

## Analysis of MMO Landings Data 2011-2015

Data of landings of live weight of fish and economic value of all fish landed to ports within D&S IFCA district were requested from the MMO. These data have been analysed to answer several questions:

- i. What are the landings and value of all fish landed by different gear types into Devon and Severn IFCA's ports from ICES rectangles 31E7, 31E6 and 31E5 on the North coast and rectangles 29E5, 29E6, 30E6, 30E7 on the South coast?
- ii. What are the landings and economic value of bass and mullet into D&S IFCA's ports from ICES rectangles listed in i. above and how do these data relate to different gear types used and what percentages of these species are caught in the gear types used?
- iii. What are the value and the landings of bass by different gear types for four ports in the district where estuarine netting currently takes place?
- iv. Is there seasonality of bass and mullet fisheries at these ports?
- v. From past data will the 2016 EU regulations on the commercial landings of bass have an impact on the fishing industry?

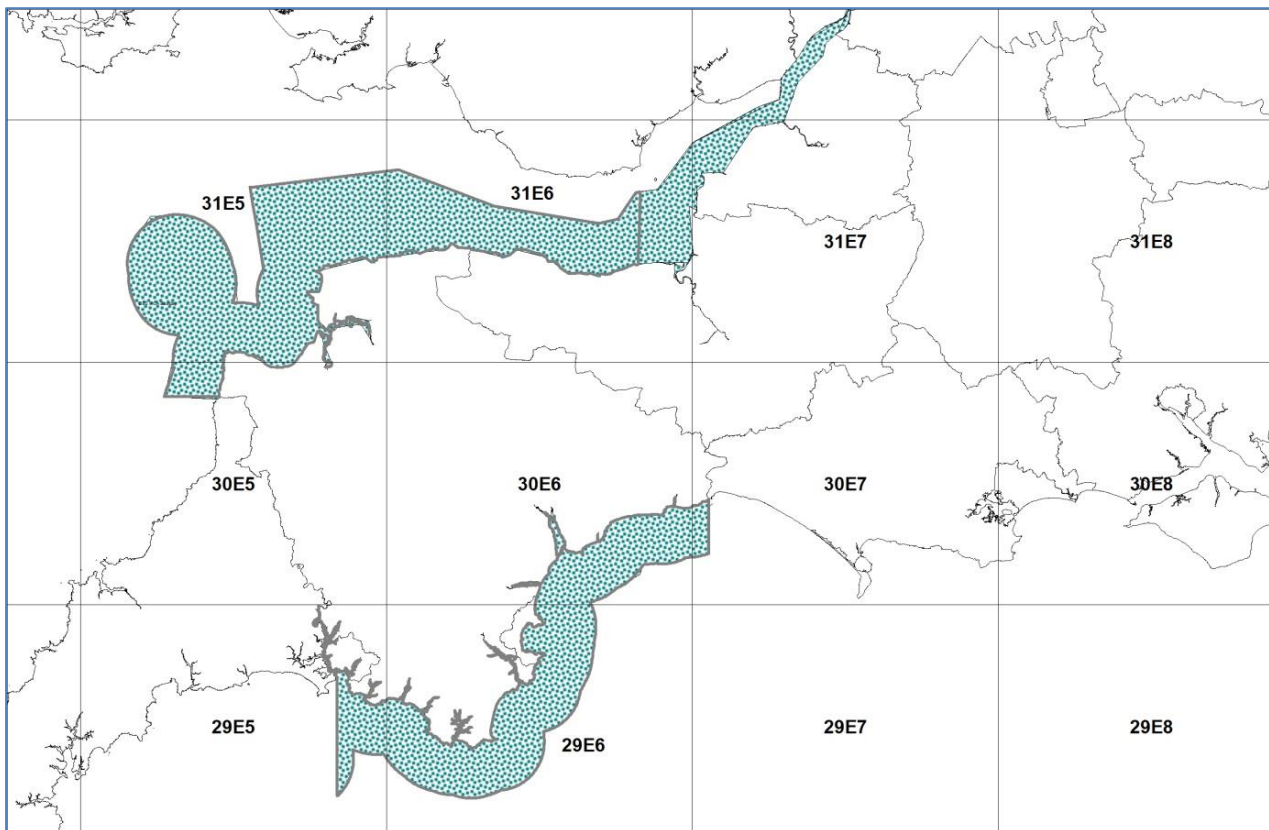


Figure 1: Chart of D&S IFCA district and the overlying ICES rectangles from which landings data has been used.

MMO data were received for ICES rectangle 29E5, 29E6, 30E6, 30E7, 30E5, 31E5, 31E6 and 31E7. These data sets were filtered to include only those ports that lie within the D&S IFCA boundary.

### Limitations of datasets.

The data has been provided by the MMO. The information comes from commercial fishing vessels' landing declarations. This is the best data available to investigate the value and landings of different fish species. However there are limitations to these data. The accuracy of the data relies on the actual declarations. If fish is sold outside of the official protocol the landings weights and values provided will not reflect these sales. Whilst there is no way of knowing how much fish is sold outside of this process it is likely to be a limited amount by a few individual fishermen. However it should be

considered when analysing and using these data. As for all fishing activities, both commercial and recreational, it is impossible to know the exact landings unless the data and knowledge of landings are accurate and reliable.

When commercial fishermen provide landings data they indicate the ICES rectangle in which the fishing activity has taken place. Figure 1 shows the ICES rectangles that relate to the D&SIFCA district. However, the ICES rectangles do not follow the administrative boundaries of the IFCA nor local authorities and therefore there is likely to be fish landed into D&S IFCA ports that have not been caught in the district and conversely fish caught within the district that is landed outside of the IFCA boundary. To be consistent with the analysis of the data only the data available for landing into ports within the IFCA district have been used. For the landing weight the live weight of fish has been used. If the fish has been gutted a known conversion factor is used to calculate the live weight. Harvesting machines predominantly relate to scallop dredging.

- i. **What are the landings and value of all fish landed by different gear types into Devon and Severn IFCA's ports from ICES rectangles 29E5, 29E6, 30E6, 30E7 on the South coast and ICES rectangles 31E7, 31E6 and 31E5 on the North coast?**

#### South Devon Ports

All Ports	2011	2012	2013	2014	2015	All Years
<b>Catch £ all species</b>	£ 22,836,068.20	£ 24,202,279.63	£ 21,606,483.83	£ 24,666,234.89	£ 22,896,224.60	£ 116,207,291.15
Gill & entangling	£ 1,543,578.70	£ 1,847,495.47	£ 1,868,382.15	£ 1,893,078.26	£ 1,112,811.00	£ 8,265,345.58
Dredges	£ 58,679.70	£ 62,215.40	£ -	£ -	£ -	£ 120,895.10
Harvesting machines	£ 6,635,165.40	£ 5,199,447.17	£ 4,220,734.44	£ 3,203,863.18	£ 4,094,118.33	£ 23,353,328.52
Hooks and Lines	£ 466,458.59	£ 453,893.13	£ 476,488.88	£ 387,899.10	£ 576,179.83	£ 2,360,919.53
Miscellaneous gear	£ 43,915.69	£ 15,608.04	£ 13,772.57	£ 10,942.46	£ 21,318.03	£ 105,556.79
Seine Nets	£ 41,995.89	£ 41,321.72	£ 9,050.55	£ 3,993.79	£ 153,657.94	£ 250,019.89
Surrounding Nets	£ 24,384.08	£ 1,612.16	£ 22,818.40	£ 136,438.03	£ 42,511.10	£ 227,763.77
Traps	£ 4,309,909.63	£ 4,061,266.35	£ 4,081,653.33	£ 5,489,120.90	£ 3,876,073.46	£ 21,818,023.67
Trawls	£ 9,711,980.52	£ 12,519,420.19	£ 10,913,583.51	£ 13,540,899.17	£ 13,019,554.91	£ 59,705,438.30

Table 1: Value of all species of fish landed to South Devon Ports for 2011-2015

All Ports	2011	2012	2013	2014	2015	All Years
<b>Catch (t) all species</b>	14839.8157	17204.357	14752.7531	16155.6956	13769.9498	76722.5712
Gill & entangling	641.2332	1011.8554	1066.8461	1108.2101	632.958	4461.1028
Dredges	26.6595	28.397	0	0	0	55.0565
Harvesting machines	3867.1715	3013.0651	2296.1629	1753.4961	2114.3502	13044.2458
Hooks and Lines	162.4601	183.4869	197.1011	117.1653	155.8074	816.0208
Miscellaneous gear	22.1289	7.0708	8.2549	7.9466	13.805	59.2062
Seine Nets	12.8433	13.7716	5.2909	1.7853	397.2542	430.9453
Surrounding Nets	63.1729	4.2344	57.097	222.4472	155.556	502.5075
Traps	3615.8634	2912.218	2967.9223	4070.7263	2541.1251	16107.8551
Trawls	6428.2829	10030.2578	8154.0779	8873.9187	7759.0939	41245.6312

Table 2: Landings (tonnes) of all species of fish landed to South Devon Ports for 2011-2015

The data for South Devon show the value of the fisheries into D&S IFCA ports exceeds £21million pounds for each of the years 2011 to 2015. Trawling is the highest earning fishing sector in terms of the quantity of fish landed. For 2015 56% of the total value of fish and landings was through trawling activity. Scallop and potting were similar in landings and values. In 2015 landings from gill and entangling nets were 4.86% of the total value of fish landed and 4.60% of the tonnage landed. Further analysis of these data has provided more detailed information about the catches of bass and mullet, under question ii.

## North Devon Ports

Tables 3 & 4 show the figures for landings and value of all fish species landed into North Devon ports.

All Ports	2011	2012	2013	2014	2015	All Years
<b>Catch £ all species</b>	£ 2,451,405.41	£ 2,459,205.66	£ 2,304,003.14	£ 1,613,556.19	£ 1,431,407.36	£ 10,259,577.76
Gill & entangling	£ 29,772.32	£ 35,457.15	£ 51,808.01	£ 33,256.06	£ 32,721.87	£ 183,015.41
Dredges	£ -	£ -	£ -	£ -	£ -	£ -
Harvesting machines	£ 65,980.11	£ 34,587.90	£ 104,118.35	£ 15,856.10	£ 70,426.22	£ 290,968.68
Hooks and Lines	£ 1,769.34	£ 4,442.97	£ 851.90	£ 7,014.67	£ 5,268.67	£ 19,347.55
Miscellaneous gear	£ -	£ -	£ -	£ -	£ -	£ -
Seine Nets	£ -	£ -	£ -	£ -	£ 540.25	£ 540.25
Surrounding Nets	£ -	£ -	£ -	£ -	£ -	£ -
Traps	£ 747,147.87	£ 1,017,409.10	£ 971,188.80	£ 972,849.09	£ 971,438.05	£ 4,680,032.91
Trawls	£ 1,606,735.77	£ 1,367,308.54	£ 1,176,036.08	£ 584,580.27	£ 351,012.30	£ 5,085,672.96

Table 3: Value of all species of fish landed to North Devon Ports for 2011-2015

All Ports	2011	2012	2013	2014	2015	All Years
<b>Catch (t) all species</b>	1532.827	1629.267	2856.902	1246.163	1069.058	8334.217
Gill & entangling	7.271	13.023	18.498	16.515	15.107	70.414
Dredges	0	0	0	0	0	0
Harvesting machines	43.735	22.221	55.28	17.774	47.943	186.953
Hooks and Lines	0.32	1.323	0.349	1.866	0.771	4.629
Miscellaneous gear	0	0	0	0	0	0
Seine Nets	0	0	0	0	0.855	0.855
Surrounding Nets	0	0	0	0	0	0
Traps	641.081	926.925	2218.64	886.125	811.757	5484.528
Trawls	840.42	665.775	564.135	323.883	192.625	2586.838

Table 4: Landings of all species of fish landed to North Devon for 2011-2015

The overall landings and values of all fisheries into the North Devon Ports are lower than those for the South Devon Ports. The greatest difference these figures show between the North and the South coasts is that traps, such as crab, lobster and whelk pots have the largest catch of all gear types and the greatest value for the North Devon fisheries. Netting makes up <2% of the tonnage of fish landed and <3% of the value of landed fish.

