



Managing Hand Working Fishing Activity

A Focus on Crab Tiles



Supplementary Report for the B&PSC – Information & Evidence

May 2019 – Amended Version 02

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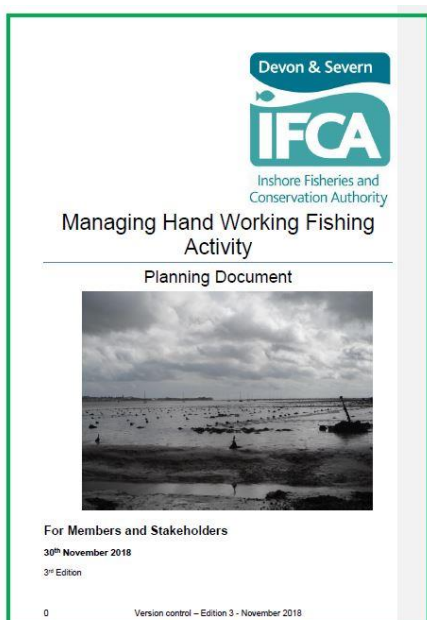
Version Control

Version	Date	Comments
01	February 2019	Presented to the B&PSC at the meeting on 26 th February 2019
02	7th May 2019	DCO Clark added information to re-present to the B&PSC at the meeting on 16 th May 2019

1. Aim of this Supplementary Report

This supplementary report has been prepared for members of the Devon and Severn Inshore Fisheries and Conservation Authority (D&S IFCA) Byelaw and Permitting Sub-Committee (B&PSC). This supplement contains embedded information (hyperlinks) to additional information and is therefore best suited for reading in electronic format. The content of this supplement will be used to develop an overarching development report that will expand throughout the on-going process and be available for all stakeholders to read.

This supplementary report forms part of the [overarching plan](#) for the review of the management of Hand Working Fishing Activity that has been previously discussed by the B&PSC and subsequently implemented by officers.



The first element of the overarching plan is to focus on the use of and management of crab tiles. This supplement report summarises the D&S IFCA baseline information (as recorded on 13th February 2019) relating to crab tiles and has been compiled to assist members with discussions and decision making throughout an on-going process. It is possible that additional information and evidence will be presented to members during 2019.

Process and Decision Making:

As set out in the overarching planning document above, members can review and discuss any elements of the collated information and evidence relating to the use of and current management of crab tiles. Officer comments have been added to provide clarity on specific aspects of the content but are not recommendations.

Members are not expected to take any decisions regarding the specific management of crab tiles at this time, rather the information presented may be used for members to formulate an initial stance on the rationale to potentially change or expand the management of this activity. The discussions and initial thoughts of members will be documented and will be of use later in 2019 when options for management (including potential development of legislation) relating to all Hand Working Fishing Activities will be considered.

Although the supplement report represents summarised information, it is still relatively large. Readers are encouraged to use the contents page and can make use of the embedded electronic information (hyperlinks) that provided further detail. The supplement is divided into different sections and includes:

- **An overview of the crab tile fishing method**
- **Background D&S IFCA information and evidence about the use of crab tiles and its current management**

- A summary of Environmental Research related to crab tiles and its conclusions
- Communications Report
- Summary of the responses received from a “Call for Evidence” campaign (wide ranging consultation) conducted between 4th January 2019 and 8th February 2019.

2. An Overview of Crab Tiles

Crab Tiles are artificial shelters such as roof tiles, guttering, drainpipes, chimney pots and tyres.



Figure 1: Crab tiles on the Exe Estuary

The method of crab tiling is a form of intertidal shore-based shellfish harvesting that targets shore crabs (*Carcinus maenas*) for use as fishing bait by anglers. The activity is carried out both recreationally and commercially.

Like all other crustaceans, shore crabs moult their shells at intervals during their life cycle, during which they seek a refuge from predators. Crab tilers exploit this behaviour by providing artificial shelters such as roof tiles, guttering, drainpipes, chimney pots and tyres.

Whilst sheltering under the tiles, when crabs are preparing to peel, they release a hormone and the scent of this is a powerful attractor to fish, hence the use of 'peelers' as one of the top baits, and the need for crabs to hide during the peeling process. It is in this state that the crabs are collected for bait when the tiles are exposed during low water.

Once the crab has peeled and the crab is in a soft-shell state the initiating fish attracting hormones are no longer present and 'soft shell' crabs are no better than 'hard backs' for bait. So, crabs are gathered early in the peeling process and stored in low temperature conditions that will halt/slow the process. Fresh peelers are considered superior to frozen, but excess baits are often frozen before the shell is shed.

3. Where does this fishing activity take place?

This method of bait collection has taken place in many of the estuaries throughout Devon for generations. D&S IFCA is currently aware that crab tiling currently occurs in eight estuaries in the District including the Axe, Dart, Exe, Plym, Tamar, Taw Torridge, Teign and Salcombe & Kingsbridge.

D&S IFCA Officers undertake surveys every four years. Surveys take place either by foot or on the larger estuaries by drone. Location of each tile are mapped and the numbers in situ are counted. In 2016 the number of crab tiles in the estuaries ranged from 105 in Salcombe & Kingsbridge, up to 23,835 on the Exe. Table 1 provides more detail.

Estuary	2016	2012 (Noble, 2013)	2011 (unknown)	2008 (Lockett, 2008)	2003/04 (Black, 2004)	2000/01 (Black, 2004)
Avon	0	-	-	-	50	0
Axe	263	-	-	-	0	0
Dart	5,484	-	-	-	11,904	11,794
Erme	0	-	-	-	0	0
Exe	23,835	20,997	-	26,488	30,302	26,796
Otter	0	-	-	-	0	0
Plym	2,019	1,710	-	-	2,729	2,956
Tamar ¹	3,570	4,929	-	-	2,646	3,412
Taw Torridge	3,704	-	2,213	-	3,741	4,864
Teign	12,865	-	-	-	22,722	21,001
Salcombe & Kingsbridge	105	-	-	-	193	534
Sid	0	-	-	-	0	0
Yealm	0	-	-	-	0	0
Total:	51,845	-	-	-	74,287	71,357

Table 1 : Number of crab tiles in Devon's Estuaries

(Statistics for the Tamar is only for the D&S IFCA District).

4. How is the use of crab tiles currently managed?

Crab tiling is partially managed via [D&S IFCA Byelaws](#) and [voluntary codes of conduct](#). D&S IFCA does have a Harvesting of Shore Crab Byelaw (number 24) that prohibits the taking of this species within areas of the Exe Estuary. There are currently no other byelaw restrictions for other estuaries.

As part of this on-going review of the management of all defined Hand Working Fishing Activities, members may conclude that additional voluntary measures should be introduced for crab tiles. There is also potential that members could consider the use of additional control measures for crab tiles implemented via a new Byelaw.

Byelaw 24 – Harvesting of Shore Crab

The current legacy Byelaw reads as follows:

For the purpose of conservation of marine resources, the taking of shore crab (*Carcinus maenas*) is prohibited in the following areas: -

- a) In the Exe estuary north of a line joining Starcross Yacht Club Lat 50°38.8N Long 003°27.00W and Parsonage Stile Lat 50°38.99N Long 003°25.90W.
- b) In the vicinity of Dawlish Warren, south of a line joining Lat 50°36.65N Long 003°26.62W and Lat 50°36.62N Long 003°25.74W.

Officer Comments

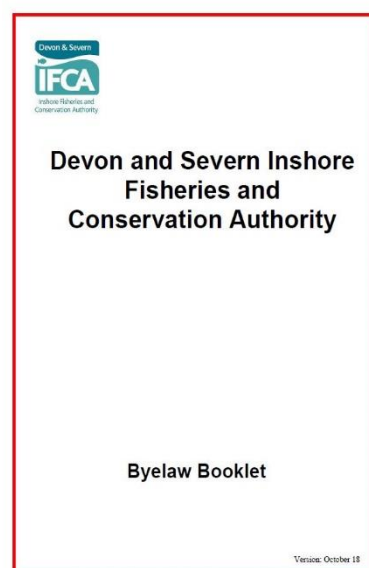
Byelaw Restriction

It is important to recognise that the current Byelaw is species related, rather than gear (crab tile) specific. There was no requirement to make an Impact Assessment to accompany its introduction, so some speculation about the rationale applied at the time is needed.

