

## **Devon and Severn IFCA's response to the Defra call for evidence and impacts for new and existing Bass Nursery Areas, December 2016**

Defra, Cefas and IFCAs met in November 2016 to discuss the progress that had been made regarding the review of Bass Nursery Areas (BNAs). In an email sent out after the meeting, Defra asked IFCAs to provide any more information or data which may exist, or details of research which is planned which will provide additional evidence for the proposed new BNAs. Additional data which the IFCA believes may help evidence Defra's decision is included in *Section 1* below, although the level of evidence for the two new BNAs put forward for the Devon and Severn IFCA (D&S IFCA) district was already deemed to be good for the Severn Upper and moderate for the Parrett Estuary.

Additionally, Defra also asked IFCAs to provide a simple assessment of the impacts of the proposed new measures for each BNA (existing and proposed) including fishing activity, potential monetary impact and any additional impacts on the commercial, recreational and charter fishing sectors. This information can be found in *Section 2* below.

Whilst having proposed and being supportive of the two new BNAs, D&S IFCA does have major concerns about the current boundaries proposed for the sites. Whilst it is understood there will be a formal opportunity to respond during the public consultation next year if the new sites are taken forward, D&S IFCA believes it is important to raise these issues at the earliest possible opportunity. Suggested changes to those boundaries and the reasoning for these is therefore included in *Section 3*.

Other comments, including the exclusion of the lower reaches of the Taw-Torridge and additional research which may be of interest to Defra are raised in *Section 4*.

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## 1.0 Additional data and new data collection for Bass Nursery Areas

### 1.1 Parrett Estuary

#### 1.1.1 Consultancy data

APEM Ltd. have been undertaking seasonal fish surveys in the Parrett Estuary in 2016 in order to provide a fish ecology baseline characterisation to inform EIA, HRA and WFD for a tidal barrier project in the Parrett Estuary. The survey is planned to continue into 2017. It is thought that the ultimate customer is the Environment Agency. D&S IFCA have only been involved to provide dispensations to local byelaws where necessary. It is understood that they are using a beam trawl (1.5 m, 5-7 mm cod end liner) and a seine net (15m long, 2.7 m curtain and 3mm mesh). The contact at APEM is Kevin Linnane: [K.Linnane@apemltd.co.uk](mailto:K.Linnane@apemltd.co.uk)

#### 1.1.2 Plymouth University Steart Marshes and Parrett Estuary sampling

Devon and Severn IFCA are co-funding a PhD with Plymouth University who is undertaking fish sampling in the Steart Point Managed realignment (which opens into the Parrett Estuary) and adjacent natural saltmarsh in the Parrett Estuary. The survey is utilising fyke nets and seine nets to provide a baseline characterisation of the site and potential for managed realignments to function as nursery areas for fish, especially bass. The contact at Plymouth University is Thomas Stamp: [thomas.stamp@plymouth.ac.uk](mailto:thomas.stamp@plymouth.ac.uk)

#### 1.1.3 Pisces Conservation data for Hinkley Point

Whilst just outside the proposed BNA boundary (and some way from the suggested adjusted boundary described in Section 3) data is available from Hinkley Point nuclear power station which provides evidence of juvenile bass being present throughout the Severn Estuary and Inner Bristol Channel. In particular, it provides additional seasonal information, although how applicable this is to Parrett Estuary itself is unknown. Peter Henderson at PISCES Conservation Ltd. holds the dataset: [peter@pisces-conservation.com](mailto:peter@pisces-conservation.com)

### 1.2 Severn Upper

#### 1.2.1 Olbury power station data set

Additional data for the Inner Severn Estuary is available from Oldbury power station. This dataset is shorter than that available for Hinkley and it is unclear who holds this data but it has been published e.g. Claridge and Potter 1993, Potter et al. 2001.

## 2.0 Simple assessment of the impacts

A brief assessment of potential impacts of proposed new management measures for both existing and new Bass Nursery Areas is provided below, based upon work carried out for the Impact Assessment for the D&S IFCA proposed new Netting Permit Byelaw. Where monetary values are presented, these were calculated by looking at the total landings of bass and mullet by all under 10m vessels registered in ports within the estuaries in question. Any bass or mullet landed by these vessels was assumed to have been caught inside the estuary boundary, and should therefore be considered overestimates of the actual amount caught by those boats in those estuaries.

