



Salmon & Trout Conservation to Southern IFCA net fishing byelaw formal consultation

S&TC was established as the Salmon & Trout Association in 1903 to address the damage done to our rivers and wild fish stocks by the polluting effects of the Industrial Revolution. S&TC is the UK's leading campaigning wild fish charity. We work to increase awareness of the growing need to protect our wild fish stocks and the rivers, lakes and oceans upon which they depend. Our aim is to achieve better protection for wild fish, water life and their habitats, employing policies supported by sound scientific evidence.

This statement is made by S&TC concerning the Southern IFCA (SIFCA) Net Fishing Byelaw Formal Consultation. Our concerns cover, in particular, the future protection of migratory salmonids and the potential for significant impact on these stocks as by-catch in netting activities regulated by SIFCA.

At this current time with stocks highly threatened and at risk, or potentially at risk of failing their conservation limits, every single fish counts towards sustaining the populations within each individual river. This is true for all populations of Atlantic salmon and sea trout within the Southern region but particularly true for the genetically unique and highly protected chalkstream populations of Atlantic salmon in the Avon, Frome, Piddle, Test and Itchen. Mortality caused by accidentally catching even a relatively small number of individuals from these rivers may have a significant impact on the stock and must therefore be avoided.

The only steps that can be taken to avoid catching salmon or sea trout – is to abide by the precautionary approach. Therefore, we reiterate our view from the previous consultation, that the spatial protection for migratory fish should be far wider than that proposed. Migratory salmonid protection requires coastal (“without the headland”) as well as estuarine and harbour protection from netting. We believe this can only be achieved via the imposition of a 1-mile coastal net-free zone – the ‘Golden Mile’ initiative. With the aim of protecting vital migration corridors as well linking together the essential fish habitat required by migratory salmonids throughout their life cycle.

As proposed, S&TC does not support the net fishing byelaw as it simply does not give highly protected and at risk salmonids the protection required to allow them to safely undertake their migrations both to the marine environment for feeding or for their safe return to freshwater to spawn. Both of these transitions between freshwater and marine environments are periods where migratory salmonids are highly vulnerable to damage and mortality that can be caused by netting activity.

As also presented previously, research being carried out by the [SAMARCH](#) project, of which we are a partner, supports this need for increased spatial protection. S&TC believes this is especially relevant for sea trout, which tend to stay close to the coastal zone while foraging for food in their marine phase and are therefore vulnerable all year (individual fish may spend more than one winter in the sea, and so regulation must consider the probability that sea trout will be present in the coastal zone for 12 months of the year). Sea-trout smolts from southern chalk streams can be significantly larger than 15cm, with sea-trout smolts up to 30cm being found in the river Frome, where the Game & Wildlife Conservation Trust (GWCT) have collected a very robust dataset, and in this size range, migratory fish of 17cm and over have been shown to be vulnerable to capture by gill nets. Their swimming depths and opportunity to come into contact with netting activity is also key. Sea trout smolts are known to

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take longer than salmon smolts to migrate through their estuaries so they will be vulnerable for a longer period.

Any netting, including ring nets, will pose a risk to migratory salmonids year-round (salmon may not be present at certain times of the year, but sea-trout are present in coastal waters year-round). Therefore, protecting migratory salmonids from exploitation is impossible if any netting is allowed. Ring nets are basically gill nets shot to encircle fish, and any fish that are gilled are unlikely to survive being released. It will not be possible to release unharmed all migratory salmonid intercepted by ring nets as a by-catch. **S&TC believes that ring-netting should be banned year-round to provide adequate protection for migratory salmonids, especially sea trout.**

We would also like to take this opportunity to highlight some serious reservations about the proposed byelaw:

Firstly, it is overly complicated in having the three net fishing areas; Prohibited, Restricted and Permitted, which will make monitoring and enforcement far more challenging. It would appear to be more robust to have only two. There are two options to achieve this, either have Net Prohibition Areas and Net Restriction Areas, or have Net Prohibition and Net Permit Areas; otherwise the catch of all species managed by SIFCA and the effort undertaken by fishing vessels in landing them cannot be properly controlled and monitored, which are both vital for sustainable fisheries management. Will the SIFCA actually be able to monitor the Net Fishing Byelaw robustly enough and in practice be able to collect the right catch data to allow the fisheries to be managed sustainably? Will all salmonid by-catch interactions actually be recorded, in all areas?