The Byelaw was a replacement for a River Exe Shellfishery Byelaw that was introduced in 2003 and revoked in 2008. The revoked Byelaw included both a section about **Dredging for Mussels** and the **Harvesting of Shore Crab**. The replacement Byelaw (signed by the Secretary of State in November 2008), that remains in force today, contains the original restriction for the Harvesting of Shore Crab only. The explanation provided on the Byelaw reads as follows:

In keeping with the requirement to maintain byelaws as current and relevant. This byelaw has been revoked and remade to reflect the change in the method of harvesting mussel in the River Exe. Natural England supports the initiative to remove traditional mussel dredging from the Exe Estuary.

D&S IFCA Officers have assumed that the element relating to the **Harvesting of Shore Crab** was retained and placed into the re-made byelaw to conserve shore crab whilst also



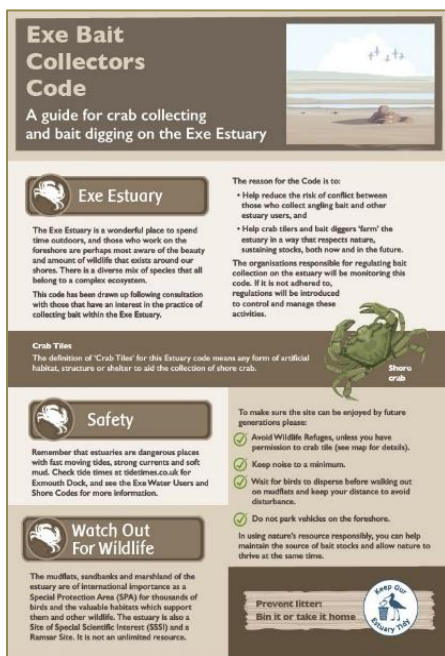
(indirectly) controlling the number of crab tiles that were estimated to be in use within the Exe Estuary in 2008. Several officers recall having to remove large collections of crab tiles from the restricted area as they were unclaimed. Many crab tiles were suspected to contain asbestos.

The current stand-alone Byelaw (introduced by Devon Sea Fisheries) is outdated in its construction and format as compared to more recent byelaws introduced by D&S IFCA. If, during this on-going process, this restriction is determined to still be fit for purpose (as a stand-alone measure only) the opportunity exists to amend its construction and wording. The opportunity also exists to potentially incorporate this restriction into a wider package of restrictions via a Hand Working Permit Byelaw. The use of Annexes (charts) within new permit Byelaws is one option to define areas subjected to a spatial restriction.

Voluntary Codes of Conduct

A voluntary Crab Collectors code of conduct on the Exe Estuary has been in place since 2003. In 2018 this code was updated to include bait digging. The code was produced by Exe Estuary Management Partnership and South East Devon Habitat Regulations Partnership. D&S IFCA remains supportive of this initiative and our contact details along with details of Byelaw 24, are printed on the leaflet. The leaflet is available on-line and is shared locally through Tourist Information Centre; libraries and local business. The Exe Estuary partnership holds a database of crab-tilers and has circulated the D&S IFCA 'Call for Information' to them

The Exe Bait Collectors Code includes information on:



- Refuge areas within the Exe estuary – showing areas where crab tiles cannot be placed (related to Byelaw 24).
- Highlights the European and National designations of the Exe estuary and the important habitats and wildlife areas.
- Voluntary agreement that no more crab tiles to be placed anywhere on the estuary.
- Return immature, moulting or egg-carrying crabs
- Don't use asbestos or sharp materials for tiles.
- Only take crabs from your own tiles
- Placement of tiles at a low angle only – no more than 20cm in height

Monitoring of some activities taking place on the Exe Estuary is undertaken by Habitat Mitigation officers of the South East Devon Habitats Regulation Partnership. This mainly involved monitoring of disturbance to birds which are protected under the SPA designation. The Mitigation officers are working with Footprint Ecology Consultants who are undertaking a

three-year study to monitor activities on the Exe Estuary and whether they cause disturbance to birds, in particular, in the voluntary refuge areas. The first year of results are due to be delivered in June 2019 and the outputs from the study may help to inform management of activities, including hand working, in the site. The Habitat Mitigation Officers, whilst having some powers to enforce local authority byelaws, spend much of their time educating and raising awareness of the site designations and activities that may cause harm.

Other voluntary codes exist within Devon and around the Country. The Taw Torridge Estuary Forum created a Crab Tile Code of Conduct. This was set up to help reduce the areas of conflict and allow those who collect shore crab, for bait, to carry out this activity with the minimal amount of intrusion from other bodies working on the estuaries. The Code contains information similar to the Exe Estuary Code relating to height and location of tiles and includes:

- That permission should be sought from landowners before assessing the foreshore or placing crab tiles on any foreshore.
- No crab tiles shall be placed within 5 metres of commercial oyster and mussel beds and there shall be left a means of access on foot to each oyster and mussel bed within a width of at least 10 metres to the shore.
- That crab tiles should be placed in agreed areas.

There is a draft Code of Conduct for crab pots (i.e. crab tiles) on the Teign Estuary. It is a voluntary code of conduct agreed between Teignbridge District Council and the River Teign Bait Collectors Association who regulate the use of crab pots on the River Teign:

- No further crab pots shall be placed on the bed of the River Teign other than in the same location, and as replacements for, those in position on the 1st April 1998.
- All those crab pots sited in the vicinity of public slipways which are in such a position as to cause difficulties to those landing and retrieving boats from those slipways shall be removed.
- All those crab pots sited within the swinging arc of existing licensed moorings shall be removed.
- Before any reorganisation of moorings which would require the removal of crab tiles the Council will consult the River Teign Bait Collectors Association.
- No crab pots shall be placed within X¹ metres of oyster beds or mussel beds and there shall be left a means of access on foot from each oyster bed and mussel bed within a width of at least Y metres to the shore.
- All crab pots must be correctly positioned, they must be placed at such a low angle so as to ensure that they do not cause difficulties for other river users and in any event no crab pots shall be more than 20 cm in height.
- No crab pots shall be of a material which could affect the quality of the water to the detriment of fish in the river.

It is not known if there is any monitoring of the compliance with the Taw Torridge Estuaries and the River Teign Codes of Conduct. There has been friction between some of the tilers of the Taw Torridge Estuaries, where crab tiles have been repeatedly worked by those that do not own or normally work them. On the Teign there has been conflict between the shellfishermen and the crab tilers but D&S IFCA helped resolve this situation. D&S IFCA officers met with the crab tilers and shellfishermen and liaised with both parties. Agreement

¹ Exact distance in metres for X & Y within the draft code was not known at time of writing

was reached, and resolution was achieved where some of the tiles were moved and the shellfishermen clearly marked the dredging area using withies.

5. Research and Assessment Work

D&S IFCA have completed several Crab Tile Surveys since 2011. These are posted in Section H of the D&S IFCA Website Resource Library, are hyperlinked below, and include:

- [Exe Estuary Crab Tile Survey 2012](#)
- [Tamar Estuaries Complex Crab Tile Survey 2012](#)
- [Crab Tile Surveys of Devon Estuaries 2016](#)
- [Crab Tile Survey Taw Torridge Estuary 2016](#)

In addition to the above, the two reports listed below (external reports) are also posted in Section H of the D&S IFCA Website Resource Library.

- [Report on Surveys in 2003/04 of Crab Tiling Activity on Devon's Estuaries and Comparison with 2000/01 Crab Tile Survey Data \(English Nature & Devon Biodiversity Records Centre\)](#)
- [Exe Estuary Crab Tile Report 2008 \(Exe Estuary Management Partnership\)](#)

Habitats Regulations Assessments

D&S IFCA has conducted Habitats Regulations Assessments (HRA) for Intertidal Handwork (which includes the use of crab tiles). A summary of the environmental research and its conclusions is set out below and in Table 2.

Summary of the Environmental Research

Nine MPA assessments have been undertaken on the likely significant effect of crab tiling on features of the MPAs in the D&S IFCA's district. Table 2 below shows the MPAs where crab-tiling's interaction with designated features have been assessed and shows a summary of the conclusion of each assessment and the formal advice from Natural England (NE).

