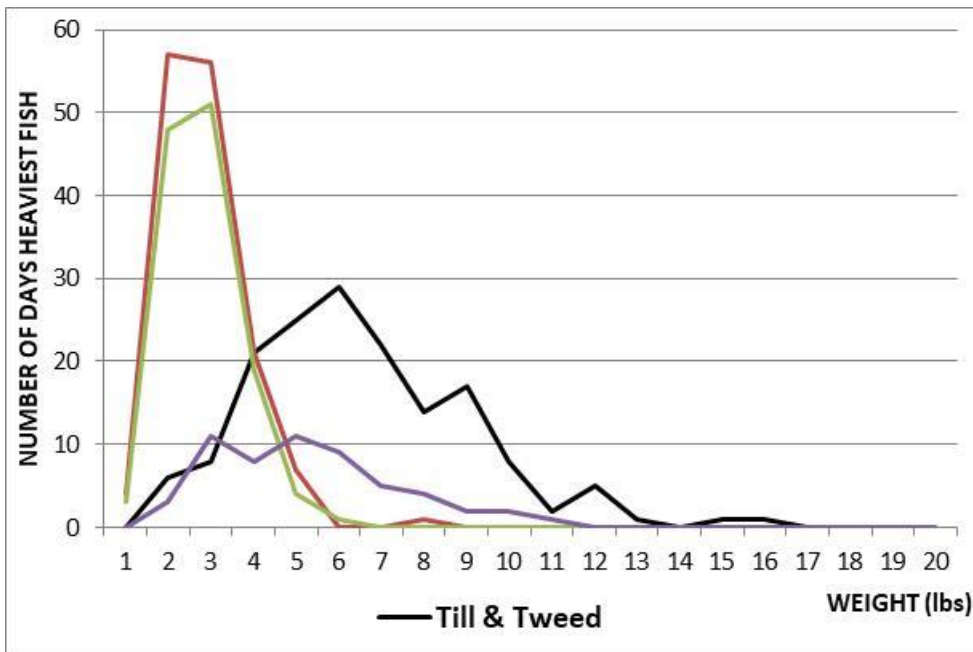




Review: The Sea-trout of the Tweed

The Sea-trout of the Tweed have been a rather neglected resource over the years. There was even an attempt to reduce their numbers when the 1859 Tweed Act exempted Sea-trout kelts from the protection given to Salmon kelts (which included Sea-trout kelts) in the 1857 Tweed Act and this seems to have remained the situation till the 1986 Act. This was known as the “*Tweed Exemption*” and typified a traditional Tweed angling prejudice against Sea-trout.

This was all the more puzzling since the Sea-trout of the Tweed are larger than those of the Scottish East coast generally, the Tweed belonging to a group of Northumberland and Yorkshire rivers whose Sea-trout have long been notable for the large sizes that they could reach. The size difference between Scottish East coast Sea-trout and “Northumbrian” fish can be shown by simply looking at the largest daily Sea-trout reported to FishPal websites (Graph 1):



Graph 1: The largest Sea-trout reported daily to the FishPal websites for the Tweed, Aberdeenshire Dee, Tay and Northumberland Tyne from April to mid-October in 2012 & 2013

Almost all the largest daily fish reported for the Aberdeen Dee and the Tay are just two or three pounds in weight, while for the Tweed and the Northumberland Tyne, the commonest reports are of five or six pounds, with fish over 10lbs for some days. The change in size between small East coast Scottish and larger “Northumbrian” Sea-trout happens somewhere between

the Forth and the Tweed and is due to a change in migration pattern. East coast Scottish Sea-trout make only short coastal migrations as shown by extensive tagging on the North Esk [1], while the Northumbrian populations make long migrations South and East (Map 1) as shown by large scale tagging of smolts on the Tweed and Coquet in the 1950s (and in other, smaller, tagging operations). The Dutch, German and Danish coasts where they go to feed make up the Wadden Sea (Waddensee) and its official listing criteria as a UNESCO World Heritage Site makes clear why it is such a good feeding area for Sea-trout:

“The Wadden Sea is the largest unbroken system of intertidal sand and mud flats in the world. The site covers the Dutch Wadden Sea Conservation Area, the German Wadden Sea National Parks of Lower Saxony and Schleswig-Holstein, and most of the Danish Wadden Sea maritime conservation area. It is a large, temperate, relatively flat coastal wetland environment, formed by the intricate interactions between physical and biological factors that have given rise to a multitude of transitional habitats with tidal channels, sandy shoals, sea-grass meadows, mussel beds, sandbars, mudflats, salt marshes, estuaries, beaches and dunes. The area is home to numerous plant and animal species, including marine mammals such as the harbour seal, grey seal and harbour porpoise. Wadden Sea is one of the last remaining large-scale, intertidal ecosystems where natural processes continue to function largely undisturbed.”
[\[https://whc.unesco.org/en/list/1314/\]](https://whc.unesco.org/en/list/1314/).