### 2.1 Plymouth Rivers

#### 2.1.1 Current Restrictions (D&S IFCA byelaws)

Nets are currently prohibited in the Plym (all tidal waters inside a line drawn from the western end of Mountbatten Pier 0000 True to Fisher's Nose) or Tamar (all tidal waters

inside a line drawn from Devil's Point 2250 True to Wilderness Point. No fixed nets with less than 3 metres of headline clearance at any state of the tide can be fished in the remaining part of the Plymouth Rivers BNA.

#### 2.1.2 Potential impact of making BNA no netting

Prohibiting netting in this BNA would be very low impact as the BNA is already heavily restricted.

#### 2.1.3 Additional impacts

This area is popular with recreational sea anglers, who target bass in certain locations at certain times of year. Recreational Sea Angling (RSA) is an important component of the coastal economy of South West England. It is impossible to estimate the financial implications of a move to catch and release for RSAs in BNAs, but anecdotal information suggests that local tackle shops and bait suppliers have seen reduced profits following the recent restrictions on bass takes by anglers. Sand eel fisheries in the Teign Estuary (thought to be two vessels) and Exe Estuary (thought to be one vessel) may also be affected by any new legislation which restricts bass take by the RSA sector.

#### 2.1.4 Additional comments

Devon and Severn IFCA believe that more information on discard survival is needed in order to endorse a move to catch and release for the RSA sector. An alternative might be to remove targeted bass fishing by applying the same restrictions that apply to boat anglers to shore anglers on the use of sand eel and consider including restricting some lures? Promoting best practice in terms of fish handling etc. would also be needed if moving to a catch and release only system in BNAs.

### 2.2 River Avon

#### 2.2.1 Current Restrictions (D&S IFCA byelaws)

Fixed nets are prohibited in the river Avon (same closing lines as in BNA legislation). The D&S IFCA proposed new Netting Permit Byelaw would remove drift nets from this area too.

#### 2.2.2 Potential impact of making BNA no netting

During the public consultation for the D&S IFCA proposed new Netting Permit Byelaw no objections were received regarding this BNA. D&S IFCA believes one commercial fisher may fish in the BNA occasionally for mullet and bass.

#### 2.2.3 Additional impacts

This area is popular with recreational sea anglers, who target bass in certain locations at certain times of year. Recreational Sea Angling (RSA) is an important component of the coastal economy of South West England. It is impossible to estimate the financial implications of a move to catch and release for RSAs in BNAs, but anecdotal information suggests that local tackle shops and bait suppliers have seen reduced profits following the recent restrictions on bass takes by anglers. Sand eel fisheries in the Teign Estuary (thought to be two vessels) and Exe Estuary (thought to be one vessel) may also be affected by any new legislation which restricts bass take by the RSA sector.

#### 2.2.4 Additional comments

Juvenile bass appear to be present in BNAs all year round therefore it is unclear why the original designations involved seasonal closures. D&S IFCA supports the closure of BNAs all year.

Devon and Severn IFCA believe that more information on discard survival is needed in order to endorse a move to catch and release for the RSA sector. An alternative might be to remove targeted bass fishing by applying the same restrictions that apply to boat anglers to shore anglers on the use of sand eel and consider including restricting some lures? Promoting best practice in terms of fish handling etc. would also be needed if moving to a catch and release only system in BNAs.

## *2.3 River Yealm*

### *2.3.1 Current Restrictions (D&S IFCA byelaws)*

Nets are currently prohibited in the River Yealm (same closing lines as in BNA legislation).

### *2.3.2 Potential impact of making BNA no netting*

No impacts on commercial sector (see above).

### *2.3.3 Additional impacts*

Recreational Sea Angling (RSA) is an important component of the coastal economy of South West England. It is impossible to estimate the financial implications of a move to catch and release for RSAs in BNAs, but anecdotal information suggests that local tackle shops and bait suppliers have seen reduced profits following the recent restrictions on bass takes by anglers. Sand eel fisheries in the Teign Estuary (thought to be two vessels) and Exe Estuary (thought to be one vessel) may also be affected by any new legislation which restricts bass take by the RSA sector.

### *2.3.4 Additional comments*

Juvenile bass appear to be present in BNAs all year round therefore it is unclear why the original designations involved seasonal closures. D&S IFCA supports the closure of BNAs all year.