Impacts of Trampling

The main conclusions from the MPA assessments are summarised below. The literature cited in the assessments indicate that crab tiles do not change the habitat structure of the supporting habitats, with there being no change in total organic carbon and sediment grain size. Trampling causing penetrability of the sediment varied with Johnson et al. (2007) finding no difference and Sheehan et al. (2010b) found trampled plots where less stable and more penetrable. However, crab tiles do increase habitat complexity by allowing species such as seaweeds and barnacles to colonise a previously homogenous environment which may even attract feeding birds.

Trampling from crab tiling was found to lower infaunal abundance of nematodes, oligochaetes, polychaetes and species of sabellid worm, gastropod, bivalve and shrimp (Sheehan et al. 2010b; Johnson et al. 2007). Johnson et al. (2007) found that up to 36 hours after the activity ceased, species abundance returned to control levels. Recovery of intertidal mudflat communities is thought to be rapid as they are naturally exposed to repeat disturbances from

tidal forces and currents (Johnson et al. 2007). Sheehan et al. (2012) found birds used the pools around crab tiles for feeding and little egret were seen fishing from crab tiles (Sheehan et al. 2012).

Trampling extent would be from the shore to the area of tiles, from tile to tile and then back to the shore line. These footprints are visible in the sediment until the tide homogenises the sediment again. Tiles are spread approximately 1m apart (Sheehan et al. 2010b). The potential area of sediment impacted from crab tiling within the Exe Estuary SPA is approximately 1.9 hectares. An area worked is only impacted by trampling for a small-time frame and recovery can be within 36 hours (Johnson et al. 2007). Intertidal mudflat communities are exposed naturally to repeat disturbances from tidal forces and currents (Johnson et al. 2007). Disturbance is only from the presence of crab tilers during this time. This disturbance may result in a temporary change in distribution and abundance of birds in vicinity of the crab tiles worked.

Impact of Crab tiling on Crab Populations

Sheehan et al. (2008) assessed the effects of crab tiling on the population of the green crab *Carcinus maenas* in tiled (Plym, Teign and Exe) and non-tiled (Yealm, Fowey and Salcombe) estuaries. Under the study 4672 *C. Maenas* were caught, sexed and measured. Tiled estuaries had significantly 63% more crabs than non-tiled estuaries.

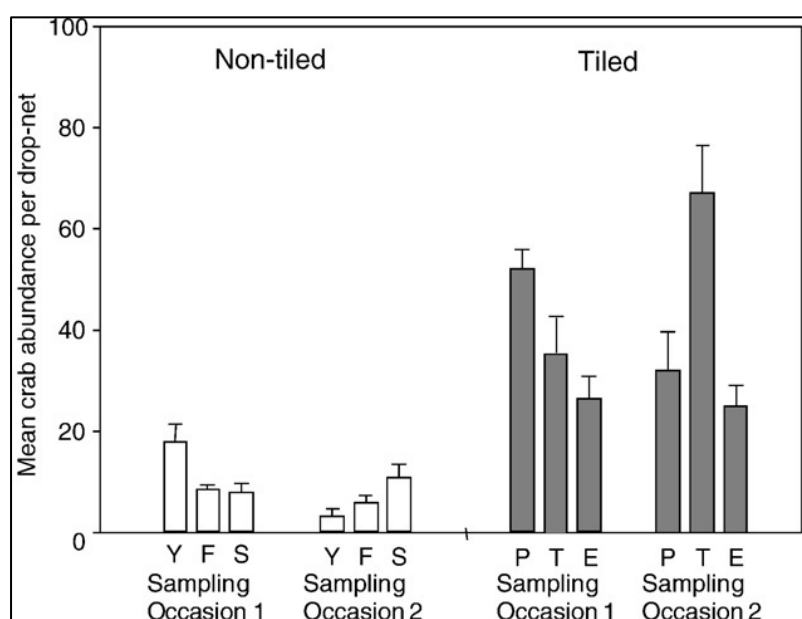


Figure 2: Graph from Sheehan et al 2008. Crab abundance between tiled and non-tiled estuaries. The graph indicates the variation of mean crab abundance (+SE) for the sampling occasion.

Non-tiled estuaries: Y = Yealm, F = Fowey, S = Salcombe; Tiled estuaries: P = Plym, T = Teign E = Exe.

The feature to note is that the mean abundance of crabs from tiled estuaries (the average of the grey bars) was 39.72 (± 2.97 SE), this was significantly greater than the mean abundance of crabs from non-tiled estuaries (the average of the white bars), which was 8.95 (± 0.96 SE). Tiled estuaries had more than 4 times as many crabs as non-tiled estuaries. The non-tiled estuaries, Yealm, Fowey and Salcombe contained just 7.5%, 4.8% and 6.4% of the total number of crabs caught, whilst the number of crabs caught in the tiled estuaries, Plym, Teign and Exe, represented respectively 28.9%, 35.9% and 17.6% of the total number of crabs caught.

For all size classes (apart from the largest ≥ 60 mm), tiled estuaries had greater numbers of crabs than non-tiled estuaries. The greatest difference was observed for the 30–39 mm

category. There were at least six times more 30mm size class crabs and four times as many 40–49mm and 50–59mm size class crabs caught in tiled estuaries compared to non-tiled estuaries. For larger crabs (N60 mm), nearly 60% were captured in non-tiled estuaries, while for crabs of the smallest size class (10–19mm) more than 85% were caught in tiled estuaries (Fig. 3). Crab carapace widths ranged from 14mm to 74mm for females and from 9 mm to 80 mm for males. The modal size class in non-tiled estuaries was 30–39 mm whilst modal size class in tiled estuaries was 20–29 mm.

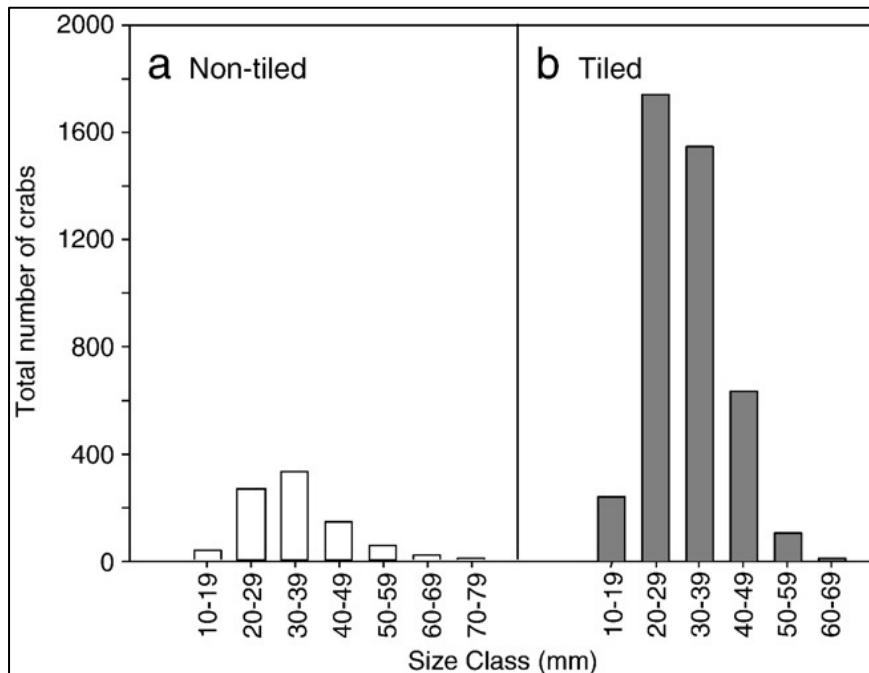


Figure 3: Size distribution of crabs in non-tiled and tiled estuaries (maximum carapace width CW). (Sheehan et al 2008).

As mentioned above, crab populations were found to have different size structures, such that tiled estuaries had a smaller proportion of large crabs and a smaller modal size of 20-29mm compared to 30-39mm in non-tiled estuaries. More larger crabs, greater than 60mm, were found in non-tiled estuaries. The sex-ratio of male and female *C. maenas* was not significantly affected by crab tiling.