	South Devon Ports		North Devon Ports	
gear types	All Species %age live wt by gear type for 2015	All Species %age value by gear type for 2015	All Species %age live wt by gear type for 2015	All Species %age value by gear type for 2015
Gill & entangling	4.60%	4.86%	1.41%	2.29%
Dredges	0.00%	0.00%	0.00%	0.00%
Harvesting machines	15.35%	17.88%	4.48%	4.92%
Hooks and Lines	1.13%	2.52%	0.07%	0.37%
Miscellaneous gear	0.10%	0.09%	0.00%	0.00%
Seine Nets	2.88%	0.67%	0.08%	0.04%
Surrounding Nets	1.13%	0.19%	0.00%	0.00%
Traps	18.45%	16.93%	75.93%	67.87%
Trawls	56.35%	56.86%	18.02%	24.52%
TOTALS	100.00%	100.00%	100.00%	100.00%

Table 5: Percentages of landings and value by gear types for the North and South Devon Ports

Table 5 summarises the percentages of the total value and landings for all species caught in the different gear types used. The three main fisheries for both coasts are trawling, traps and harvesting machines. For both coasts the use of gill and entangling nets is the fourth largest fishery in terms of landings and value although it represents <5% percentage of the overall catches using this gear type.

- ii. **What are the landings and economic value of bass and mullet into D&S IFCA's ports from ICES rectangles listed in i. above and how do these data related to different gear types used and percentages of these species caught in the gear types used?**

Further analysis of the data has provided a more detailed examination of gill and entangling net fisheries within the ICES rectangles in the IFCA district. As the data set is so large some grouping together of gear type was undertaken to allow a clearer comparison of the main fisheries that catch bass and mullet.

### **Bass**

Table 6 shows the landings of bass for the south coast, north coast and total for both coasts. In 2015 the total landings of bass into D&S IFCA district's ports was 82.91 tonnes. The total landings of all species into these ports (table 2 & 4) 14,839 tonnes of live weight fish. Therefore only 0.56% of fish landed into Devon ports is bass. The landing figures have been represented graphically in Figures 2, 3, 4 and 5. The data for the past four years for all ports have shown a decrease in the landings of bass through gill and entangling nets and a subsequent increase in landings by hook and line. This suggests there has been a change in fishing patterns with hook and line fisheries becoming the dominant method of capture of bass in 2015. There is a risk that if this fishery continues to grow there will be an increased pressure on the bass stocks. The hook and line gear type fishery is likely to need less of a financial commitment and knowledge (compared to netting) to set up and individuals can quickly turn to this gear type - both from the recreational sector and those commercial fishers looking to diversify.

South Devon ICES 29E5,29E6,30E6,30E7 - 2011-2015						
All Ports	Landings (t)					
	2011	2012	2013	2014	2015	All Years
Gill & entangling	44.2362	56.4857	52.791	45.4521	23.3147	222.2797
Hooks and Lines	17.4455	13.9094	17.3656	19.4944	34.41975	102.6347
Trawls	21.737	34.0422	28.264	21.6287	11.84213	117.514
Other	0.4537	0.2882	1.3155	1.5548	1.2197	4.8319
TOTALS	83.8724	104.7255	99.7361	88.13	70.79628	447.2603
North Devon ICES 31E5, 31E6 & 31E7 - 2011-2015						
All Ports	Landings (t)					
	2011	2012	2013	2014	2015	All Years
Gill & entangling	2.393	2.2449	6.582	2.594	2.14	15.9539
Hooks and Lines	0.123	0.573	0.116	1.05	0.621	2.483
Trawls	21.38	31.139	19.31	5.564	9.354	86.747
Other	0	0.158	0.297	0.142	0.003	0.6
TOTALS	23.896	34.1149	26.305	9.35	12.118	105.7839
District Total Landings (t) - 2011-2015						
	2011	2012	2013	2014	2015	All Years
Gill & entangling	46.6292	58.7306	59.373	48.0461	25.4547	238.2336
Hooks and Lines	17.5685	14.4824	17.4816	20.5444	35.04075	105.1177
Trawls	43.117	65.1812	47.574	27.1927	21.19613	204.261
Other	0.4537	0.4462	1.6125	1.6968	1.2227	5.4319
TOTALS	107.7684	138.8404	126.0411	97.48	82.91428	553.0442

Table 6:  
Landings  
(tonnes) of  
Bass into  
ports in  
North Devon,  
South Devon  
and totals for  
both ports.

These data do not incorporate the level of effort for these fisheries and whether the changes in the landings with these gear types is a consequence of changing in effort, decline in bass stocks or whether the more significant decline from 2014 to 2015 in gill net catches reflect any decrease due to EU regulations on bass introduced in 2015 especially those relating to the increase in Minimum Conservation Reference Size introduced in September 2015. There is a marked difference in the gear type catching bass on the North coast compared to the south coast. The major landings of bass into north coast ports are through trawling. This may be as a result of larger vessel now landing to North coast ports because grandfather rights for fishing in Welsh waters have been removed by the Welsh Government.

In 2015 a total of 82.91 tonnes of bass were landed into ports within the D&S IFCA district. Whilst this figure may not reflect accurate landings i.e. some fish may have been landed outside of the official landing protocol, as described earlier, the level of catches are very low compared to other species landed into the district ports.

South Devon	2011	2012	2013	2014	2015	All Years
Bass catches as a %age of landings of all species by all gear types	0.6%	0.6%	0.7%	0.5%	0.5%	0.6%

Table 7a: Bass landings as a percentage of the total South Devon landings of all species by all gears

North Devon	2011	2012	2013	2014	2015	All Years
<b>Bass catches as a %age of landings of all species by all gear types</b>	1.6%	2.1%	0.9%	0.8%	1.1%	1.3%

Table 7b: Bass landings as a percentage of the total North Devon Landings of all species by all gears

In 2015 only 0.5% of the total landings into South Devon ports of all species for all gear types were bass (Table 7a). The landings of bass into South Devon ports using gill and entangling nets represented 3.7% of the total tonnage of all species caught in this gear type (23.31 tonnes out of 632.96 tonnes). In total 33% of all bass landed into South Devon ports were caught in gill nets (Figure 2). Unfortunately these cannot be assigned to any particular area because that information isn't available but netting for bass is known to take along the inshore areas, around the mouth of estuaries and within estuaries. For North Devon the figure for bass is 14.2% of the total tonnage of all species caught (2.14 tonnes out 15.11 tonnes). 17.66% of bass landed for 2015 were caught in gill nets see Figure 3.

The values of the bass landings are shown in Figures 6-9 and Table 8. The total value of bass landings for 2015 in Devon ports was £849,321.73

South Devon ICES 29E5,29E6,30E6,30E7 - 2011-2015						
All Ports						
	2011	2012	2013	2014	2015	All Years
Gill & entangling	£ 367,312.87	£ 430,485.07	£ 450,245.74	£ 422,786.13	£ 218,390.07	£ 1,889,219.88
Hooks and Lines	£ 185,559.37	£ 135,753.37	£ 175,771.58	£ 203,645.91	£ 368,756.95	£ 1,069,487.18
Trawls	£ 243,064.21	£ 183,533.50	£ 168,328.05	£ 156,299.21	£ 170,223.20	£ 921,448.17
Other	£ 4,412.10	£ 2,390.29	£ 12,499.56	£ 11,633.43	£ 13,076.77	£ 44,012.15
TOTALS	£ 800,348.55	£ 752,162.23	£ 806,844.93	£ 794,364.68	£ 770,446.99	£ 3,924,167.38
North Devon ICES 31E5, 31E6 & 31E7 - 2011-2015						
All Ports						
	2011	2012	2013	2014	2015	All Years
Gill & entangling	£ 21,452.85	£ 14,889.73	£ 35,672.09	£ 16,844.44	£ 13,842.35	£ 102,701.46
Hooks and Lines	£ 1,222.74	£ 3,492.14	£ 675.45	£ 6,142.58	£ 4,957.23	£ 16,490.14
Trawls	£ 146,597.82	£ 199,927.99	£ 110,666.77	£ 39,998.91	£ 60,051.46	£ 557,242.95
Other	£ -	£ 737.00	£ 1,736.75	£ 1,039.39	£ 23.70	£ 3,536.84
TOTALS	£ 169,273.41	£ 219,046.86	£ 148,751.06	£ 64,025.32	£ 78,874.74	£ 679,971.39
District Value of Total Landings - 2011-2015						
	2011	2012	2013	2014	2015	All Years
Gill & entangling	£ 388,765.72	£ 445,374.80	£ 485,917.83	£ 439,630.57	£ 232,232.42	£ 1,991,921.34
Hooks and Lines	£ 186,782.11	£ 139,245.51	£ 176,447.03	£ 209,788.49	£ 373,714.18	£ 1,085,977.32
Trawls	£ 389,662.03	£ 383,461.49	£ 278,994.82	£ 196,298.12	£ 230,274.66	£ 1,478,691.12
Other	£ 4,412.10	£ 3,127.29	£ 14,236.31	£ 12,672.82	£ 13,100.47	£ 47,548.99
TOTALS	£ 969,621.96	£ 971,209.09	£ 955,595.99	£ 858,390.00	£ 849,321.73	£ 4,604,138.77

Table 8: Value of Bass landed into ports in North Devon, South Devon and totals for all ports

