&S IFCA were informed of the fishery by Cornwall IFCA in September 2016. There are four known vessels which currently fish for wrasse in D&S IFCA's District. Whilst the fishery for wrasse could potentially take place all year 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. The parlour pots used are specifically deigned to catch wrasse (Figure 1), which are lightweight (3.7kg) and fitted with wrasse escape gaps. They measure 72Lx40Wx28H.

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 (Page 11).

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 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 – 2020)

In November 2018, the D&S IFCA 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.

Data analyses, carried out as part of the Three Year Comprehensive Review of the Live Wrasse Fishery, have shown that landings per unit effort and catch per unit effort have remained stable over the fishery as a whole, and for most wrasse species, for the 2017–2019 period (Figures 2 and 4 in Annex 7). This indicates that the fishery as a whole, and most wrasse species, are not overexploited and that the current management measures are an effective way to manage the fishery. However, the data analysis has highlighted concerns regarding rock cook wrasse. While Landings Per Unit Effort (LPUE) and Catch Per Unit Effort (CPUE) appear to be stable or increasing for most species (Figures 5-6, 8-9 and 14-15 in Annex 7), these measures have both declined for rock cook over the 2017–2019 period (see Figures 11 and 12 in Annex 7). It is on this basis that the D&S IFCA 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 has completed its period of public consultation and subsequently the resolution was passed at the B&PSC meeting on 18th June 2020.. Overall, analyses presented in the Three-Year Comprehensive Review of the Live Wrasse Fishery do not provide evidence to suggest that the fishery is unsustainable for the other species; conversely, corkwing wrasse CPUE appears to have increased over the 2017–2019 period.

To date, fishers have complied well with the voluntary closed areas, with three seemingly unintentional infringements in 2019 by a fisher who was new to the fishery. However, 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.

Overall, most fishers have generally complied with the Potting Permit Byelaw conditions, including requirements under Paragraph 17 for the fishers to submit relevant fisheries information as required by D&S IFCA. However, concerns have been raised regarding prior repeated non-compliance by a single fisher/vessel (‘Vessel 3’). D&S IFCA Officers held a meeting with all fishers and the salmon supply agent in March 2020 to reiterate the importance of submitting landings forms and allowing observers on board, in addition to providing sales notes that detail the numbers of wrasse sold on by the fishers. At this meeting, and in a follow-up letter dated 7th April 2020, D&S IFCA advised that if fishers do not provide this documentation they will be in breach of Paragraph 17 of the Potting Permit Byelaw, and made all fishers aware of their obligations to provide relevant data as requested and the implications of non-compliance with all Byelaw Conditions, which would be investigated and could result in prosecution. The owner of vessel 3 was prosecuted on three breaches of Live Wrasse permit conditions in 2019. These offences, which included not marking his fishing gear correctly and two instances of not having tags on his pots were heard in the Magistrates’ court in August and September 2019 and fines of £2,532 were issued. Vessel 3 has not previously received observer surveys due to the small size of the vessel. In 2019 D&S IFCA developed a method of observing this vessel and its catch using D&S IFCA’s enforcement vessel. This will continue to allow observer surveys to be carried on this vessel in 2020, provided that sea state is reasonable. In addition, fishers have agreed to complete a sub-sample of the first 20 pots hauled on one day per week of fishing in order to complement the observer surveys and fishers’ landings forms. These different data collection methods should increase the evidence provision of the IFCA and lead to greater compliance.


Wrasse Data Analysis 2017.pdf


November 2018 Live Wrasse Fishery Data


Addendum to 2018 Wrasse Report


Wrasse formal review supplement (


Curtin, Henly and Stewart (2020). Thre

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)

5.1 Table 1: Assessment of LSE

1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?	**No**	
2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)	**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?	Twenty commercial vessels have potting permits which includes the four commercial vessels known to pot for wrasse within the SAC. 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?	The first TLSE and HRA were completed in 2016, and D&S IFCA received formal advice from NE, which supported the outcome of those assessments. NE's comments on the first HRA are available in Annex 2. This iteration has not yet been consulted on.	

6. Appropriate Assessment

6.1 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 are 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. Therefore, 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 are 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 conclude 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 (Gubbay & Knapman, 1999; Potts & Swaby, 1993). 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 & 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 have 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. This dispensation is currently under review for interactions with all sensitive features, and will require thorough assessments before being granted or declined.

Pressures:

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

- Visual disturbance

In-combination assessment: An HRA and MCZ assessment is currently being undertaken in order to establish any individual or in-combination effects. It is unlikely that in-combination effects will lead to the conservation objective's 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 conclude 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 advice received from Natural England (which is inserted in Annex 2), and updated management measures. This version (version 4) accounts for the changes that have occurred in the two years since version 3, including the completion of the Comprehensive Review of the Live Wrasse Fishery and changes in management of the fishery implemented over time. 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.W., Lester, S.M., and Aprahamian, C.D. (1998) Shad conservation in England and Wales. Environmental Agency Research and Development Technical Report W110

Clark, S (2008) South Devon potting effort survey. Devon Sea Fisheries Committee Research Report 200802

English Nature (2000) PLYMOUTH SOUND AND ESTUARIES: European Marine Site. English Nature's advice given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994

Gratton, P. and Kibel, P. (2015) Allis shad fish passage options appraisal – Gunnislake weir. Fishtek Consulting Ltd report.

Gray, K (2015) Fishing Activities Currently Occurring in the Plymouth Sound and Estuaries European Marine Site (SAC and SPA), Devon and Severn IFCA Report

Gubbay, S. and Knapman, P.A. (1999) A review of the effects of fishing within UK European marine sites. English Nature (UK Marine SACs Project). 134 pages

Hillman, R. (2003) The distribution, biology and ecology of shad in South-West England. Environment Agency Research and Development Technical Report W1-047

MAGIC (2015) Multi-Agency Geographic Information for the Countryside interactive map http://magic.defra.gov.uk/magicmap.aspx?startTopic=magicall&chosenLayers=sacIndex&sggridref=SX472506&startscale=500000

Natural England (2015a) Marine conservation advice for Special Area of Conservation: Plymouth Sound and Estuaries (UK0013111)

Natural England (2015b) Marine conservation advice for Special Protection Area: Tamar Estuaries Complex (UK9010141)