It would appear that the consequences of increased habitat provision had a greater effect on crab abundance than the effects of their removal by crab-tilers. This unpredicted effect on the greater abundance of *C. maenas* could still, however, have adverse effects for associated estuarine fauna and their habitats. Elevated abundance of *C. maenas* can have various effects. Estuaries are important nursery areas for many commercially important fishes, such as plaice *Pleuronectes platessa*, bass *D. labrax* and turbot *Scophthalmus maximus*. *C. maenas* are a food resource for some fish species and therefore an increase in the abundance of juvenile *C. maenas* is likely to increase the size and abundance of the predatory fish. Conversely, an increase in the abundance of larger crabs may pose a threat to fish, as predation of juvenile fin-fish by *C. maenas* is documented for flounder *Pseudopleuronectes americanus* and cod *Gadus morhua*. (Burrows et al., 1994; Fairchild and Howell, 2000; Taylor, 2005). Sheehan et al (2008) concluded as a consequence of the artificial habitat provision employed, the fishery in terms of crab abundance does not currently appear to be limited by the direct effects of crab removal. The fishery however, substantially reduces the average size of individuals and may also reduce overall reproductive output.

Sheehan et al. (2010a) noted that oysters *Ostrea edulis* and mussels *Mytilus edulis* are an important part of adult *C. maenas* diet and therefore changes in crab population could potentially influence the abundance of their prey species.

Areas of crab tiles are worked part-time by fishers at spring low tides. Crab tilers are solitary and on the shore for approximately 90 minutes. Usually a patch of tiles is solely worked by one individual who owns those tiles. Crab tilers usually work their tiles on a recreational basis to collect bait for angling or on some estuaries this activity is more commercial, and crabs are sold as bait to shops and on-line. Crab tilers usually only collect crabs which are over 40mm carapace width, not berried females and in the stage of pre-ecdysis (moulting stage) (Sheehan et al. 2008). Moulting crabs represent 10% of the crabs found under crab tiles (Sheehan et al. 2008).



Figure 4: Shore crabs - some moulting and packaged for sale

It can be calculated that if there is a 10% success rate of finding a moulting, soft-shelled crab under a tile this would equate to 5,184 crabs being taken (10% of 51,845 – see total in table 1 for Devon's estuaries) each occasion tiles are checked. As the tiles are worked on a spring tide this would give approximately 12 possible fishing days per month. This would therefore equate to 746,496 crabs (12 x 12 x 5,184) possibly taken per year. If this number were to be sold commercial at £1 per crab (estimate from internet price for Devon peeler crabs) this would give a predicted value to a fully commercial fishery of £746,486.

D&S IFCA's Monitoring Work

D&S IFCA monitors crab tile numbers every four years with the next survey due in 2020. Surveys are carried out on foot or using drones. All location of tiles are mapped and numbers counted and changes in effort can be identified (see Table 1). Through the IFCA's Byelaw Review process, D&S IFCA will be reviewing all byelaws relating to hand-gathering. This may lead to the creation of a permitting byelaw that covers hand working (including crab tiling activity), which would allow the IFCA to monitor levels of this activity in the future and adapt permit conditions to changes in effort/ environmental conditions if necessary. Even though the level of crab tiling in some estuaries of Devon, such as the Exe Estuary, are high, the effect of removal of crabs and trampling to the sediment is not thought to significantly affect the presence, distribution and communities of the supporting habitats of the designated sites.

From the literature review it would appear that food availability and disturbance to the bird features will not cause long term change in distribution or permanent reduction in numbers where crab tiles are laid.

Crab Tiling – Summary of MPA Assessments Undertaken

Site	Habitat Interaction Assessed	Date sent to NE	Conclusion of Assessment	Date of Formal Advice from NE	Summary of NE Formal Advice	Links
Braunton Burrows SAC	Intertidal mudflats & sandflats	25/09/2018	No significant effect – low level activity	12/10/2018	Agreed that the activities are not likely to have a significant effect on features and adverse effect on the integrity of the EMS.	HRA NE Formal Advice
Exe Estuary SPA	Supporting habitats for the birds: Intertidal coarse sediment; mixed sediments; intertidal mud; intertidal sand and muddy sand.	25/09/2018	No adverse effect on bird features and their supporting habitats.	30/10/2018	Agreed with conclusion of assessment of no significant effect. NE supports future monitoring of activity and a mechanism for management if required.	HRA NE Formal Advice
Plymouth Sound and Estuaries SAC	Intertidal coarse sediment; mixed sediment; intertidal mud; intertidal sand and muddy sand.	19/06/2018	Impact of crab tiling is not thought to significantly affect the presence, distribution and communities of the SAC.	16/08/2018	Agreed that the activities are not likely to have a significant effect on features and adverse effect on the integrity of the EMS.	HRA NE Formal Advice
Plymouth Sound and Estuaries SAC	Intertidal rock; Intertidal Seagrass; lower-mid saltmarsh; mid-upper saltmarsh; Pioneer saltmarsh; transition & drift line saltmarsh; upper saltmarsh habitats.	19/06/2018	Activity does not take place on seagrass. Trampling is not likely to significantly affect the features.	16/08/2018	Agreed that the activities are not likely to have a significant effect on features and adverse effect on the integrity of the EMS.	HRA NE Formal Advice

Site	Habitat Interaction Assessed	Date sent to NE	Conclusion of Assessment	Date of Formal Advice from NE	Summary of NE Formal Advice	Links
Tamar Estuaries Complex SPA	Avocet, Little Egret; intertidal mud, intertidal mixed sediment; intertidal sand & muddy sand.	19/06/2018	Impact of crab tiling is not thought to significantly affect the presence, distribution and communities of the supporting habitats and bird disturbance will not cause long term change in distribution or reduction in numbers.	16/08/2018	Agreed that the activities are not likely to have a significant effect on features and adverse effect on the integrity of the EMS.	HRA NE Formal Advice
Tamar Estuaries Complex SPA	Saltmarsh; annual vegetation of driftlines; coastal reedbeds; freshwater & coastal grazing marsh; intertidal seagrass.	19/06/2018	Crab tiling does not take place on these habitats. Any trampling across habitat is not thought to significantly affect the extent, distribution, species composition and communities of the supporting habitats.	16/08/2018	Agreed that the activities identified are not likely to have a significant effect on features and adverse effect on the integrity of the EMS.	HRA NE Formal Advice
Tamar Estuary MCZ	Intertidal biogenic reefs; intertidal coarse sediment; blue mussel beds; native oyster.		Direct impact and associated effects of trampling that are associated with crab tiling will not have a significant adverse effect on the features.	22/12/2016	Agreed that the activities identified are not likely to hinder the conservation objectives of the feature.	HRA NE Formal Advice

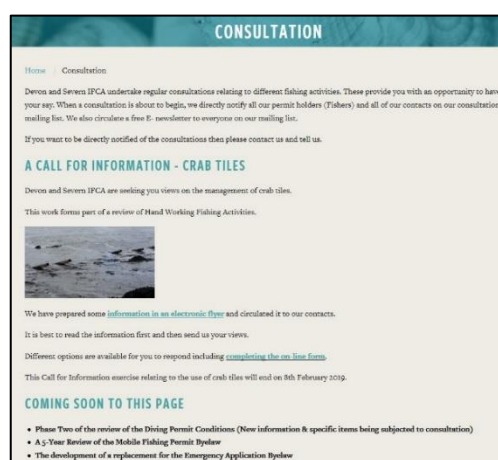
Site	Habitat Interaction Assessed	Date sent to NE	Conclusion of Assessment	Date of Formal Advice from NE	Summary of NE Formal Advice	Links
Bideford to Foreland Point MCZ	Low energy intertidal rock; moderate energy intertidal rock; high energy intertidal rock; intertidal coarse sediment; intertidal mixed sediment; intertidal sand and muddy sand; intertidal under boulder communities, littoral chalk communities; Honeycomb worm reefs.	17/12/2018	Crab tiling; hand working; seine nets; shrimp push nets and bait collection are not likely to have an impact on the features of the site. Activity levels range from none to very low.	06/02/2019	Agreed that the activities identified are not likely to hinder the conservation objectives of the feature.	MCZ Assessment NE Formal Advice
Hartland to Tintagel MCZ	Low energy intertidal rock; moderate energy intertidal rock; high energy intertidal rock; intertidal sand and muddy sand; Honeycomb worm reefs.	17/12/2018	D&S IFCA concluded that there is no significant risk of the activities hindering the achievement of the conservation objectives of the site. Activities are not believed to be occurring or if so at a very low level.	06/02/2019	Agreed that the activities identified are not likely to hinder the conservation objectives of the feature.	MCZ Assessment NE Formal Advice

Site	Conclusion of Assessment
Severn Estuary SAC	Activity Not Occurring
Severn Estuary SPA	Activity Not Occurring
Lyme Bay to Torbay SAC	Activity Not Occurring
Lundy SAC/MCZ	Activity Not Occurring
Start Point to Plymouth Sound and Eddystone SAC	Activity Not Occurring
Torbay MCZ	Activity Not Occurring
Skerries Bank & Surrounds MCZ	Activity Not Occurring

6. Engagement with Stakeholders

Officers selected elements of the D&S IFCA communications strategy to engage with stakeholders between 4th January and 8th February 2019. The Call for Information campaign had the intention of highlighting the review of management (phase 1 – Crab Tiles) and getting stakeholders and interested parties to engage in the process.