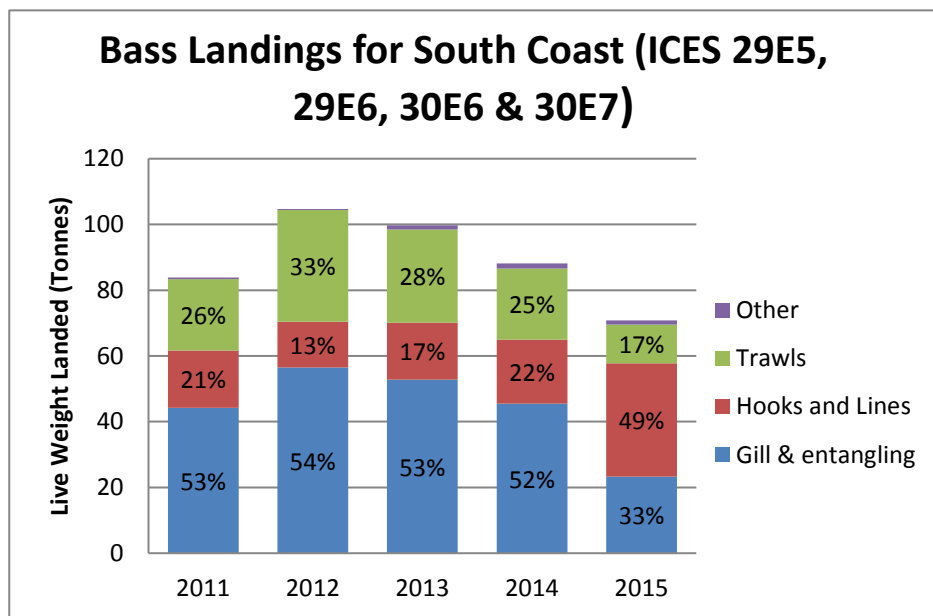


Figure 2: Bass Landings into South Devon Ports

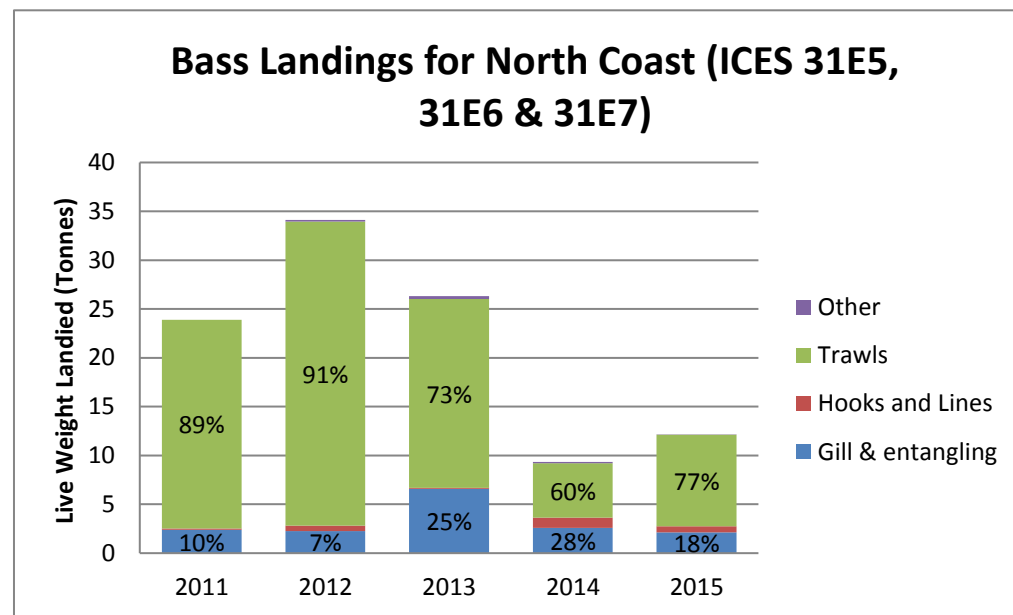


Figure 3: Bass Landings into North Devon Ports

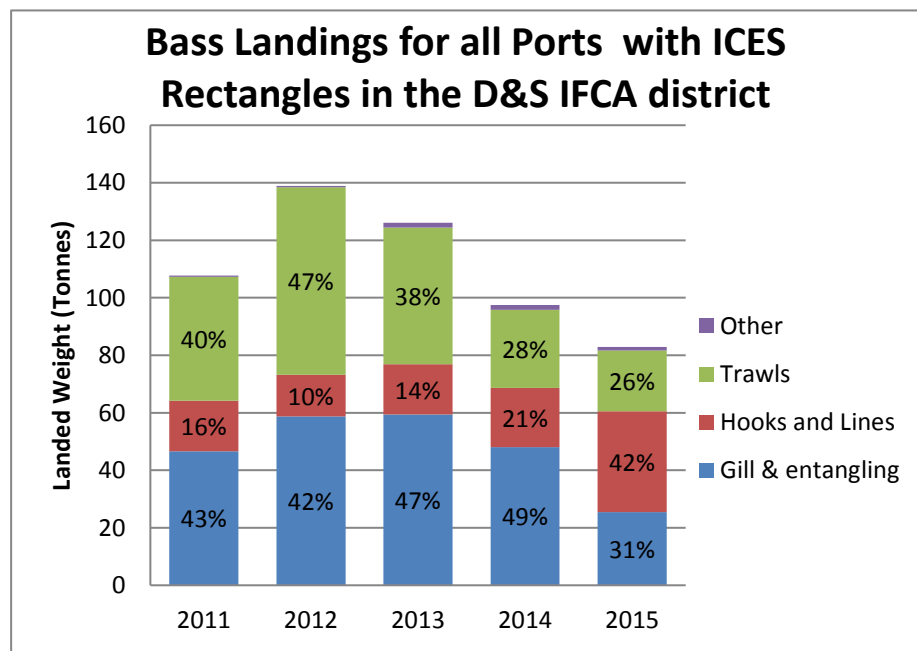


Figure 4: Landings and percentages of bass caught by gear type

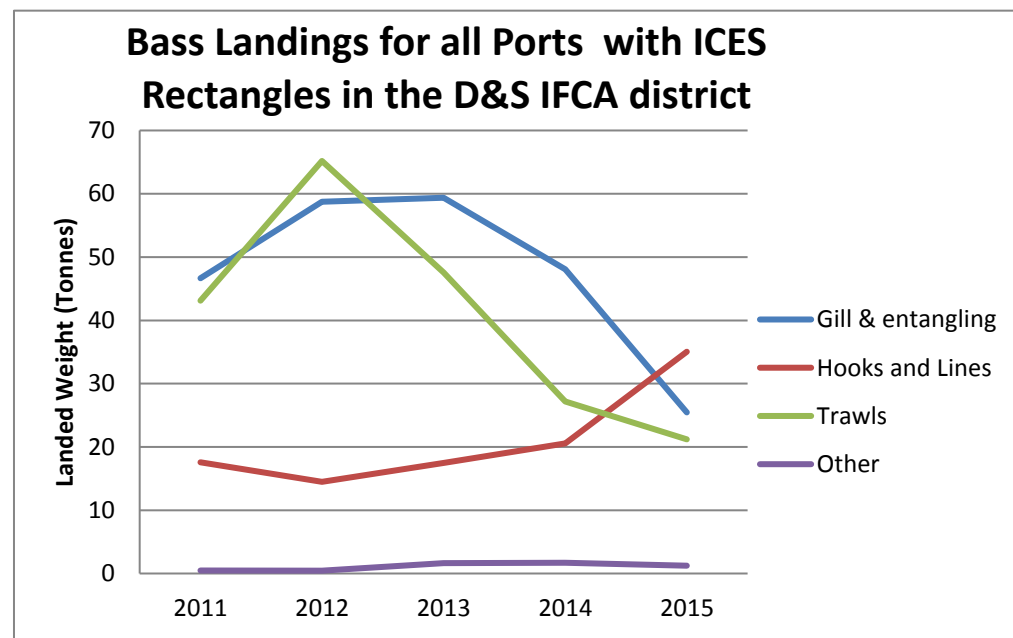


Figure 5: Bass Landings into all D&S IFCA ports



### Bass Values of landings for South Coast (ICES 29E5, 29E6, 30E6 & 30E7)

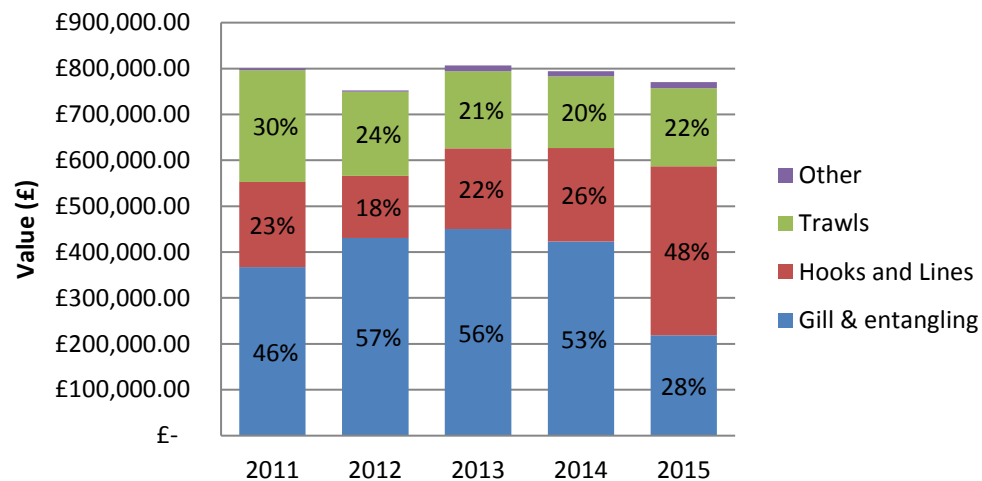


Figure 6: Value of Bass Landings into South Devon Ports

### Bass Values of Landings for North Coast (ICES 31E5, 31E6 & 31E7)

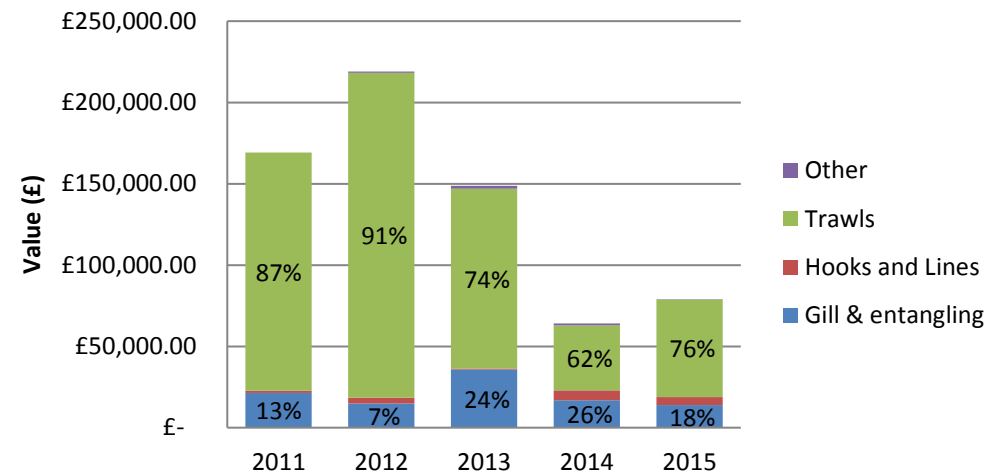


Figure 7: Value of Bass Landings into North Devon Ports

### Bass Landings for all Ports ICES Rectangles in the D&S IFCA district

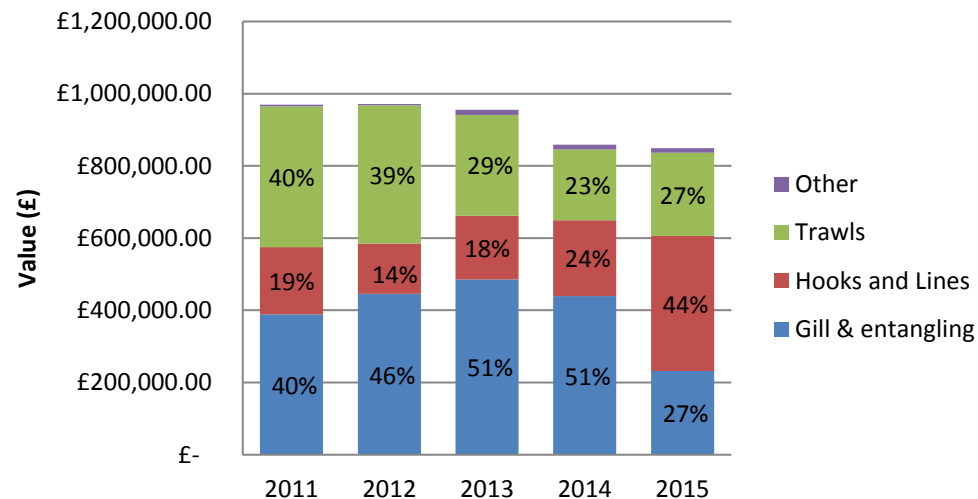


Figure 8: Value of Bass Landings into All Ports in D&S IFCA district

### Bass Landings for all Ports with ICES Rectangles in the D&S IFCA district

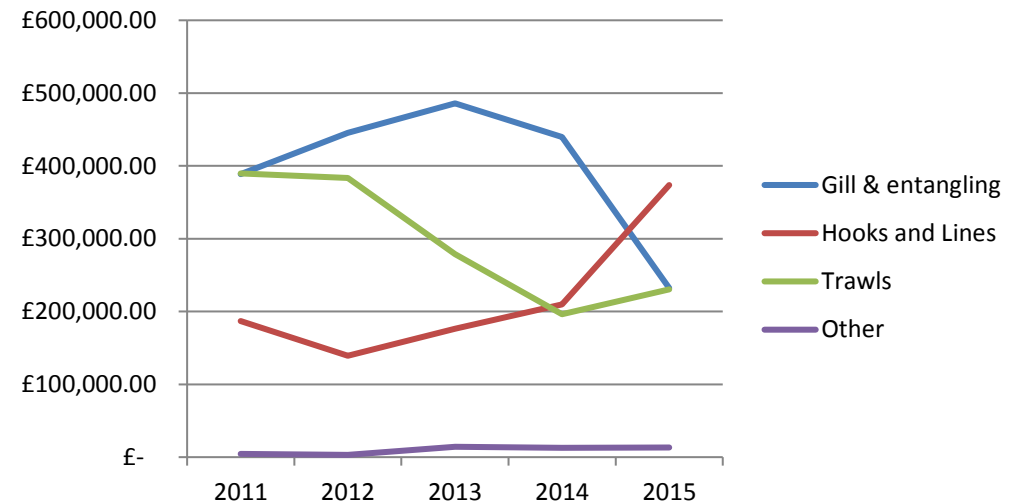


Figure 9: Value of Bass landings by gear type



## Mullet

The value of mullet landings into ports in the D&S IFCA district are shown in Figures 10, 11, 12 and 14. The tonnage for mullet landed follow similar trends as the values and are not shown graphically here. The values of mullet landed are low in comparison to bass landing values. For North Devon the value is ~£3,000 and for South Devon ports the value is ~£50,000 given an actual total for all ports of £53,114.

In 2015 the landings of mullet into South Devon ports caught with gill nets represented 2.24% of the total tonnage of all species caught with this gear type (14.15tonnes out of 632.958 tonnes), For the North coast whilst only 0.30% (Table 9b) of the total landings for all gear types were mullet, 21.25% of the total tonnage of all species landed in gill nets was mullet (3.21 tonnes of mullet out of 15.11 tonnes of all species). In 2015 just under 100% of all mullet landed into North Devon ports and 86% of all mullet landed into South Devon ports was caught in gill nets, therefore for this fishery netting is the most important gear type. From IFCA officers' knowledge it is likely that most of these catches will have been in inshore coastal or estuarine nets.