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

Annex 2: Natural England’s consultation advice


NE response to DS IFCA HRA for Plymou


NE M&CP response for nets vs allis shad

Annex 3: Site Map

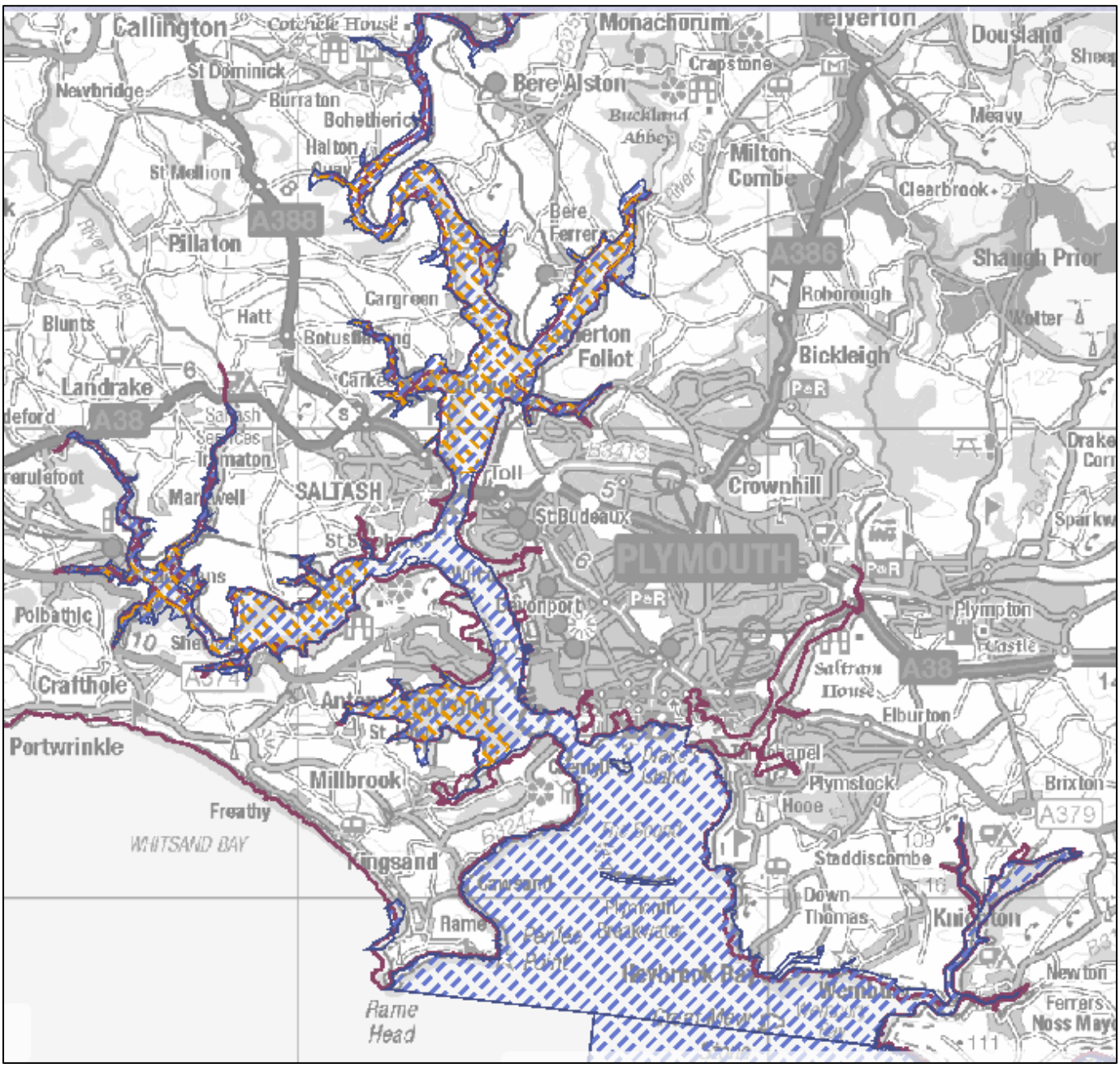


Figure 1 - Area of SAC (blue hatched) and SPA (Orange hatched) (MAGIC, 2015)

