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for people and wildlife

Environment Agency

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Southern IFCA
64 Ashley Road,
Poole, Dorset
BH14 9BN

Our ref: EA/Pre-Cons/2018
Your ref:
Date: 6th December 2018

Dear Rob,

Netting Review - Environment Agency Pre-consultation Response

Thank you for progressing the netting review in the Southern IFCA District. The Environment Agency welcomes the furthering of this area of work as we consider it vital in ensuring that migratory salmonid stocks are afforded an adequate level of protection whilst within the marine phase of their life-cycle reflecting the risks posed by netting activities.

Please consider this letter as the Environment Agency's response to the Southern IFCA pre-consultation on the netting review which is currently underway and closes on the 7th December 2018. We have set our response out in line with the questions in the consultation. We do not wish for our response to remain confidential.

We are of the opinion that the level of protection provided to migratory salmonids should reflect the importance of these species to the achievement of WFD objectives within freshwater, their statutory designated conservation status within SSSIs and Natura 2000 sites throughout the district, and their UK Biodiversity Action Plan (BAP) designations. There should also be due consideration to the socio-economic value and benefit to iconic, internationally important freshwater fisheries within the South East and South West River Basin Districts which are dependent upon a surplus of these fish species over and above the level necessary to maintain self-sustaining stocks. We would also like to make Southern IFCA aware that the UK Government is a signatory to the NASCO convention which seeks to implement a precautionary approach towards the management of Atlantic salmon stocks where there is uncertainty in the available evidence.

Question 1: Do you agree with the proposed harbour and estuarine net management areas measures for the Southern IFCA district?
No, the Environment Agency cannot agree with the proposed netting regulations as they currently stand, owing to the fact that we do not believe that they go far enough in providing an adequate level of protection to protect migratory fish species. The reasoning and evidence for this is as follows

a) The Environment Agency maintains that the netting review should extend beyond estuaries and harbours. This reflects the fact that migratory salmonid species will clearly be

present in and actively utilise estuaries and inshore coastal areas both for feeding and migratory pathways whilst within the marine phase of their lifecycle. This was highlighted to Southern IFCA in our letter of 10th February 2017. These boundaries do not confine the areas which migratory salmonids frequent. We understand that Southern IFCA committed to looking at harbour and estuary management as a priority, however we maintain that consideration also needs to be given to coastal areas following this part of the review. This has already been partially considered with the inclusion of the Christchurch Box immediately beyond Christchurch Harbour entrance and Lyme Bay. It would be inconsistent to not consider the remainder of the coast. There is clearly value in considering these areas based on the precedent set in the above locations which have been shown to serve real benefit in terms of migratory salmonid protection.

We are aware from our intelligence and recent sea trout seizures in the District that there are areas of the coast where we have continuing issues with sea trout capture, as example on the southern side of the Isle of Wight. Research on sea trout on the River Axe in Devon, has demonstrated the mobile nature of sea trout stocks, with tag recoveries and coastal recaptures in large parts of the Southern IFCA Districts inshore waters- this evidence was provided to Southern IFCA in Appendix 4 of our letter to Southern IFCA of 10th February 2017. Sea anglers also catch migratory salmonids on the coastlines, highlighting their proximity to wider coastlines beyond the estuaries and harbours under consideration in this consultation- and a further potential source of evidence of salmonid presence in near-shore waters. There are also small freshwater systems that enter the marine environment along the coast where there are not necessarily defined estuaries, but that will be attractive to sea trout either for foraging in their vicinity or migration into the systems under certain conditions- such as some of the small river systems on the New Forests Solent coastline, or the Chines off the Isle of Wight. Coastal protection of inshore waters from netting would likely best protect migratory salmonids in these locations.

Early information from the SAMARCH project also demonstrates the utilisation of coastal areas by sea trout within Southern IFCA district- Appendix 1 sets out the information to date. We will continue to provide Southern IFCA with any new information from the SAMARCH project of potential relevance to the netting review when we receive it. We welcome the commitment of Southern IFCA to review netting in inshore waters (following estuaries and harbours) to protect migratory salmonids (amongst wider species) at the Technical Advisory Committee meeting of 22nd November 2018.

b) Within the wider parts of Langstone Harbour (Area No. 3) the proposed measures are potentially less protective than the current byelaw; Regulation of the Use of Stake or Stop Nets in Langstone Harbour, whereby in the current proposal there are no proposals to manage netting proposed for the wider harbour in any of the channels. We see this as a risk of weakening the protection provided by current legislation for sea trout.

c) In September 2018 we have obtained new survey data which demonstrates the presence of Atlantic salmon on the River Wallington which flows into Portsmouth Harbour, with juveniles recorded within the river demonstrating spawning success in recent years. This change indicates that the net management proposals currently being considered for Portsmouth Harbour and the Wallington Estuary should be re-evaluated to ensure that they will be fit for purpose for salmon protection as well as sea trout.

d) We have noted that Weymouth Harbour (associated with the River Wey known to support sea trout), has not been offered protection through the net fishing management proposal. We would seek for this to be addressed. Whilst we recognise that netting is prohibited by Harbour Byelaw, this is for navigational purposes. On this basis we do not believe that any netting occurs currently within the harbour. Elsewhere in the district where a similar situation has arisen, Southern IFCA has sought to include the estuary and/or harbour within the review to prohibit netting for fisheries protection purposes. Weymouth Harbour which forms the River Wey estuary is a notable omission.

e) We also do not agree with the seasonal timing of restrictions as adult sea trout and salmon kelts migrate back to sea to resume feeding once they have spawned in November and December respectively. Therefore, within estuaries and sensitive inshore coastal water areas it is vital that adequate protection is provided all year round from fixed and drift nets. In locations such as the wider Poole Harbour (Area No. 23) and the Christchurch Box (Area No. 20), clarity is sought as to the types of bottom net that can be utilised between 1st November to 28th February and 1st October to 14th February respectively within the proposal. In the Christchurch Box outside of 15th February to 30th September, the current byelaw restricts this to bottom nets only, we seek clarification of what Southern IFCA defines as bottom nets.

f) Conservation status of salmon stocks in the Southern IFCA district designated as SAC and SSSI rivers are all in less than favourable condition with all populations classified as 'Probably at Risk' or 'At Risk'. In the past legal judgements based largely on impacts on salmon have prevented major development taking place in locations such as Southampton Water. The current proposals do not take a precautionary approach to net management in every estuary/harbour/ area of near-shore water through which salmon must migrate.
Stock status on sea trout Rivers within the District is also currently less than is required to support sustainable populations on many of the principal sea trout rivers, of which five are also designated as SSSI. Further work is required to ensure the netting review proposals that impact upon the functionally-linked habitat of these designated species provides appropriate protection for migratory salmonids.