From the values of landings there is a decline from 2014 to 2015, the actual overall landings of mullet into North Devon coast declined from 6.549 tonnes to 3.22 tonnes from 2014 to 2015 – a decrease of 49%. For the South coast a similar decline has been seen – 14.84 tonnes landed in 2015 compared to 31 tonnes in 2014, a decline of 48%. It is not clear what has caused this decline – whether it is through a decrease in effort, decline in the mullet stock for 2015 or if changes in bass regulations have affected catches of the species associated with bass fisheries. Potentially the increase in Minimum Conservation Reference Size (MCRS) for bass may have reduced the number of fishermen using nets or may have caused fishers to change the mesh size of their nets in order to catch the larger sized bass, which would result in less mullet being caught in these nets. There is also another potential reason for the decline in landings which could be due to the known illegal netters who operate in estuaries in the D&SIFCA district not declaring their landings of bass and mullet officially to side step the increase in MCRS and landing restrictions.

South Devon	2011	2012	2013	2014	2015	All Years
<b>Mullet catches as a %age of landings of all species by all gear types</b>	0.20%	0.15%	0.17%	0.19%	0.11%	0.16%

Table 9a: Mullet landings as a percentage of the total South Devon landings of all species by all gears

North Devon	2011	2012	2013	2014	2015	All Years
<b>Mullet catches as a %age of landings of all species by all gear types</b>	0.15%	0.16%	0.21%	0.53%	0.30%	0.25%

Table 9b: Mullet landings as a percentage of the total North Devon landings of all species by all gears