We also have reservations with:

Site Assessments:

The evidence presented in the Site Assessments is simply not robust enough. It can only be stated that ring netting is low risk if this has already been proved by significant evidence of no harm. Currently that significant evidence does not exist for each site fished, as very low numbers of netting outings have been observed at each site fished by SIFCA and EA Officers. There simply is not the actual current significant evidence that each individual site as fished across the entire time periods proposed, are indeed very low risk. However, this lack of evidence is then overridden by the risk management approach. This fact is acknowledged by SIFCA in the Conservation Assessment package.

“Therefore in the absence of robust scientific information relating to interactions between net fishing and migratory salmonids in a non targeted fishery, the Authority are applying the precautionary principle in a proportionate manner (based on likely risk) in order to determine the management of net fisheries within Functionally Linked Areas”.

In these areas with High Functional Linkage the Authority has made the right decision to Prohibit Netting. Which S&TC fully supports. In areas deemed to have Medium Functionally Linkage the authority has made Net Restriction areas. In areas of Low Functional Linkage the authority has made Net Permit Areas. S&TC does not support the management actions in Net Restriction Areas or Net Permit Areas as they simply do not go far enough to protect migratory salmonids whose populations are at risk or potentially at risk. The actions taken to protect salmonids are simply not proportionate or precautionary enough.

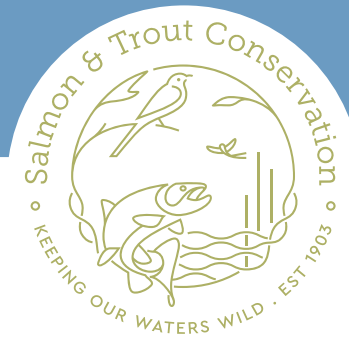
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Mis-classified areas:

The above will also apply to areas that seem to have been mis-classified. This is especially true for Christchurch Harbour and the Hamble. Christchurch Harbour is an enclosed area of water, and functionally linked known migration route to the Hampshire Avon SAC and SSSI, where due to the physical size of the Harbour and its confined nature it means that there will be an increased risk of interactions with migratory salmonids and nets. The same will be true for the Hamble Net Permit area, which has a shared estuary with the Itchen SAC and SSSI, and Test SSSI. This area will have populations of sea trout foraging in the estuary that will be put at unacceptable risk from ring netting. Salmon from the Itchen and Test will also undoubtedly be found in this Hamble area as they share a wider common estuary. A significant number of salmon are likely to explore this area before migrating up into the Itchen SAC and SSSI and Test SSSI, they will also be at unacceptable risk from netting. Recent work from Marine Scotland Science by Armstrong et al (2018) from fish tagged and tracked in Northern Scotland revealed that twenty percent of salmon entered multiple rivers before finally selecting their natal river and those salmon that did so took on average over a week longer for their migration. This delay in entering their natal river and the extra movement exploring would mean that salmon entering multiple river areas would potentially suffer higher risks from activity such as netting.

The Net Fishing Byelaw Literature Review noted that *“during periods of migration, salmonids are particularly vulnerable to gill nets set close to the shoreline and in or near estuaries to catch bass, mullet or flounder (Potter and Pawson, 1991)”*. This would seem very similar to the current situation in many estuaries in the SIFCA region, where gill nets, which would include ring nets set to target mullet, would still pose an unacceptable risk, particularly in confined estuary and harbour areas where there is a higher likelihood of interaction taking place with salmonids. It is apparent that the risk through the season will change, not just on the timing of the runs of migratory salmonids but also with the weather conditions.

The application of evidence for these areas does not seem to have been given the proper weighting that it deserves, both for their functional linkage and for essential fish habitats. It would be clearer if essential fish habitat assessments were put into some form of matrix, to clearly show the importance of features. This would give transparency to what appears currently to be rather subjective. For Christchurch Harbour the evidence for salmonid interactions also seems downplayed. For instance on page 101 of the Site Assessment Evidence Package, there is evidence of an interaction between migratory salmonids in Christchurch Harbour resulting from EA and Southern IFCA inspection. The net type and location is unconfirmed, but it is clearly stated that it is in ‘Christchurch Harbour’. For risk of migratory salmonid interactions with nets within this known migratory area, removing the main channel for Christchurch Harbour, should not automatically mean that the risk in the wider Harbour area then goes to low linkage/low risk. Salmonids will explore around the Harbour area at high tide, searching for main attraction flows, naturally they may then drop back and repeat this behaviour. There is obviously no physical wall between the main channel and the rest of the Harbour area as the risk assessment would simply imply, putting it as low functional linkage to the Avon SAC and SSSI. It should still remain as high functional linkage as a known migratory route.