Question 2: In areas where a minimum headline depth restriction of 3 metres has been proposed (Southampton Water and Lyme Bay), do you feel that the risk to salmonid interception will be suitably mitigated? If no, can you suggest an alternative approach?

The headline restrictions depth of three metres will partially reduce the risk to salmonid interception. In relation to Southampton Water, the habitat is considered functionally-linked to the River Itchen SAC. Unless it can be demonstrated through a Habitats Regulations Assessment (HRA) that three metres can be justified in acceptability in terms of the protection that it provides to Atlantic salmon and quantify the residual risk to salmon, we would advise that a five metre headline should be re-considered for Southampton Water (Area No. 9). Five metres is considered to be best practice in the Environment Agency 'Review of Protection Measures for Atlantic salmon and sea trout in Inshore Waters'. This is supported by research in Scotland from Godfrey et al. 2014, summarised in the above report that highlights that 72-86% of salmons time is within 0-5m depth, and 79-90% of the time between 0-10m. Movement to best practice would guarantee that this element of any proposed management scenarios may not require further evidence provision through the HRA process. That said we are now aware of very recent data emerging from the SAMARCH

project which suggests that sea trout are undertaking regular dives to depths of greater than 20 metres within daylight hours rising to the surface at night- see Appendix 2. This evidence will be developed further over coming years but clearly indicates that sea trout are not confined to the top five metres of the water column. It would be useful to consider the realistic difference in netting opportunity that the difference in headline restrictions pose in Southampton Water in terms of potential implications of this change to commercial fishing interests, as well as considering whether a net prohibition rather than headline restriction would be more appropriate in terms of the protection provided given the links to the River Itchen SAC (which will need to be considered in an HRA).
We do not have any concerns about the three metre headline in Lyme Bay as we do not have any evidence that demonstrates that this is not currently providing adequate protection. It is also aligned with the 3m headline restriction in the western part of Lyme Bay in Devon and Severn IFCA District. The Environment Agency accept that there is potential to consider different headline heights in the district due to the habitat differences associated with an area of open coast compared to an estuary associated with feature of a Protected Area in Southampton Water.
The Environment Agency has concerns about the enforceability of headline restrictions. Unless a net is on the surface, headline restrictions are more difficult to enforce than spatial limitations on where nets can be operated. Any depth headline restriction if within a final proposal, should specify as being at any state of the tide.

Question 3: Do you agree with the proposed pier net management areas measures for the Southern IFCA district? Please provide a rationale.
The Environment Agency has no specific view on this aspect of the netting review proposals, but can see the value in de-conflicting issues between net and rod fisheries and enhancing opportunities for angling. We support the exclusion of nets around features such as piers that aggregate fish stocks and create areas which migratory salmonids may frequent. We would also consider that this aspect of the review should take account of the socio-economic value of recreational sea angling and the contribution it makes to the local economy and social health and well-being.

Question 4: Do you agree with the principles for the definition of ring net use? Please provide a rationale.
No, we are not satisfied that the incorporation of ring netting into the proposals provides adequate protection to migratory salmonids in sensitive locations. We therefore object to the inclusion of these nets within estuaries frequented by migratory salmonids. For estuaries and harbours that are considered functionally-linked to SAC rivers for salmon, we would expect Southern IFCA to have the necessary evidence to demonstrate that ring nets do not pose a potential risk of interception to migratory salmonids. Under S153 of MACCA, IFCAs are expected not to use the lack of available evidence as a justification for not taking action. Indeed, IFCAs are expected to take a precautionary approach to fisheries management and not allow the absence of data from implementing actions to protect the conservation of flora and fauna dependent upon the marine environment. Clearly, this includes migratory fish species.

This precautionary approach will be essential in order to incorporate a netting methodology of this type through a HRA. In other work, the Environment Agency have utilised the approach that a maximum of a 1% risk to an SAC rivers salmon population is the maximum

acceptable risk. The Environment Agency have provided all of the evidence that we have and cannot demonstrate zero risk to migratory salmonids associated with ring nets. We are not certain that with the current evidence base (though there is potential for further evidence to be obtained from this pre-consultation process) that ring netting impacts on SAC salmon populations can be demonstrated to be only 1% in waters that lead into these rivers- especially as ring netting as set out in the proposal definition is not believed to currently occur in those areas such as Christchurch Harbour. This would result in the precautionary principle needing to be applied and ring netting also being subject to year round closure for Southampton Water and Christchurch Harbour. Any HRA process would need to consider the potential for an increase in ring netting to occur with the current proposals given that fixed nets and drift nets have been proposed for greater restrictions.

The key areas of concern are;
a) If the 500g weight that aids shooting of the net also in reality anchors the net to the extent that the net is temporarily fixed we would seek to understand legally (for regulatory purposes) how this differs in description to that applied legally for a fixed net. The definition used in the Devon and Severn IFCA Netting Permit Byelaw (2018) states;
“Fixed net” means a net that comes into contact with any part of the foreshore or sea bed or any object or structure thereon or therein;
It is therefore possible that in addition to the weight to shoot the net, that if shot in shallow water a ring net could be legally considered as a type of fixed net. We seek clarification on this issue, especially as this definition differs to that which we use in the Salmon and Freshwater Fisheries Act.