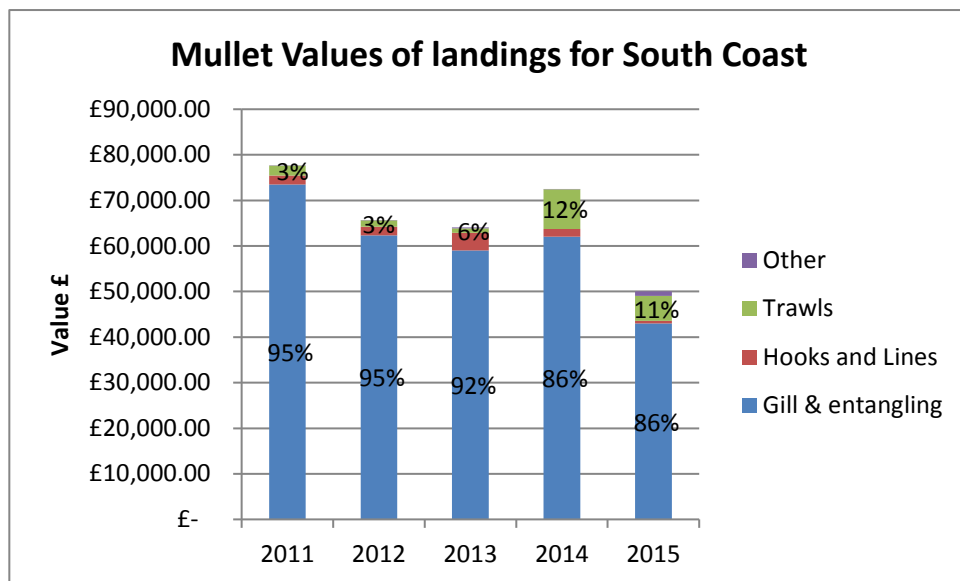


Figure 9: Value of Mullet Landings into South Devon Ports

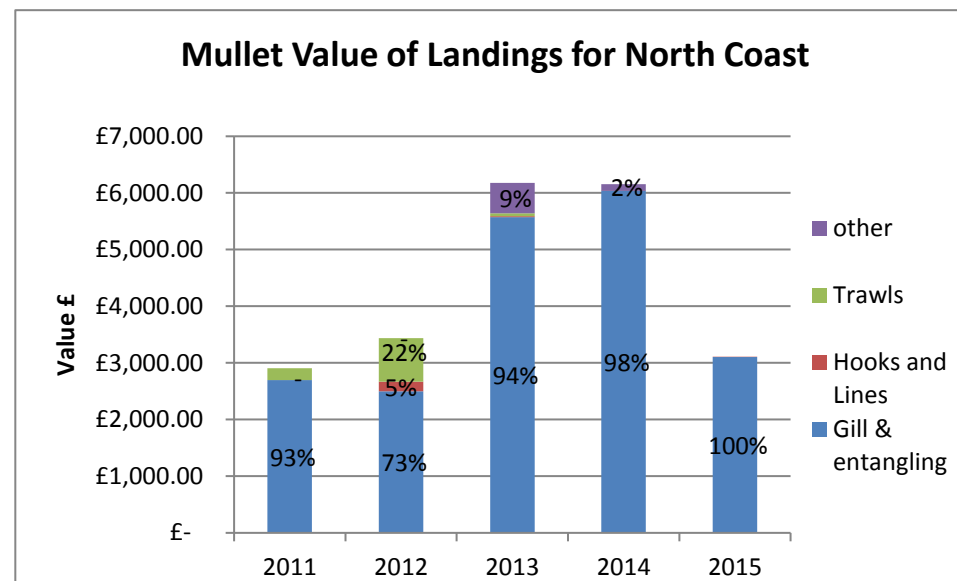


Figure 10: Value of Mullet Landings into North Devon Ports

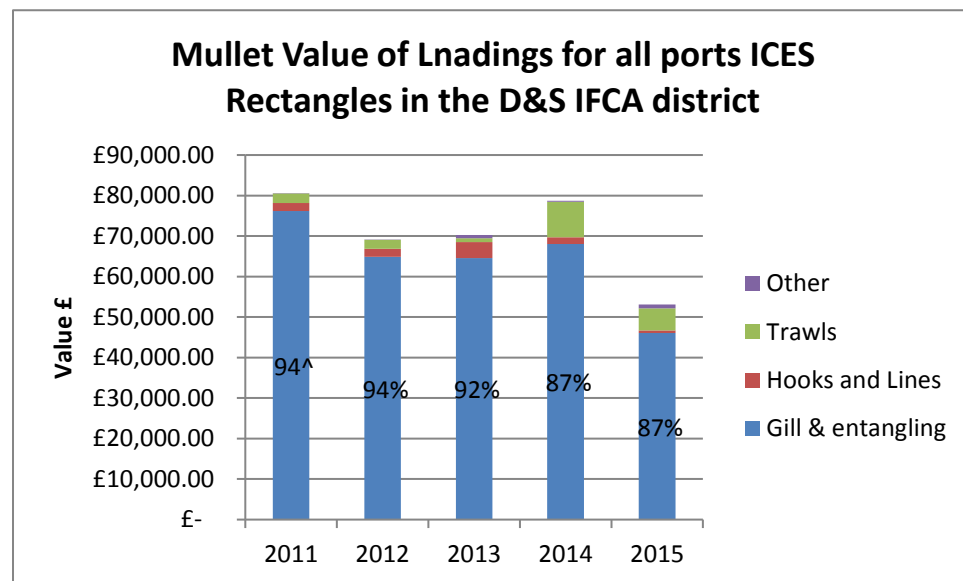


Figure 11: Value of Mullet Landings into All Ports in D&S IFCA district

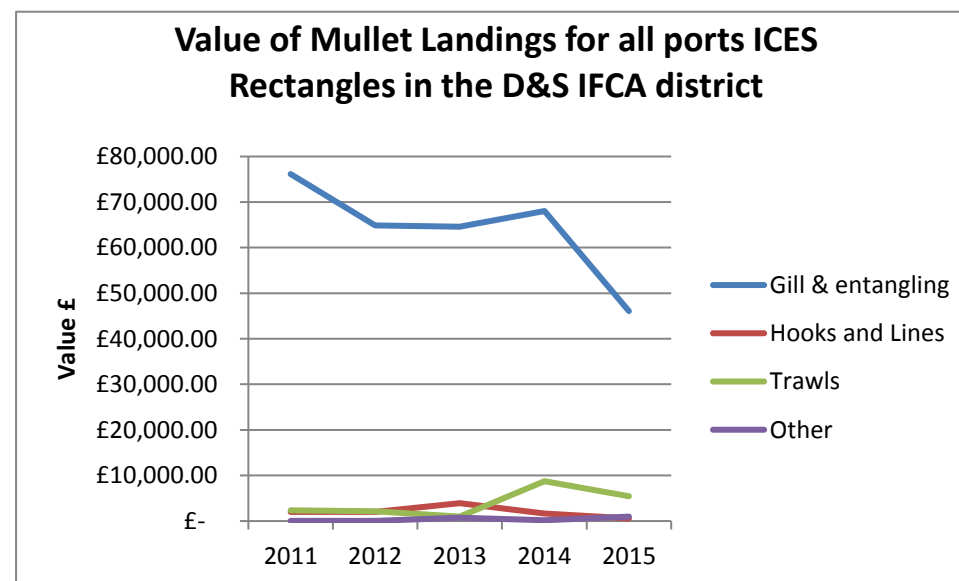


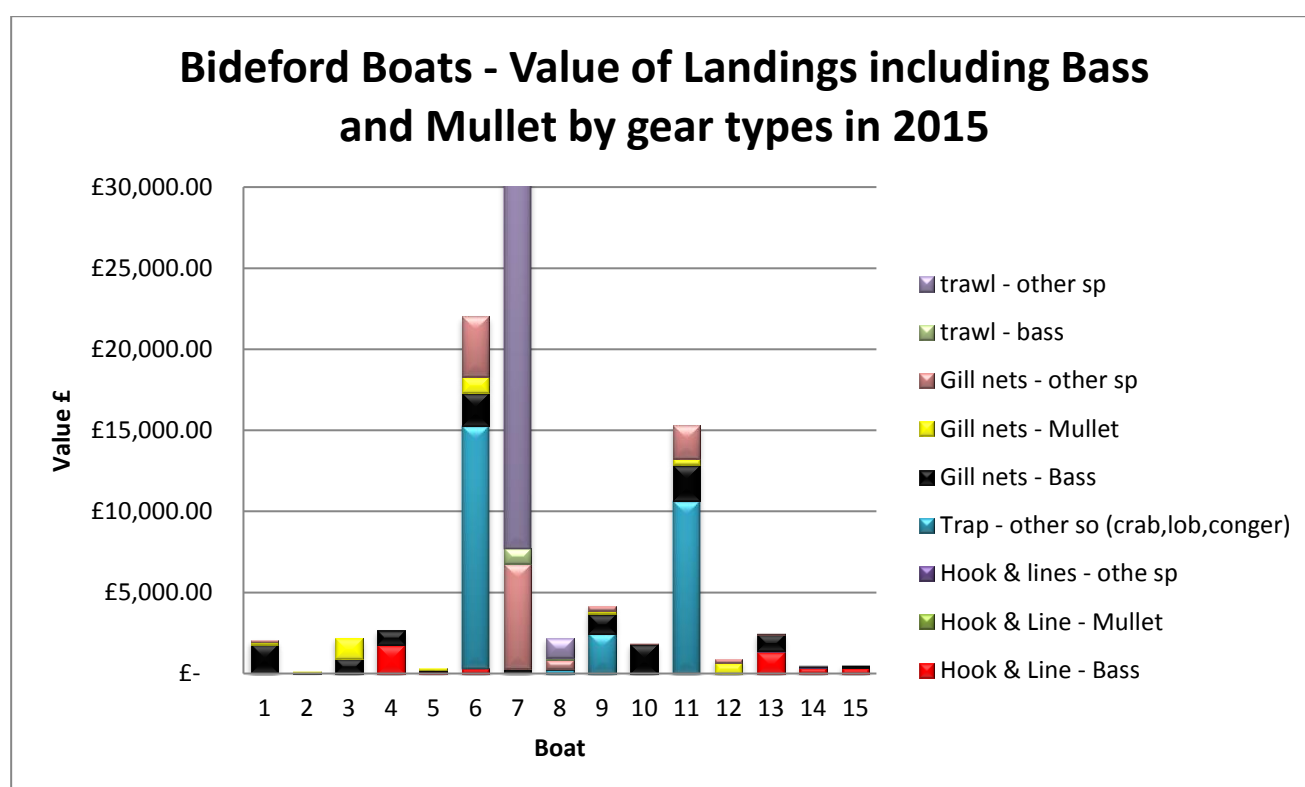
Figure 12: Value of Mullet landings by gear type

iii **What are the value and the landings of bass by different gear types for four ports in the district where estuarine netting currently takes place?**

Analysis of the landings and value of bass from the ports of Bideford on the North coast and Plymouth, Salcombe and Teignmouth on the South coast has been undertaken. The majority of boats landing bass into these ports whose data has been analysed were under 10m vessels.

**1. Bideford**

Table 14 gives summary of the values of the different gear types landing bass and mullet into the port of Bideford in North Devon for 2015.



**Figure 14: Value of landing of bass and mullet by 15 boats into Bideford in 2015**

The MMO data indicate that fifteen boats land bass into the ports of Bideford. Some of these are trawlers and these vessels land a large percentage of the bass caught especially in 2014. Bass are caught by trawls, gill nets and hook and line. Many of the boats use a range of gear types to earn a living from fishing. Fourteen out of the fifteen boats caught bass using gill nets. 50% of these boats also caught bass using hook and line showing that they use different gear types to target the bass fishery and therefore have the potential to move between the gear types seasonally or when conditions allow. Seven of the boats who targeted bass also targeted mullet. From IFCA officers' knowledge the bass fishery takes place in the Taw Torridge Estuary and along the coast to Baggy Point and Westward Ho! Only one vessel landed only mullet and not bass. Table 10 shows that actual value of landings used to create Figure 14. Although full knowledge of the working practices of the boats involved is not known, it would appear that many of the boats, that catch bass and mullet with gill nets, do this on a part-time basis making up part of their income from these fishing activities, as the value of landings is relatively low at <£3,000. Some boats gain 100% of their earning from netting for bass and mullet, such as Boat s 2 and 3. In fact five out of the 15 boats get more than 70% of their fishing income from gill netting for these two species. However as previously stated the

income is relatively low. It is likely that this activity is used on a seasonal basis and potentially through the winter months when getting to sea is difficult. In comparison Boat 6 uses several gear types i.e. hook and line, gill nets and traps to earn a living from fisheries, although his main activity is fishing using traps or pots. 13.75% of his income from fishing comes from gill netting for bass and mullet. Similarly for Boat 11, 17% of his income is gill netting for bass and mullet with most earnings coming from potting.

2015	Value by gear type for Bideford Boats									
Boat	Hook & Line - Bass	Hook & Line - Mullet	Hook & lines - othe sp	Trap - other so (crab,lob,conger)	Gill nets - Bass	Gill nets - Mullet	Gill nets - other sp	trawl - bass	trawl - other sp	
1	£ 16.00	£ 7.15		£ 14.80	£ 1,753.40	£ 180.84	£ 108.58			
2					£ 88.10	£ 31.02				
3					£ 911.22	£ 1,281.90				
4	£ 1,751.50		£ 3.80		£ 896.40		£ 21.96			
5	£ 119.20				£ 99.65	£ 96.70				
6	£ 297.70			£ 14,941.00	£ 2,032.90	£ 996.08	£ 3,759.96			
7				£ 32.70	£ 226.50		£ 6,472.00	£ 975.76	£ 55,333.00	
8				£ 230.80	£ 33.60		£ 547.31	£ 178.75	£ 1,192.33	
9				£ 2,447.61	£ 1,232.79	£ 181.67	£ 312.87			
10					£ 1,831.35		£ 29.29			
11				£ 10,639.72	£ 2,201.75	£ 377.03	£ 2,080.85			
12						£ 657.48	£ 246.26			
13	£ 1,332.15		£ 29.91		£ 1,052.83		£ 65.04			
14	£ 357.65		£ 86.64		£ 34.30		£ 10.00			
15	£ 346.04		£ 6.46		£ 134.55					
Totals	£ 4,220.24	£ 7.15	£ 126.81	£ 28,306.63	£ 12,529.34	£ 3,802.72	£ 13,654.12	£ 1,154.51	£ 56,525.33	

Table 10: Bideford Boats value of landings by gear.

The Bideford data for 2015 is also displayed in Figures 15 and 16. 58% of the bass landings into Bideford in 2015 were from gill and entangling nets with a live weight of 2.1 tonnes.