Electronic engagement formed the basis for communication. An electronic (Mail chimp) email was directly circulated to over 1000 D&S IFCA email contacts with a request for it to be forwarded to others that may also have an interest in the subject matter. The information provided an overview of the method, how it is currently managed and an overview of the type of information being requested. Hard copies of information were not circulated and were not requested by any stakeholders.



The D&S IFCA website was utilised to support the campaign and the consultation page was used to display the information. In addition, officers created a news item blog for the home page news scroll highlighting the Call for Information campaign. The blog was also posted on the D&S IFCA Facebook page.

Format	Numbers	Comments
Direct notification	702 opened emails	1 person un-subscribed
Website	3723 separate users visiting the website during the period 4 th January to 7 th February 2019	This compares to 750 users – 1 st November to 8 th December 2018
Facebook	12 likes, 2 comments	

Stakeholders had the opportunity to use all options provided to have their say. An on-line questionnaire was developed by officers using Google Forms and was embedded in the email information along with a dedicated email response address. Four dedicated “surgery sessions” were arranged for one to one interaction with officers via visits to the D&S IFCA offices in Brixham or the answering of telephone calls specific to crab tiling.

To meet GDPR requirements, the D&S IFCA Privacy Policy was highlighted along with options to un-subscribe from future Hand working mail shots.

The On-Line Survey Form

The on-line form was an attempt to blend open and closed questioning. It has been transcribed below:

Email Address

Full Name

How did you hear about this questionnaire?

- D&S IFCA Website
- D&S IFCA Facebook
- Twitter
- From another source (such as an email forwarded from someone else)

Questions about crab tiles

Explain what interest you have in the management of crab tiles?

If you operate crab tiles:

- Where do you work them?
- How many crab tiles do you work?
- How often do you work your crab tiles?
- What level of catch do your tiles generate?
- Do you work crab tiles on a commercial or recreational basis?

You may know or watch others working crab tiles? If so:

- Where do you see others working crab tiles?
- How many people do you see working crab tiles?
- How many tiles get used?
- How often do you see crab tiles being used?

Do you have any concerns about this fishing activity and if so what are they?

Managing the use of crab tiles

Did you know that a current D&S IFCA Byelaw (number 24 – Harvesting of Shore Crab) restricts the use of crab tiles in part of the Exe Estuary?

Why do you think the current byelaw (number 24 – Harvesting of Shore Crab) for the Exe Estuary is effective or not effective?

What changes to the byelaw (number 24 – Harvesting of Shore Crab) are needed?

What reasons do you have for changing the byelaw (number 24 – Harvesting of Shore Crab) in the Exe Estuary?

In your view, how effective is the voluntary code in the Exe Estuary and what could be changed to improve it?

Do you think that management of crab tiles is needed in other areas of the D&S IFCA District?

- Where are new restrictions needed?
- What types of restrictions would you like to see introduced?
- What effect would your suggestions have?
- What impact do you think your suggestions would have on others?

7. Summary of Response - A Call for Information – Crab Tiles

A total of 46 responses were received as follows:

Format	Total Number of Responses
Email	7
On-line surveys	33
Surgery Sessions with Officers/Other	3 telephone calls (not within allotted times)
Facebook	3 comments posted

How stakeholders (who responded) were made aware of the information

It is unknown how those that responded via email were made aware of the information. 33 stakeholders completed the on-line form. The table below demonstrates how they were made aware of the information.

Direct Notification	D&S IFCA Website	Facebook	Twitter	Other (such as a forwarded email)
14	0	9	1	9

Overview

A summary response table has been created that follows the written summary. This is to provide a further insight into the responses received and the themes and concerns raised.

41 responses had enough information to be of some use in the summary. Responses that contained insufficient information or information that was not relevant to the subject matter were not used. Examples of information not relevant included a request to prohibit scallop dredging within the District. Another was an on-line response that was used as a platform to be critical of D&S IFCA and its management of fishing activities in general, rather than any focus on crab tiles.

In general, the responses (from individuals) in all formats didn't provide high levels of detail, however the responses regarding the Exe Estuary and the Taw Torridge were the most detailed. The answers provided in several responses (that were summarised) would indicate that the background information was not read or fully understood prior to completion of the on-line survey form. The response provided from the Exe Estuary Management Partnership (via email) was very detailed and has been partially transcribed within the text summary.

Many of the responses tailored their answers more towards specific estuaries rather than expanding their comments in consideration of other areas. The Exe and Taw Torridge were

mentioned most often, but several other estuaries including the Dart, Teign, Plym, Tamar and Salcombe estuaries also featured within both the on-line survey and email responses. The responses that were submitted by a mixture of stakeholders and used in the summary have been categorised as follows:

Category Number	Category	Number of Responses
1	Conservation Interest	8
2	Recreational user of crab tiles	17
3	General Interest/Angling Interest	11
4	Commercial user of crab tiles	2
5	Organisations	3

Current Management and Awareness

During the Call for Information campaign, officers have become more aware that additional voluntary codes of conduct for the Teign and the Taw Torridge have been formulated. These voluntary codes were not highlighted in the information made available in the Call for Information campaign or the questionnaire, however there is little evidence in the returned responses to suggest that they are common knowledge to many stakeholders.

General awareness of the current byelaw (Byelaw 24 – Harvesting of Shore Crab) does appear to be weak, especially for those that don't conduct the activity within the Exe Estuary. Those individuals categorised as having more of a conservation interest, appeared to have no or very little knowledge of the current management. Awareness of current management within the other categorised groups appeared to be generally higher.

Many of the responses would indicate that existing management, in particular the current Byelaw and Code of Conduct within the Exe Estuary is still fit for purpose and has a positive effect managing the activity in this area. This was particularly evident in the responses offered by two organisations with a primary interest in the Exe Estuary.

Officer Comments

Communicating and educating people about current and potential new management can be a challenge. This is often the case; particularly for commercial operators conducting activity that is not associated with vessel use and generally anyone conducting a fishing activity on a recreational basis. The response offered by the Exe Management Partnership demonstrates how better communication and engagement with those known to be operating crab tiles can be beneficial in developing more effective management. Although direct notification can reach a large audience it is not possible to ensure that the information is read and understood fully. Other initiatives such as the placement of signs or posters is sometimes not without its problems. The placement of information in strategic locations is not always a cost-free option for D&S IFCA.

Responses from Organisations

Three responses were received by organisations and the two with the most detail are summarised below:

A response was received from the Lymptone Fishery & Harbour Association. They report that they are content with the management already applied on the Exe and have a high regard for the voluntary code, which in their view is effective. This Association owns or lease 42 acres

on the Exe Estuary (Parsonage Stile to Courtlands Cross) and manages seven crab tilers who operate a combined total of approximately 6000 crab tiles. They manage the activity on their site via a licencing system that includes an annual fee of £10 per year. Further detail about the content of their licence was not made available; however, this organisation is content with their own management in that area. They did take the view that all commercial shellfish activity should be managed.

A detailed response was received from the Exe Estuary Management Partnership, with the content effectively endorsed by nine crab tilers (7 recreational & 2 commercial) operating in the area. Their response has recognised factors such as bird disturbance and the need for monitoring of the activity over a prolonged period. Not only was it detailed, but also included attachments. The full response demonstrated where nine (named) crab tiers work tiles in the Dawlish Warren area and this information is available if needed by members. In summary the EEMP have highlighted the success (and limitations) of the Voluntary Code of Conduct in the Exe and have made several suggestions for further management, including the use of permits. This detailed response has been partially transcribed within this summary.

Numbers of Tiles Used & Catch

No responses challenged the data already assembled by D&S IFCA in the various research reports and assessments.