b) The Environment Agency would object to a definition of ring netting that states 'A ring net shall not be set across any more than 75% of the width of a channel or creek'. We would not accept any ring netting within defined channel areas. We would consider that in extensive harbour areas such as Poole spatial zoning would be more appropriate in terms of allowing ring nets to target sea fish if they are shown to be targeting sustainable fisheries. Avoiding defined channels and areas where salmonids congregate prior to river entry is essential to minimise the interaction risk between salmonids and ring nets. We would consider defined channels to be those that are buoyed or staked. Any estuary (in the consultation maps generally identified as areas that are striped and labelled 'Year-round closure to all net use, except ring nets'), where salmonids will naturally congregate would best protect migratory salmonids by complete exclusion of ring nets.

c) The EA has significant concerns over the enforceability of the above type of condition (proportion of net across a channel), though we consider it vital that netting is managed in a way in which migratory salmonids are not impacted by the method proposed to be utilised. We cannot see any way around this but to exclude ring netting completely spatially in the most vulnerable areas- the most sensitive parts of all estuaries, and for wider harbours in all defined channels- those which are buoyed or staked. This will also allow fishers to be certain about compliance with any proposed byelaw.

d) There is nothing currently within the ring net definition that prevents in-combination risk of multiple ring nets. Within the current definition and proposal there is potential for ring nets to be used by multiple users resulting in the blocking of a full channel width posing a complete barrier to salmonid migration. There is also no inclusion of anything which restricts ring net

effort- on this basis under the current proposals ring nets could be set at all times of day, by as many fishers as wish to partake in the fishery. This requires further consideration not only for ensuring adequate salmonid protection but also to ensure that the marine fish species being targeted are sustainably exploited.

e) The ring net exception is currently noted against many places where ring netting does not currently occur. Where ring netting does not already occur we would not want to see emergence of ring netting activity to these locations which may be especially sensitive to the activity in terms of potential interaction with migratory salmonids such as defined channel areas and narrow reaches of channels within estuaries where migratory salmonids congregate where this could pose a greater potential risk (which is unquantifiable as the activity does not currently occur in the location).
The ring netting definition is potentially not relevant to some of the locations where there is a specific exception for it such as Lyme Bay and the Christchurch Box. Were a ring net set in locations such as Lyme Bay it would likely drift, and potentially act more as a drift net than a ring net- as the ring net definition as proposed does not have a headline restriction included, this would be of concern to the potential interception of migratory salmonids. In places where ring netting could not be utilised as a technique to target shoals of marine fish without potentially increasing the vulnerability of migratory salmonids, the exception to allow this technique should be removed.

f) The ring net definition clause that allows the net to be set against the shore poses an issue in terms of it potentially mirroring seine netting activity that historically targeted migratory salmonids. As example the mouth of Christchurch Harbour, the ring net definition as stated in the clause if a net were set within the mouth of the harbour on this SAC river (potentially with a gill net mesh), would plausibly encounter large numbers of salmon and sea trout. It is also within the main channel area, where interactions of salmonids would be very likely. Further spatial restriction to avoid these most sensitive locations is especially important (given the concerns raised in point b).

We have an in principle objection to allowing any netting inside estuaries without adequate evidence indicating that the risk to migratory salmonids is negligible. We would be grateful to see the IFCA monitoring data of ring net catches (with location data) to be able to demonstrate that migratory salmonid bycatch is zero to demonstrate that there is no potential risk of interaction, in areas where ring netting continues to be proposed.

Question 5: From your experience can you describe the likelihood of catching a salmon or a sea trout in a ring net?
It is our belief that there is limited ring netting activity that currently occurs in the Solent. As a result Fisheries Officers who patrol this area do not have any observations of ring nets capturing migratory salmonids (or other fish species). In Wessex, despite observing ring net activity (particularly in Poole Harbour), we do not have any direct observations of anyone capturing a salmon or a sea trout in a ring net. However we have anecdotal reports of salmon and sea trout capture occurring in the district in ring nets, but it has not been possible for our Officers to confirm this to date. This information infers that ring net interaction with migratory salmonids may not be zero as originally suggested. None of the information received has stated that salmon or sea trout have been dead in a ring net. However following interaction with a salmonid being caught in a ring net we would anticipate for this to

negatively impact upon future survival to spawning with an increased risk of mortality at least indirectly if not directly.
However, based on the presence of a gill net mesh occurring in an area frequented by migratory salmonids, it is likely that there remains a potential for interaction. Given the use of gill net mesh it is unlikely that migratory salmonids that do interact with the net this will be un-impacted by this. Mesh size utilised to target mullet or bass is likely to overlap with that able to capture salmon or sea trout. We need to consider that an increase in MLS for mullet could potentially lead to increase capture of salmon and or sea trout in ring nets should that be the outcome of the other part of this consultation. Whilst the soak time of a ring net is potentially less than a fixed or drift net, the EA do not believe that the likely impact will be zero.

Question 6: From your own experience are there any steps that can be taken to avoid catching salmon or sea trout in a ring net?
The EA does not have any direct experience of ring netting beyond observations from enforcement work (which are limited due to the technique not being prohibited in any way). However based on our expert judgement we would advise the below would be worthy of consideration;
Setting a ring net on the main migration pathways of migratory salmonids i.e. in close proximity to river entrances (and narrow harbour entrances that act as pinch points to migration) or in wider harbour areas in channels should be prohibited. It is likely to be necessary to consider further spatial zoning restrictions beyond those within the current consultation proposal to ensure that the ring netting definition is both enforceable and protective of migratory salmonids in harbour areas. Prohibiting the deployment of ring nets in defined channels, would minimise the risk of potential interaction between ring nets and migratory salmonids, especially as it is understood that mullet fisheries typically target the species on shallow areas of mud. It should be noted that these measures are unlikely to make the potential interaction with migratory salmonids zero, but would reduce the risk from that in the current proposal which we believe to be unacceptable due to a lack of precaution.