Map 1: Recapture locations of smolts tagged in the Tweed estuary 1951-54 by the Freshwater Fisheries Laboratory, Faskally [2]. In all, 18,504 smolts were tagged. The number recaptured is given in the circles, except where only a single fish was caught. The average number of days since tagging is also given for each area of recaptures. From 1951-57, 39,350 Sea-trout smolts were tagged in the R. Coquet and their recaptures showed exactly the same pattern as those of the Tweed [3], though some were taken off the North of Jutland in the same year that they were tagged. Some were recaptured two years after tagging, all back on the Northumberland and Yorkshire coasts. For both the Tweed and the Coquet, the tagging of Sea-trout kelts has given the same recapture pattern as for smolts

THE DIFFERENT STOCKS, SIZES AND RUNS OF TWEED SEA-TROUT

There is more than one type of Sea-trout in the Tweed, the most obvious being the Whitling* that run the Till and the Whiteadder but are much less common in the rest of the catchment and the earliest references found so far to them specifically mention these two tributaries as their main areas:

1792: “The water of Whitadder abounds in trout, but of no high flavour, nor rich in quality. There is also in this river a larger sort of fish, called a whitling; it is a large fine trout from 16 inches (40cms) to 2 feet (60cms) long, and well grown; its flesh is red, and high-coloured like a salmon, and of full as fine a flavour; it is a most delicate fish, and affords most excellent sport to the angler “ [4]

1834: “... Is the whitling taken in any streams in this part of the country except the Till?Not in Northumberland, that I am aware of, but it is caught in the Whitadder... I was out yesterday morning below Ford, and out of the seven that I caught, there were only two that were less than fourteen inches (35cms), and each of these measured a foot (30cms)” [5]

