

Managing Hand Gathering Fishing Activity

Development report



1st edition

26th July 2017

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Version Control History			
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Part 1 Introduction and overview

1. Aim of the development report & timetable of events

The aim of this report is to fully document the process and progress of Devon and Severn Inshore Fisheries and Conservation Authority's (D&S IFCA) development of management directed towards identified hand gathering activities. This report will inform all members of D&S IFCA along with all stakeholders and, with the approval of members of the Byelaw and Permitting Sub-Committee, will be displayed on the D&S IFCA website throughout the process with different editions created and published in due course.

The management of identified hand gathering activities has potential to develop into the implementation of legislation via a new byelaw or byelaws. This report will be developed at key stages and document all relevant evidence and information that will be used for deliberations by the D&S IFCA Byelaw & Permitting Sub-Committee (B&P Sub-Committee) and when appropriate the Full Authority. This report will document all actions, deliberations and decisions taken during the process.

In the event that a new byelaw becomes the most appropriate management option, this report will act as the overarching reference document and be used in conjunction with other stand-alone documents such as the required impact assessments and other relevant material.

An initial time table of events has been established which will be amended with more detail during the process:

Table 1 – Initial timetable of events

Date	Action/event	Comments
<i>July 2017</i>	<i>Creation of Development Report (1st edition)</i>	
<i>Aug 2017</i>	<i>Meeting of B&P Sub-Committee (papers sent in advance)</i>	<i>Discussions on development report & a verbal update provided on D&S IFCA's continuing research work. Officers to seek approval to publish this report (subject to minor amendment) on the D&S IFCA website.</i>
<i>Aug, Sept & Oct 2017</i>	<i>D&S IFCA Officers continue to conduct research work and compile information.</i>	
<i>Sept 2017</i>	<i>Meeting of Full Authority</i>	<i>Update provided to members</i>
<i>Nov 2017</i>	<i>Meeting of B&P Sub-Committee</i>	Verbal update on progress of research work and findings where applicable
<i>Jan 2018</i>	<i>2nd Edition of Managing Hand Gathering Fishing Activity – Development Report produced</i>	

Due to the large volume of documentation expected to be used throughout the process, annexes (sometimes hyperlinks) will be used to link all editions of this report to relevant additional material.

2. Why is D&S IFCA focusing on managing hand gathering?

The Marine and Coastal Access Act 2009 details the main duties of D&S IFCA. Section 153 specifies how the authority for an IFC district must manage the exploitation of sea fisheries resources in that district. Section 154 specifies the responsibility of D&S IFCA in regard to Marine Conservation Zones (MCZs).

The management of Marine Protected Areas (MPA) has been identified as a key area of importance within the 2017/2018 D&S IFCA Annual Plan. D&S IFCA is the appropriate authority to manage fishing activities within Marine Conservation Zones (which make up part of the MPA network). It is the IFCA's duty to further the conservation objectives of the MCZs

Different fishing activities present different risks to the MPA network. Several other fishing activities have already been managed by D&S IFCA using a permit based byelaw model.

There are currently fifteen MPAs designated in the D&S IFCA district. Some are European Marine sites (EMS) and others are Tranche 1 and Tranche 2 MCZs. Several of the designations are co-located in the same area. In addition to these designations most estuaries in the district are also Sites of Special Scientific Interest (SSSI). Officers have conducted significant amounts of research to inform MPA assessments (HRAs and MCZ assessments), as required under the EC Habitats and Birds Directives and the Marine and Coastal Access Act 2009, and those relating to bait collection are still being completed. Under Defra's revised approach to managing fishing activities, appropriate management measures for bait collection should be in place by end of 2018.

A significant element of the internal research program conducted by D&S IFCA's Environmental Officers (to date) has been focussed on identifying the location, extent and scale of various forms of hand gathering activities and this work is on-going.

Hand gathering activities occur within several of the estuaries within the district, and within intertidal areas of coastal waters. In addition to officers' survey work, multiple stakeholders have raised concern over unlicensed, unregulated and potentially illegal shellfish removal from estuary locations.

On the 15th June 2017 members of the Devon and Severn Inshore Fisheries and Conservation Authority (D&S IFCA) identified hand gathering as the next fishing activity that should be subjected to a review of management by the D&S IFCA Byelaw and Permitting Sub-Committee.

3. Defining hand gathering for a review

Members of the B&P Sub-Committee will discuss which hand gathering fishing activities will be subject to this review of management. Hand gathering activities will include several activities; however it is important to clarify that activities already managed via Regulating Orders granted under the Shellfish Act 1967 are un-likely to be subjected to a review at this time. Regulating Orders remove the "Right of Public Fishery" from the area of the designated fishery and provides D&S IFCA with the powers to manage the area. An example would include the Waddeton Fishery Order where D&S IFCA has the management responsibility

until 2026 and already imposes restrictions on the fishery for molluscan shellfish as well as shore crabs.



Another important Regulating Order exists on the river Teign. This Order however is quite unusual as the grantees are Teign Musselmen's Association which consist of commercial shellfishermen that operate within the regulating order area.

However, as set out in sections 158 of the Marine and Coastal Access Act 2009, where a private fishery exists within a designated MPA then the management set out in the permit conditions can apply across the private fishery area without the consent of the private fishery owner. This could apply to some of the estuaries in Devon, such as the Exe and Dart.

What is included?

Through their discussions in meetings, members of the B&P Sub-Committee will agree the scope of hand gathering fishing activities suitable for a review of management. This is likely to include crab tiling for peeler crabs; removal of shellfish such as mussels, cockles, razor clams, clams, winkles and oysters (excluding aquaculture); bait collection of worms and sand-eels; hand gathering of crabs, lobsters and prawns/shrimps; seaweed harvesting and spear fishing. Methods used for hand gathering are described in table 2 below.