Devon and Severn IFCA believe that more information on discard survival is needed in order to endorse a move to catch and release for the RSA sector. An alternative might be to remove targeted bass fishing by applying the same restrictions that apply to boat anglers to shore anglers on the use of sand eel and consider including restricting some lures? Promoting best practice in terms of fish handling etc. would also be needed if moving to a catch and release only system in BNAs.

## *2.4 Salcombe Harbour*

### *2.4.1 Current Restrictions (D&S IFCA byelaws)*

Fixed nets are prohibited in Salcombe Harbour (same closing lines as in BNA legislation). The D&S IFCA proposed new Netting Permit Byelaw would remove drift nets from this area too.

### *2.4.2 Potential impact of making BNA no netting*

During the public consultation for the D&S IFCA proposed new Netting Permit Byelaw four objections were received relating to the removal of drift nets in this estuary from commercial netmen. It is thought that this fishery is important from a heritage point of view. 2015 MMO landing data indicated net bass fishery worth £7,300, mullet net fishery £2,000. Hook and line for bass £11,700.

### *2.4.3 Additional impacts*

Salcombe estuary is extremely popular with recreational sea anglers, who target bass in certain locations at certain times of year. Recreational Sea Angling (RSA) is an important component of the coastal economy of South West England. It is impossible to estimate the

financial implications of a move to catch and release for RSAs in BNAs, but anecdotal information suggests that local tackle shops and bait suppliers have seen reduced profits following the recent restrictions on bass takes by anglers. Sand eel fisheries in the Teign Estuary (thought to be two vessels) and Exe Estuary (thought to be one vessel) may also be affected by any new legislation which restricts bass take by the RSA sector.

#### 2.4.4 Additional comments

Juvenile bass appear to be present in BNAs all year round therefore it is unclear why the original designations involved seasonal closures. D&S IFCA supports the closure of BNAs all year.

Devon and Severn IFCA believe that more information on discard survival is needed in order to endorse a move to catch and release for the RSA sector. An alternative might be to remove targeted bass fishing by applying the same restrictions that apply to boat anglers to shore anglers on the use of sand eel and consider including restricting some lures? Promoting best practice in terms of fish handling etc. would also be needed if moving to a catch and release only system in BNAs.

### 2.5 River Dart

#### 2.5.1 Current Restrictions (D&S IFCA byelaws)

Fixed nets are prohibited in the River Dart (same closing lines as in BNA legislation). The D&S IFCA proposed new Netting Permit Byelaw would remove drift nets from this area too.

#### 2.5.2 Potential impact of making BNA no netting

During the public consultation for the D&S IFCA proposed new Netting Permit Byelaw there were no objections received for this estuary. D&S IFCA believes one or two commercial vessels may target mullet in the summer months.

#### 2.5.3 Additional impacts

Recreational Sea Angling (RSA) is an important component of the coastal economy of South West England. It is impossible to estimate the financial implications of a move to catch and release for RSAs in BNAs, but anecdotal information suggests that local tackle shops and bait suppliers have seen reduced profits following the recent restrictions on bass takes by anglers. Sand eel fisheries in the Teign Estuary (thought to be two vessels) and Exe Estuary (thought to be one vessel) may also be affected by any new legislation which restricts bass take by the RSA sector.

#### 2.5.4 Additional comments

Juvenile bass appear to be present in BNAs all year round therefore it is unclear why the original designations involved seasonal closures. D&S IFCA supports the closure of BNAs all year.

Devon and Severn IFCA believe that more information on discard survival is needed in order to endorse a move to catch and release for the RSA sector. An alternative might be to remove targeted bass fishing by applying the same restrictions that apply to boat anglers to shore anglers on the use of sand eel and consider including restricting some lures? Promoting best practice in terms of fish handling etc. would also be needed if moving to a catch and release only system in BNAs.

## 2.6 River Teign

### 2.6.1 Current Restrictions (D&S IFCA byelaws)

Fixed nets are prohibited in the River Teign (same closing lines as in BNA legislation). The D&S IFCA proposed new Netting Permit Byelaw would remove drift nets from this area too.

### 2.6.2 Potential impact of making BNA no netting

During the public consultation for the D&S IFCA proposed new Netting Permit Byelaw six objections were received from commercial fishers. To D&S IFCA officer's knowledge there are only two active netsmen in the river. Very low values of bass and mullet recorded in 2015 (MMO landings).