Review: The Sea-trout of the Tweed



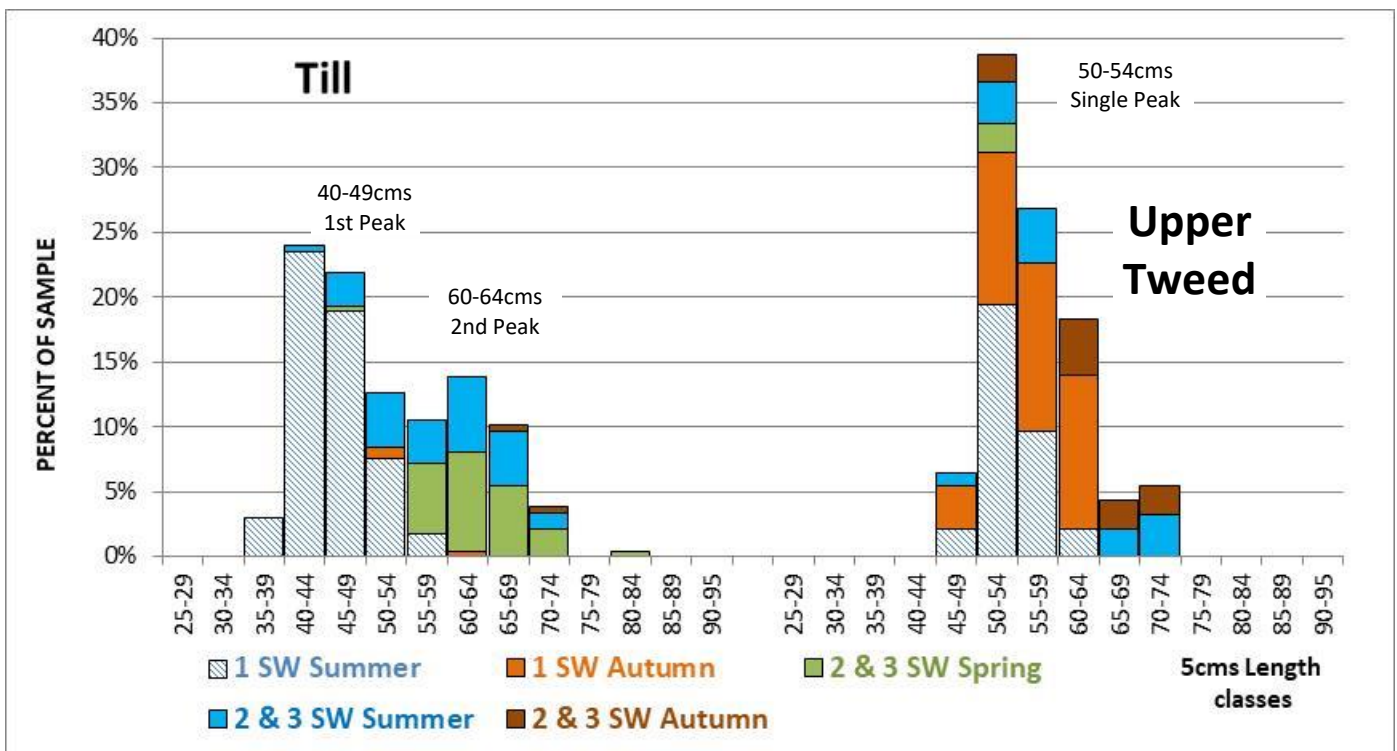
Their two most distinctive features are their early running (March to May) and uniform size. The Whiting of the Till run right into their home spawning burns from June onwards and can be found in very large numbers in some Cheviot Burns during the Summer, where they can be sampled (Photo 1), giving a range of information such as their 70% female proportion. The other Sea-trout of the Tweed wait till the Autumn before entering their home streams, too late for electric-fishing. The presence of Whiting in the Till gives a “double peak” to the sizes of Sea-trout caught there compared to the rest of the Tweed; one “peak” is at 40-49cms and another at 60-64cms, with a low point at 55-59cms between (Graph 1) For comparison, the fish from the upper Tweed have just a single size peak, at 50-54cms (Graph 1). Both areas have a lot of one-sea-winter (1SW) Summer fish (striped blue on the graphs), the difference is though that on the Till, these are smaller, 40-49cms, than on the upper Tweed, where they are 50-59cms. On the Till, these fish are the Whiting, which as they come back early in the season have less growth after their one Winter in the sea than the fish of the same age that go to the upper



Photo 1: Whiting in their home burn far into the Cheviot Hills in June, and still silvery from the sea

Tweed in July and August with a lot of summer growth after their one sea winter. There is some preliminary evidence from the chemical isotopes that can be analysed from the edges of scales (i.e. the scale growth put down during their last feeding period in the sea before return) that Whiting do not go as far out in to the North Sea as the larger Sea-trout of the same age. The other obvious difference is that the upper Tweed has a lot of Autumn Sea-trout while the Till has almost none.