As presented in the Site Assessment Evidence Package and Literature Review, radio tracking work revealed that when the flow in the River Avon is in excess of 13 cumecs, salmon tended to pass through Christchurch Harbour within 12 hours. As the river level falls below 10 cumecs then there is an

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increased tendency for salmon to remain in Christchurch Harbour for weeks or months until flows increase again. (Solomon and Lightfoot, 2008)

The temperature and flows of the river itself are therefore important to offering protection to salmonids, as it will dictate whether they can successfully migrate from the sea, through the estuary and into the river. The Literature Review states "*it is noted that Atlantic salmon are seen to be more vulnerable to interactions during periods of increased water temperature and associated low water flows, where their residence time within estuaries increases*". The literature presented clearly noted that survival in, and passage through, an estuary by migrating salmon was influenced by temperature. Temperatures above 16°C were associated with reduced migration in estuaries and rivers. Increased water temperatures were likely to represent a stress on migrating Atlantic salmon, often linked to lowered levels of dissolved oxygen. (Solomon and Sambrook, 2004). It was noted that half or more of the run of salmon could be lost during a hot dry summer. (Solomon and Lightfoot, 2008).

These environmental factors of flow, temperature and dissolved oxygen levels obviously greatly effect the behaviour of the fish and indeed their survival chances. It would therefore seem appropriate that they are considered in the context of netting, indeed they would also have a bearing on whether the risk of netting is appropriate.

For all salmonids dissolved oxygen levels are critical to survival, and cooler water provides higher levels of available oxygen. Certainly accidentally catching salmonids as by-catch, handling and removing them from gill nets and exposing them to air, will certainly cause them stress as well as the potential for damage and mortality. It is very likely that the temperature of the water will play a role in how quickly fish recovers and whether they continue to be stressed and become more susceptible to fungal infections particularly from any damage from netting, which may later lead to delayed mortality.

On rivers potentially at risk of failing their conservation limits, every single fish counts towards sustaining the populations within each individual river. Therefore the risks as outlined above should not be taken, Christchurch Harbour and Hamble should be Net Prohibition Areas. The same could also be said for risk of net interactions with ring nets in Christchurch Box. As noted the Christchurch Box area was originally defined by the Environment Agency under a legacy byelaw as it was identified as holding a high concentration of migratory fish as they moved close inshore to detect the run into the Harbour. These fish will still be at high risk of interaction with ring netting. Ring nets should not be allowed as a gear type in this Restriction Area.

(Christchurch Channels including the run area into Christchurch Harbour is a Net Prohibition Area. It would therefore seem an accidental oversight to include it in the Byelaw map for the Net Permit Areas, (the same is true for the main channel in Southampton Water). This should obviously be corrected to avoid any confusion).

Monitoring and control plans

The monitoring and control plans as currently proposed are not fit for purpose. Firstly, every time a vessel intends to undertake fishing activity within a net permit area, or indeed a net restriction area, prior notification of fishing activity should be an absolute requirement, otherwise SIFCA and the EA will not know where vessels are fishing and will not be able to undertake inspections. That requirement should be made a condition for all net fishing activity. This approach is already taken on

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the Hamble, in Areas 1-4, where four vessels which are licenced to fish in the specified areas, must report to Warsash HM before commencing fishing.

Net Permit Areas, the Net Permit conditions and the actual net fishing gear types should be clearly set out in the Byelaw, as has already been done for the Restricted Areas.

There are grounds for concern that some areas that have been classified as Net Restriction Areas, as they are functionally linked known salmonid migration routes, such as Christchurch Box and Wareham Approaches will still not receive an appropriate level of protection. As discussed already this is due to the level of protection provided from ring netting is not sufficient. However, in net restriction areas there also does not seem to be a mechanism to control overall effort. If effort increases it would directly increase the risk of by-catch of salmonids. There also does not seem to be a mechanism to ensure reporting of salmonid interactions in this area, as there is for Net Permit Areas. If gathering data to continue to assess risk is an aim then SIFCA must have a mechanism to also address this in Net Restriction Areas, returning salmonids and reporting should be compulsory for all fishers within the Byelaw.