### 2.6.3 Additional impacts

The Teign estuary is extremely popular with recreational sea anglers, who target bass in certain locations at certain times of year. Recreational Sea Angling (RSA) is an important component of the coastal economy of South West England. It is impossible to estimate the financial implications of a move to catch and release for RSAs in BNAs, but anecdotal information suggests that local tackle shops and bait suppliers have seen reduced profits following the recent restrictions on bass takes by anglers. Sand eel fisheries in the Teign Estuary (thought to be two vessels) and Exe Estuary (thought to be one vessel) may also be affected by any new legislation which restricts bass take by the RSA sector.

### 2.6.4 Additional comments

Juvenile bass appear to be present in BNAs all year round therefore it is unclear why the original designations involved seasonal closures. D&S IFCA supports the closure of BNAs all year.

Devon and Severn IFCA believe that more information on discard survival is needed in order to endorse a move to catch and release for the RSA sector. An alternative might be to remove targeted bass fishing by applying the same restrictions that apply to boat anglers to shore anglers on the use of sand eel and consider including restricting some lures?

Promoting best practice in terms of fish handling etc. would also be needed if moving to a catch and release only system in BNAs.

## 2.7 River Exe

### 2.7.1 Current Restrictions (D&S IFCA byelaws)

Nets are currently prohibited in the in the River Exe (same closing lines as in BNA legislation).

### 2.7.2 Potential impact of making BNA no netting

No impacts on commercial sector (see above).

### 2.7.3 Additional impacts

The Exe Estuary is extremely popular with recreational sea anglers, who target bass in certain locations at certain times of year. Recreational Sea Angling (RSA) is an important component of the coastal economy of South West England. It is impossible to estimate the financial implications of a move to catch and release for RSAs in BNAs, but anecdotal information suggests that local tackle shops and bait suppliers have seen reduced profits following the recent restrictions on bass takes by anglers. Sand eel fisheries in the Teign Estuary (thought to be two vessels) and Exe Estuary (thought to be one vessel) may also be affected by any new legislation which restricts bass take by the RSA sector.



#### 2.7.4 Additional comments

Juvenile bass appear to be present in BNAs all year round therefore it is unclear why the original designations involved seasonal closures. D&S IFCA supports the closure of BNAs all year.

Devon and Severn IFCA believe that more information on discard survival is needed in order to endorse a move to catch and release for the RSA sector. An alternative might be to remove targeted bass fishing by applying the same restrictions that apply to boat anglers to shore anglers on the use of sand eel and consider including restricting some lures? Promoting best practice in terms of fish handling etc. would also be needed if moving to a catch and release only system in BNAs.

### 2.8 River Taw and River Torridge

#### 2.8.1 Current Restrictions (D&S IFCA byelaws)

Fixed engines are prohibited in the entire Taw Torridge estuary. The D&S IFCA proposed new Netting Permit Byelaw would remove drift nets from this area too.

#### 2.8.2 Potential impact of making BNA no netting

In the current BNA generally only mullet are targeted. MMO landing figures report £3,800 of mullet landed (in 2015). During the public consultation for the D&S IFCA proposed new Netting Permit Byelaw six objections were for this estuary from commercial netmen. MMO landings figures for 2015 report a value of £12,500 for bass landed by nets and £4,200 for bass landed by hook and line.

#### 2.8.3 Additional impacts

The Taw-Torridge is extremely popular with recreational sea anglers, who target bass in certain locations at certain times of year. Recreational Sea Angling (RSA) is an important component of the coastal economy of South West England. It is impossible to estimate the financial implications of a move to catch and release for RSAs in BNAs, but anecdotal information suggests that local tackle shops and bait suppliers have seen reduced profits following the recent restrictions on bass takes by anglers. Sand eel fisheries in the Teign Estuary (thought to be two vessels) and Exe Estuary (thought to be one vessel) may also be affected by any new legislation which restricts bass take by the RSA sector.

#### 2.8.4 Additional comments

Juvenile bass appear to be present in BNAs all year round therefore it is unclear why the original designations involved seasonal closures. D&S IFCA supports the closure of BNAs all year.

In the original D&S IFCA submission, changes to the boundaries of the two existing BNAs to include their joint estuary area was suggested. This would reflect the proposed no netting under the D&S IFCA proposed new Netting Permit Byelaw which includes all tidal waters inside a line drawn between Rock Nose and Down End. D&S IFCA would like to reiterate this suggestion.