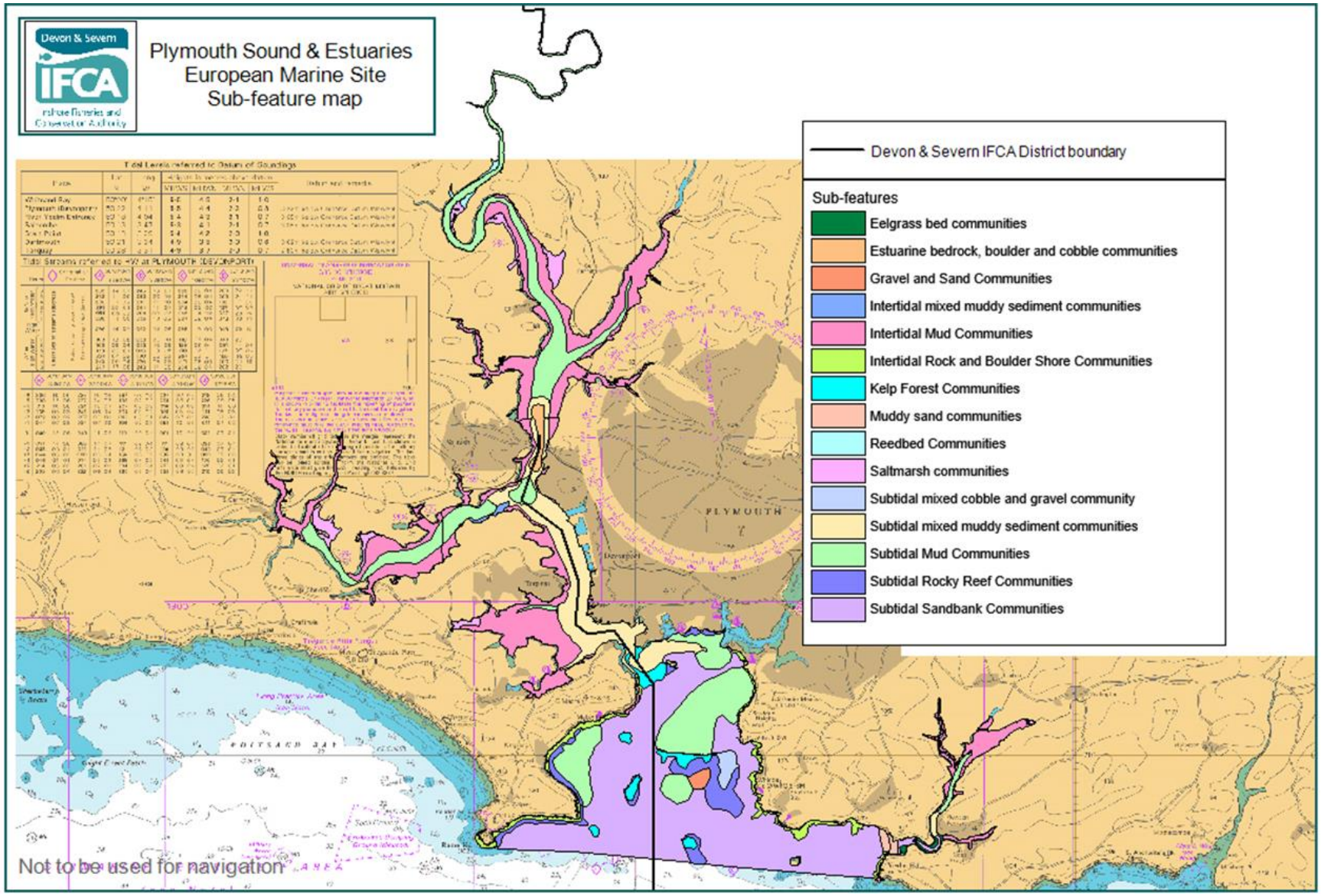


Figure 2 - Plymouth Sound & Estuaries EMS sub-features

Annex 4: Fishing activity maps

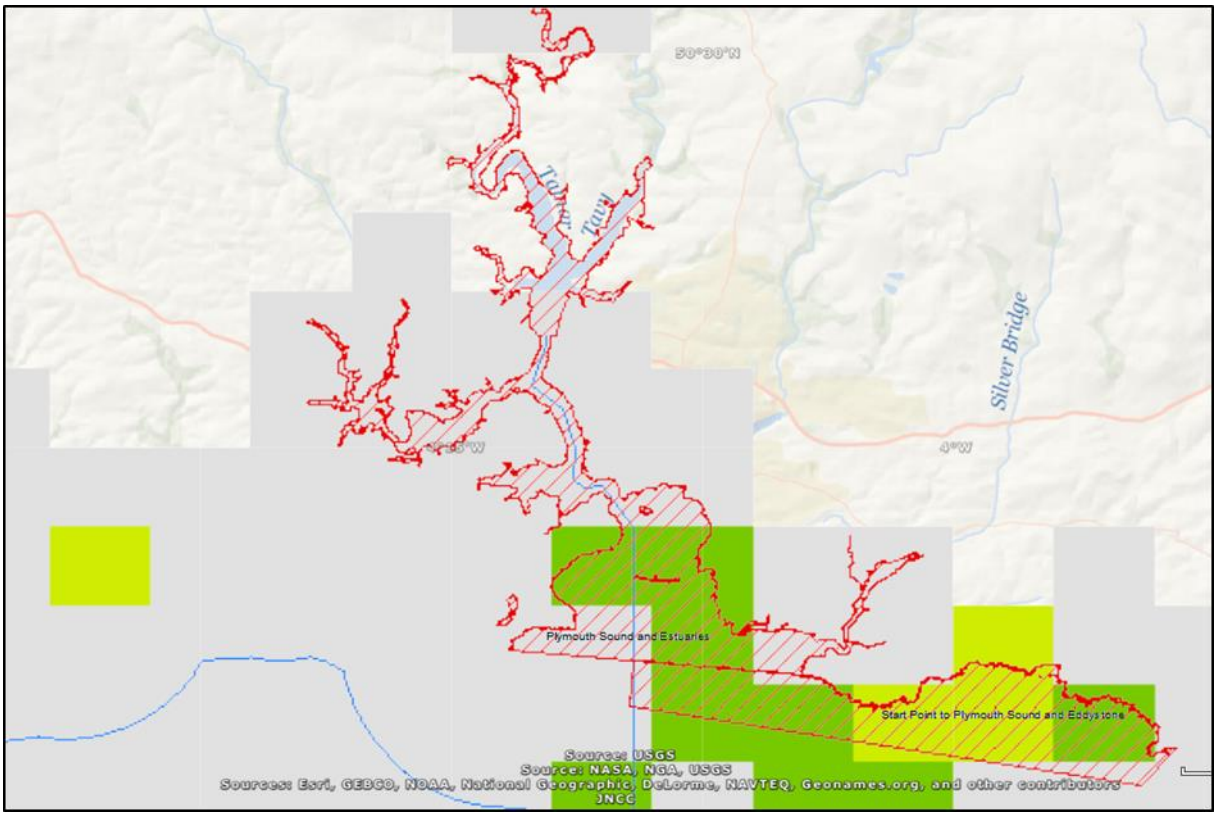


Figure 1 - MMO sightings data for potting, 2007-2009

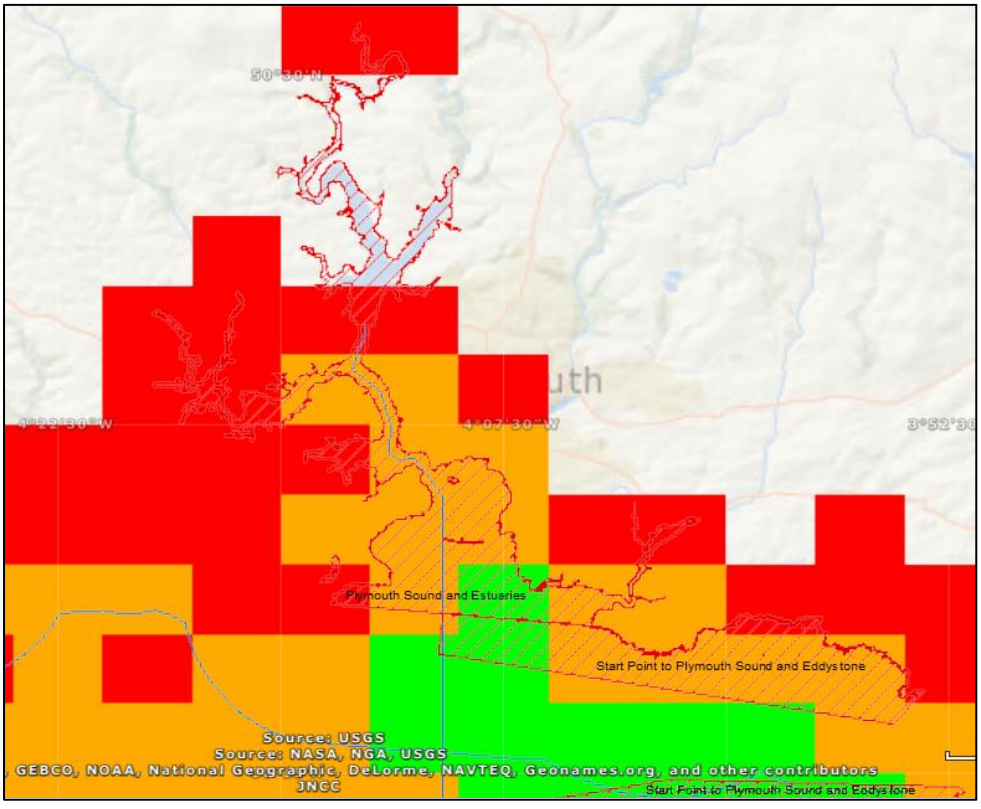


Figure 2 - MMO Sightings Data confidence 2007-2009

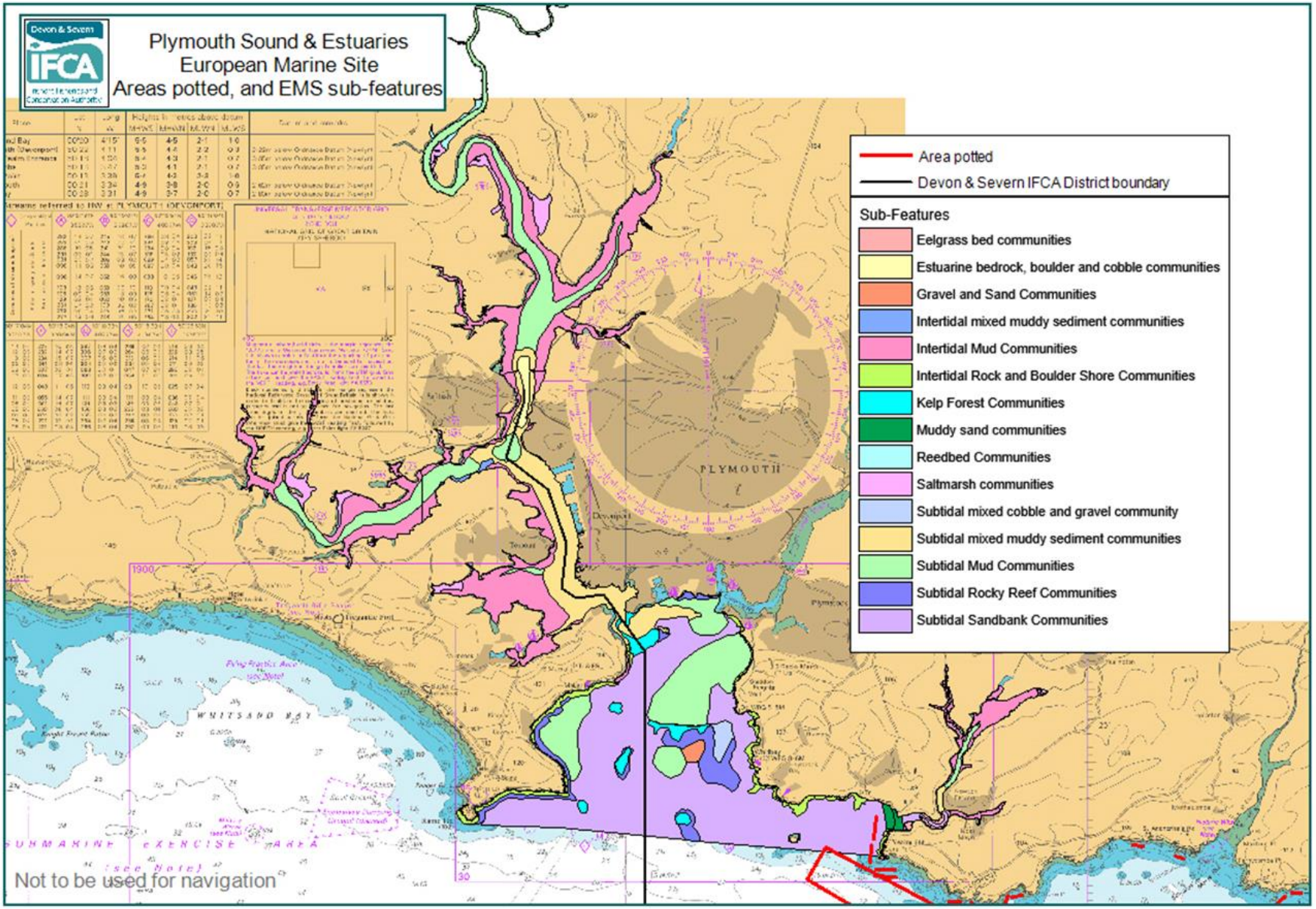


Figure 3 - Areas fished with pots, according to the responses to D&S IFCA's Potting & Netting Survey 2014 (one respondent drew lines to represent strings of pots, the second drew a box to show the area fished).