Recreational Use

The responses provided by individual stakeholders indicated that the number of tiles operated by recreation users ranges from about 20 tiles. to a family group using about 1500 tiles. The typical amount used per person was around 300 to 600 tiles. One user stated he works his 100 tiles every day, but the majority tended to work their tiles less often. Once or twice a week was more typical with some reporting usage of once or twice per month. In addition, recreational tiles do not appear to be subjected to the same amount of effort year-round.

Commercial Use

It was not possible to summarise the effort by all the individual commercial users who responded; however, the information submitted by others did suggest a much higher usage by the commercial tilers. Many estimated that commercial operators work several thousand tiles (in various estuaries) and are actively collecting crab on most tides.

The responses would indicate that not all tiles, positioned in different locations on the estuaries, are always lifted on every tide. It appears more likely that different batches of tiles are tended to on different occasions.

Catch

The data submitted was minimal. Based on the responses, the estimation that the tiles generate a 10% return of crab per number of tiles lifted is not an unreasonable assumption. Some concern was raised in the EEMP response regarding growth rates of crab. Other responses also raised some concern that unless the activity is regulated (capped number of tiles) the stocks would potentially be under excessive pressure in future years.

Conservation

The group of individuals categorised as having the strongest conservation interest all favoured a precautionary stance taken with additional restrictions considered for all estuaries where the activity is conducted. The simplest and most precautionary responses from this category of stakeholders suggested a complete ban on the activity. Others felt that the activity was potentially sustainable providing it was managed correctly. One stakeholder suggested that effort be capped to existing levels. The rationale for adding additional restrictions (by individual stakeholders) was not set out in detail, often with simple references made to protecting conservation areas, conserving stocks of shore crab, increasing sustainability, or other references to improve the ecosystem and the general appearance of estuary areas.

Concerns related to conservation extended to the responses offered by the other categorised groups. A link was made between the importance of shore crab within the estuaries as a food source for bass and mullet. Other response suggested that a diminishing abundance of shore crab within the estuaries is having a negative effect on the recreational angling sector as the result is a diminishing number of fishes within the estuaries to catch. Another concern was the increased take of shore crab for whelk bait. Whilst recognising a need to conserve shore crab, several responses from these other groups felt that the activity should be able to continue if managed correctly. It should be noted that the Exe Estuary Management Partnership (EEMP) submitted a very detailed response that raised conservation issues and cited the action already taken to mitigate some of these concerns. The response from EEMP is partially transcribed later in this summary.

A Lack of Regulation

Many of the responses from individual stakeholders didn't highlight any conservation concerns at all but did instead highlight other issues associated with a general lack of regulation. Several responses have taken the view that a black economy exists.

The responses are generally in favour of there being a need for or "maybe" a need for additional restrictions in either specific areas or on a district wide basis. The rationale for such action being taken is mixed.

Balancing the needs of different users was a relatively common theme, with some strong views expressed about the confrontation that exists between recreational users and those that are commercial or operating on a commercial scale. This was highlighted as a potential problem in the Exe but even more so within the Taw Torridge where the recreational users have highlighted that a very territorial type of situation exists. Recreational users from the Taw Torridge area all expressed similar concerns which included the opinion that excessive numbers of tiles are being used by at least one commercial operator, including the lifting "raiding" of tiles placed in the area by others. In their view the tiles are being lifted too frequently and this is impacting their opportunity to collect their own crab from their own tiles, or in some cases shared tiles. It was also suggested that commercial operators take all crab found including berried crab. A formal lack of ownership of the tiles appears to be an issue and this is adding to the problem which is reported to extend to threatening behaviour, intimidation, verbal abuse and even criminal damage.

The illegal sale of shore crab was a concern that was raised. Some responses highlighted that in their view the activity is often conducted by recreational users using excessive numbers of tiles for the prime purpose of selling the catch illegally. Others commented that "commercial

operators” are unemployed people that are trying to boost their overall income whilst avoiding paying tax.

Response (partial transcript) from the Exe Estuary Management Partnership (EEMP)

A very detailed response was provided by EEMP. This included both their own observation and comments as well as summarising the views of nine crab tilers working within the Exe Estuary. EEMP have stated that some of the content represents the views and opinions of the tilers and may not be completely accurate with regards to evidence. Rather than summarising the response, it has been inserted almost in full, with some names of individuals removed.

The Transcript (purple text)

The EEMP has existed since the mid-1990's and is the management group responsible for the delivery of the scheme of management for the Special Protection Area (SPA). The partnership is a complex array of organisations with (sometimes overlapping) management responsibilities for different aspects of the Estuary, with the aim to achieve consistent management of the Estuary resource as a whole.

As well as coordinating management of the estuary, the EEMP provides a communication route between local communities and management bodies. The partnership helps to manage competing demands and addressing any conflicts as they arise.

As part of its role, the partnership has worked with crab tilers on the Exe for many years, most recently engaging with them to ensure their input into the consultation on zonation and codes of conduct, during 2016-2017. The EEMP response to the D&S IFCA - call for information is based on the information gathered from local crab tilers and associated partnership work. Relevant documents are included in the Appendix. Due to data protection, contact details cannot be shared in this response, but the EEMP are happy to act as a communication route, should D&S IFCA require further information or input from local crab tilers.

The EEMP have produced two reports which may be useful for this review: “[Bait Collection Disturbance Literature Review 2015](#)” and “[The Implications of Bait Digging and Crab-Tiling Activities on the Waterbirds of the Exe Estuary 2015](#)”.

Guided Questions:

Where do you or others that work them operate?

Crab tiles are found quite extensively around the Exe Estuary, I cannot provide more information on this than is included in the D&S IFCA Crab Tile Report.

However, I am aware of how and when crab tilers use the estuary.

- Crab collecting has taken place for over 100 years on the estuary.
- Crab collecting takes place all year round.
- The season depends on which area the tiles are on (water temperature makes a difference).
- In the Dawlish Warren National Nature Reserve (NNR), crab tilers arrive on-site when water is high to ensure no one else turns their tiles, tide drops and collectors wait for birds to move/fly away, which can take about 2.5 hours. Collectors are usually there for about 5 hours.

- All crab collecting takes place outside of IFCA byelaw line, crab tilers that currently use the Dawlish Warren area are aware of this boundary.
- They don't take juvenile or berried crabs.

How many crab tiles do you work or see being worked by others?

Again, the most accurate information for this is included in the D&S IFCA Crab Tile Report. Local crab tilers would be able to help with this information. From discussions with crab tilers, there are nine crab tilers that operate at Dawlish Warren. (2 commercial operators and 7 operating on a recreational basis)

Usually there are 2-3 crab collectors at Dawlish Warren NNR at a time and activity increases on weekends. About 8000 tiles are in this area. One of the commercial operators works 2000 of them.

There was concern that there was a significant increase in tiles at Dawlish Warren NNR in area EXE 05 in the 2018 Crab Tile Report, compared to 2000/01 and 2003/04 reports. Both the EXE 04 and EXE 05 areas **(these are both in the Dawlish Warren Area)** are of high importance for roosting and feeding areas for nationally important numbers of waders and wildfowl. Numbers of tiles have remained relatively stable across the Exe over that time period, which indicated that tiles were possibly being moved into EXE 05 from adjacent areas, perhaps in order to increase catch rate. Although many of the tiles are in the lower areas of the tidal range, so less likely to cause disturbance to roosts, the activity of **(bait)** diggers in the most sensitive area was a concern.

However, subsequent Crab tile Reports have shown that numbers have dropped a little within EXE 05, although not back to initial numbers in the 2000/01 report. The potential to move crab tiles out of the sensitive area of Dawlish Warren NNR and into an adjacent area was explored with the local collectors through the EEMP. However, a variety of problems were raised with this proposal, including:

- Increased crab tiling pressure at another area, which may put pressure on crab stocks in that area or have detrimental effects on the wildlife/environment or other crab tilers who already use that area. This would be particularly problematic for those that collect crabs for a living.
- It can take a while to fully re-establish a crab tile when it is relocated, one collector suggested that it could take up to four years. This would have an effect on those that collect crabs for a living.

I have been told that a crab tiler from the Teign has approximately 1000 tiles at Starcross, who has acted inconsiderably and aggressively towards local crab tilers. Local tilers would like to see this person approached by authorities, as well as anyone else who displays such antisocial behaviour.

Do you think there is an issue with their use?

It is difficult to establish whether crab tilers are having a detrimental effect on the various aspects of the Exe Estuary (this is quite a broad question). With regards to disturbance of birds, for example, there is potential for crab tilers to cause disturbance to birds, which could be particularly damaging at the feeding ground and high tide roost areas at Dawlish Warren.