Table 2 Methods for Hand gathering

<p><u>Crab tiling</u> Crab tiling is a method of collecting shore crabs (<i>Carcinus maenas</i>) for use as fishing bait by anglers. Like all other crustaceans, shore crabs moult their shells at intervals during their life cycle, during which they seek refuge from predators. Crab tilers exploit this behaviour, providing artificial shelters such as roof tiles, guttering, drainpipes, chimney pots and tyres. Whilst sheltering under the tiles, the crabs are in the 'soft shell' state i.e. the hard shell has been shed and the new shell has not yet hardened. It is in this state that the crabs are collected for sea fishing bait during low water when the tiles are exposed.</p>	
<p><u>Bait digging for worms and sand eels</u> Bait digging is primarily undertaken with forks to collect different worm species such as rag worm (<i>Nereis</i> & <i>Nephtys</i> spp.) and lugworm (<i>Arenicola</i> spp.) at low water from sandy or muddy shores and estuaries. Either individual holes or trenches are dug to collect the worms. Another form of digging for bait which occurs very occasionally is digging for sand eels with forks. This is done during large spring tides at low water on the edge of exposed sand banks.</p>	

Bait pumping

Bait pumps are mainly used for black lugworms (*Arenicola defodiens*). At the low water mark on spring tides the pump is placed over the newly produced lugworm cast, then suction used to withdraw a thin column of sand, including the lugworm, to the surface.

**Hand gathering for mussels, cockles and winkles**

At low water mussels, cockles and winkles are collected by hand and taken home for consumption or used as bait.

**Raking for cockles and clams**

Garden rakes are used on the intertidal to collect cockles and clams which are just under the surface of the sediment. Once raked up to the surface they are collected by hand.

**Hooking for crab and lobsters**

This is carried out at low water on spring tides. A long stick, such as bamboo or old fishing rod, will have a hook attached to one end which is poked under rocks and in holes in the shallows. The crab or lobster grabs hold of this hook and they are pulled out and collected.



Prawning with hand net

This is carried out at low water on spring tides usually during the summer months. A small hand net is used in gullies and rock pools to collect prawns and shrimp from under the seaweed.

**Salting for razor shells**

Salting for razor clams, which involves pouring table salt down the burrows and when the razor clams come to the surface, they are collected.

**Seaweed harvesting**

Seaweed is collected by hand from the intertidal zone of the shore for consumption.

**Spear fishing**

Spear fishing is carried out by snorkelers or divers, using either a spear gun or a spear to shoot and capture various sea fish while underwater.



4. Current Hand Gathering Activities In The District & Research Work

This section of the report will be expanded over time to detail D&S IFCA research work that has been conducted (or may still be continuing) to determine the levels of hand gathering activities conducted within the district.

As explained in section two, many estuaries and large areas of coastal waters within the district form part of the MPA network within the D&S IFCA's district. MPA assessments (HRAs and MCZ assessments), as required under the EC Habitats and Birds Directives and

the Marine and Coastal Access Act 2009, have been completed for most fishing activities including hand gathering in EMS. Those remaining relate to Tranche 2 MCZ and bait collection, but these are being worked on and will be finalised once surveys have been completed and data is analysed. A table of completed HRAs and time line for the remaining assessments is annexed in this report.

There will be a large volume of information collated and used to inform the required assessments including fishing activity reports which will explain each method in the required detail. The HRA will identify, where appropriate, the necessary management that is required to meet the Authority's obligations. Depending on the designated features of the site in question, assessments may focus on direct impacts on habitat or indirect impacts such as disturbance to birds, or removal of food for birds.

Over the past two years a great deal of survey work has been undertaken to gather information on hand gathering and bait collection activities in the district. Finalised reports for crab tiling have been completed. For other activities, survey data are currently being analysed and for some sites survey work is still on-going. All this survey work has been timetabled to complete HRAs by the beginning of 2018 and to have management in place, where appropriate by the end of 2018, the deadline set by Defra for this work stream. Another aspect of the need to assess the impact of bait collection and hand gathering is that Natural England has highlighted that the assessments should not focus on the intent of the activity i.e. recreational versus commercial, but on the impact of the activity.

Currently D&S IFCA's Environmental Officers are undertaking four shore surveys a month in Torbay MCZ to monitor bait collection and hand gathering activities. These started in November 2016 and are due to finish in October 2017. A total of 36 surveys have been completed to date, covering one hour either side of low tide on weekdays, weekends, spring and neap tides. The three survey sites cover Torre Abbey to Hollicombe, Paignton & Preston and Broadsands & Goodrington. Salting for razor clams, has been seen at Torre Abbey and Paignton. Bait digging with forks has been seen at Hollicombe, Broadsands and Goodrington. The use of a bait pump as also been seen at Broadsands on one occasion. The data from these surveys will be analysed in November 2017 and the results will inform the bait digging and hand gathering MCZ assessments for the site.

Survey work has been carried out on the Plymouth Sound and Estuaries area (including the Tamar), which is designated as a SAC, SPA and MCZ. A bait collection survey near Ennesettle, from May 2014 to March 2015, included eight shore visits, two hours either side of low water. During these eight visits, only one bait digger was observed. The bait digger was interviewed and stated that he digs in the area roughly twice a year, targeting ragworm. On two surveys crab tilers were observed. The data collected are currently being analysed and a report will be available once this is complete. In order to obtain more information on effort, further bait collection surveys are being carried out between June 2017 and October 2017. Two surveys are being carried out monthly at Ennesettle, one hour either side of low tide.