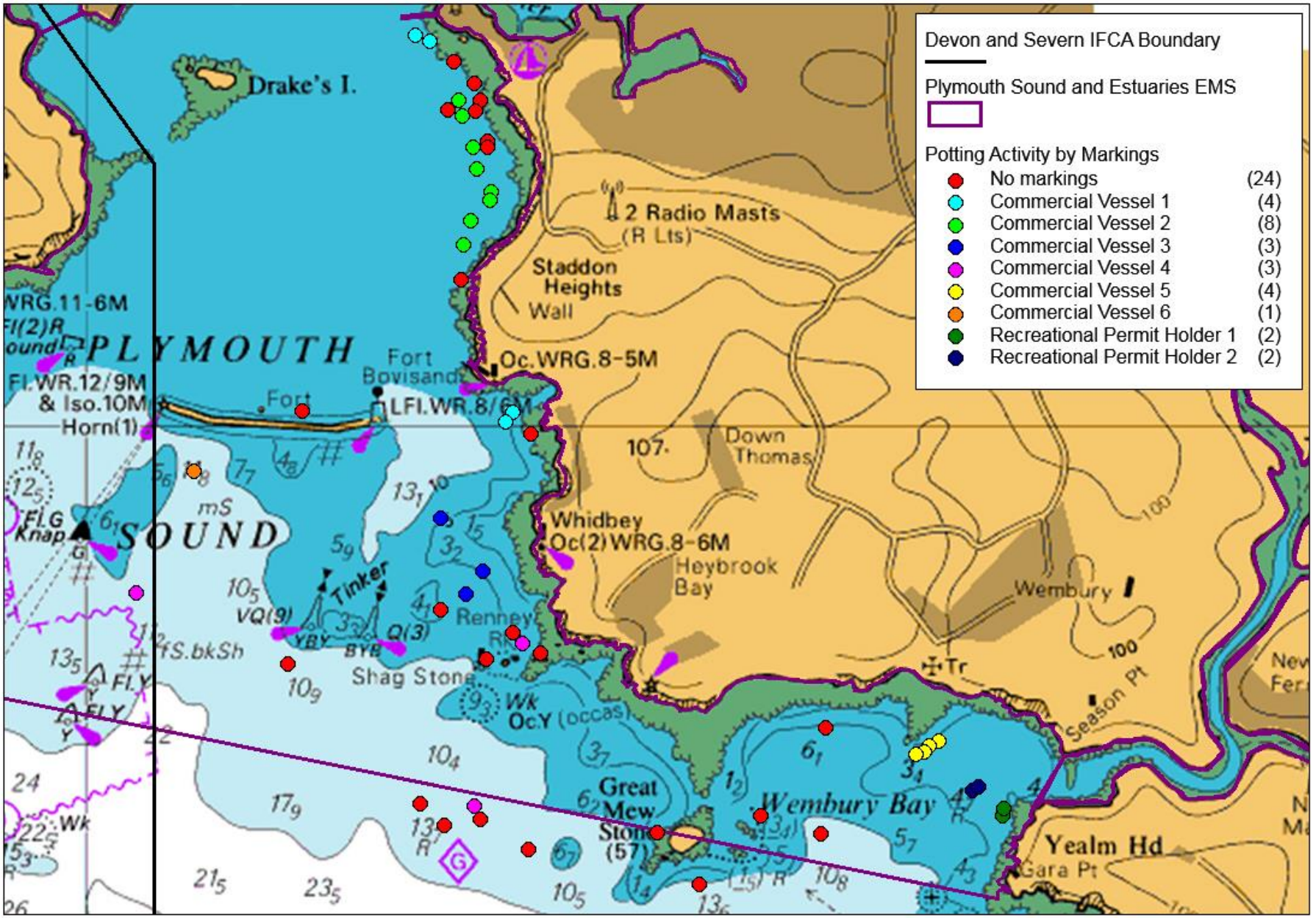


Figure 4 - Potting activity (markings on buoys) recorded within and near Plymouth Sound and Estuaries EMS in May 2016.

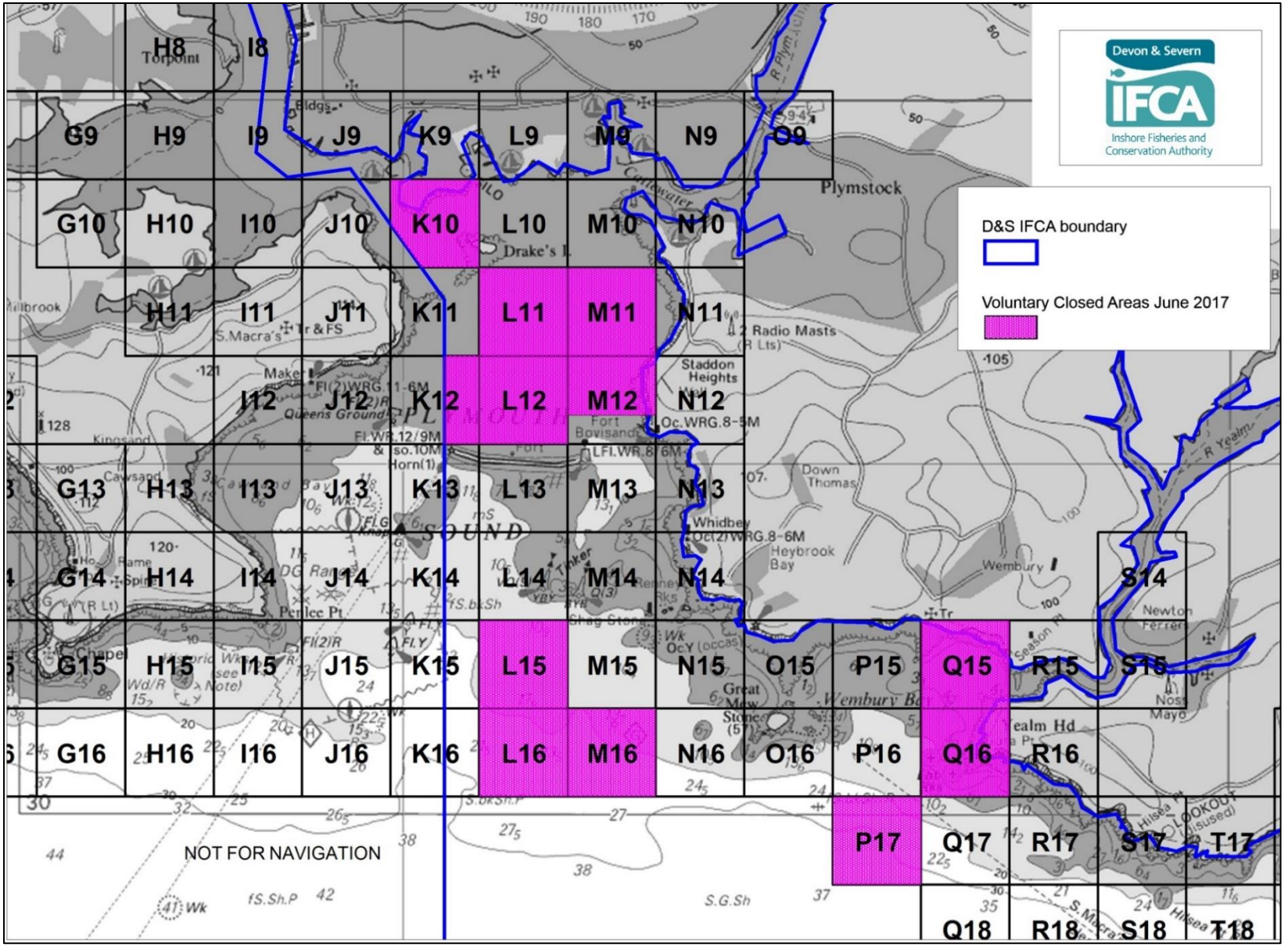


Figure 5 - Voluntary closed areas to the Live Wrasse Fishery (implemented end of June 2017)