However, collectors who have crab tiles within the boundary of the Dawlish warren NNR are very aware of the disturbance issue and have displayed a responsible approach by helping to create the Exe Bait Collectors Code and complying with guidance.

Further monitoring of crab tiling activities would be required to understand whether or not they are having any detrimental effects on the Exe. Disturbance monitoring has been carried out on the Exe since 2018 through the South East Devon Habitat Regulations Partnership (SEDHRP), the results of which will be available on an annual basis, with an overarching report planned for year three of monitoring. The results of this monitoring should feed into the work of D&S IFCA, but additional monitoring would be required to monitor any other potential effects, e.g. trampling on infauna and sediment, eelgrass. There could be potential positive effects of crab tiling. For example, a food source for birds is made available when tiles are scooped out by collectors.

Is further management or restrictions required?

Permitting:

The main suggestion to help manage crab tiling from local collectors was to introduce a permit system. This could regulate the number of crab tilers moving onto and using the Exe area, and could stop any increase in number of crab tiles, particularly in sensitive areas. Crab tilers should carry their permit when collecting, so they can produce it when requested. The Exe Bait Collectors Code could be given with the permit, on the understanding that if they don't adhere to the code, their permit would be revoked.

The permit system would require enforcement, whether the Habitat Mitigation Officers (HMOs) would be able to assist in this could be explored, if on-site presence from D&S IFCA staff is difficult. HMO contact details could perhaps be made available to local crab tilers to report incidences. If this wasn't feasible, local crab tilers have offered to help as voluntary wardens and could take details to pass on to authorities – this might require some kind of identification, such as an armband. If only a voluntary permit system was in place, there is potential for the Exe Estuary Officer to work with local crab tilers with this, although it is unsure how successful this would be as a voluntary measure. A few points made by local crab tilers with regards to permitting:

- Permits should be free, but if there is a cost, they would want to see the money go towards policing.
- Don't use the word "licence".
- Other activities that should also be permitted: winkling, angling and bait digging. Winklers need to be engaged and educated about how to collect responsibly and perhaps introduce a code of conduct. However, there is difficulties getting in touch with winklers.
- Nine permits would be required for the Dawlish Warren NNR area.
- Crab tilers indicated that permits should regulate numbers of users.
- Ensure D&S IFCA number is on permit, so permitted crab collectors can notify if others don't have permits.

Fundus owners/managers of the Exe Estuary have also indicated that there is interest in having permits for the whole Exe. They seem keen to get more involved with managing hand-

gathering activities. D&S IFCA have indicated that they could look at whether a permitting byelaw could be introduced. The permit could restrict the number of tiles potentially but may not be able to restrict new crab tilers. Although crab tilers don't want to pay for a permit (an IFCA permit for netting, potting, etc. costs £20 for two years) to give an indication of probable costs. The crab tilers suggested that no new permits are granted, but existing permits could be passed on, with notification that stated something like: "This permit can be transferred on agreement of the new owner and authorities" (likely to be D&S IFCA or whoever distributes permits). Include named people on permits (to allow family members to collect on behalf of permitted crab tiler). Introduction of a minimum landing size for crabs could be beneficial for conservation purposes (this used to be the size of an old 10 pence piece).

Signage for any measure in place would be beneficial at access points, to outline best practice, any byelaws in place and to explain to other users why crab tiling is permitted in sensitive areas (useful to mention the history of crab tiling on the Exe for better understanding of activity). Increasing the area for Byelaw 24 should be considered, but only in response to specific concerns and where supported by results of monitoring work.

There would be potential issues with introducing a seasonal exclusion for crab tiling. Other people have been known to turn tiles and take crabs if they are not used. Crab tilers also maintain tiles all year round, cleaning mud from tiles so crabs can still make use of them.

Whether there are any opportunities to help improve the quality of crab stock on the Exe, crab tilers had concerns that the value of crab had decreased, and that growth rate decreased (growing of stock up to 12 months instead of 2 to 6 months). They used to get one mature crab from every four pots, now one from every 50 approximately. They have concerns about effects of silting up of the estuary, decrease in nutrients, pollution from fertiliser and diesel and reduction of fresh water coming downstream due to flood alleviation (e.g. water diverted at Exeter), which could be increasing algal growth.

Suggestions by Stakeholders for Potential New Restrictions

Not all the individual stakeholders could see a need for new restrictions to be introduced, but on balance more were in favour of additional restriction than not. Many see the potential benefits of additional regulation, but some stakeholders were very clear that any additional restrictions must be able to be enforced effectively. One email response, with focus on the Taw Torridge, highlighted a growing understanding within the area that D&S IFCA has utilised permits to regulate other fishing activities and urged that a similar approach be taken regarding crab tiles. One response, focusing their comments on the Exe Estuary, did suggest that proportionate restrictions should be considered to separate commercial and recreational users.

Suggestions for management have been made by both individual stakeholders and organisations. These have been set out as a bullet point list, but it was not necessarily suggested by the individual stakeholders or organisations that they be applied in all areas.

- **Do nothing other than maintain the current restrictions**
- **Create zones - No tiles to be placed in specified areas**
- **Create zoned separation of recreational and commercial tiles**
- **Create plots for individuals to work their own tiles**
- **Create regulation that tiles must be marked**

- Create regulation so tiles should be joined together by ropes or lines enabling groups of tiles to be better identified
- Introduce a maximum limit of tiles per person
- Introduce a cap on the maximum number of tiles in use based on current numbers known to be in use
- Introduction of Catch Reporting (Harvesting Record)
- A prohibition on the removal of female & berried shore crab
- Introduce a minimum size for shore crab
- Additional measures/best practice to avoid bird disturbance
- Cross agency enforcement of regulation
- Introduction of voluntary wardens

Permits:

- Introduce a Permit or Licencing System
- Introduce restrictions that can be applied via a permit or licence that can be issued to both commercial and recreational users
- Proportionate Restrictions- Different limits for recreational & commercial users
- Restrictive permit schemes (number of permits issued)
- Permits used in conjunction with Voluntary Codes
- Extend a permit scheme to include other hand working activity such as bait digging
- Introduce a free permit system
- If fees are required, then the cost should fund enforcement work
- Allow family members to use a single permit that has been issued to a tiler

Officer Comments

Some of the suggestions would potentially be difficult to introduce or to enforce, if in due course members favour change in how crab tiles are managed. Further discussion relating to the different types of restrictions and importantly if they can be enforced effectively can take place throughout the on-going process of reviewing all Hand Working Fishing Activity. There will be “options for management” (including potential introduction of a new Byelaw) discussions when all Hand Working Fishing Activities have been subjected to closer scrutiny.

Some, or a combination of the suggested restrictions would potentially be suited for insertion into a permit model used by D&S IFCA to manage other fishing activities. The structure of existing permits for other fishing activities caters for catch, gear, spatial and time restrictions.

Some of the suggestions for management that relate to the use of permits and the use of crab tiles would be opposed to existing principles that have been developed and applied by D&S IFCA to date when conducting its byelaw review. This includes limiting permit issue to local users only (creation of a private fishery) and using the fees to fund specific enforcement work.

Although regulation may provide a better balance between the needs of persons engaged in the exploitation of sea fisheries resources (shore crab), there is no guarantee that additional regulation will result in a change in the behaviour by those operators that have been accused of anti-social or threatening behaviour. Some concerns raised due to a lack of regulation are the responsibility of other organisations such as the Police. The duties and powers of D&S IFCA are set out in MACCA 2009.