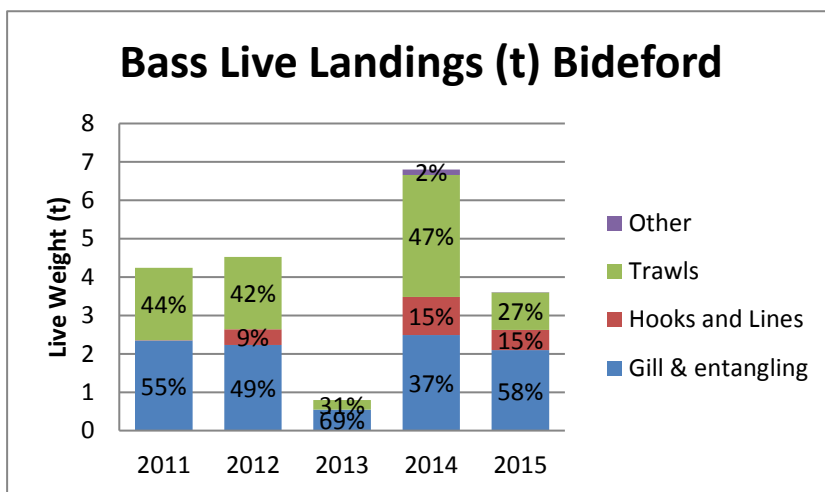


Figure 15: Bass landings into Bideford for 2011-2015

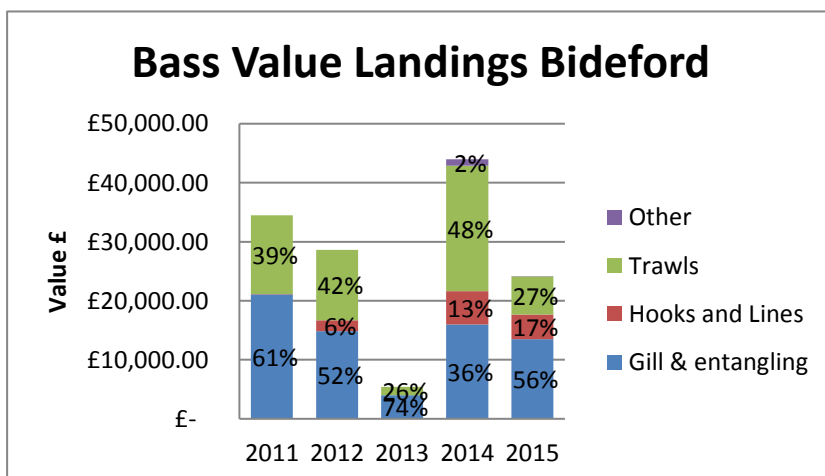


Figure 16: Value of bass landings into Bideford for 2011-2015

## 2. Salcombe

There are 13 vessels which land bass from a variety of gear types into Salcombe. The values of the landings for 2015 including bass and mullet by gear type are shown in Figure 17 and Table 11. The data show that 13 boats land bass into Salcombe port. Much of the bass landed by gill nets are likely to have been caught either within the estuary or along the coast outside of the estuary. For three out of the 13 boats, gill netting for bass and mullet makes up over 66% of the boats' income and therefore it can be concluded that bass landings are their main source of income from that boat. However several of the fishers in Salcombe also have larger potting vessels which bring in their main income from fishing. Other boats use gill netting along with hook and line and seine nets to catch bass and mullet. This shows that the boats landing bass will use a range of gear types to target these species. Gill netting for bass and mullet accounts for 9% of the value of landings from the boats in Salcombe that catch bass. This would suggest that gill netting is done on a part time or seasonal basis and is used to supplement the various boats' income and the gear type is used along with other fishing methods to target bass and mullet and other fish species.

From IFCA officers' knowledge of the activity and information included in Annex 2, fishing for bass and mullet in the estuary by commercial fishermen has diminished in recent years. This is due to the uncertainty of whether their use of nets constitutes a fixed engine and also due to the continued illegal netting in the estuary, which has increased over recent years, and the Salcombe fishermen's concerns that they will be associated with this activity. Salcombe fishermen view their netting fishery as a historical, artisanal fishery that has continued for generations and allows them to supplement their income during the winter months when getting out to sea over the bar of the Salcombe estuary is very difficult. Figures 18 and 19 show how gill netting for bass has declined over recent years. In 2013 96% of bass landed was from netting compared with 36% in 2015 - perhaps this is due to the reasons mentioned above and how there has been a move to a hook and line fishery by some of the boats. It should be noted that the tonnage taken has only slightly decreased in 2015 compared to 2013 which shows the landings are steady but the gear type has changed.

Hook and line for bass brings in 12.21% of the total value of landings for these Salcombe boats. Boats 10, 11, 12 and 13 only use hook and line to catch fish, and for Boat 12 almost 100% of the landings from this gear type are bass. Of the 13 boats none use gill nets alone to target bass or mullet – many of the boats get an income from catching a range of species using the gear types listed in table 11. For Boat 8 the main source of income is from potting and netting for other species, with netting for bass making up only 8% of the value of landings.

Boat	Value of Landings by gear type			Salcombe Estuary 2015			Gill nets - Bass	Gill nets - Mullet	Gill nets - other sp	trawl - bass	trawl - other sp	seine nets - Bass	seine nets - mullet	seine nets - other sp	TOTAL
	Hook & Line - Bass	Hook & Line - Mullet	Hook & lines - other sp	trap - bass	trap - mullet	Trap - other so (crab,lob,conger)									
1	£184.98		£3.88	£9.82		£62.10	£457.21	£13.17	£420.69						£1,151.85
2	£490.58						£421.30		£1,928.67						£2,840.55
3								£143.66	£48.72						£192.38
4										£216.38	£26,164.74				£26,381.12
5							£99.03		£1,903.89						£2,002.92
6	£42.84		£1.30				£3,500.75	£449.00	£476.64						£4,470.53
7	£175.13	£14.21	£172.28				£96.39	£896.50				£41.99	£25.98	£75.04	£1,497.52
8			£1,043.75	£157.17		£16,597.39	£2,194.04	£393.54	£13,882.49						£34,268.38
9				£228.44	£106.91	£607.43									£942.78
10	£139.00		£6,871.70				£148.68		£444.62						£7,604.00
11	£377.58		£4,112.00												£4,489.58
12	£10,323.76		£7.13												£10,330.89
13	£11.42														£11.42
TOTALS	£11,745.29	£14.21	£12,212.04	£395.43	£106.91	£17,266.92	£6,917.40	£1,895.87	£19,105.72	£216.38	£26,164.74	£41.99	£25.98	£75.04	

Table 11. Salcombe Boats - value of landings by gear

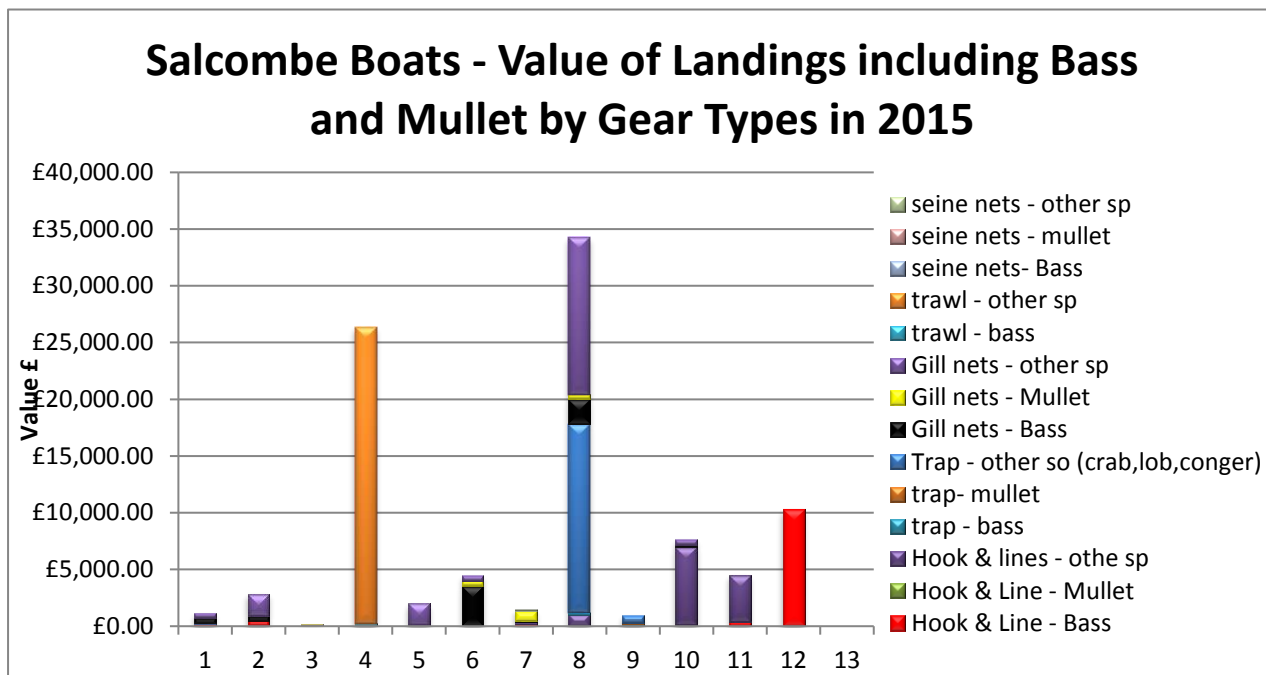


Figure 17 Values of Landings of Bass and Mullet into Salcombe by Gear types

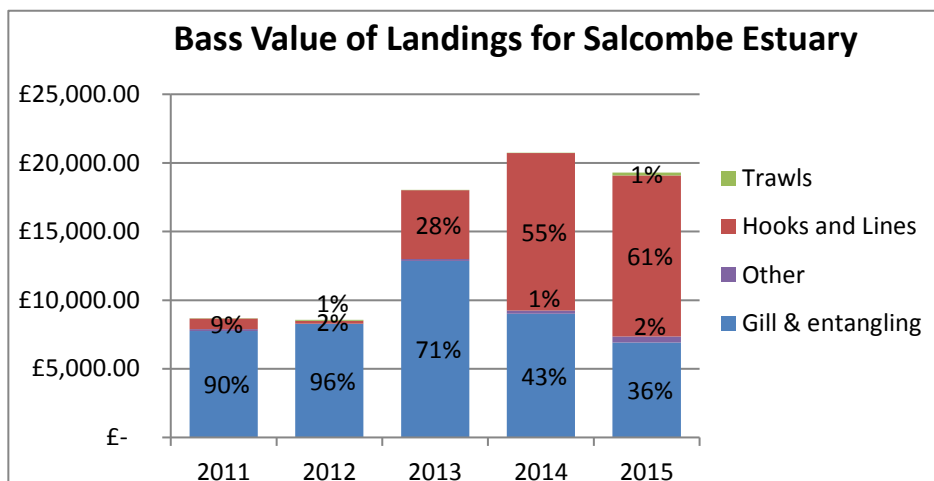


Figure 18: Value of Bass landings into Salcombe 2011-2015

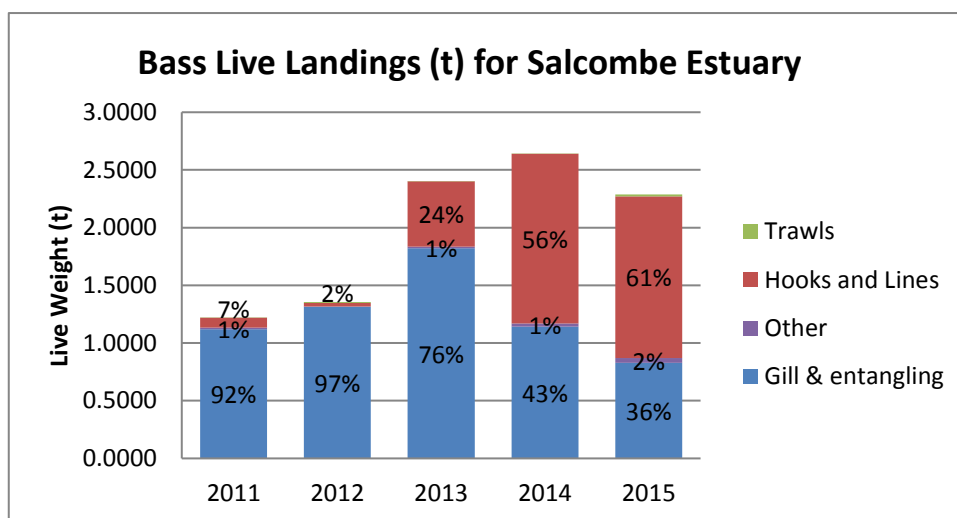


Figure 19 Landings (tonnes) into Salcombe 2011-2015

### 3. Plymouth

Seventy two boats landing into Plymouth caught bass with one or more gear types. Nine of these boats earn more than 70% of their income from gillnetting for bass and mullet. Several of these boats earn a significant income from this fishery. For example one boat's value of landings for bass and mullet by gill nets in 2015 was £18,006.64. Another boat earned 99% of his value of landings from bass and mullet gill net fisheries. This equated to £42,133.71 for 2015. It is not known where these boats fish but it is likely to be outside of the Plymouth Sound. Many of the remaining boats who earn less than 70% of their fishing income in 2015 from bass and mullet in nets still have a reasonably large value of landings. The value of landings of these species in nets is greater than £3,000 for 9 boats. One boat's value of bass and mullet landings from gillnets was £10,306 but this only made up 19% of the total value of landings from gill netting. The full table and chart of the values of landings is not included here due to the amount of boats involved but Table 12 provides a summary. Gill and entangling nets for bass is the third largest value fishery from these 72 boats' landings.