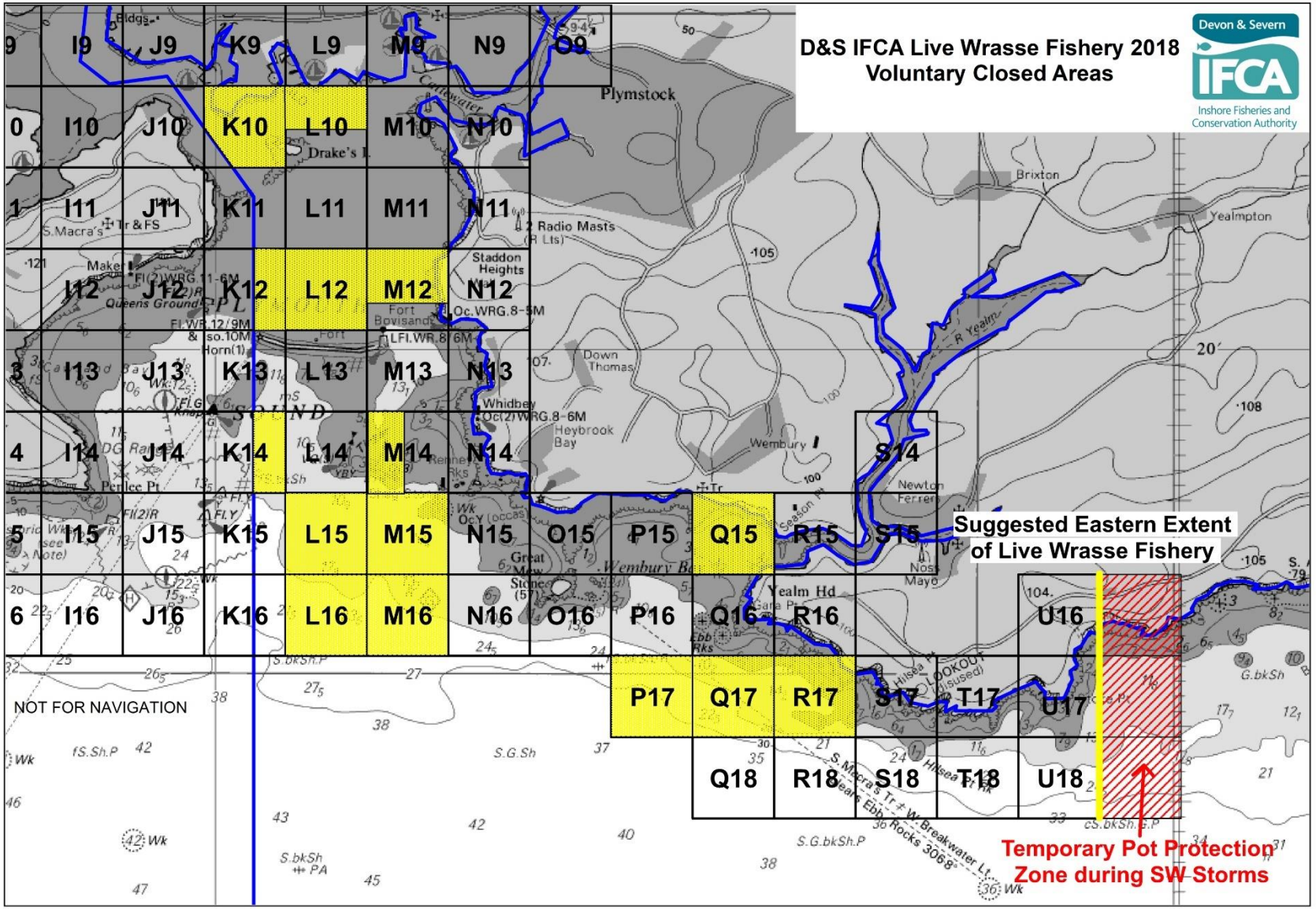
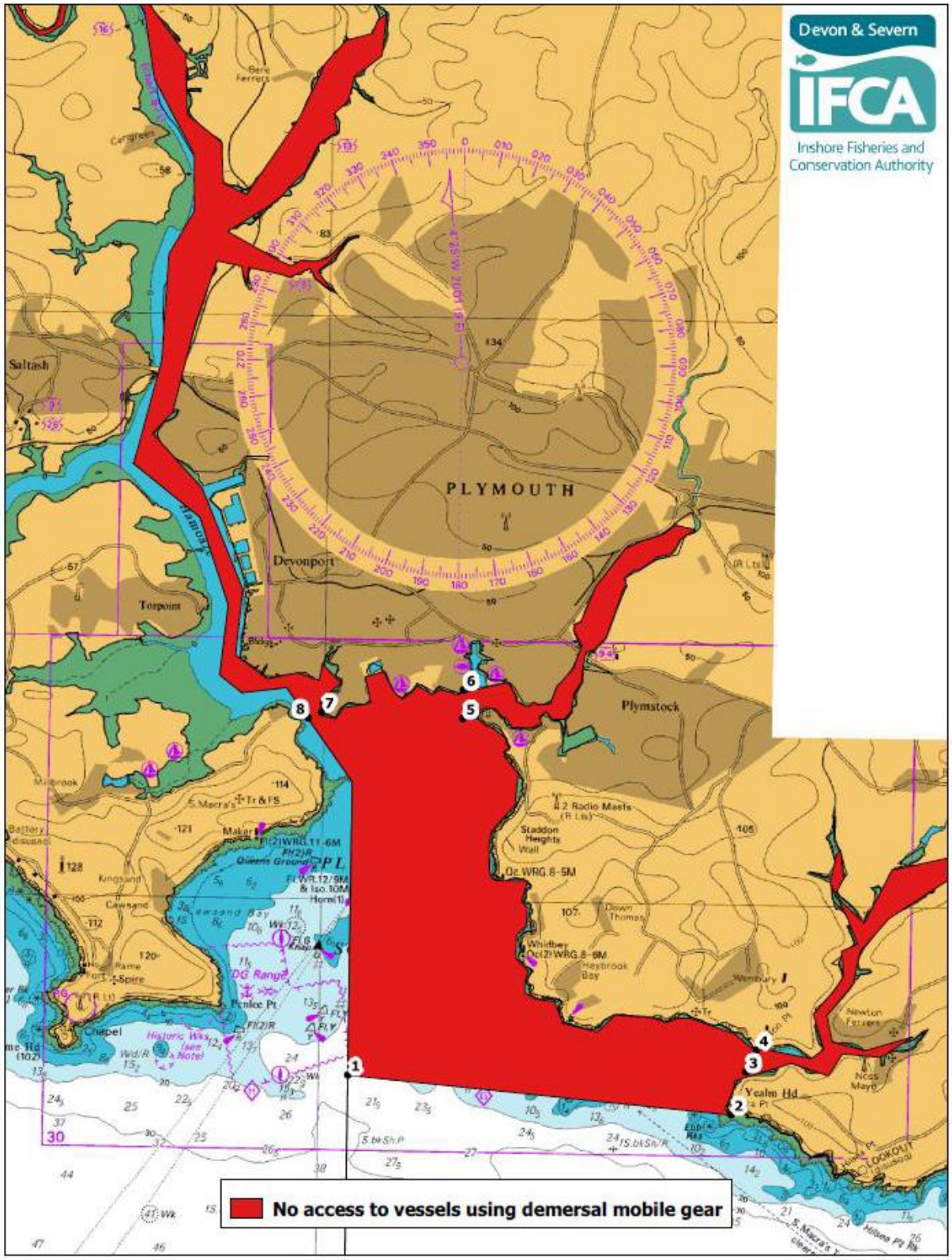