Question 7: What would be your preferred option for the minimum size of grey mullet species in the Southern IFCA district? Please provide a rationale.
The Environment Agency would support the minimum size increase within Option 4 (A grey mullet (all species) MLS of 47cm) or Option 5 (species-specific minimum sizes to L50). These options give the best ability to take on-board best scientific evidence to protect mullet species. We would also ask for consideration to be given in terms of slot size management, protecting the largest most fecund individuals. Mesh size would also be of value to be considered, to minimise mortality associated with under-sized fish, which is potentially an increased risk with increasing MLS in mullet.
The Environment Agency has an interest in the protection of mullet as a component of the fish community classified for Water Framework Directive in Transitional and Coastal Waterbodies. The fish community is classified in Southampton Water (as Good Ecological Potential in 2016), and in Poole Harbour (as Good Ecological Potential in 2016). It is important to ensure no deterioration in the fish community under the Water Framework Directive.
The Environment Agency have analysed in more detail the mullet data collected from Water Framework Directive Monitoring in Southampton Water. This short report is presented in Appendix 3. This suggests catches of grey mullet are highly variable between seasons and years. Total annual catches (of all mullet species analysed collectively) across Southampton

Water indicate a potential decline in abundance over the 12 year survey period. Over recent years (since 2014), numbers of thick-lipped mullet have been declining and numbers of thin-lipped mullet have been increasing in Southampton Water.
In light of this information we would ask Southern IFCA to ensure that any fishery exploiting mullet species in the District is sustainable (as they are required to for any sea fisheries resources). This could include consideration of other options such as a temporal seasonal restriction to protect spawning periods that have not yet been considered.
This will ensure that any WFD deterioration risk associated with any potential decline in the mullet species that form part of the classification will not materialise.

Question 8: Do you agree that the proposed measures will

- **Support fish nursery areas;**

The proposed measures go some way towards supporting fish nursery areas. However the reality is that the proposed continued use of ring nets will still lead to removal of some adult species that utilise estuaries and harbours, reducing the future potential for juveniles to return. The greatest gain is in those areas that are completely closed to netting in this regard- Wootton Creek, Newtown Harbour and the Western Yar.

- **Provide areas of refuge for fish;**

The proposed measures go some way towards providing areas of refuge for fish- though the reality is that this is currently only in a number of areas limited geographically to several estuaries and harbours on the Isle of Wight and 100m areas around piers, with all other locations still currently allowing at least ring netting in the proposals. Within the areas with year round closure to all net use, it is presumed that marine fish can still be targeted by rod and line recreational interests so they are not necessarily truly fish refuges- to ensure that they are would require catch and release of all species caught by anglers to also be considered. It would be helpful to clarify whether this is intended to be the case in Wootton Creek, Newtown Harbour and the Western Yar to demonstrate whether these truly are fish refuges with zero exploitation potential proposed. This is not currently likely to be the case around piers unless 100% catch and release by sea anglers is adopted.

- **Provide protection for migratory species, such as salmon and sea trout?**

The proposed measures go some way towards providing protection for migratory species such as salmon and sea trout, however they do not go far enough considering the conservation status of the stocks classified as either 'At Risk' or 'Probably at Risk'. They are a marked improvement from the current situation (both temporally and spatially), but require improvements to ensure that necessary and adequate protection is in place for salmon and sea trout. Further work is needed to understand the risk that ring nets pose to migratory salmonids, especially should level of ring net activity increase as a result of other methods of fishing being further restricted. Coastal areas require greater consideration beyond the Christchurch Box and Lyme Bay. There are key areas where we anticipate there to be issues on the coastline particularly with sea trout capture.

Question 9: How do you believe net fishing by recreational users should be managed?
The EA believe netting by recreational users should be managed to ensure that they do not pose a risk to migratory salmonids through bycatch. Much of our intelligence of illegal netting

focuses on unregistered, unlicensed vessels a high percentage of which are associated with commercial fisherman or those with a commercial fishing connection. Netting from these vessels are known to pose higher risks to migratory salmonids. It is equally important that recreational users' activities do not pose a risk to migratory salmonids. Permitting options should be considered, with the requirement to submit catch returns to obtain a better understanding of exploitation levels of all marine species. This reflects the fact that recreational netting interests are unlikely to be able to sell their catch which would otherwise act as a means of managing and assessing their activities. It is not yet clear how the IFCA would intend to address this issue. The EA is aware that Devon and Severn IFCA have limited all netting within their estuaries and made it a requirement for all recreational netters to have a permit and a limited size of net. This helps to ensure that all of those utilising inshore waters to fish conform to the same standards. Other options might be to consider quota options to reflect quantities of fish that can be considered truly recreational.

Question 10: How would you like to see fishing nets marked in the district?
We would like to see all nets clearly and obviously marked in the District with vessel details. Although the proposed method restrictions will mean that most nets in estuaries and harbours will be attended full time, clear marking of nets will mean that any lost nets will have clear ownership associated with them. Clearly marking all nets beyond estuaries and harbours will facilitate better management should any issues arise.

Question 11: What are the anticipated costs or benefits to you as a result of these measures?
There are numerous benefits associated with the proposed measures (which need to go further to protect migratory salmonids to ensure complete achievement of these benefits as set out above):

- Increased survival of a greater proportion of salmon and sea trout populations to spawning.
- Improvements towards reaching eight Principal Salmon and Sea Trout Rivers egg management targets (which in these catchments are not assessed as meeting population management or conservation targets currently).
- Positive step towards achieving two SACs Favourable Condition (for the Atlantic salmon interest feature) under the Habitats Regulations.
- Protection of salmon and/or sea trout in the functionally-linked habitat of five SSSIs.
- Improved management of the estuarine and harbour areas of 25 rivers which support salmon and or sea trout (including those designated above), to protect the migratory route of these species.
- Fulfilment of Southern IFCAs contribution towards delivery of Salmon Action Plans
- Delivery of Southern IFCAs role in meeting its contribution of the Salmon 5 Point Approach (element 'Further reduce exploitation by nets and rods').
- Protection of sea trout foraging in Southern IFCA district whose natal rivers extend beyond the district boundaries- inclusive but not necessarily exclusive of rivers from Devon and Sussex.
- Prevention of deterioration under the Water Framework Directive for fish classifications both in River and Transitional and Coastal Waterbodies.