For both Permit and Restriction areas it should also be clearly stated that all migratory salmonids that are caught by net fishing must be returned to the water. As a reminder this should be written on the physical permit. It would also be helpful to state that for any salmonid caught alive, 'a migratory salmonid interaction', should be returned safely following the Salmonid Code of Practice to maximise their chances of survival. It should then state that all dead salmonids and any live 'interactions' with migratory salmonids must then be reported as laid out clearly on the permit. The Salmonid Code of Practice could also be helpfully written on the permit.

Catch reporting to the MMO should also go direct to SIFCA. This would help SIFCA enable the sustainable management of all marine fisheries, as they would have all the catch and effort data that they require.

Economic case

As portrayed in the literature presented, ring netting is for the active targeting of sighted mullet. However, the overall economic case for supporting this as a fishery does not appear to make sense. The environmental and economic case for this has not been fully investigated in the impact assessment, as an accurate break down of catch by species caught is not available for all estuaries. The economic case put forward in the Impact Assessment is therefore flawed, as it is based on poor data, of best estimates. This potentially inflates the catch values used to support the economic case of netting, putting it out of balance with the conservation objectives of SIFCA. It certainly highlights the problem of lack of management data for catch and effort in the estuary fisheries that SIFCA manage.

To achieve sustainable fisheries management in the estuary and coastal areas that SIFCA manage, lack of data is an unfortunate position. It should have been possible for SIFCA to have put forward more accurate figures for the total catch and value of mullet for each estuary, if not at least the entire district, only then could its real economic value be truly assessed.

It might also be apparent that, if for example more accurate figures had been obtained for Christchurch Harbour, the value would be far lower than those presented. In reality it might show

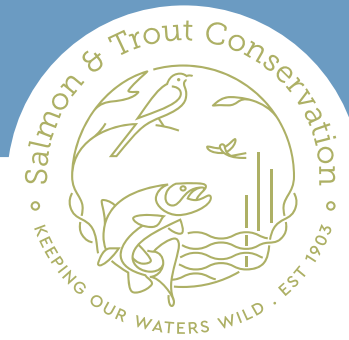
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that the potential value of mullet caught in ring nets would not objectively provide any significant economic value to the netting interest (Devon & Severn IFCA determined that the proportion of fisherman's household income from estuary netting from mullet was low and therefore prohibiting netting in all estuaries would not therefore make a significant economic impact upon the netsmen. The figures that were determined to be low were in a range of £1,000-£5000 per netsmen). The estimated figures determined by SIFCA for Christchurch Harbour were for a total value of £15,000 between four fishing vessels. This would therefore fall into the same range, being £3,750 per vessel, the same range as the Devon & Severn (D&S) IFCA findings. Therefore prohibiting net fishing in Christchurch Harbour could well in the same way be deemed to be a proportionate balanced response to SIFCA responsibilities, particularly when considering the wider benefits of definitive conservation for migratory salmonids in the Avon SAC and SSSI and importantly the wider benefits of protecting the juvenile marine stocks. Overall a net prohibition in Christchurch Harbour and other areas of low economic value like the Hamble where the combined value to the four fishers is approximated at £5,000 per annum, or £1,250 each would achieve far wider overall benefit to society, including contributing to the future sustainability of marine fisheries and therefore to the future livelihoods of the commercial fishing industry as well.

Best practise/other case studies

Specifically targeting mullet may also have wider ramifications, due to the by-catch of other species. Cornwall IFCA have prohibited netting in all their estuaries to specifically protect migratory salmonids and bass. D&S IFCA also came to the same conclusion and have prohibited netting in all estuaries for the same reason, but also to protect the mullet stocks which due to being a slow growing species are also vulnerable to increased fishing effort. The slow growth and maturation rate of mullet was one of the reasons that they chose to make the estuaries prohibited to netting to protect them and wider species. The other significant factor that they stated was that 'the increase in the minimum conservation reference size of bass to 42cm has already reduced availability of legal size bass within the estuary and continued access to estuary netting for mullet will promote discarding of bass, as mullet and bass stocks are impossible to target separately within the confines of an estuary'. In addition, the D&S IFCA also realise that in the past some fishers have targeted mullet as a means to continue to illegally take bass from estuaries. The D&S IFCA having prohibited netting in all estuaries have therefore accepted the view of the Byelaw and Permitting Sub-Committee that 'it would be impossible to allow estuary netting for mullet whilst achieving adequate protection for bass and migratory fish.'