Figure 6 - Voluntary closed areas (yellow boxes) to the Live Wrasse Fishery (implemented 2018, superseding previous closed areas)

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: Three Year Comprehensive Review of the Live Wrasse Fishery in Devon and Severn IFCA's District

Curtin, Henly and Stewart (2020). Thre

Annex 8: Paper provided to D&S IFCA's Byelaw and Permitting Sub-Committee, addressing concerns raised in the 2020 consultation on Amendments to the Permit Conditions to Manage the Live Wrasse Pot Fishery

1. Introduction

This officer paper has been prepared for members of the Devon and Severn Inshore Fisheries and Conservation Authority's (D&S IFCA's) Byelaw and Permitting Sub-Committee (B&PSC) and for all stakeholders to examine via its publication on the D&S IFCA website.

The Formal Consultation – Amendments to the Permit Conditions to manage the Live Wrasse Pot Fishery consultation response has been set out in a separate report and provides the backdrop for the resolutions set out in this paper. The task for the B&PSC is to consider both documents prior to voting.

2. Overview

The proposals developed for the formal consultation were relatively simple with the main focus being a proposed change in the Potting Permit Conditions to add rock cook wrasse to an established list of species that (as set out in the Potting Permit Conditions) are prohibited for removal from a fishery within D&S IFCA's District.

The consultation response was low in terms of numbers, but significant regarding the general theme of the response. Although responses contained differing levels of detail and reasoning for the views taken, the general theme was that there is support for the proposals, but not support for the continuation of the Live Wrasse Pot Fishery.

It was clear from the response provided by Devon Wildlife Trust (DWT) that the Three-Year Comprehensive Review of the Live Wrasse in Devon and Severn IFCA's District Report had been studied in depth. The detailed response that was provided to D&S IFCA challenged different aspects of the evidence base used for decision making and the position taken by D&S IFCA to continue with the management of the Live Wrasse Pot Fishery.

3. Officers' Analysis

On receipt of Devon Wildlife Trust (DWT) response to the formal consultation, D&S IFCA officers have considered the points that have been raised and have set out information in this report to provide clarification on the specific points. In doing so, the officers' analysis also recognises the underlying concerns highlighted in other responses submitted during the formal consultation.

3.1 Precautionary Principle

DWT cites D&S IFCA's statement that it may "be difficult to identify unsustainable fishing practices underlying apparently stable CPUE patterns" due to a phenomena referred to as hyperstability, and DWT letter suggests that this uncertainty is indicative of a need for a moratorium on this fishery, on the basis of the Precautionary Principle. D&S IFCA refers to this hypothetical situation regarding hyperstability occurring in Plymouth Sound in recognition of the fact that there may be underlying processes which are not possible to detect or measure; such processes occur in most fisheries and management scenarios but are not in themselves immediate cause for concern. D&S IFCA's report on the Three Year Comprehensive Review states that hyperstability appears to be unlikely due to relative consistency in the areas fished between years, with the added caveat that it is possible that the 1 km grid square resolution at which fishing effort is quantified may be too coarse to detect fine scale changes that may contribute to hyperstability. The report explains that there are also other drivers which may influence wrasse abundance (and therefore catch and/or landings per unit effort).

D&S IFCA recognises that whilst it will never be possible to have perfect knowledge of the dynamics underlying this or any other fishery, D&S IFCA has collaborated with a PhD student at the University of Exeter who is undertaking fine scale analyses of the wrasse fisheries along the south coast of the UK. This researcher is independently investigating a range of relevant topics, from drivers of catch and landings per unit effort, to the population genetics of wrasse and their relative ecological niches. Findings from these studies may be directly relevant to the management measures used by D&S IFCA, and its permit-based management system remains adaptive and agile enough to respond to new evidence as and when it becomes available.

D&S IFCA relies on evidence-based decision making for marine management, which is underpinned by sound evidence, monitoring and evaluation. In pursuing this approach, D&S IFCA must seek to ensure that our decisions can be justified objectively and take account of all relevant environmental, social and economic matters. In reaching decisions based on the best available evidence, D&S IFCA must take a risk-based approach that allows for uncertainty and that is in line with sustainable development policy, including consistent application of the Precautionary Principle while seeking to balance its statutory duties as set out within the Marine and Coastal Access Act 2009. . It is in this context that D&S IFCA has already introduced management measures and is proposing changes in management which are appropriate. A thorough literature review was undertaken, and the initial management measures introduced in 2017 were based on best evidence and practice from the literature. Some of these initial measures have now been amended through D&S IFCA's permit-based approach to the fishery, which allows for rapid changes to management in response to analysis of all data collected. In the past, D&S IFCA's adaptive management measures have included changes to the minimum and maximum conservation reference sizes and the closed season.

3.2 Non-Compliance

D&S IFCA is aware of the repeated non-compliance associated particularly with Vessel 3, which DWT highlights as contributing 38% of landings in 2019. Enforcement action against the offending vessel took place in 2019. The vessel owner was prosecuted on three breaches of Live Wrasse permit conditions. These offences, which included not marking his fishing gear correctly and two instances of not having tags on his pots were heard in the Magistrates' court in August and September 2019 and fines of £2,532 were issued.

D&S IFCA Officers held a meeting with fishers and the salmon supply agent in March 2020 to reiterate the importance of submitting landings forms and allowing observers on board, in addition to providing the sales notes. At this meeting, and in a follow-up letter dated 7th April 2020, D&S IFCA advised that if fishers do not provide this documentation they will be in breach of Paragraph 17 of the Potting Permit Byelaw and made all fishers aware of their obligations to provide relevant data as requested and the implications of non-compliance, which would be investigated and could result in prosecution. DWT points out that Vessel 3 did not receive observer surveys due to the small size of the vessel. In 2019 D&S IFCA developed a method of observing this vessel and its catch using our enforcement vessel. This will continue to allow observer surveys to be carried on this vessel in 2020, provided that sea state is reasonable. In addition, fishers have agreed to complete a sub-sample of the first 20 pots hauled on one day per week of fishing in order to complement the observer surveys and fishers' landings forms. These different data collection methods should increase the evidence provision of the IFCA and lead to greater compliance. However, DWT suggests alternative methods of monitoring vessels' activity and compliance, through IVMS or chest cameras. Whilst

these are reasonable suggestions, they will not provide D&S IFCA accurate catch and landings data nor detail of size distributions of the different species.

3.3 Lack of Data

D&S IFCA Officers have managed a considerable monitoring effort for this fishery in the D&S IFCA's District, and have collected data which have, through robust statistical treatment, provided a more thorough understanding of the wrasse fishery in the District.

It remains a concern that Vessel 3 has a history of non-compliance regarding landings forms, and that this vessel has not been adequately monitoring via on-board surveys. It has been outlined above how this is to be addressed for 2020, and that failure to comply with the obligation to provide the requested data would be investigated and could result in prosecution.