- Contribution towards restoring stocks in rivers where there are Water Framework Directive fish classification failures of which trout absence is a key factor. Significant investment is being put into addressing fish passage in catchments. If fish do not successfully enter the freshwater catchment due to being intercepted by nets at sea this will at best case delay recovery of the overall fish classification and at worst case could be wasted investment within catchment and failure to achieve Good Ecological Status under the Water Framework Directive. Willingness To Pay (WTP) values are available for each river catchment that consider the willingness of the public to pay for riverine WFD classification improvements on a km basis. On the river catchments in the Southern IFCA districts figures vary from £4001-£5619 per km depending on the overarching river catchment. These figures could be considered to better understand the value of restoring good ecological status or good ecological potential in-river and protecting fish with potential to migrate into each river catchment.
- Spatial and temporal coverage of byelaws reflects current scientific evidence of what is required to protect migratory salmonids in inshore waters.
- Potential to increase migratory rod licence sales (an annual migratory rod licence is £84), with anglers knowing that migratory fish are not being intercepted by nets in near-shore waters and will be less likely to be net-marked leading to an improved angler experience.
- Increased angling opportunity for both sea anglers and migratory salmonid anglers. Note that the Environment Agency has funded a study; A survey of freshwater angling in England an economic valuation of angling in England. This shows that freshwater anglers contribute an estimated £1.4 billion a year annually to the English economy, supporting up to 27,000 full time equivalent jobs, through their spending on the sport (in 2015). Relevant economic information from this report for salmon and sea trout anglers for the South East River Basin District and South West River Basin District, which Southern IFCA district spans are here;

Salmon and sea trout anglers spent just under £0.5 million in the South East RBD in 2015. Similar amounts were spent by district-based anglers and visitors (£0.21 millionand £0.26 million respectively).
Salmon and sea trout anglers spent around £1.3 million in the South West RBD in 2015. More than a half of this expenditure (£0.88 million) was made by district-based anglers.

- Potential to further increase the values of local salmon fisheries (which are already considered to be of significant value (present capital value is calculated as ~£58.7M based on the four catchments with fish counters the River Test, River Itchen, Hampshire Avon and Frome), with increase in stocks the estimate of the fishery value will increase. The current value of an individual salmon is £16,341 (adjusted for inflation since Radford, 1991).

The economic value figures for each river where available were provided to Southern IFCA in our letter of 10th February 2017 in Appendix 1. Individual rivers figures in the Southern IFCA district have subsequently been adjusted for inflation and the most recent complete years of salmon Returning Stock Estimates (RSE) from fish counter data and are now as follows (based on five year RSE, 2013-2017 and the value of a salmon); River Test- £18.64M, River Itchen- £10.88M, Hampshire Avon- £10.82M and Frome- £11.82M. This does not take account of the economic benefit of the sea trout fisheries also on these rivers which could be as high if not of higher value, the sea trout fisheries on the 21 other rivers within the District

that the proposals will benefit (the Wallington, Meon, Lymington, Stour, Piddle, to name a few).
Regard should also be made to the contribution the proposals will make to the value of freshwater fisheries in neighbouring IFCA districts especially of sea trout foraging in Southern IFCA district whose natal rivers are outside the District (evidenced as happening from research on the Axe), which have potential to be caught currently. This information is available for Devon and Severn District in Appendix 4.

There are the below costs associated with these changes:

- There is potential for there to be in an increased cost of fisheries enforcement associated with increased regulation (due to regulations being across all estuaries in the district, where previously netting was not subject to restrictions). It is anticipated that future use of IVMS will to some degree mitigate the increases in enforcement (for the Environment Agency and Southern IFCA) associated with this.

Question 12: Are there any further comments you would like to make on the impact of the proposal?
In our view, further work is needed specifically on where ring nets are permitted to be used within the district (we advise that they should be excluded from estuaries and defined channels within wider harbours). Greater consideration is needed in Southampton Water and Christchurch Harbour to ensure that SAC salmon populations are adequately protected and finally the review needs to extend the work from Lyme Bay and the Christchurch Box to consider wider inshore coastal areas.
Portsmouth and Langstone Harbour require further consideration as in Portsmouth we have new information of a salmon population establishing, and in Langstone the proposals are in parts of the harbour potentially less protective than the current byelaw protection from certain types of netting.
We look forward to working with Southern IFCA to develop these proposals further to ensure that they fulfil the protection of migratory salmonids through estuaries, harbours and inshore waters that we seek.