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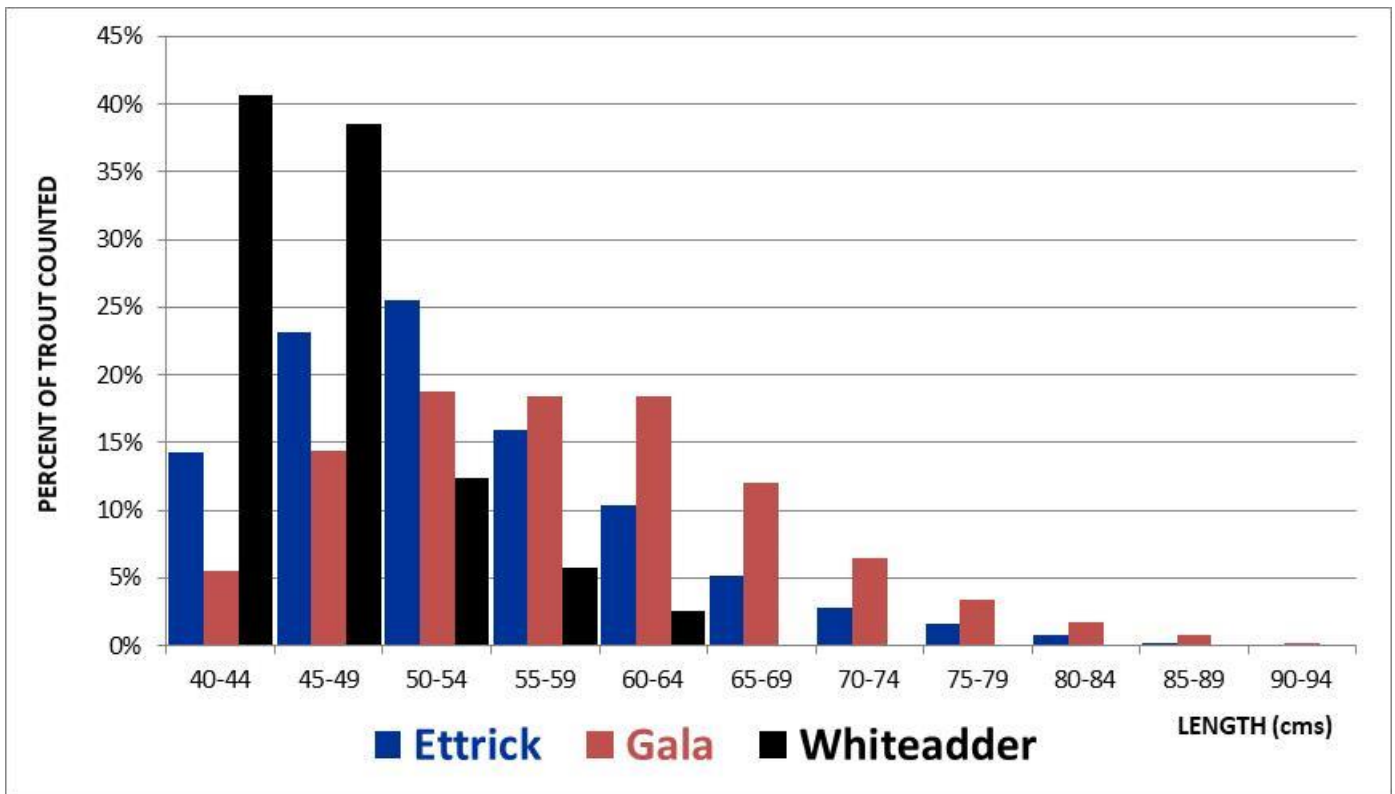


Graph 1: The sea-ages and sizes of rod caught first time spawning Sea-trout on the Till (238 fish) and the upper Tweed (93 fish). The seasonal differences are defined by the growth pattern on scales: Spring fish have no growth after their last winter in the sea, Summer fish do have growth, as do Autumn fish but the growth at the edges of their scales is slowing down as the effects of the approaching winter are felt.

Review: The Sea-trout of the Tweed



Size differences between different populations of Sea-trout can also be seen from fish counter data, as shown in Graph 2. Most of the trout over 40cms in length at the Whiteadder counter are, in fact, Whiting of 40-49cms, the same size as the Whiting of the Till (just as in the early references above). The Whiteadder counter is at Chirnside, upstream of the entry of the Blackadder, so these Whiting are heading to the upland parts of the Whiteadder catchment. There is, surprisingly, a size difference between the Sea-trout of the Ettrick and of the Gala, despite the fact they both join the Tweed within a short distance of each other. The Ettrick fish are generally smaller, not much more than Whiting size, but a few can get to 80cms or more. The largest component of the Gala fish are, however, 50-65cms in length and there are more of them over 75cms than in the Ettrick.



Graph 2: The length-frequencies of trout over 40cms recorded at the fish counters on the Ettrick, Gala and Whiteadder

These size differences suggest that the Ettrick Sea-trout are generally earlier-running than those of the Gala, so spend less time in the sea in Summer before returning to the river, while the Gala fish are later-running and so spend more. Sea-trout of around 72cms are 10lbs or so, from which it can be seen that around 10% of the Sea-trout of the Gala are at or over this size, compared to 5% for the Ettrick. The average annual count of Sea-trout going in to the Gala is around 1400, of which around 140 should therefore be 10lbs or over. Both the Ettrick and the Gala also have Sea-trout of over 80cms (15lbs and more). Although the Whiteadder has Whiting like the Till, it does not appear to have the “other” Till fish, the larger two and three sea-winter Spring and Summer Sea-trout (Graph 1, green and dark blue). The differences in the Sea-trout between these three tributaries shows there is a complex range of populations, presumably reflecting the different environments of the different catchments though, as yet, possible genetic differences have not been investigated. How the Sea-trout of the other tributaries might differ from or resemble those of these three still has to be worked out.