During 2014-15, 15 bait collection surveys were carried out on the Plym at the Embankment and East Bank sites. These were carried out for two hours either side of low water. Twelve bait diggers were seen during these surveys, with a maximum of three being seen on one survey. A total of three crab tilers were seen during this time. No interviews were carried out

due to the dangerous conditions of the Plym. The extent of their bait digging, location and number of holes dug were recorded. The data collected are currently being analysed and a report will be available once this is complete.

Several surveys have been carried out on the Exe Estuary SPA. A bait digging survey was carried out between January 2014 and March 2015 with a total of 35 visits. In order to obtain more information on the level of activity on the estuary a hand gathering survey was carried out in 2016 between May and July. This consisted of 16 site visits, with crab tiling, bait digging and hand gathering activity recorded. These data were then fed into the HRA for hand gathering on the Exe Estuary which was sent to Natural England for formal advice. Natural England agreed that the hand gathering activity would not significantly impact the features of the site and site integrity. Completed HRA and MCZ assessments for hand gathering are listed in the annexes together with a timetable for further bait digging assessments.

Bait digging occurs on the Severn Estuary EMS and is thought to be on a recreational basis at the current time. Previously two individuals were thought to be digging commercially at Burnham, Berrow and Brean for a time (active during the surveys 2012-2014), selling to local tackle shops, but this has now ceased.

Main sites for lugworm digging are Burnham-on-Sea, Berrow, Brean, Weston-Super-Mare and Sand Bay. Although these are large extents of sandy habitat, most of which have lugworm present, digging locations seem to be restricted according to areas with good access. Digging for king ragworm (*Alitta virens*) happens in localised patches throughout the English side of the Severn EMS. Sites have been reported at Hinkley, Clevedon and Portishead. Digging for estuary ragworm (*Hediste diversicolor*) may also occur occasionally. Some digging for lugworms and ragworm may occur sporadically further up the estuary e.g. around Clevedon, but have not been observed by D&S IFCA.

Unlike the South Devon coast, bait digging is most common in autumn and winter (but does occur year round). This is due to the run of cod & codling into the estuary, which is nationally renowned by sea anglers. Digging may also vary inter-annually depending on the strength of the cod run, which appears to be highly variable and is reflected by the numbers of anglers.

Officers are currently analysing 2-3 years of data of bait digging interview surveys in the Severn Estuary. Data includes mapping areas dug, numbers of holes, trenches, target species, and information on regularity and seasonality of digging as well as bait digging behaviour (backfilling, storing bait).

Crab tile surveys are carried out every four years to determine the number, location and extent of crab tiles on the intertidal zone of estuaries in the D&S IFCA district. The last surveys were carried out over the winter of 2015-16. These were carried out on foot and/or boat in most estuaries, and by drone in two of the more difficult estuaries to survey. The estuaries surveyed by foot and boat were the Axe, Dart, Plym, Tamar, Teign, and Salcombe and Kingsbridge estuary. The Exe and Taw Torridge Estuary surveys were carried out using a drone. Visual surveys were also carried out on the Avon, Erme, Otter, Sid and Yealm Estuaries and no crab tiles were found in these locations. The results indicate there have not been large-scale fluctuations in crab tiles on most of the estuaries. However, the results have identified a large decrease on the River Dart (54%) and the Teign (43%). Full results

from the surveys can be found in the reports located in the annexes. These results will be used to inform the HRA and MCZ assessments that need to be completed.

Other survey work has been undertaken, which will inform any management of hand gathering activities in the D&S IFCA district. Intertidal bivalve surveys, such as cockle and mussel surveys have taken place over many years. Aquaculture for mussels and oysters take place on many of the estuaries of Devon and along the coastal waters of Devon and Somerset, where beds are classified as shellfish harvesting areas. Located across the D&S IFCA district are natural beds of bivalves which are largely unmanaged and some of which are not classified as shellfish harvesting areas. In 2010, a survey was undertaken to map Devon's shellfish beds and the aquaculture sites. This highlighted some areas where hand gathering both within and outside of designated shellfish harvesting areas could take place. Hand gathering of mussels is known to take place on the Exe, Teign and Taw Torridge. Cockles are gathered from the Exe, Teign, Avon and Taw Torridge. Clams, including razor clams, are collected from the beaches of Torbay MCZ, Salcombe – Kingsbridge estuary, Teign and Taw Torridge. Annual surveys of cockles and mussels take place on the Exe and mussel beds are surveyed annually on the Taw Torridge. Reports of these surveys are available and included in the annexes. Data from these surveys are used to inform the food availability for the overwintering birds that use these sites and for which the sites are designated as MPAs.

5. Legacy Measures

D&S IFCA has inherited several legacy byelaws from Devon Sea Fisheries Committee and the Environment Agency that currently provide some legislative control in regard to several hand-gathering activities or the species exploited by these activities. These legacy measures (or elements of them that are fit for purpose) could form part of a potential management regime including any potential byelaw or byelaws. Some legacy measures apply to the whole area of the D&S IFCA District and some (inherited from the Environment Agency) only apply to the Rivers Taw and Torridge.

It is important to clarify that many legacy byelaws often begin with the wording “No person” or “Any person”. This represents a significant difference to EU and Domestic legislation, where legislation often only applies to commercial fishing vessels.

D&S IFCA byelaws cannot be less restrictive than EU or Domestic legislation, but are directly enforceable by D&S IFCA officers.

Some legacy byelaws are “species related” and can therefore relate to multiple fishing activities. The Authority has requested that each legacy measure (byelaw) is risk assessed prior to revocation. This is why certain legacy measures have not been revoked as part of the implementation of other “Activity based” permitting byelaws.