Yours sincerely,

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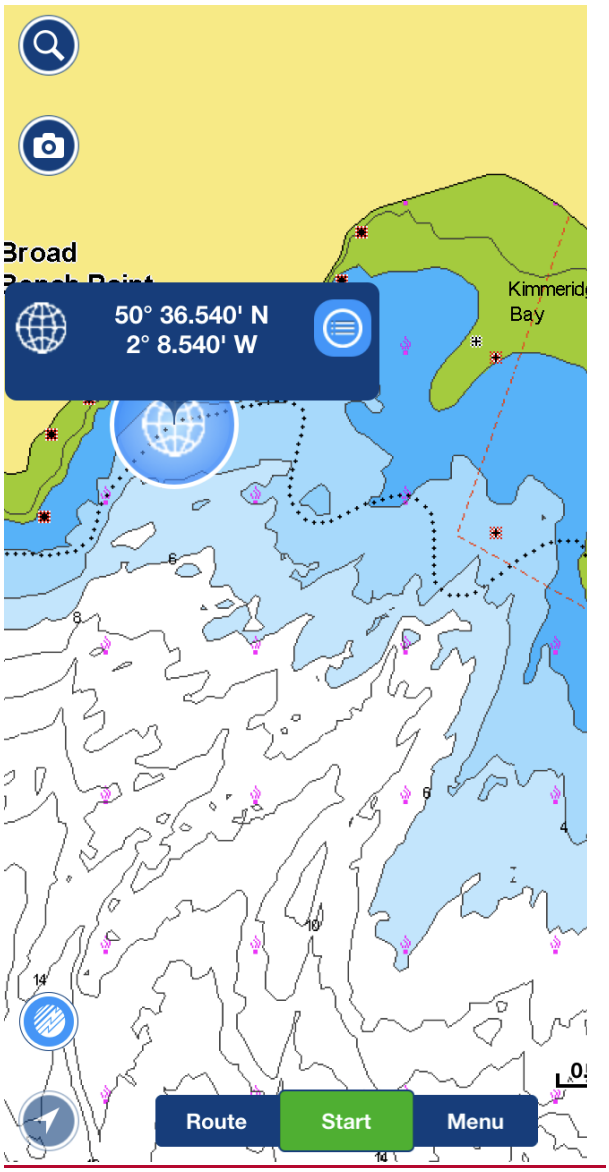
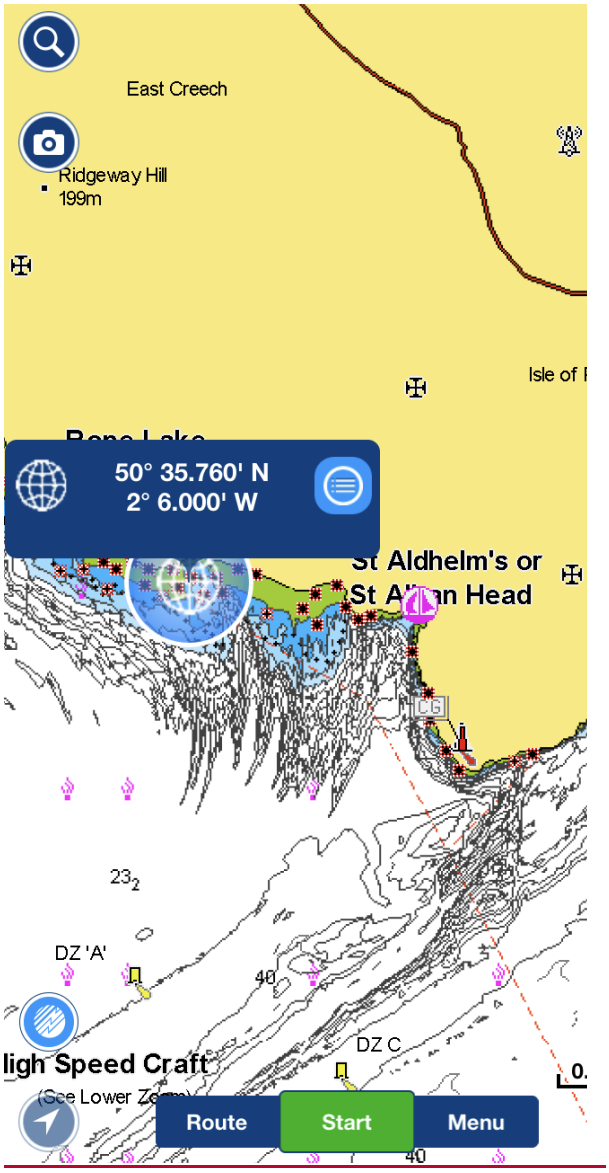
Appendix 1: SAMARCH data on coastal capture in nets

Initial findings from the SAMARCH project, highlighting sea trout being caught in coastal nets.
Data is plotted to demonstrate spatial information. Note that off the Dorset coast netting in 2018 was conducted on a single further occasion resulting a nil catch. This demonstrates that there is potential for nets set to capture sea trout, with capture in a high proportion of nets, albeit those targeting sea trout.

Date	Co-ordinates	Length mm	Weight g	Sex	Gonad wt g	Comments
08/06/2018	50 36 55 / 002 08 54	527	1429.8	F	7.8	West side of bay, 3-5 m water dep caught in upper water level
30/06/2018	50 36 55 / 002 08 54	462	1239	F	3.4	West side of bay, 3-5 m water dep
30/06/2018	50 35 76 / 002 06 00	456				Top of net and attacked/part eate





Appendix 2: SAMARCH data on depth of water used by sea trout

Initial work from the SAMARCH sea trout kelt tagging on the Tamar has shown significant variability in the depth of water utilised.

The full results in 'Vertical behaviour of a sea trout kelt from the river Tamar: A preliminary analysis' (shared with Southern IFCA on 07/11/2018) from Artero Celine at the Game and Wildlife Conservation Trust are available. However, of key interest is the daylight hours being spent at greater depth.

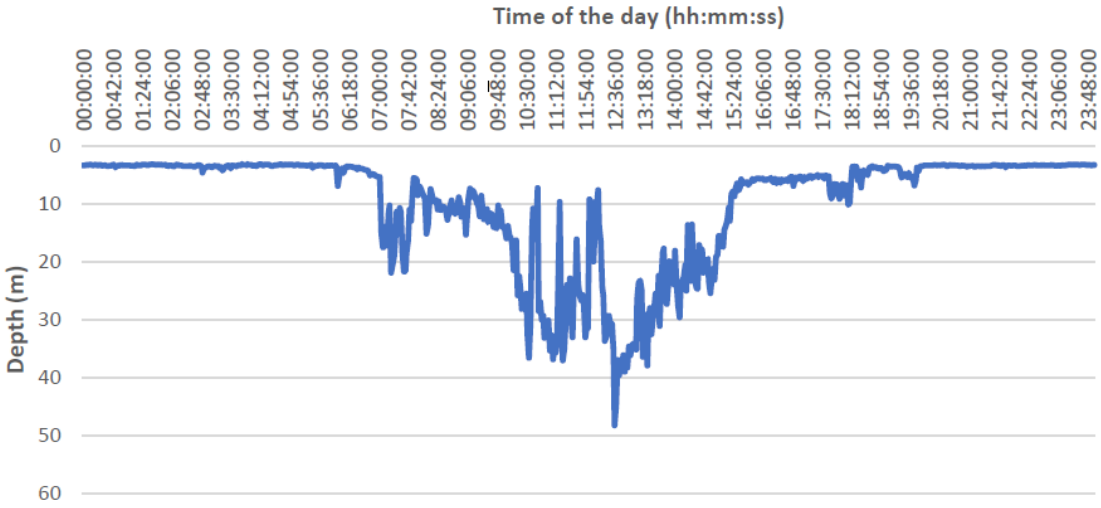


Figure 2: Example of the daily vertical activity pattern of the sea trout.