Devon and Severn IFCA believe that more information on discard survival is needed in order to endorse a move to catch and release for the RSA sector. An alternative might be to remove targeted bass fishing by applying the same restrictions that apply to boat anglers to shore anglers on the use of sand eel and consider including restricting some lures? Promoting best practice in terms of fish handling etc. would also be needed if moving to a catch and release only system in BNAs.

## 2.9 Parrett

### 2.9.1 Current Restrictions (D&S IFCA byelaws)

There are no current byelaws which limit netting in the Parrett Estuary. However the D&S IFCA proposed new Netting Permit Byelaw would remove netting from the Parrett. It should be noted that the closing line for the Parrett Estuary defined by D&S IFCA is significantly different to that proposed in the Hyder et al. (2016) paper. The reasons for D&S IFCA's closing line is given in *Section 3* of this paper and in *Figures 1* and *2*.

### 2.9.2 Potential impact of making BNA no netting

As described in greater detail in *Section 3* the proposed closing line by Hyder et al. for the Parrett Estuary will result in the closure of a small-scale commercial shore netting fishery with significant heritage value and local support which uses fishing methods unique to the Severn Estuary. Two recreational netters working drift nets and some static nets from boats would also be affected. These fishermen primarily target sprat in the Autumn and Winter and mullet in the spring and summer. If the boundary was moved to reflect the suggestions made by D&S IFCA, then the heritage commercial fishery would be unaffected but the recreational netsmen would still be impacted.

### 2.9.3 Additional impacts

The Parrett Estuary is popular with recreational sea anglers, who target bass in certain locations at certain times of year. Recreational Sea Angling (RSA) is an important component of the coastal economy of South West England. It is impossible to estimate the financial implications of a move to catch and release for RSAs in BNAs, but anecdotal information suggests that local tackle shops and bait suppliers have seen reduced profits following the recent restrictions on bass takes by anglers. One charter vessel operates out of Highbridge and fishes in the Parrett Estuary on a regular basis.

### 2.9.4 Additional comments

Juvenile bass appear to be present in BNAs all year round therefore it is unclear why the original designations involved seasonal closures. D&S IFCA support the closure of BNAs all year. Devon and Severn IFCA believe that more information on discard survival is needed in order to endorse a move to catch and release for the RSA sector. An alternative might be to remove targeted bass fishing by applying the same restrictions that apply to boat anglers to shore anglers on the use of sand eel and consider including restricting some lures? Promoting best practice in terms of fish handling etc. would also be needed if moving to a catch and release only system in BNAs.

## 2.10 Severn Upper

### 2.10.1 Current Restrictions (D&S IFCA byelaws)

Fixed engines are prohibited in the area of the proposed new BNA and much further downstream (to approximately halfway across Sand Bay in North Somerset (exact byelaw definition available on request)). The D&S IFCA proposed new Netting Permit Byelaw would remove drift nets from this area too. D&S IFCA suggests an increase in size of the proposed Severn Upper BNA and the reasons for this are presented in *Section 3*.

### 2.10.2 Potential impact of making BNA no netting

No known impacts on commercial fishermen from either the BNA proposed by Hyder et al. or the extended BNA described in *Section 3*.

#### 2.10.3 Additional impacts

The Severn Estuary is extremely popular with recreational sea anglers, who target bass in certain locations at certain times of year. Recreational Sea Angling (RSA) is an important component of the coastal economy of South West England. It is impossible to estimate the financial implications of a move to catch and release for RSAs in BNAs, but anecdotal information suggests that local tackle shops and bait suppliers have seen reduced profits following the recent restrictions on bass takes by anglers.

#### 2.10.4 Additional comments

Juvenile bass appear to be present in BNAs all year round therefore it is unclear why the original designations involved seasonal closures. D&S IFCA supports the closure of BNAs all year.

In the original D&S IFCA submission, changes to the boundaries of the two existing BNAs to include their joint estuary area was suggested. This would reflect the proposed no netting under the D&S IFCA proposed new Netting Permit Byelaw which includes all tidal waters inside a line drawn between Rock Nose and Down End. D&S IFCA would like to reiterate this suggestion.

Devon and Severn IFCA believe that more information on discard survival is needed in order to endorse a move to catch and release for the RSA sector. An alternative might be to remove targeted bass fishing by applying the same restrictions that apply to boat anglers to shore anglers on the use of sand eel and consider including restricting some lures? Promoting best practice in terms of fish handling etc. would also be needed if moving to a catch and release only system in BNAs.