Summary Table of Responses

No	Interest Group	Focus Estuary	Awareness of Current Management	Comments, themes and/or concerns
1	Conservation	Not specified	Byelaw: No Codes: No	No observation of method being conducted. No concerns. Very limited answers.
1.2	Conservation	All	Byelaw: No Codes: No	Favours restrictions where needed including zoning where tiles should be prohibited
1.3	Conservation	All	Byelaw: No Codes: No	No observation of method being conducted. Assumes Byelaw is voluntary. Favours additional restriction (that is enforceable) to promote sustainability and reduce overall crab take
1.4	Conservation	All (with observation of Exe)	Byelaw: No Codes: No	Believes that further district wide management may be suitable. No other detail.
1.5	Conservation	All (with observation of Cornish Estuaries)	Byelaw: No. Codes: Yes	Favours control measures, within <u>Cornwall District</u> (and it is assumed D&S IFCA District) to promote sustainability. Suggests more education and raising of awareness.
1.6	Conservation	All	Byelaw: No Codes: No	No observation of method being conducted. Believes that further management may be needed but didn't state what type and where it should apply.
1.7	Conservation/Angling	All	Byelaw: No Codes: No	Observation of method being widely conducted. The Code/s should be made compulsory. Hand picks crabs. Concerns about excessive commercial tiling. Cites confrontation & conflict issues with commercial sector. Favours district wide restrictions for commercial tilers
1.8	Conservation	All (with observation of Tamar & Plym)	Byelaw: No Codes: No	Observation of method conducted in Tamar & Plym. Concerns raised over unsightly placement, damage to ecosystem in areas such as SSSI. Suggests that all tiles should be banned or managed via a permit. Concerns that the unregulated activity promotes tax evasion.

No	Interest Group	Focus Estuary	Awareness of Current Management	Comments, themes and/or concerns
2	Recreational User	Dart (with observations of Teign and Exe)	Byelaw: No Codes: No	Considers that further management maybe needed to include recognition of tile ownership and to avoid others raiding tiles. Highlighted issue of recreational users selling crab. Added similar information in an email response.
2.1	Recreational User	Exe	Byelaw: Yes Codes: Yes	Considers that the current Byelaw and Code is very effective. Was actively involved in helping to define and introduce Exe Code of Conduct. Has some concerns related to increased demand for whelk bait. Considers that further management within the District could be considered.
2.2	Recreational User	Exe & Teign	Byelaw: Yes Codes: Yes	Believes that crab take is uniform on Teign but has concerns about increased demand from the whelk fishery increasing overall take in the Exe. Highlighted the raiding of tiles as a concern.
2.3	Recreational User	Exe	Byelaw: Yes Codes: Yes	No concerns raised, however was unsure of how well the activity is managed on other estuaries.
2.4	Recreational & Commercial User	Didn't specify	Byelaw: No Codes: Yes	No concerns and no suggestions
2.5	Recreational User	Plym	Byelaw: No Codes: Yes	Not concerned about levels of fishing and take in Plym. Suggested that further management could be considered in estuaries that are heavily fished as precautionary measure to maintain current levels of crab.
2.6	Recreational User	Taw Torridge	Byelaw: Yes Codes: Yes	Current management is not enough. Regulation needed in Taw Torridge area to avoid confrontation, violence and overfishing by commercial operators. Favours a licensing system including licences provided to recreational users and angling clubs.
2.7	Recreational User	Taw Torridge	Byelaw: No Codes: No	Current management is not enough. Suggests that insufficient management is leading to others raiding his pots.

No	Interest Group	Focus Estuary	Awareness of Current Management	Comments, themes and/or concerns
2.8	Recreational User	Tamar (with observation of Plym and Tamar)	Byelaw: Yes Codes: Yes	No concerns or suggestions for additional restrictions
2.9	Recreational User	Teign	Byelaw: Yes Codes: No	No concerns or suggestions for additional restrictions
2.9.2	Recreational User	Taw Torridge	Byelaw: Yes Codes: No	Telephone message. Around 100 tiles operated. Concerned over a lack of regulation in Taw Torridge as compared to other areas such as Exe. Highlighted conflict between recreational users and a commercial operator. Concerns raised over a lack of proof of tile ownership and tile raiding. Would welcome increased regulation that needs to be enforceable.
2.9.3	Recreational User	Taw Torridge	Unknown	Concern raised over a lack of regulation. Anonymous call - but explained that he would use the on-line form or email to add some detail.
2.9.4	Recreational User	Taw Torridge	Byelaw: No Codes: No	Concern over tile raiding by persons then selling the catch
2.9.5	Recreational User	Taw Torridge	Byelaw: No Codes: No	Favours restrictions applied to Taw Torridge. A tile limit per person and no commercial collection at all.
2.9.6	Recreational User	Taw Torridge	Byelaw: Yes Codes: No	Concerns over excessive unregulated activity conducted on a commercial scale (gang) for cash in hand. Favours restrictions in estuary such as time restrictions (X number of tiles permitted to be lifted per week)
2.9.7	Recreational User (and commercial User)	Taw Torridge	Byelaw: No Codes: Unknown	Highlighted serious issue relating to balancing the needs of different users. Cited antisocial behaviour, abusive and threatening behaviour, tile raiding, gangs of workers operating on a commercial scale. Observation of impact on stock level by excessive activity. Favours introduction of a permit scheme.

No	Interest Group	Focus Estuary	Awareness of Current Management	Comments, themes and/or concerns
3	General Interest (email response)	Taw Torridge	Not specified	Current management is not enough. Has witnessed activity expanding in the Taw Torridge estuary. Concerns surrounding overfishing, illegal sale and the removal of food source for bass and mullet. Favours regulation in area such as a permit system with the possibility of establishing a harvesting record.
3.1	General Interest	Teign & Exe	Byelaw: No Codes: No	Current management is not enough. Observation of activity in Teign & Exe. Suggests illegal sale by recreational users. Suggests a limited number of tiles per person restriction. Suggests separation of commercial and recreational users with proportionate restrictions applied.
3.2	General Interest	Exe	Byelaw: Yes Codes: Yes	No concerns in Exe or anywhere else.
3.3	General Interest (Buys crab for bait)	Exe, Teign, Tamar, Fal	Byelaw: Yes Codes: Yes	Current management is not enough. Observation of activity in Exe, Teign, Tamar & Fal. Suggest that management is applied across district with emphasis on more voluntary codes of conduct. Better education and access to information/signs etc. Empower individuals to point out poor practice.
3.4	General Interest/Angling Charter (bait)	Dart & Teign	Byelaw: No Code: No	Current management is not enough. Observation of activity in Dart & Teign. Highlighted concern over unregulated activity and non-legitimate commercial activity/tax avoidance. Suggests district wide management. Licences with gear limit per 100 square metre zones.
3.5	General Interest	Teign	Byelaw: Yes Codes: Yes	Observation of activity in Teign & Exe. Voluntary codes not effective as collectors who are not local are not well informed. Not convinced that stocks are vulnerable and restrictions for conservation reasons are needed. New restrictions (for other objectives) would be difficult to enforce if implemented.
3.6	General Interest/Angler using bait	All	Byelaw: Yes Codes: Yes	Current management is possibly not sufficient. Observation of activity in Plym, Tamar and Lynher. Suggests district wide management with a precautionary approach to cap effort at existing levels.

No	Interest Group	Focus Estuary	Awareness of Current Management	Comments, themes and/or concerns
3.9	General Interest (Facebook comments)	Not specified	Unknown	Suggestions that tags become a requirement. Suggestions that all tiles should be removed as they are littering estuaries and restricting the ability of hand collectors (no tiles) to collect their own crabs.
4	Commercial User	Salcombe	Byelaw: Yes Codes: Yes	Normally operates about 500 tiles in Salcombe only, but not at present. Generally satisfied with current management. No strong view or suggestions for additional management.
4.1	Commercial User (part time commercial fisher)	Taw Torridge	Unknown	Owns & operates 250 tiles (200 – Sandridge & 50 – Shipyard Area). Catch used as bait for him and family to conduct angling. Detailed response including use of charts that can be presented to members if required. Concerns about tile raiding. Not opposed to restrictions providing they are enforceable.
5	Organisation (LF&HA) - email	Exe	Byelaw: Yes Code: Yes	Lympstone Fishery & Harbour Association Response. Owns/leases 42 acres on Exe (Parsonage Stile to Courtlands Cross). Manages 7 crab tilers (6000 tiles combined) on site with £10 per year licence fee. Content with their own management in area. Suggest that all commercial shellfish activity should be managed.
5.1	Organisation (Wyvern Region Angling Trust)	Not specified	Byelaw: Yes Codes; Yes	Current management is possibly not sufficient. Although current management works relatively well it is suggested that the collection of shore crab for whelk bait is a concern.
5.2	Organisation (Exe Estuary Management Partnership)	Exe (but ref to other areas)	Byelaw: Yes Codes; Yes	A detailed response from the organisation and on behalf of known crab tilers working within the Exe Estuary. Multiple suggestions including further management of the activity. Detailed response partially transcribed within text summary.

End of Report. (13/02/19)