Focus on the legacy measures

For summary purposes a list of legacy measures are shown in table 3. Following the summary table each legacy byelaw has been copied.

When possible, the original explanations of each byelaw have been transcribed. The explanations for each byelaw often provide an example of the dated nature of the legislation or potential weakness with the original content.

Table 3 List of legacy byelaws

Legacy Byelaws

Shellfish – Escallop
Shellfish – Re deposit of
Temporary Closure of Shellfish Beds
Winkles
Crabs
Prohibition of Spear Fishing in Lundy Marine Conservation Zone (MCZ)
Parts of Edible Crab
Harvesting of Shore Crab
Protection of V-Notched Lobsters
Protection of Undersize and Berried Lobsters
Lundy “No Take Zone”
Shellfish – Minimum Sizes
Lobster, Crawfish and Crabs
Shellfish – Redeposit of
Regulation of shellfish beds

If a new byelaw or byelaws were created then legacy measures would wherever possible be revoked. If the measures contained within legacy byelaws are considered no longer fit for purpose then byelaws can still be revoked.

Shellfish – Escallop

No person shall remove from a fishery any escallop measuring less than 100mm across the broadest part of the flat shell.

This byelaw was introduced to ensure that no juvenile scallops are removed from the fishery and that any scallop that is removed has had time to reproduce ensuring the sustainability of the stocks.

Shellfish – Re-deposit of

Any person who takes any shellfish, the removal of which from a fishery is prohibited by any of the Byelaws, or the possession or sale of which is prohibited by or in pursuance of any Act of Parliament, shall forthwith re-deposit the same without injury in the water as near as possible to the place from which they were taken.

This byelaw was introduced to ensure any shellfish protected by any of the byelaws which is accidentally removed is re - deposited in the same water as near as possible to the place where it was taken without injury.

Temporary Closure of Shellfish Beds

Where in the opinion of the Committee, in any fishery, any bed or part of a bed of shellfish is so severely depleted as to require temporary closure in order to ensure recovery, or any bed or part of that bed contains mainly immature or undersize shellfish which in the interests of the protection and development of the fishery ought not to be fished for the time being or any bed of transplanted shellfish ought not to be fished until it has become established, and where the bed or part thereof has been clearly defined in notices displayed in the vicinity prohibiting the removal of the shellfish, or where the display of notices is not practicable a notice in a weekly newspaper circulating in the district in which the shellfish bed or part of

the bed is situated, no person shall, while the bed or part thereof so defined, take away any shellfish without the consent of the Committee. For the purpose of this Byelaw the term “shellfish” means, mussels, oysters, clams and periwinkles.

This byelaw enables the Committee to close any shellfish bed, which it deems is so severely depleted as to require the cessation of all fishing activity in order to ensure the recovery of the shellfish bed.

- It is important to recognise the limited species contained within this legacy measure. For example this legacy measure proved ineffective when some concerns were raised in relation to cockle removal from the River Exe.

Winkles

No person shall remove from a fishery any winkle, which will pass easily through a gauge within a square opening of 16mm measured over each side of the square.

This was introduced as a conservation measure to ensure no juvenile winkles are removed from the fishery. This ensures that winkles have adequate time to reproduce.

Crabs

No person shall remove from a fishery any edible female crab, which measures less than 140mm across the broadest part of the back. No person shall remove from a fishery any edible cock crab which measures less than 160mm across the broadest part of the back provided that this byelaw shall not apply to any person removing any such crab for scientific purposes, or for stocking or breeding purposes, under the written authority of the Clerk of the Committee.

This is a conservation measure to ensure that all edible brown crab have had the opportunity to reach sexual maturity and therefore reproduce before they can be captured. Female crabs mature earlier than males and therefore this is the reason why the minimum landing size is 140mm and 160mm respectively.

- The Permit byelaws¹ for potting and diving have incorporated a new minimum conservation reference size for female edible brown crab of 150mm. This legacy byelaw remains in place as it states “No person” and is therefore relevant as a protective measure at this time.

Prohibition of Spear Fishing in Lundy Marine Conservation Zone (MCZ)

No person shall use in fishing for sea fish or shellfish any harpoon spear or like instrument within the area designated by the Secretary of State for the Environment, by Order under Section 36 of the Wildlife and Countryside act 1981, as the Lundy Island Marine Conservation Zone, that is, the area enclosed by the following limits:-

From a point 51° 09'N 004° 42'W thence due North
to a point 51° 13'N 004° 42'W thence due East

¹ At the time of writing the D&S IFCA Netting Permit Byelaw is in the confirmation stage, but does contain many harmonised measures with both the Potting & Diving Permit Byelaws

to a point 51° 13'N 004° 38'W thence due South
to a point 51° 09'N 004° 38'W thence due West
to a point 51° 09'N 004° 42'W.

This byelaw was introduced to protect species of fish that are habitat dependant. Fish such as wrasse for example can be targeted by spear fishermen and potentially wiped out from a specific area.

- **Some other IFCAs have introduced measures to prohibit all competitive spear fishing within their districts**

Parts of Edible Crab (*Cancer pagurus*)

No person shall remove from a fishery any part of an edible crab (*Cancer pagurus*) which is detached from the carapace of the crab.

This byelaw ensures that parts of edible crab are no removed from crabs, which are under the legal minimum landing size in Devon Sea Fisheries district. If this byelaw was not in force it would not be possible to establish the carapace size of the crab from which the parts came.

- **The Permit byelaws for potting and diving have incorporated this measure. This legacy byelaw remains in place as it states “No person” and is therefore relevant as a protective measure at this time.**

Harvesting of Shore Crab

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.