D&S IFCA impact assessment noted that that estuaries do have larger aggregations of bass and in these areas the stock does become a targeted fishery therefore the decision to remove all netting activities in the estuaries would reduce the amount of bass that can be taken by the commercial sector and support the recovery of this species from over fishing.

The D&S IFCA concluded that the net prohibition in estuaries will support the provision of public goods in the marine environment. If this policy rationale were applied to Southern IFCA area it would quickly become apparent that all estuaries should be prohibited to netting to protect mullet, bass and migratory salmonids and the benefits to all of society would be great as marine and freshwater fisheries would be more sustainable for both current and future generations.

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Recent research undertaken by Stamp et al. (2021) tracking juvenile bass and sub-adults in South West of England estuaries, has significant relevance. The findings revealed that both juvenile bass and sub-adults showed very high site fidelity. Over fifty percent of juveniles and sub-adults were present in estuaries throughout the winter, when they may have been expected to be absent. Through the year many fish undertook short migrations around the coast to other nearby estuaries within 20km, whilst some took much longer migrations of over 300km, with 80% of these fish returning to the estuary sites where they were tagged. The management implications are that estuary and coastal nursery sites are essential fish habitat, which should be protected.

It might also be suggested that prohibiting netting in all estuaries and harbours where juvenile bass are present and within a mile of the coast, as already proposed for all migratory salmonids would also be a sensible measure to protect and boost declining stocks. The prohibition of netting by IFCA's in estuaries in Cornwall, Devon and Severn, certainly looks to have been the right starting place.

This poses significant questioning of the Net Permit Areas such as the Southampton Water, and particularly in the confines of the Hamble, both bass nursery areas, but also in areas where juvenile bass are caught or recorded in good numbers in SIFCA surveys, as demonstrated in Christchurch Harbour. We believe all estuaries locations with bass should be prohibited to netting year round.

The Authority have developed Essential Fish Habitat (EFH) Risk Components in order to determine the level of ecological value that an EFH may provide in supporting nursery, feeding or refuge for non-salmonid fish species, which may increase vulnerability to net capture. In developing a risk-based approach, the Authority are able to determine a proportionate management approach which is underpinned by precaution, as aligned with Southern IFCA's duties under paragraph (153) of the MaCAA.

Page 20 of the Netting Review: Process, Tools & Intentions 2021 document document says '*This approach is aligned with Defra guidance (Section 8.6) on the use of preventative and precautionary measures.*' It goes on to say 'in these situations, a precautionary approach would involve the IFCA taking proportionate action to address the risk whilst gathering further evidence to understand the issue better.. Please refer to Part C, Section 2.3 for information regarding Southern IFCA's intention to undertake a Research Project in areas of low functional linkage'.

On this point of gathering further evidence to understand the issue better.

Regarding Southern IFCA's intention to undertake a Research Project in areas of low functional linkage. At this current stage of proceedings, the direction of travel of this research is also very concerning. As stated in the Inshore Netting Review: Process, Tools & Intentions 2021 document "*The implementation of the Monitoring and Control Plan will allow the Authority to be confident that they are using the best available evidence when considering the ongoing management of net fisheries in harbours and estuaries under a Net Permit in areas which have a low functional linkage to a SAC and/or SSSI. The Monitoring and Control Plan will ensure that net fishing remains compatible with the conservation objectives of SACs (notably Atlantic salmon) and SSSIs (notably Atlantic salmon and /or sea trout as a component of a SSSI).*"

The first stage must surely be to ensure that significant robust evidence of no harm has been collected to show that ring netting is safe. This should be the first priority. It does not seem correct to be sidetracked from this by undertaking research on 'drift nets'.

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As noted in the Inshore Netting Review: Process, Tools & Intentions 2021 document.

2.6 Ongoing Evidence Collection – Research Project

'In conjunction with the ongoing management of net fishing within Net Permit Areas, Southern IFCA are committed to undertake a Research Project in order to improve understandings of potential interactions between the use of drift nets and salmonids in a non-targeted fishery. The outcomes of this Research Project will be used to inform the ongoing management of net fishing within Net Permit Areas'.