Plymouth 2015	Boat num	Hooks & Lines - Other	Hooks & Lines - Bass	Hooks & Lines - Mullet	Gill & Entangling - Other	Gill & Entangling - Bass	Gill & Entangling - Mullet	Trawls - Other	Trawls - Bass	Trawls - Mullet	Totals	Total value of bass and mullet from gill nets
Total	72	£ 53,953.05	£ 70,639.89	£ 71.94	£ 399,856.05	£ 153,358.28	£ 38,916.44	£ 663,354.90	£ 12,238.00	£ 31.82	£ 1,392,420.37	£ 192,274.72

Table 12: Summary of the value of landings for boats that catch bass and mullet in at least one gear type.

The data was further analysed to look at the bass landings and value of landings by different gear types and are summarised in Figures 20 and 21.

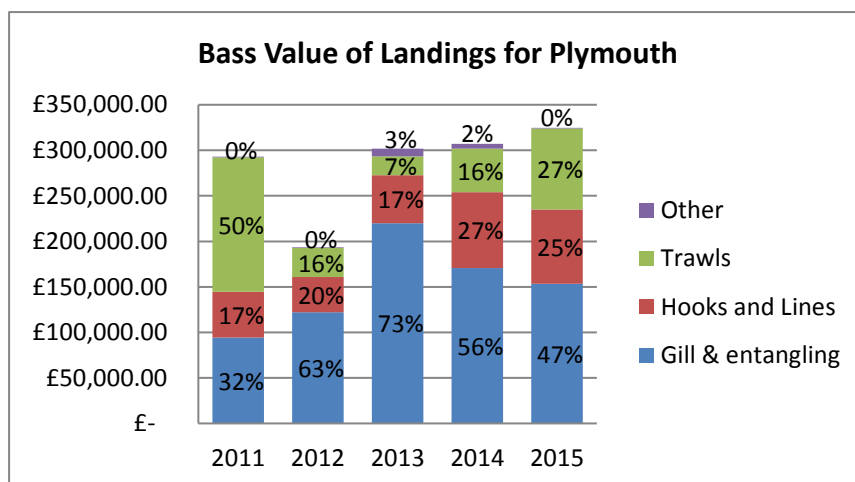


Figure 20 Values of Landings of Bass into Plymouth 2011-2015

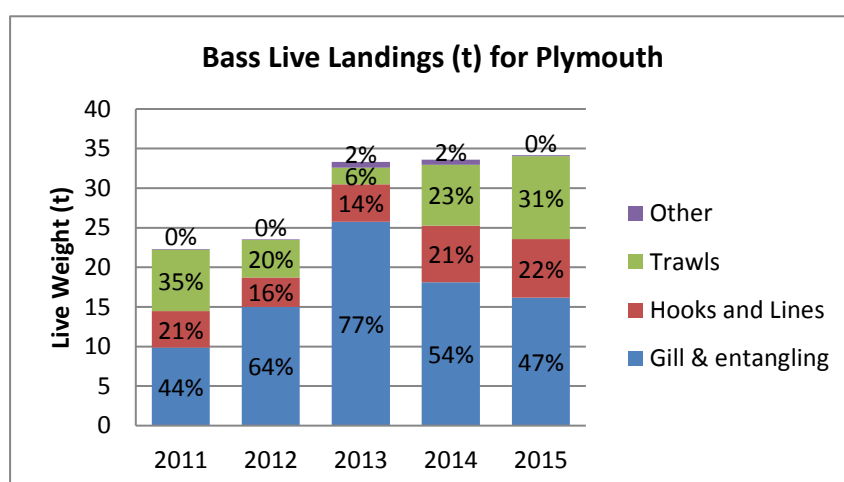


Figure 21 Landings of Bass into Plymouth 2011-2015



These charts show the changes in use of different gear types to target the bass fishery for boats operating out of Plymouth. From 2013 to 2105 the bass landings into Plymouth have been fairly consistent with weight landed being between 33 and 34 tonnes. However the percentage from gill netting has decreased from 77% (25.76 tonnes) to 47% (16.15 tonnes). Both the hook and line and trawling fisheries have increased their landings of bass during these years. It is difficult to provide reasons for these changes but they could include changes in effort, changes in areas fished, changes in landing fleet and changes in gear type used.

#### 4. Teignmouth

The data for Teignmouth show a large decrease in the landing of bass for 2015 into the port. In 2014 8 boats landed bass mainly using gill nets and trawls. For only one of these boats the landed value of bass was greater than £3,000 which made up 79% of his landings value of all species. The other boats made an income of less than £400 from bass as part of their total landings. The actual landings for 2014 for all gear types were 1.27 tonnes. In 2015 there was a marked decrease in bass landings down to 0.07 tonnes, with only one vessel recording landings to a value of £81.40. The mullet landings brought in a higher value of £125.75 from two vessels. It is difficult to understand why the official landings were so low. Perhaps this is due to the changes in Minimum Conservation Reference Size for bass in 2015 which might have resulted in a small quantity being of landable size or potentially due to under recording of landings. The responses from the pre-consultation (Annex 2) indicate that there are more fishers netting for bass in the Teign Estuary in the open season with landings of bass being greater than those in the MMO landings data for 2015.

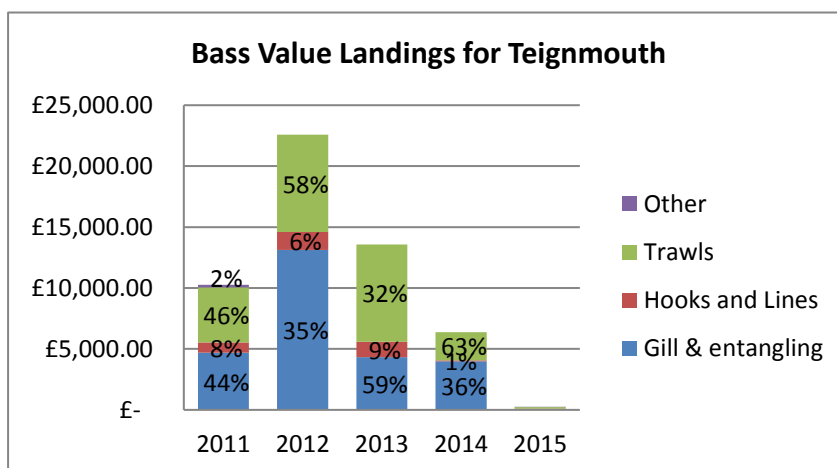


Figure 22: Values of landings of Bass into Teignmouth 2011-2015

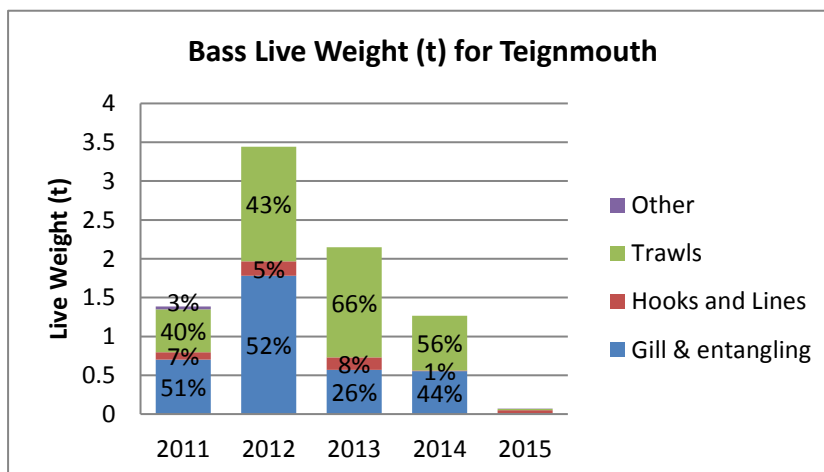


Figure 23: Landings of Bass into Teignmouth 2011-2015

#### **iv. Is there seasonality of bass and mullet fisheries at these ports?**

In order to investigate whether there is seasonality of the landings of bass into the four ports described in iii. above, the cumulative counts per month for all boats that landed bass in 2015 were calculated and the results are shown in Figures 24 -27. The data were simply analysed and would warrant more in-depth investigation of the seasonality for all five years and this could also be compared to the netting survey results that took place in 2014. However from the counts of boats landing bass per month some seasonality can be seen for each port. Both Bideford and Plymouth vessels landed more bass in the last 6 months of the year. This might be indicative of the boats increased ability during these months (especially over the summer) to go to sea outside of the Taw Torridge Estuary or Plymouth Sound. Bass is known to increase in numbers in inshore waters in the summer and autumn months and this seasonality is reflected in the number of vessels catching bass with gill and entangling nets over this time. Bass may well be caught during these months on reef habitat and potentially around wrecks but it is not known to what (if any) extent gill netting for bass occurs on and around reefs.

For Salcombe, the larger number of vessels (three or four boats) that land bass using gill and entangling nets do so in the early months of the year (January to March) when the bass nursery area is open to drift netting. For 2015, September was also seen to be a key month for landing bass.

For Teignmouth 2014 and 2015 figures were used for Figure 27 because of the low level of reported landings to see if there is any apparent seasonality. Teignmouth landings follow a similar pattern as Plymouth and Salcombe landings which increase in the latter part of the year over the summer month and into the autumn.