DWT describes the discrepancies between the transport data provided to the MMO and the data provided via landings forms to D&S IFCA. D&S IFCA highlights this in the report, and the fact that there are several sources of this variability: i) the transport data provided to the MMO include those wrasse caught and landed from the Cornwall IFCA side of Plymouth Sound (these data are not included in landings forms provided to D&S IFCA), ii) the sales information from the MMO only provides data to October 2019, whereas fishers were fishing and providing landings forms until early December, iii) the landings data do not include data from Vessel 3.

The Three-Year Comprehensive Review does not include data from CIFCA's District because (i) D&S IFCA's management can apply only to the D&S IFCA's District and (ii) the data available to D&S IFCA from CIFCA's District are variable between years and may therefore provide spurious inter-annual comparisons. Therefore, whilst D&S IFCA is supportive of an ecosystem-based approach to monitoring and management, it was determined that the Three-Year Review would be of most use to the Authority if it contained the most robust data and comparisons that were available for the D&S IFCA's District.

The coverage of observer surveys reduced in 2019 due to an issue with D&S IFCA's insurance. This meant that no onboard observer surveys could be conducted at the start of the year prior to the closed season. However, surveys commenced after the 15th July 2019 when the fishery re-opened. Two surveys a week are rostered for this specific fishery, but this is subject to officer availability, weather and vessel availability. The D&S IFCA's Environment Team that carry out the on-board observer surveys consists of two full-time and two part-time officers, who also have substantial commitments to additional survey work during the same time of year, including multiple intertidal shellfish surveys, as well as many other workstreams, which are detailed in the D&S IFCA's Annual Plan. Limited resource was recognised by the B&PSC in February 2020 and although continuation of the on-board survey program was recommended, it would be done so having regard to the resources available.

3.4 Returns Mortality and Related Effectiveness of CRS

While D&S IFCA acknowledges that the mortality of fish caught and returned to the sea is unknown, D&S IFCA states in the report that "it appears unlikely that simple catch and release would be associated with high mortality". This inference is based on the best available evidence – the transport documents indicate that, of the 18,120 wrasse supplied in 2019, 108 were dead on arrival. This indicates a survival rate of 99.4% between holding pens and their final destination in Scotland after a long road journey and is based on a sample size larger than any study of catch and release mortality of which D&S IFCA is aware. In addition, anecdotal reports suggest low mortality of fish retained in holding pens between capture and transport. Fishers in the District are aware of the

potential for the process of fishing to induce barotrauma if fish are brought up from depth too quickly and undertake their pot hauling in such a way to avoid this.

DWT suggests that grid cells O15 and O16 should be closed to protect rock cook. However, it is important to note that catch composition per grid square has varied substantially over the last three years, as can be seen in Figures 25, 29 and 30 in the report. This highlights a degree of uncertainty in the relative space use of specific species, which would undermine the specification of closed areas on this basis. In addition, D&S IFCA must seek to be proportionate in the management response, and take into account all environmental, social and economic impacts. These include, for example, the landings and income of vessels 2 and 6, which focus a large proportion of their effort in, and likely achieve a high proportion of their income from, these areas. Under D&S IFCA's proposed change in management to prohibit the removal of rock cook from the fishery this will negate the need to close grid cells to protect rock cook.

Whilst the Three-Year Comprehensive Review report drafted some recommendations for future management, it is not always possible for these to be implemented. For example, it is unlikely to be possible to encourage a short period of retention of non-landable fish on-board the vessel to allow for recovery of swim bladder function in affected fish, prior to returning them to the sea. This activity would be in contravention of the current byelaw conditions which prohibit retention of fish of certain size classes or species. A contradictory code of conduct would make the byelaw conditions impossible to adequately enforce.

The Potting Permit Conditions are structured in such a way to enable effective enforcement action. The provision that requires the immediate return of prohibited species that cannot be removed from a fishery provides the required clarity for both fishers and enforcement officers. Attempts to amend permit wording to allow short term retention on board, rather than immediate return, would be challenging, if not impossible to achieve without introducing significant weaknesses to control measures. Inspections at sea and their effectiveness would be compromised if prohibited species were able to be retained on board for short but non-defined periods before controlled release. A landing prohibition cannot be applied for rock cook wrasse as vessels fish in both D&S IFCA's and Cornwall IFCA's Districts, where control measures are different. Vessels engaged in potting for live wrasse, in both Districts, can and do land their catch in Plymouth.

3.5 Reduction in Fishing Effort

The large reduction on overall fishing effort from 2017 to 2019 in the D&S IFCA's District has been caused by a combination of mechanical issues with vessels, individual's circumstances (fishers not fishing as much for personal reasons), fishers targeting CIFCA's waters within Plymouth Sound during the D&S IFCA's closed season, and remaining there once D&S IFCA's waters reopened. Fishing effort is also affected by the weather conditions within Plymouth Sound. During 2019 a prolonged period of high winds resulted in damaged pots and fishers not fishing within Plymouth Sound. These poor weather conditions also reduced the number of observer surveys that could be conducted during this time.

In addition, the closed season to protect spawning individuals was amended after the second year of the fishery. In 2017 the closed season was from 1st April to 30th June. In 2019 this was amended to 1st May to 15th July, resulting in a shorter season over the summer months, during which weather conditions tend to be more conducive to fishing. This shorter fishing season over the summer may

have also contributed to the reduction in LPUE as previous studies (Darwall *et al.* 1992, Gjøsæter 2002) have shown catch to be positively correlated to water temperature.

DWT also raises a concern that the number of days fished, and the number of pots hauled do not decrease in the same proportions between years. This is likely to be simply due to changing fishing patterns in terms of the number of pots fished per day between years. DWT also state that a reduction of 54% in potting effort combined with a 62% fall in landings over the same period (2017 – 2019) should be a cause for concern. However, as highlighted above, the change in potting effort refers only to D&S IFCA's District, while the overall landings data from the MMO refers to the landings from both D&S IFCA's District and CIFCA's District. Therefore, the two figures are not suitable for the comparison that are made in DWT's response. In contrast, within the Three-Year Comprehensive Review report, analysis of LPUE and CPUE over this period (2017 – 2019) for D&S IFCA's District concluded no significant change in either LPUE or CPUE over this period for the fishery as a whole. As highlighted by DWT, the figures do not include data for Vessel 3, however this will be rectified for 2020 by the return of landings data and collection of observer data (or by increasing punitive action for this vessel).

3.6 Spawning/ Closed Season

In their response, DWT questions the spawning times of corkwing. Unfortunately, D&S IFCA's Officer had not clarified in the report that the corkwing reported as spawning were showing signs of blue around the anal fin (between July and October), but showed no evidence of milt or eggs. This blue colouration is a somewhat subjective measure of this species being near to spawning season and is unlikely to be entirely reliable on its own. As reported in the Three-Year Comprehensive Review, a small number of corkwing were observed spawning in 2017 – these individuals showed evidence of milt or eggs. In 2017, approximately 80 additional individuals were showing blue colouration around the anal fin. In 2018, D&S IFCA undertook additional fishery-independent surveys during the closed season, which included collection of spawning data. This allowed collection of data during May and June, which is normally not possible. All corkwing that showed evidence of milt or eggs in 2018 did so during May and June, with the only tangential evidence of spawning outside of this time coming from blue colouration. Previous studies have also indicated that the spawning period for Corkwing is from May to mid-June (Halvorsen *et al*., 2016, Matland 2015, Skiftesvik *et al*., 2015).

In terms of Ballan wrasse, few have been observed to be spawning during the on-board observer surveys over the last three years. D&S IFCA is aware of some research CEFAS has been involved in looking at the spawning period of ballan wrasse in the Dorset area. Early indications from this research would suggest that ballan spawn as early as April but this is yet to be confirmed. D&S IFCA has requested a report from CEFAS on several occasions but this has not been forth coming. Should there be evidence to suggest that a substantial proportion of ballan wrasse spawn in April in the D&S IFCA's District then amendments to the closed season will be discussed by D&S IFCA's Byelaw and Permitting Sub-Committee.