### 3.0 Boundaries of proposed BNAs

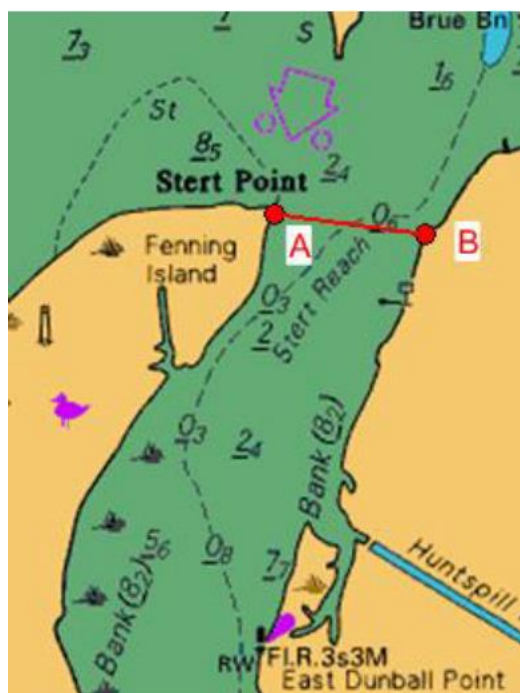
#### 3.1 Parrett Estuary (including Brue)

The boundary of the proposed Parrett Estuary BNA included in the draft Hyder et al. 2016 document (pg.62) closes the whole of Bridgwater Bay, from Hinkley Point to Brean Down. This deviates strongly from the netting closure proposed by D&S IFCA where the closing line is determined as the location where the Parrett meets the wider Severn Estuary/ Bridgwater Bay (Figure 1). The reason for this closure was because of the existence of a unique and very small-scale fishery in Bridgwater Bay with significant heritage value.

At Stolford a historical stake net fishery exists using a traditional method - unique to the Severn estuary - called a mudhorse, in order to access the fishing grounds which are covered in estuarine mud. This fishing activity in Somerset is recorded in the doomsday book and is thought to be unique to the Severn Estuary. Historically fishing provided employment for as many as 14 families, both at Steart and Stolford. There were four fishermen at Steart in 1851 and in 1871 and 1881 there were nine (British History Online 2014) additional families would have lived at Stolford. Today only one commercial fishermen works these grounds frequently by wading through the mud using the mudhorse for stability and to carry the catch. Fyke nets for shrimp, gill nets and stake nets are fished and the catch is sold through their family run fish shop in Stolford. Because of the small scale of the fishery and its local heritage value, the fishery is generally supported by anglers and coast users who see its impacts as negligible. This fishery was subject to a Habitats Regulation Assessment in 2016 and was found by D&S IFCA to not have a significant impact on the designated Fish Assemblage sub-feature of the Severn Estuary Special Area of Conservation (which includes bass). As of early December 2016, D&S IFCA had received informal advice from Natural England that they agreed with the outcome of this HRA. However, if fishing levels in this area increase a new HRA will be triggered and D&S IFCA will be able to consider the need for additional restrictions through the proposed Netting Permit Byelaw.

D&S IFCA and Natural England have put in significant effort to establish designated fishing zones through Natural England permits, in order to allow access through the Bridgwater Bay National Nature Reserve so fishermen could set their nets and retrieve their catch. The mudhorse fishery would *cease to exist* if this area was designated as a Bass Nursery Area. It is for this reason that officers recommended a separate approach be considered for the management of the Somerset coast in the development of D&S IFCA's own Netting Permit Byelaw. A Bass Nursery Area that incorporates all of Bridgwater Bay would end hundreds of years of traditional fisheries and historic ways of life for these mudhorse fishermen. Additionally, a lot of resource has gone into working with the netters and Natural England in order to create the Bridgwater Bay zones.