Environment Agency

Grey mullet in Southampton Water: 2007-2018

Our Transitional and Coastal (TraC) fish monitoring programme involves the use of a range of survey methods, which, in combination, allow us to monitor the presence and diversity of estuarine fish species over time. The programme was not specifically designed to assess the abundance of fish populations, however, as the methods have been applied consistently over the 12 year survey period, the number of fish caught across the surveys can be used as an indicator for any temporal changes in abundance.

TraC survey sites: Southampton Water

In Southampton Water, three different netting techniques are employed over the 10 survey sites shown above; seine netting, fyke netting and beam trawling. TraC surveys are completed annually in spring (usually in May) and then repeated in autumn (October).

Grey mullet are predominantly sampled during the beach seine surveys. Fish that are over 5cm in length are recorded as either thin lipped, thick lipped or golden grey mullet. However, fish that are 5cm long, or smaller, are impossible to confidently identify to species level in the field, so they are recorded as grey mullet.

When the TraC monitoring programme was initiated, formal fish identification training had not been implemented. Therefore, species level data for grey mullet from the early years is potentially unreliable and consequently, to prevent inaccuracies, the total number of all grey mullet caught is used here. Data from all Southampton Water TraC surveys from 2007 to 2018 has been combined in order to look for any long term trends in the abundance of grey mullet.

Figure 1 shows the annual catches of mullet (i.e. the total number caught in spring added to those caught in autumn) from 2007 to 2018. As only autumn TraC surveys were carried out in 2016, data from this year has been omitted. Although there is variability in the annual catches between years, the linear trend line indicates that there has been a decline in the total number of grey mullet caught in Southampton Water (Fig. 1).

Catches of grey mullet vary seasonally and annually and more grey mullet are caught in Southampton Water in the autumn TraC surveys than in the spring. Figures 2 and 3 show the total number caught in spring and autumn respectively and reveal that the catches in spring are less variable than in autumn.

Spring catches have typically been below average with all catches since 2012 falling below the long-term mean (Fig. 2). There is a less consistent pattern in autumn, however, 8 out of 12 survey years have fallen below the long-term mean (Fig. 3).

It is important to note that as all three grey mullet species have been combined, any changes within or between the individual species is masked here.

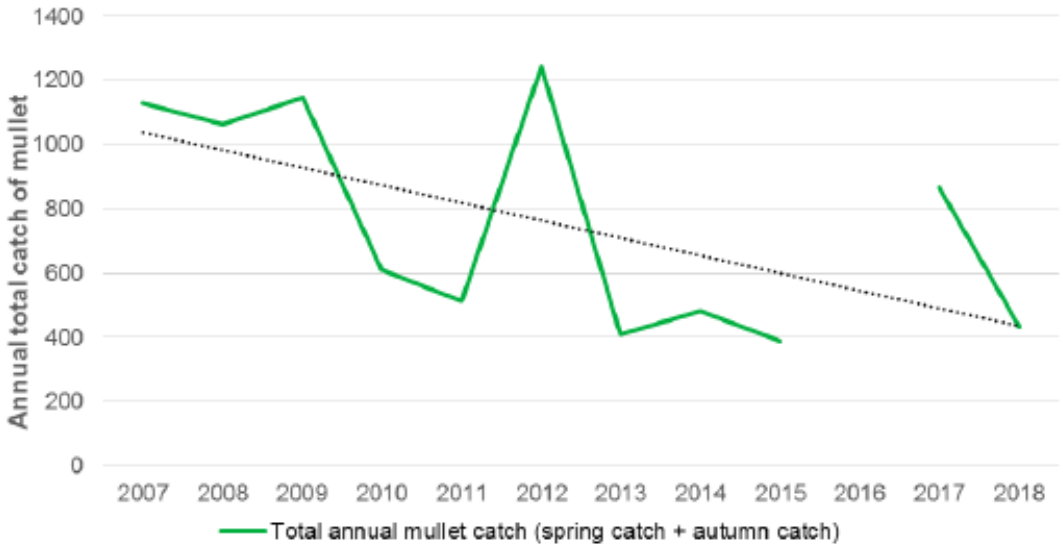


Figure 1. Total annual catch of grey mullet (spring plus autumn): 2007-2018 alongside the linear trend line