- **No official explanation is provided, however this byelaw was introduced to prevent the escalation of this activity within River Exe.**

Protection of V-Notched Lobsters

No person shall remove from a fishery any V-Notched or mutilated lobster of the species *Homarus gammarus*.

Any lobster so marked shall be returned immediately to the sea.

Definitions:

“V-Notched” means an indentation in the shape of the letter “V” made in either of the two uropods on either side of the central telson of the lobster. “Mutilated lobster” means any lobster where either of the two uropods adjoining the central telson of the tail fan are missing or mutilated in such a manner that could hide or obliterate a V-notch.

Lobster stocks in the South West have been over fished and are now in serious decline. To address this problem byelaw 26 was introduced in the form of a lobster notching scheme in Devon.

Fishermen are encouraged to return lobsters to the sea after putting the V- Notch in the tail. The lobster is then protected by the byelaw which prohibits the taking of these lobsters from the fishery. Scientific studies have revealed that V-Notching the tail remains in evidence for at least three years during which time the lobster has had an opportunity to breed each year.

- The Permit byelaws for potting and diving have incorporated these measures. This legacy byelaw remains in place as it states “No person” and is therefore relevant as a protective measure at this time. Since the implementation of this byelaw new scientific evidence may supplement or better explain the rationale used in the original explanation.

Protection of Undersize and Berried Lobsters

1. No person shall remove from a fishery any berried Lobster, i.e. any lobster carrying any spawn attached to the tail or some other exterior part of the lobster, or which is in such a condition as to show that, at the time when it was taken, it was carrying spawn so attached.
2. No person shall remove from a fishery any lobster of the species (*Homarus gammarus*) which has a carapace length less than that specified in paragraph 3 below.
3. The minimum size for lobster (*Homarus gammarus*) as measured in accordance with paragraph 4 below shall be 87 millimetres in the twenty-four months following confirmation of this byelaw and 90 millimetres thereafter.
4. Lobsters are to be measured using the carapace length and shall be measured parallel to the mid line from the rear of either eye socket to the distal edge of the carapace.

The byelaw was introduced in order to protect valuable lobster stocks within the Devon SFC District. This byelaw mirrors a similar byelaw of Cornwall SFC and helps to give a consistent level of protection along the south west coast line.

Following consultation with the industry and CEFAS it was decided by the committee to increase the minimum landing size (MLS) to 90mm following a period of adjustment for the industry. The national and EU MLS for lobster is 87mm.

The increase in MLS was brought about with the support of the fishermen as it would protect smaller less valuable lobsters until they reached a larger size. The time taken for a lobster to grow from 87mm to 90mm is approximately 1 year. A lobster takes 6 years to reach 87mm. Allowing the lobster to reach 90mm allows at least one more breeding cycle with a potential benefit to the fishery of 25 lobsters given the survival rates listed below.

The protection of berried lobsters is to ensure that any lobster carrying any eggs is returned to the water, allowing the opportunity for it to reproduce. A lobster at the national MLS of 87mm is 6 years old and will produce on average 5,000 eggs. Given a survival rate of 0.005% for the larvae then the removal of one berried hen will lead to a loss of a potential 25 adult lobsters. With a value of an 87mm lobster at an average of £10 then the loss of a berried female could bring a revenue loss to the fishery of £250.

- The Permit byelaws for potting and diving have incorporated these measures. This legacy byelaw remains in place as it states “No person” and is therefore relevant as a protective measure at this time.
- Since the implementation of this byelaw new financial and scientific evidence may supplement or supersede the information used in the original explanation.

Lundy "No Take Zone"

For marine environmental purposes no person shall remove any sea fish from within the following area:-

From North East Point	Lat:- 51° 12.04N	Long:- 004° 40.12W
	hence due east	
to a point	Lat:- 51° 12.04N	Long:-004° 39.00W
	thence due south	
to a point	Lat:- 51° 10.07N	Long:-004° 39.00W
	thence due west	
to a point	Lat:- 51° 10.07N	Long:- 004°39.60W
	known as Sugar Loaf	

Thence in a northerly direction along the east coast of Lundy Island following the contour of the highest astronomical tide to the North East Point.

This area shall be known as the Lundy Island "No Take Zone".

- No official explanation is provided, however the reasons are obvious. This byelaw includes the phrase “no person shall remove” and is therefore relevant as a protective measure at this time.

(Environment Agency– the following byelaws; Nos. 1- 11 are only applicable to the estuaries of the Rivers Taw and Torridge. These byelaws were made by the Devon

River Board, the River Board was superseded by the Devon River Authority on 1 April 1965, and by virtue of the Water Resources Act 1963, these byelaws are still in force.

Shellfish – Minimum sizes

No person shall remove from a fishery:-

- (a) Any oyster that will pass through a gauge having a circular opening of $2\frac{1}{4}$ inches in diameter.
- (b) Any mussel of less than 2 inches length.
- (c) Any cockle that will pass through a gauge having an aperture of $\frac{3}{4}$ inch square.
- (d) Any edible crab measuring less than $4\frac{1}{2}$ inches across the broadest part of the back.
- (e) Any lobster or crawfish measuring less than 9 inches from the tip of the beak at the end of the tail when spread as far as possible flat.
 - **No official explanation is provided, however the use of imperial measurements indicates the age of the legislation.**

Lobster, Crawfish and crabs

No person shall remove from a fishery any berried edible crab, lobster or crawfish or any soft shelled crab or crawfish

Shellfish – Redeposit of

Any person who by inadvertence takes any shellfish, the removal of which from a fishery is prohibited by any of the Byelaws, or the possession or sale of which is prohibited by or in pursuance of any Act of Parliament, shall forthwith redeposit the same as nearly as possible in the place from which they were taken or under the written authority of the Clerk on other suitable ground, and, in redepositing cockles, in accordance with this Byelaw shall spread them thinly and evenly over the beds.