S&TC object to this research work, as it is already widely known that salmonids interacting with drift gill nets are at high risk of mortality, as it only takes a short period of time to kill a gilled fish, minutes not hours. It has already been clearly shown in the NFB Literature Review that salmonid interactions with gill nets is very damaging, using drift nets would certainly not be inline with the precautionary approach of protecting populations of migratory salmonids that are already at risk of or potentially at risk of failing their conservation limits.

The Literature Review also notes that *"Net activities such as fixed nets and drift nets with long soak times would pose more of a risk to the level of interaction, the degree of stress and exhaustion a fish suffers, and likelihood of delayed mortality should an interaction occur. Consideration should be given to the location, seasonality and any other operational mitigative measures of these net types (i.e., pinch points, channels, timing of the adult run, setting depth) to reduce the likelihood of interaction given the increased risk of delayed mortality"*. As argued previously any increased level of risk of mortality of migratory salmonids is totally unacceptable.

There is no need to look at the effects of surface, drift gill nets in non-targeted fisheries, because the evidence is already available that fish can be caught and not always successfully released to spawn successfully. This is available in the evidence presented in your NFB Literature review.

"Delayed mortality can occur as a result of a number of outcomes from interaction with fishing gear including direct injury caused by the gear, infection resulting from injuries caused and increased stress levels which can affect behavioural patterns (Makinen et al., 2000; Vander Haegen et al., 2004; Baker and Schindler, 2009 and Baker et al., 2010). For fisheries where Atlantic salmon are not the target species, it is likely that delayed mortality will be more common than direct mortality as fish are removed as bycatch and returned to the sea, however post-release losses from delayed mortality and associated failure to reproduce often go unrecorded and are very difficult to quantify (Nguyen et al., 2014)".

In the Site Specific Evidence Package page 129 for the Wareham Approaches it can be seen that the non-targeted fishery which catches grey mullet, bass, gilt head bream, plaice, flounder and herring, by three vessels using drift netting. There is evidence of a known interaction between nets and salmonids. Where a 6-8lb sea trout was caught in a side area of the Wareham Channel, using a surface gill net (drift) while an EA enforcement officer was present.

Would any released fish go on to spawn successfully. This we would not know, unless a very wide research study is undertaken, to also tag, release and follow fish to the spawning redds. To actually determine successful spawning genetic sampling would also be required (it is also very possible that with tagging failure etc not enough salmonids would necessarily be caught to gain robust results).

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However, even without any of those uncertainties, with uniquely valuable migratory stocks the risks to the fish from this kind of study would simply not be worth taking. Therefore with the current threatened state of salmonid stocks, at risk of failing their conservation limits, we reiterate again that drift netting research should not be allowed to take place.

For Lyme Bay, it is also noted in the Site Specific Evidence Package that “three vessels may occasionally use surface nets in this area. Surface net landings are generally dominated by bass with occasional catches of grey mullet species and other pelagic fish including shad. It is noted that bass are not allowed to be targeted under the national bass fishing guidance and the retention and landing of bass as unavoidable bycatch is only allowed with a bass authorisation. Fishing takes place throughout the year, usually during periods when the water clarity is low. For the socio-economic importance of fishing area, the estimated value from surface netting in the Lyme Bay area, based on first sale value, is in the region of £5,000 per annum.

S&TC consider that Lyme Bay is a well known migration route for local rivers such as the River Axe and River Otter, so the area would definitely play an important supporting role to the River Axe and River Otter as Principal Sea Trout Rivers. It will also be an important migration route for other threatened salmonid populations from significantly further away.

Evidence demonstrating a known interaction between nets and salmonids show that in May 2014 Southern IFCA and EA Officers recovered a fixed surface net in the Lyme Bay area, off Eype. Within the net were at least 4 sea trout. It can probably be safe to assume that if these fish were not already dead, they were very unlikely to survive.

To avoid this type of risk to salmonids, this is a good example of why netting should not be allowed to take place within estuaries, harbours or within a mile of the coast to protect salmonids along their migration routes. Huge benefits would be gained to both marine fisheries and migratory salmonid fisheries by creating a coastal net-free zone within this ‘Golden Mile’.

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