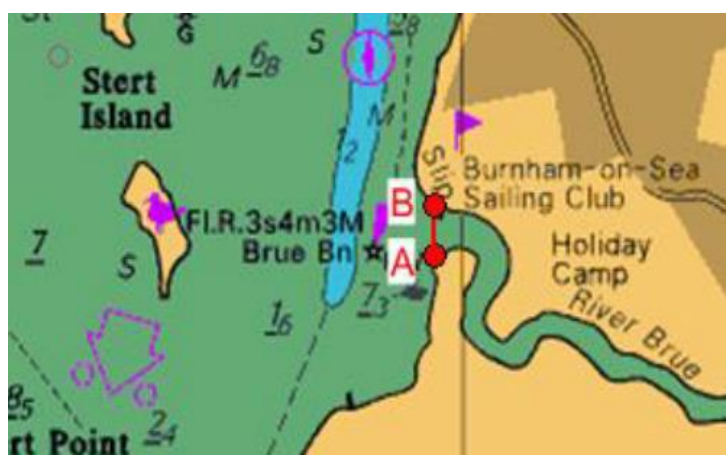
Alternative co-ordinates for the closing line for the Parrett Estuary are therefore included below (Tables 1&2) along with maps showing their location (Figure 1&2). These are the same as the closing lines included in the proposed D&S IFCA netting byelaw.



**Figure 1.** Proposed closing line for the new Parrett Estuary Bass Nursery Area to conserve heritage fisheries in Somerset and align with the proposed D&S IFCA netting byelaw

**Table 1.** Co-ordinates for the suggested closing line for the Parrett Estuary BNA

	Latitude	Longitude	Associated landmark
<b>Point A</b>	51° 13.106'N	003° 01.177'W	Stear Point
<b>Point B</b>	51° 13.061'N	003° 00.642'W	Beacon



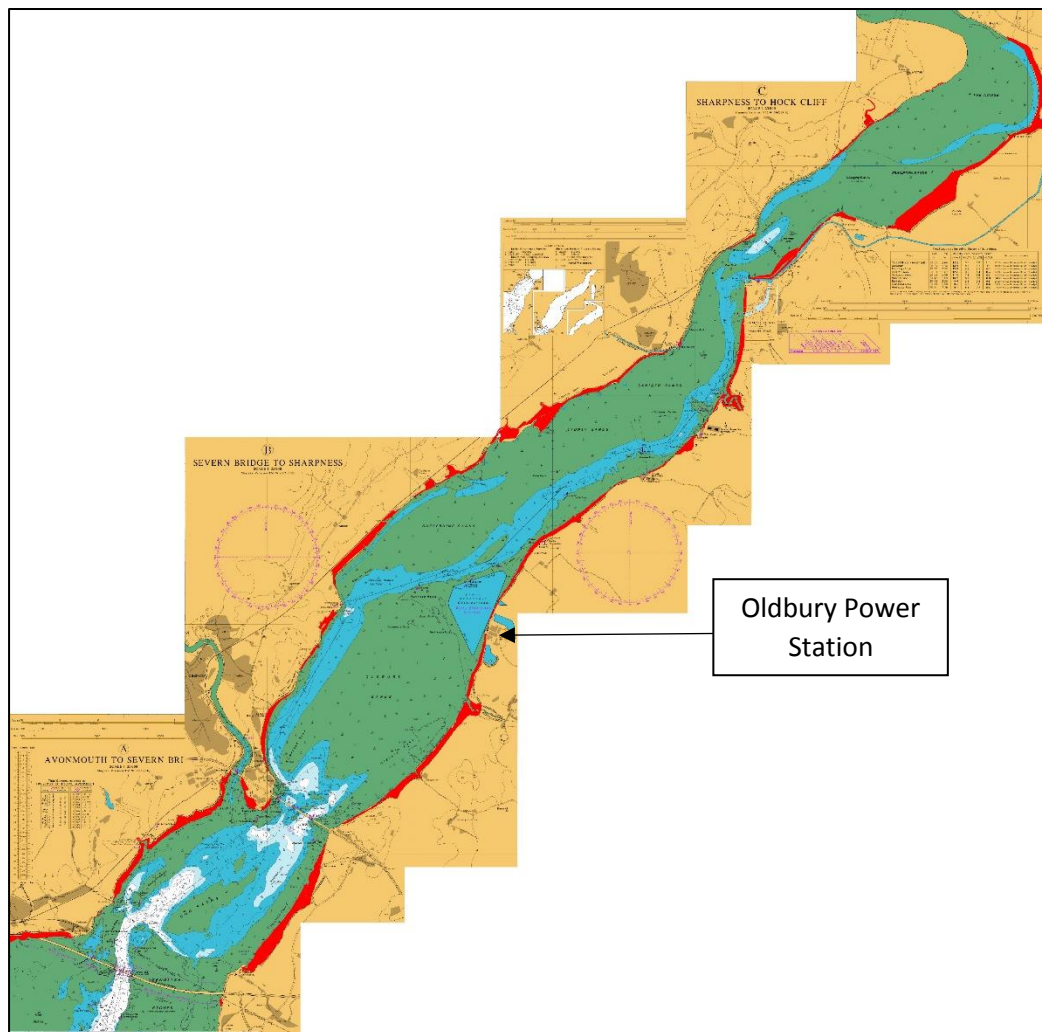
**Figure 2.** Proposed closing line for river Brue as part of the new Parrett Estuary Bass Nursery Area to align with the proposed D&S IFCA netting byelaw