Regulation of shellfish beds

Where, in the opinion of the Board, in any fishery any bed or part of bed of shellfish is so severely depleted as to require temporary closure in order to ensure recovery, or any bed or part of a bed contains mainly immature or undersized shellfish which in the interests of the protection and development of the fishery ought not to be disturbed for

the time being, or any bed or transplanted shellfish ought not to be fished until it has become established, and

where the bed or part of bed thereof has been clearly defined in notices displayed in the vicinity prohibiting the removal or disturbance of the shellfish, or where the display of notices is not possible written notice has been given by one of the Board's officers, no person shall, while the bed or any part thereof is so defined, take away or otherwise disturb any shellfish without the consent of the Board.

6. Current voluntary measures

Voluntary Codes of Conducts have been developed for many of the estuarine European Marine Sites. These have typically been developed by the estuarine forums, each of which has a slightly different funding structure, membership and remit. In the Severn Estuary the Association of Severn Estuary Relevant Authorities (ASERA) represents those Relevant Authorities who have a statutory duty to manage the estuary and wish to work in partnership in order to develop a Management Scheme for the site. ASERA employs a part time (2.5dpw) officer who leads work directed by ASERA's management and working groups. The main focus of the ASERA officer has been to collate information on recreational activities which are not 'Plans or Projects' and thus are not directly subject to Habitat Regulations Assessments under Article 6 of the Habitats Directive. Despite this, these activities do have the potential to damage the features of EMS, either directly affecting the habitat or indirectly (e.g., by disturbing bird features). ASERA has developed a series of voluntary Codes of Conduct for all recreational activities in the Severn Estuary, including bait digging recreational sea angling. Similarly the Exe Estuary forum is in the process of developing a similar code of conduct. The existence of these codes will be acknowledged in the HRAs for the sites for which they exist. In some cases they may be considered sufficient to manage the activity, especially where there is little activity or the effects of the activity are not thought to be damaging. However, it is likely that for some sites, especially those with more sensitive features, the codes of conduct may not be deemed to be sufficient. For the Exe Estuary, the Exe Estuary Management Partnership (EEMP) has recently consulted on the 'Review of Zonation of the Exe Estuary'. Proposals have been put forward for voluntary exclusion zones for all activities (including bait digging & crab tiling) for certain times of year in the Dawlish Warren (excluding crab tilers) and Exmouth area. South East Devon Habitat Regulations Executive Committees' (SEDHREC) will decide on whether to approve the proposals later this year. More information can be found in the annexes. Draft codes of conduct will also be produced later this year for bait digging, which will include no bait digging on intertidal seagrass beds. The Crab Collector's Code of Conduct will also be updated and can be found in the annexes.

In Poole harbour (Southern IFCA district), bait digging interactions with seagrass were designated by Natural England as red risk, therefore a new byelaw which prohibits bait gathering in seagrass beds was introduced. A voluntary code, developed through a public consultation also closed certain additional areas of Poole harbour for parts of the year to reduce disturbance to birds. In the Exe estuary the interaction between intertidal seagrass beds and bait digging was deemed to be an amber, rather than red, risk.

Only following the outcomes of the HRAs and MCZ assessments, can the appropriate management be determined.

The River Yealm Harbour Authority has a byelaw prohibiting crab tiling within the harbour and details of this can be found in the annexes. River Erme is a private estate and does not allow crab tiling on its premises. The Taw Torridge has a code of conduct for crab tiling and this is included in the annexes. A draft code of conduct for bait collection also exists for the Teign Estuary.

7. Options for management

In due course and when sufficient foundation information is collated and presented to the Byelaw & Permitting Sub-Committee; members will be able to consider the options below. Members of the Byelaw & Permitting Sub-Committee will assess the current levels of identified hand gathering activities and the current management of these activities. The Sub-Committee will focus on the statutory duties of D&S IFCA as defined in the Marine and Coastal Access Act 2009, along with established principles and best practice for reviewing the management of different fishing activities. To date D&S IFCA has reviewed several other fishing activities and has established a number of principles and best practice standards. Several principles are generic for the management of all activities and some have been established dependent on the activity to be managed. Principles are detailed in section 8, of this report; however in determining the most appropriate form of management following the better regulation principles, the Byelaw and Permitting Sub-Committee must also consider voluntary measures before proceeding with a statutory measure such as a byelaw.

The options for management are set out below for discussion by the B&P Sub-Committee at the appropriate time. Although the management of separate fishing activities presents a different set of deliberations, brief notes on the rationale developed for the review of management for other fishing activities has been added to aid the planning discussions.

Option 1: 'Do Nothing'

When reviewing the management of other fishing activities this option has to date been considered as in-appropriate when balanced against the risks associated with those fishing activities, the species taken and the statutory responsibilities of D&S IFCA as defined in the Marine & Coastal Access Act 2009.

Option 2 Voluntary agreement/s

As with the management of other fishing activities, D&S IFCA must consider this option. Although voluntary initiatives are currently used to support the management of several hand gathering activities the Sub-Committee will assess the risks associated with both the use of hand gathering equipment to the environment and to the species taken if management is confined to the sole use of voluntary measures².

Option 3 D&S IFCA to revoke byelaws and create individual byelaws

² Several voluntary codes have been implemented by other organisations and supported by D&S IFCA

This option has not been selected when D&S IFCA has reviewed its management of other fishing activities and the reasons have been well documented in impact assessments that have accompanied the introduction of several other permit based byelaws. This option would involve making byelaws using the traditional, inherited model, leading to the continuation of a management approach that is less able to adapt to change. Although this traditional approach has been continued by other IFCA's, this option would be directly opposed to the pre-established principle adopted by this Authority to (when required) implements permit based byelaws.