3.7 Voluntary Closed Areas

Fishers have complied well with the voluntary closed areas, with the exception in 2019. However, these fishers were 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. Several studies (Costanza et al., 1998, Rodwell et al., 2014, Ostrom, 1990), suggest that this type of management of inshore fisheries management leads to a sustainable fishery and helps promote a shift in the incentive structure from defensive to proactive (Arlinghaus *et al*., 2019).

Following DWT's letter, which pointed out strings in grid cell M12 near to seagrass, D&S IFCA's Officers have plotted these using GIS. The resultant chart can be seen in Figure 1 below, which shows that the strings (red) were not over the known distribution of the seagrass (green), as provided by Natural England:

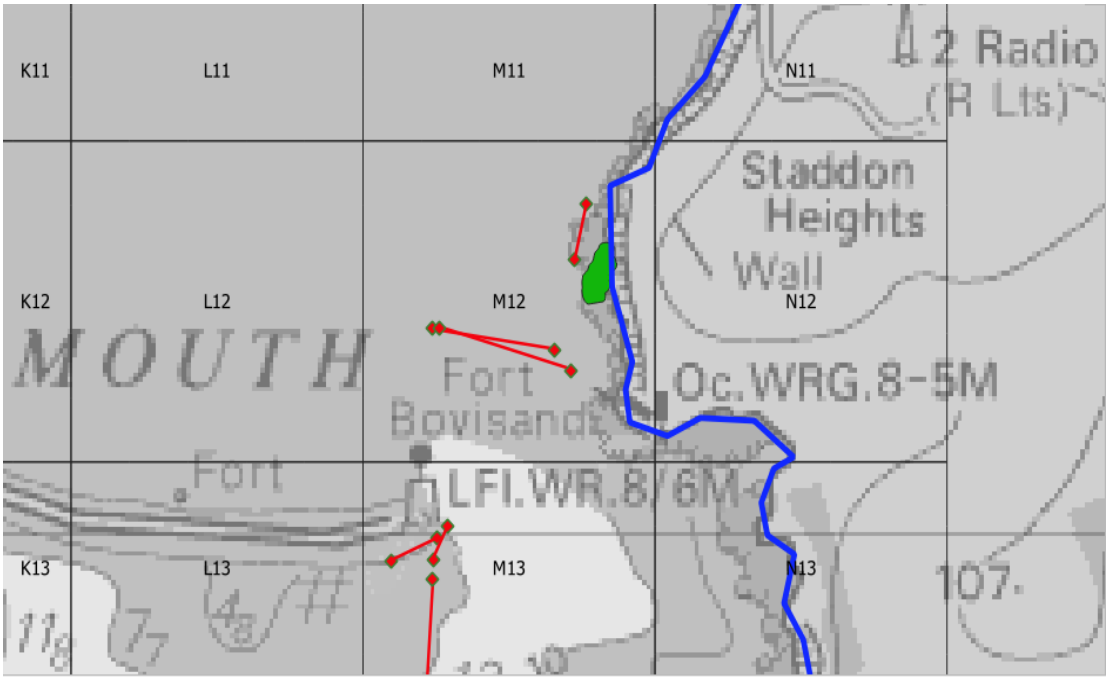


Figure 2 Fishers' strings of pots in relation to seagrass

In addition, as part of monitoring recommended by Natural England in its formal advice relating to the HRA carried out by D&S IFCA on the possible interaction of potting on seagrass, D&S IFCA has been conducting patrols to monitor this potential gear: feature interaction, and our report is available online at https://www.devonandsevernifca.gov.uk/Resource-library/H-Environment-and-Research under the section "European Marine Sites > Plymouth Sound and Estuaries EMS > Monitoring of Potting on Seagrass". This report is specific to the patrols undertaken and does not include the GIS locations of potting in the wrasse fishery.

3.8 Falling Populations

DWT raises concern regarding population declines. The direct comparisons that DWT quote in this section of its response (e.g. catch of > 800 goldsinny in 2017 vs > 500 in 2019) are not corrected for fishing effort. D&S IFCA acknowledges in the report that overall effort declined substantially over the 2017 – 2019 period. It is therefore inappropriate to draw the interannual comparisons that DWT has made and incorrect to state, as it does, that the "effort should not be relevant". In these analyses, it is always relevant to consider effort: it is not possible to begin to understand trends in catches and landings without acknowledging the effect that variation in effort has on these figures. The patterns DWT suggests for other species, including the "plateauing" of corkwing and a decline in ballan wrasse (and a later reference e.g. to a 37% decline in goldsinny catch), are similarly skewed by not

considering effort. This is why the results that D&S IFCA presents throughout the Three-Year Comprehensive Review report are based on fish caught and/ or landed *per unit effort*. Using this unbiased approach D&S IFCA has shown that, over the fishery as a whole, landings per unit effort and catch per unit effort have remained stable over the 2017–2019 period, indicating that the fishery as a whole is not overexploited and that the current management measures are an effective way to manage the fishery. While the same is largely true on a species-by-species basis, these measures have declined for rock cook. It is on this basis that D&S IFCA has suggested the prohibition on the removal of rock cook from the fishery, which DWT has indicated its support for in its response.

3.9 Habitat Regulation Assessment (HRA)

With reference to the points DWT makes regarding the HRA and Natural England's formal advice as detailed in their letter dated 21st February 2018, Natural England has stated that: 'It is our understanding that an assumption has been made within the assessment that as long as wrasse stocks are maintained within the SAC, then whatever ecological function they do perform will continue to be carried out. Doing this will ensure important attributes such as species composition of the SAC reef communities (and therefore the Conservation Objectives of the site) will be maintained. The assumption that maintaining wrasse stocks within the SAC is important, despite the current lack of evidence base that wrasse are essential to maintaining a healthy reef ecosystem, appears to be a suitably precautionary approach to take when managing this fishery.' The results of the survey work and the comprehensive review show that analysis of landings and catch per unit effort (LPUE and CPUE) over this period (2017 – 2019), as a whole for D&S IFCA's District, concluded no significant change in either LPUE or CPUE.

Where there have been concerns highlighted through the analysis of data, D&S IFCA has implemented changes to the management measures through the Potting Permit conditions, for example, changing the slot size for corkwing and the recommendation for the prohibition of the removal of rock cook from the fishery in 2020. The use of this adaptive management mechanism has been highlighted in Natural England's advice where they suggest the close monitoring of LPUE and CPUE and size distribution should inform management decisions and would be an essential part of managing the fishery to avoid adverse impact. Natural England also supports the continued annual review of the fishery using all year's data, which would give confidence that management changes should be introduced should there be any indication in the current level of exploitation not being sustainable.

D&S IFCA agrees with DWT's point that having a fully monitored fishery is essential in meeting Natural England's recommendations and D&S IFCA has implemented measures to ensure that continues. Natural England has been involved and supported the changes in management measures introduced to date, which have been highlighted through the data analysis undertaken each year and detailed in the 'Three Year Comprehensive Review of the Live Wrasse Fishery' report. DWT suggests that NE reviews the HRA, however the process for reviewing the HRA lies with D&S IFCA. Five HRAs, on the interaction of fish traps on features of the Plymouth Sound and Estuaries SAC, 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 fishery has taken place, with changes in management of the fishery implemented over time, it may now be an appropriate time for D&S IFCA Officers to revisit the HRAs, review them and request revised formal advice from Natural England. If the Authority decide that it is appropriate to revisit the HRAs to determine if they are still valid after

the Three-Year Review, then officers can undertake this task and request advice from NE prior to reopening of the fishery.