**Table 2.** Co-ordinates for the suggested closing line of the Brue as part of the Parrett Estuary BNA

	Latitude	Longitude	Associated landmark
<b>Point A</b>	51° 13.528'N	003° 00.091'W	N/A
<b>Point B</b>	51° 13.618'N	003° 00.091'W	West of slipway

### 3.2 Severn Upper

The boundary shown in the map on page 63 of Hyder et al. review of BNAs shows the new 'Severn Upper' BNA only extending as far downstream as Arlingham. This is despite extensive evidence that the nursery area extends down to Oldbury power station at least (Claridge and Potter 1983). It is likely that the area down to at least the M4 road bridge provides good habitat for juvenile bass in the saltmarsh and associated creeks and pills (Figure 3). Extending the BNA to M4 bridge would have added cross-border complications, therefore D&S IFCA recommends extending the Severn Upper proposed Bass Nursery Area to the M48 Severn Crossing. There are no known commercial sea-fish fisheries in this area and the D&S IFCA netting byelaw will also prevent netting in this area.



**Figure 3.** Saltmarsh (bright red) habitat between Arlingham and the M4 Severn crossing, showing the position of Oldbury Power Station where a bass nursery area has previously been recorded (Claridge and Potter 1983, Potter et al. 2001)



## 4.0 Other

### 4.1 Taw-Torridge

As mentioned in section 2.8.4 in the original D&S IFCA submission, changes to the boundary of the River Taw BNA and the River Torridge BNA were suggested to include their joint estuary area were suggested. This would reflect the proposed no netting under the D&S IFCA proposed new Netting Permit Byelaw which includes all tidal waters inside a line drawn between Rock Nose and Down End. D&S IFCA would like to reiterate this suggestion.

### 4.2 D&S IFCA & Plymouth University funded PhD

D&S IFCA undertook a gap analysis of bass ecology and existing research which could help inform local management (Ross 2015 a,b). This resulted in a list of research questions, from which D&S IFCA drew together a workplan which set out how D&S IFCA would work towards filling some of the gaps to inform local management (Ross 2015b). As a result of some of the knowledge gaps identified D&S IFCA is co-funding a PhD with Plymouth University entitled “The ecology and distribution of European sea bass (*Dicentrarchus labrax*) in the South west UK”. The focus of the PhD is very much on research that will inform local management of fisheries which target or bycatch bass. There are currently three primary foci of the project, although these will develop as the wider EU and national policy and research landscape changes:

- i. A study of the movement of bass in estuaries and inshore areas adjacent to estuaries using acoustic telemetry in two rivers and one Ria in Devon. This project is titled the Immature-Bass Acoustic Stock Surveillance (I-BASS) project and is EMFF funding dependent
- ii. A study of the efficiency and bycatch of nets in inshore areas under different spatial management regimes.
- iii. A comparison of the fish communities of managed realignments and natural saltmarsh and their relative contributions to ecosystem services.

## 5.0 References

- Claridge P.N and Potter I.C. (1983) Movements, abundance, age composition and growth of bass, *Dicentrarchus labrax*, in the Severn Estuary and Inner Bristol Channel, Journal of the Marine biological Association of the British Isles, 63: 871-879
- Potter I.C. et al. (2001) Fish Fauna of the Severn Estuary. Are there long-term in abundance and species composition and is the recruitment patterns of the main marine species correlated? Journal of Experimental Marine Biology and Ecology Volume 258 (1): 15-37
- Ross E.J. (2015a) European sea bass (*Dicentrarchus labrax*): Ecology, stock status and management update. Devon and Severn IFCA report, March 2015.
- Ross E.J. (2015b) Outline of planned work relating to European sea bass, *Dicentrarchus labrax*. Devon and Severn IFCA report, October 2015.