Option 4 A D&S IFCA "Hand Gathering Permit Byelaw".

When reviewing the management of other fishing activities this option has to date become the recommended option as it reflects D&S IFCA's aim to introduce a new approach to inshore fisheries and conservation management. A permitting byelaw has the potential to encourage active participation in management decisions.

D&S IFCA is viewed as the appropriate statutory organisation to lead on the sustainable management of inshore fisheries and protection of the marine environment. Permitting byelaws have become the preferred approach when legislation is deemed necessary due to the flexibility associated with permit conditions.

This option provides scope for further measures to be introduced, or existing management to be amended or removed. This option mitigates the risk of imposing inappropriate permanent restrictions based on the limitations of available evidence.

Where voluntary agreements are created or continued to be used, D&S IFCA has the ability to support the management approach by introducing permit conditions if required.

8. Principles for the review

Key principles and best practice standards have been established for a review of management. Several are generic for the management of all activities and some have been established dependent on the activity to be managed. If a byelaw is the chosen management option then some specific principles and agreed Authority strategies become more relevant for discussions by the Byelaw and Permitting Sub-Committee.

The B&P Sub-Committee have the opportunity to review the principles and best practice standards (below) that have adopted for reviewing the management of other fishing activities and in addition the principles if a byelaw is the chosen option to manage identified hand gathering fishing methods.

Generic principles:

- To conduct a well communicated review with good consultation
- To consider alternative management approaches to legislation
- To remove laws which have become irrelevant from the statute book (Hampton Review)
- A pre-cautionary stance must be taken where required to secure compliance with the UK's international Treaty obligations

- To recognise that sustainable development is where the management of a fishing activity seeks to maximise the social, economic and environmental benefits in the medium and long term
- To balance the needs of various users and meet conservation duties
- To encourage legitimate activity and remove illegal, un-licensed and un-regulated fishing activity
- To drive behavioural change and high compliance
- To achieve consistency in management across IFCA boundaries

And if a byelaw is considered appropriate:

- Use the wider byelaw making powers provided by MaCCA
- To use emergency byelaws as a last resort
- To make use of permits to manage identified hand gathering activities in a more flexible way
- Not to limit permit numbers
- To charge a £20 fee for permits until a completed suite of permit based byelaws are in place
- Where possible make legislation easier to understand
- To correct inaccuracies and remove identified loop holes
- Draft legislation so it assists with enforcement
- Standardising the terminology used.
- To differentiate between commercial and recreational identified hand gathering activities by applying management measures
- To make best use of technology
- Not to separate commercial users dependent on the issue of a fishing licence

9. Consultation considerations and communication

To date multiple communication initiatives have been utilized by D&S IFCA. The website remains the primary platform to inform all stakeholders of developing work; however other initiatives have been discussed with a public relations and communications consultancy - Grassroots Communications. Not only is the D&S IFCA website due for an overhaul, but also other social media communications outlets such as Facebook and Twitter will feature more in future communications planning. A communications plan will be developed shortly.

A brief summary of some communication used to date and other initiatives that can be considered and endorsed by the Byelaw and Permitting Sub-Committee are as follows:

- To create process and progress reports acting as source documents
- To maintain a more visually appealing website with increased visual imagery
- To issue press release statements
- To link press release statements to more detailed reports and information
- To produce flyers of relevant material
- To trial text alerting as an additional form of communication
- To encourage the use of e mail, rather than traditional hard copy communication
- To consider the use of telephone workshops relating to specific topics

- To consider the use of presentation events or mobile presentation events during any required pre-consultation or formal consultation periods
- To reduce risks associated with Freedom of Information Requests by providing easy access to information highlighted in the D&S IFCA Publications Policy
- To publicise an organisation communication list and encourage individuals to sign up to receive consultation material where not a relevant permit holder

If a permitting byelaw is the chosen option the B&P Sub-Committee may wish to consider and explore the greater use of electronic communication requirements in regard to the application process and review procedure for alterations to permits.

Annexes

List of Survey Reports:

Crab Tile Surveys of Devon Estuaries 2016
Taw Torridge Crab Tile Survey with UAV 2016
Exe Estuary Cockle Survey 2010-2016
Exe Estuary Mussel Stock Assessment 2016
Taw Torridge Mussel Stock Assessment 2016
Devon Shellfish beds 2011

List of Code of Conducts:

Severn Estuary ASERA – Good Practice Guidelines
Exe Estuary Wildlife Refuge Areas: <https://www.exe-estuary.org/national-and-local-consultations>
Poole Harbour – Bait Collectors Code of Conduct
Exe Estuary Crab Collectors Code of Conduct: <https://www.exe-estuary.org/web/exe-estuary/codes-of-conduct-byelaws-and-guidelines>
Taw Torridge Crab Tiling Code of Conduct: <http://www.ttef.org.uk/public/crab-tiles>
River Yealm Harbour Authority Regulations: http://www.yealmharbourauthority.co.uk/downloads/RulesAndRegulationsIssue5_2015.pdf

List of completed HRAs and MCZ assessments:

Exe Estuary SPA Hand Gathering HRAs

- Intertidal Sediments
- Mussel bed
- Rock
- Saltmarsh
- Seagrass
- NE Formal Response

Plymouth Sound and Estuaries EMS Hand Gathering HRAs

- Intertidal Sediments SAC
- Intertidal Sediments SPA
- Rock SAC
- Saltmarsh SAC & SPA
- Seagrass SAC & SPA
- NE Formal Response