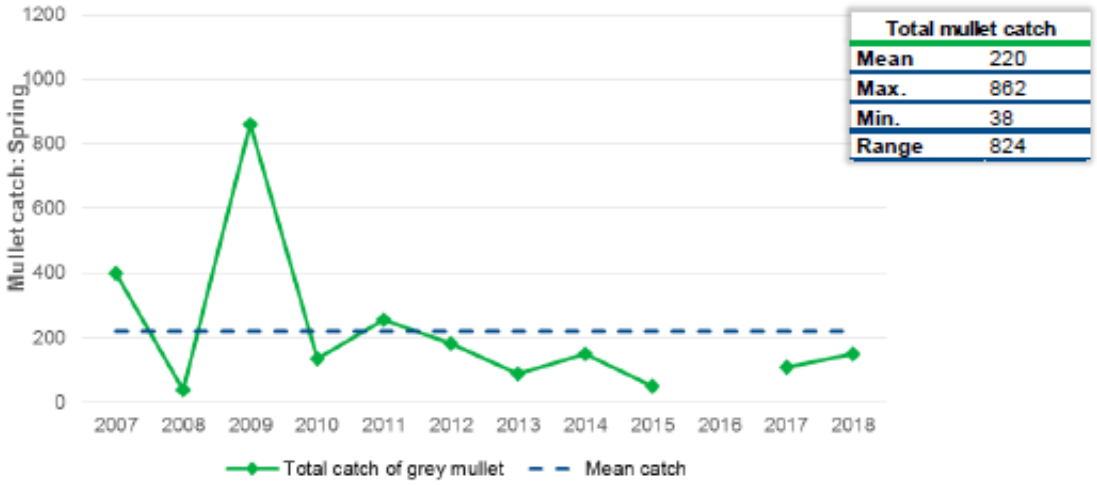


Figure 2. Total catch of grey mullet, spring TraC surveys: 2007-2018

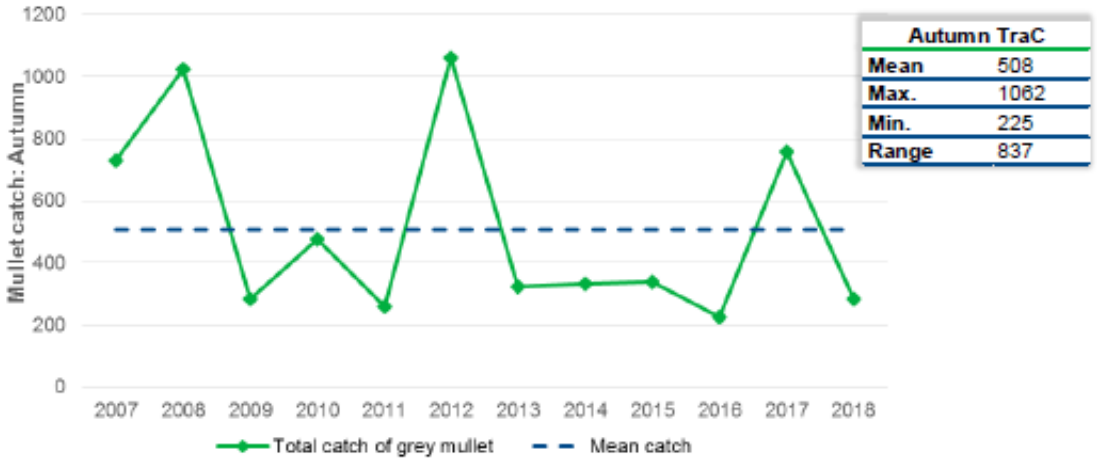


Figure 3. Total catch of grey mullet, autumn TraC surveys: 2007-2018

Grey mullet data collected over the past 5 years is considered far more reliable and therefore the individual grey mullet species can be analysed separately. Figure 4 shows the total catches of thick lipped, thin lipped, golden and <5cm grey mullet from autumn TraC surveys. Spring TraC have been omitted due to missing data for 2016.

Grey mullet <5cm make up the majority of the catch and their abundance appears to correlate with numbers of thick lipped mullet (Fig. 4D and 4A). Thick lipped and thin lipped mullet show opposing trends, with thick lipped mullet declining and thin lipped mullet increasing over recent years (Fig. 4A and 4B). Numbers of golden greys are more variable and they are less prevalent in comparison to the other species (Fig. 4C).

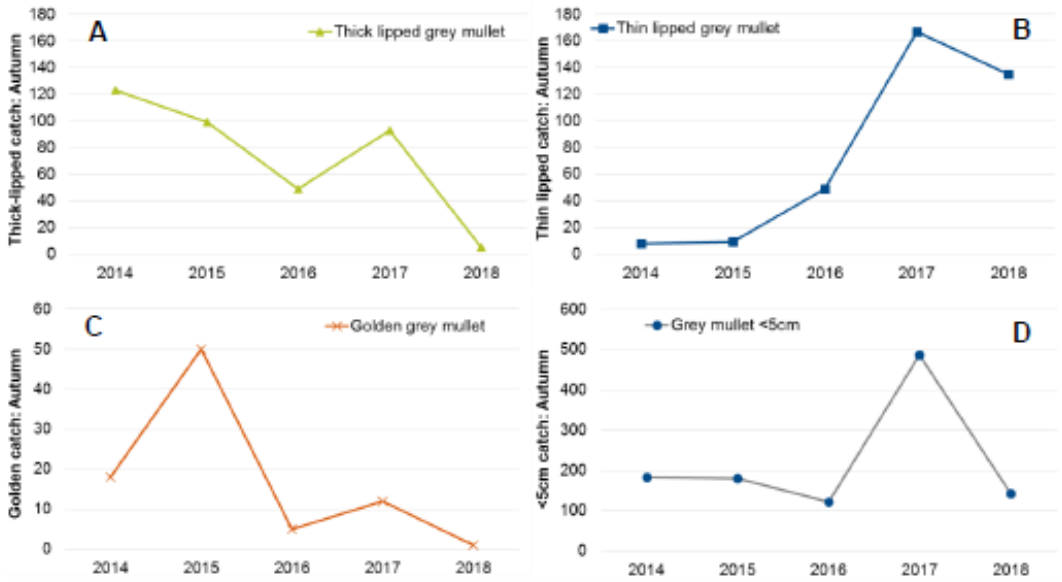


Figure 4. Catches of thick lipped (A), thin lipped (B), golden (C) and <5cm (D) grey mullet. Autumn TraC surveys: 2014-2018 (note the different scales on the y-axes)

Summary

- Catches of grey mullet are highly variable between seasons and years.
- Total annual catches across Southampton Water indicate a potential decline in abundance over the 12 year survey period.
- Fewer mullet are consistently caught in spring TraC surveys than in autumn.
- Over recent years (since 2014), numbers of thick lipped mullet have been declining and numbers of thin lipped mullet have been increasing in Southampton Water.

Georgina Busst, Analysis and Reporting, November 2018

Appendix 4: General Information on principle migratory salmonid rivers in Devon and Severn IFCA district

Including economic valuations

Rivers	Principal Salmon/ Sea trout river?	SAC (salmon as interest feature)	SSSI	SAP	Conservation Status	Predicted conservation status	Economic Value £ millions
Taw/Torridge	✓	✓(Taw)		✓	PaR	PaR	6.6 / 1.74
Lyn	✓			✓	PaR	PaR	3.8
Axe	✓			✓	PaR	PaR	0.4
Otter	✓				PaR	PaR	unknown
Exe	✓		✓(Barle)	✓	PaR	PaR	8.81
Teign	✓	✓		✓	PaR	PaR	2.02
Dart	✓	✓		✓	AR	AR	2.02
Avon	✓	✓		✓	PaR	PaR	0.58
Erme	✓	✓		✓	PaR	PaR	0.16
Tavy	✓	✓		✓	AR	PaR	2
Plym	✓			✓	PaR	PaR	0.4
Yealm	✓	✓		✓	AR	AR	0.14
Tamar	✓		✓(Shad)	✓	PaR	PaR	12
						Totals	40.67

PaR Probably at Risk AR At Risk