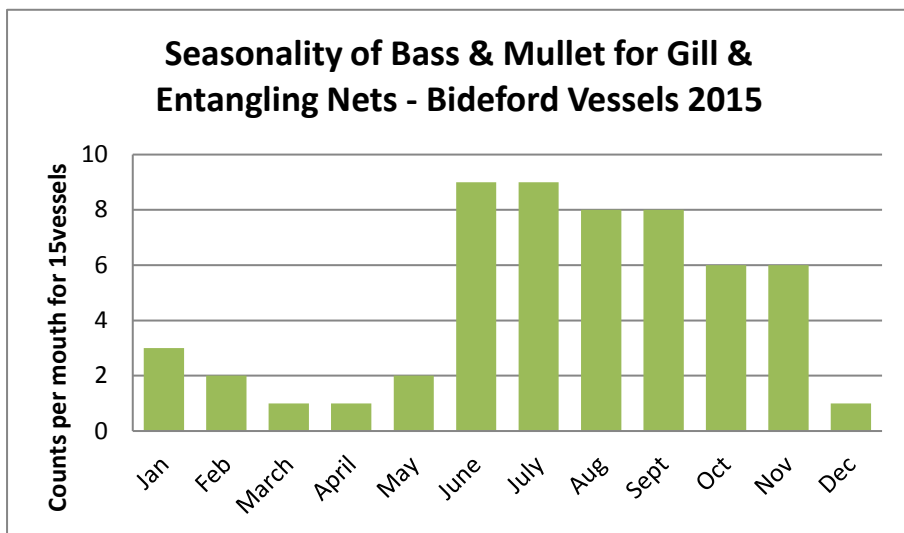


Figure 24: Number of Bideford vessels landing bass per month by gill and entangling nets

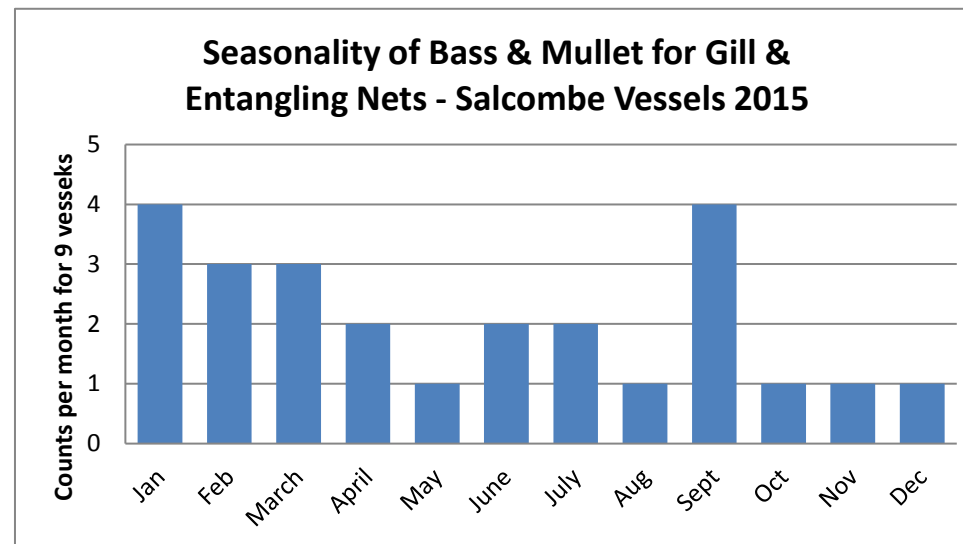


Figure 25: Number of Salcombe vessels landing bass per month by gill and entangling nets

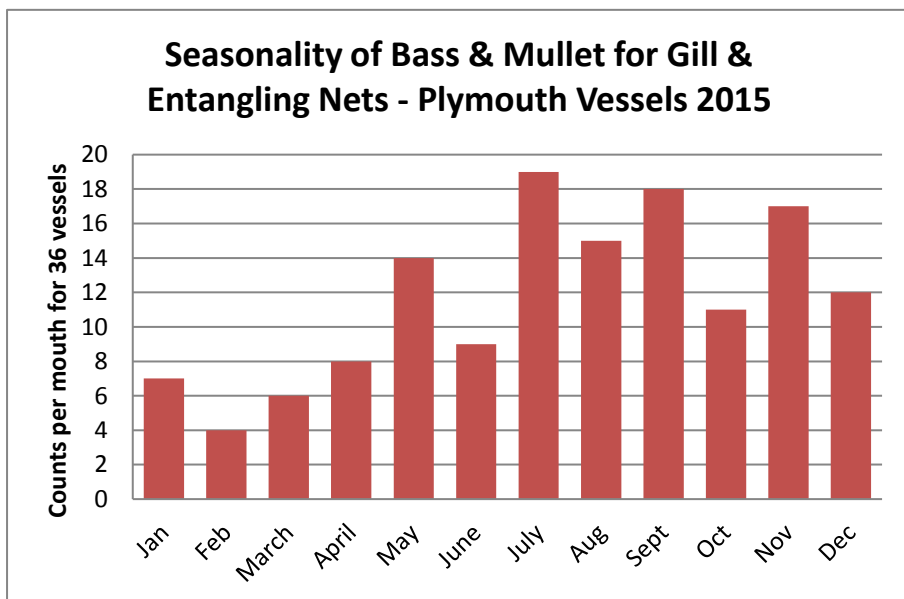


Figure 26: Number of Plymouth vessels landing bass per month by gill and entangling nets

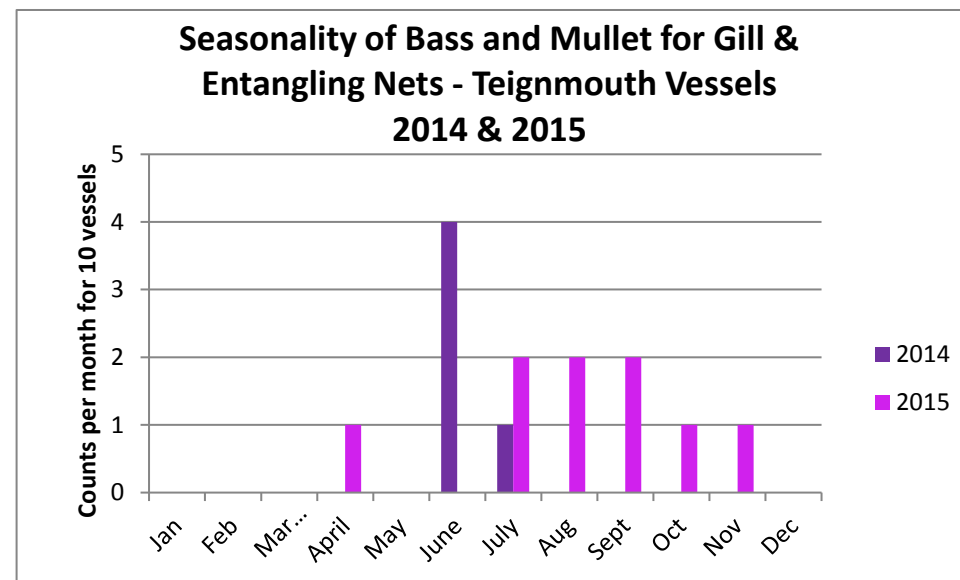


Figure 27: Number of Teignmouth vessels landing bass per month by gill and entangling nets

**vi. From past data will the 2016 EU regulations on the commercial landings of bass have an impact on the fishing industry?**

To investigate this question only data for Plymouth vessels were analysed, as a sub sample of the whole dataset. Ninety five vessels' landings data for 2015 from all gear types were scrutinised. The 2016 EU Regulation state that hook and lines and fixed gillnets are permitted 1.3 tonnes of bass per vessel per month in January and then from April through to 31<sup>st</sup> December and other gear types can land 1.0 tonnes per month from 1<sup>st</sup> July to 31<sup>st</sup> December.

From the landings data the vessels that landed quantities of bass exceeding 1.3 tonnes for the year were extracted and their monthly landings are displayed in Figure 28. In total only seven vessels landed annual totals of bass exceeding 1.3 tonnes. Only one of these vessels had monthly landings of bass that came close to 1.3 tonnes allowance, which was Boat 2 in January 2015. This vessel is a trawler and under the new Regulations has a bycatch allowance of 1% per month for the first six months of the year and a limit of 1 tonne per month from 1<sup>st</sup> July to 31<sup>st</sup> December. The only other vessel that exceeded a monthly allowance of 1 tonne was a gill netter Boat 5 which was still within the 1.3 tonnes limit. Therefore in answer to question iv. for the Plymouth vessels' 2015 data the new Regulations would not have an impact on the bass fishery.

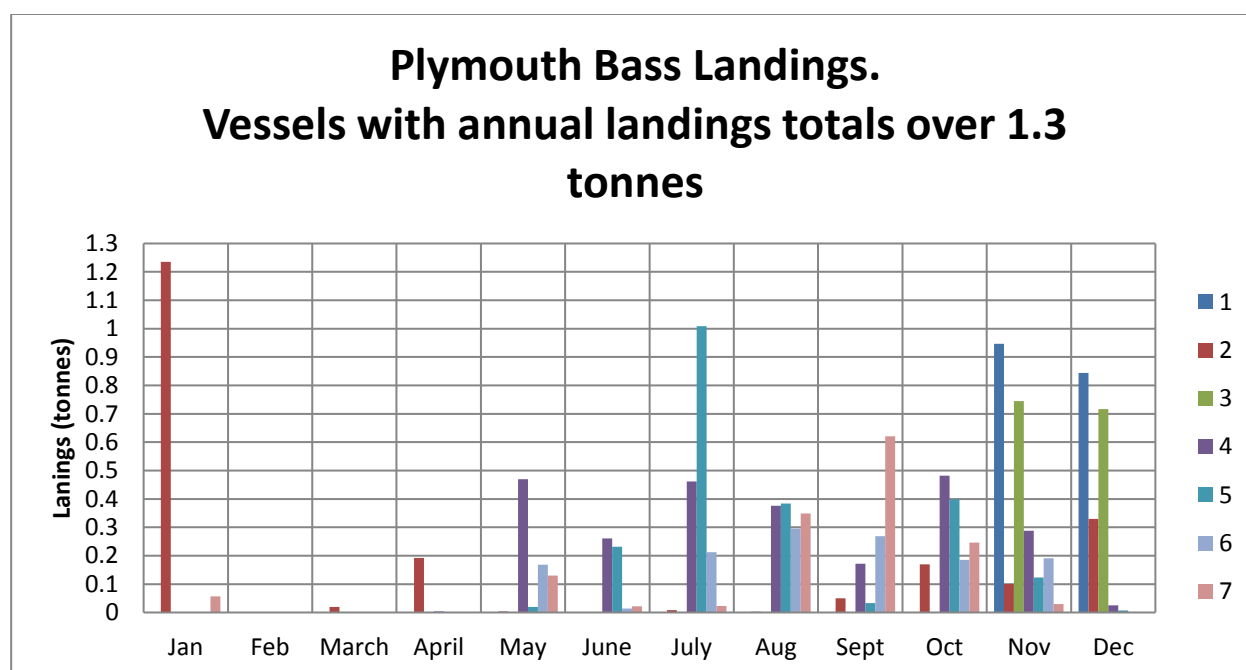


Figure 28: Vessels from Plymouth with total annual landings exceeding 1.3 tonnes.