Braunton Burrows SAC Hand Gathering HRA

- NE Formal Response

Torbay MCZ Hand Gathering Assessment

- NE Formal Response

Table 4 HRA and MCZ Assessment List

Site	HRA or MCZ Assessment Name	Not finished/ Completed/ Formal Advice from NE
Braunton Burrows SAC	Handworking vs. intertidal (BBSAC_002)	Formal Advice 18/07/16
	Bait digging vs. intertidal (BBSAC_003)	Not finished
Severn Estuary SAC	Bait digging vs. birds	Not finished
	Bait digging vs. intertidal	Not finished
	Bait digging vs. rock	Not finished
	Bait digging vs. saltmarsh	Not finished
Severn Estuary SPA	Bait digging vs. birds	Not finished
	Bait digging vs. intertidal	Not finished
	Bait digging vs. sabellaria & rock	Not finished
	Bait digging vs. saltmarsh	Not finished
Lyme Bay & Torbay SAC	Bait digging, crab tiling and hand gathering not occurring on features - screened out	
Lundy SAC	Bait digging, crab tiling and hand gathering not occurring on features - screened out	
Start Point to Plymouth Sound and Eddystone SCI	Bait digging, crab tiling and hand gathering not occurring on features - screened out	
Exe Estuary SPA	Handworking vs. intertidal sediments	Formal Advice 25/11/16
	Handworking vs. mussel	Formal Advice 25/11/16
	Handworking vs. rock	Formal Advice 25/11/16
	Handworking vs. saltmarsh	Formal Advice 25/11/16
	Handworking vs. seagrass	Formal Advice 25/11/16
	Crab tiling vs. intertidal sediments	Not finished
	Crab tiling vs. other (rocks, saltmarsh & seagrass)	Not finished
	Bait digging vs. intertidal sediments	Not finished
	Bait digging vs. mussel, rock & saltmarsh	Not finished
	Bait digging vs. seagrass	Not finished
Plymouth Sound & Estuaries (EMS)	Handworking vs. saltmarsh (SAC & SPA)	Formal Advice 18/07/16
	Handworking vs. seagrass (SAC & SPA)	Formal Advice 18/07/16
	Handworking vs. intertidal sediments (SAC)	Formal Advice 18/07/16
	Handworking vs. rocks (SAC)	Formal Advice 18/07/16
	Handworking vs. intertidal sediments (SPA)	Formal Advice 18/07/16
	Crab tiling vs. intertidal sediments (SAC)	Draft complete
	Crab tiling vs. intertidal sediments (SPA)	Draft complete
	Crab tiling vs. saltmarsh & seagrass (SPA)	Draft complete
	Crab tiling vs. rock, saltmarsh & seagrass (SAC)	Draft complete
	Bait digging vs. intertidal sediments (SAC)	Not finished
	Bait digging vs. intertidal sediments (SPA)	Not finished
	Bait digging vs. saltmarsh & seagrass (SPA)	Not finished
	Bait digging vs. rock, saltmarsh & seagrass (SAC)	Not finished
Lundy MCZ	Bait digging, crab tiling and hand gathering not occurring on features - screened out	
Tamar Estuary	Handworking vs. Intertidal habitats, mussel & oyster	Formal Advice 21/12/16

MCZ	(TAM-MCZ-001)	
	Crab tiling vs. Intertidal features (TAM-MCZ-003)	Formal Advice 22/12/16
	Bait digging vs. Intertidal features (TAM-MCZ-004)	Not finished
Torbay MCZ	Crab tiling vs. Intertidal features (TOR-MCZ-003)	Formal Advice 17/11/16
	Crab tiling vs. Seagrass, seahorse & oyster (TOR-MCZ-004)	Formal Advice 17/11/16
	Handworking vs. Intertidal features (TOR-MCZ-008)	Formal Advice 23/01/17
	Bait digging vs. Intertidal features (TOR-MCZ-009)	Not finished
Skerries Bank and Surrounds MCZ	Bait digging, handworking & crab tiling vs. Intertidal features (SBS-MCZ-002)	Formal Advice 15/12/16
Hartland Point to Tintagel MCZ	Bait digging, handworking & crab tiling vs. Intertidal features (HPT-MCZ-004)	Not finished
Bideford to Foreland Point MCZ	Bait digging vs. Intertidal features	Not finished
	Handworking vs. Intertidal features	Not finished
	Crab tiling vs. Intertidal features	Not finished

- **A list of consultees**

Consultee Type	Examples
EA	
MMO	
Defra	
Cefas	
Natural England	
SW Wildlife Trusts/ The Wildlife Trust	
Welsh Government	
IFCAs	
Marine Conservation Society	
Estuary Fora / Associations	ASERA; TECF; AONB; Exe Estuary; Salcombe; Yealm; Avon; Teign
Coastal Fora	North Devon Biosphere; Dorset; Devon Maritime; Wembury
Harbour Masters	
MOD	
SAGB	
Angling Trust	
British Federation of Sea Anglers	
Wyvern Group/ local groups	
BSAC	
PADI	
Local Diving Groups	
Fishermen' associations	NDFA; SDCSA; East Devon; Plymouth
NFFO	
NUTFA	
SWPO	
Plymouth Trawler Agents	
Brixham Trawler Agents	
Coombe Fisheries	
Fal Fish	

Camel Fish	
Waterdance	
Blue Sea	
Dartmouth Crab Company	
Plymouth University	
Exeter University	
UWE	
Land owners	
RYA	
Bait Shops	
Stakeholders having registered an interest on line.	
Permit Holders	
Specific associated industries	e.g. Salmon Farms; Native Marine Centre

- Formal definition of a pre-cautionary approach

Other relevant reports will be inserted into this section in due course and will be accessible via hyperlinks.