REPEAT SPAWNERS

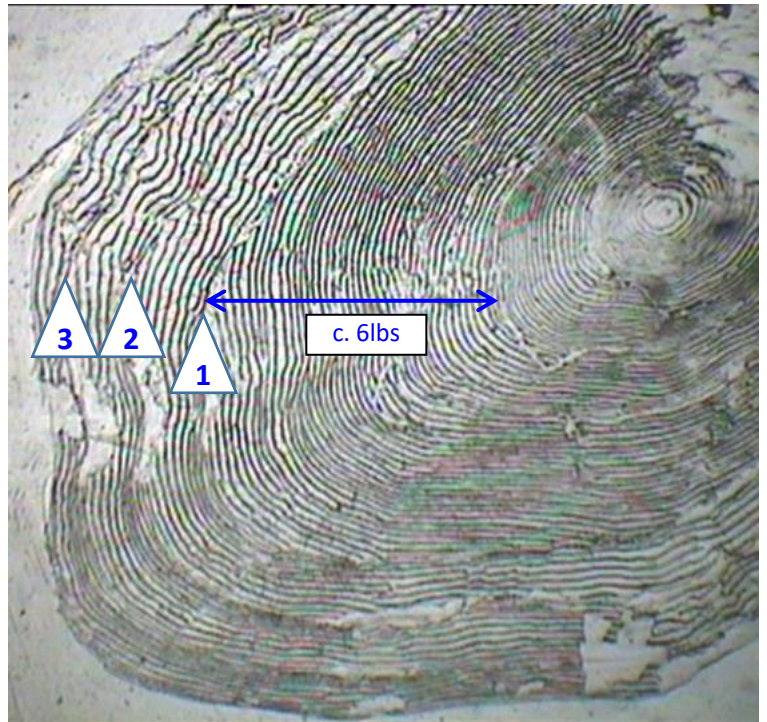
The proportion of Sea-trout that return to spawn more than once also varies within the catchment: for the Upper Tweed, the percentages of first time and repeat spawners are 90% & 10%; for the middle Tweed, 74% & 26% and for the Till, 83% & 17%, so useful proportions of the rod catch are made up of repeat spawners. This becomes even more apparent if only fish over 65cms (around 7lbs) are considered: the percentages of first time and repeat

Review: The Sea-trout of the Tweed

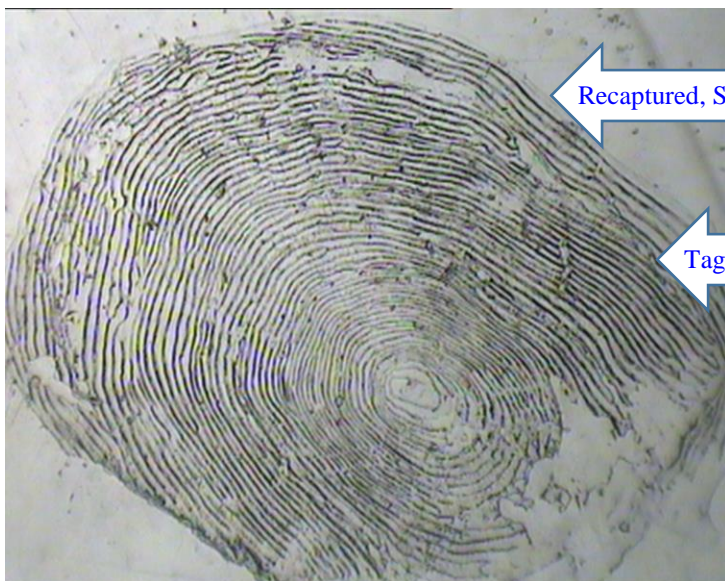


spawners then become – upper Tweed, 58% & 42%; middle Tweed, 74% & 26% but for the Till, 83% & only 17%. The reason why repeat spawners form a smaller proportion of fish of 65cms or more on the Till can be seen in Graph 1 - there are more first time spawning fish of that size on the Till, which reduces the importance of repeat spawners. More than half of these fish are Spring Sea-trout (green in Graph 1), fish caught early in the season, another distinctive aspect of the Sea-trout of the Till. Elsewhere in the system though, repeat spawners can make up half the larger Sea-trout caught (a good reason for putting kelts back!). While most repeat spawners just make it back for a second time, there are a few that do better – Diagram 1 shows the scale of a fish that was back for a fourth time before being caught:-

Diagram 1: A scale from an 8½ lb Sea-trout caught on the Teviot on the 11th November, 1992 when it had returned for a fourth time. The spawning marks, numbered in blue, are particularly clear on this scale. Once spawning starts, it reduces the growth rate – this fish was probably around 6lbs (blue arrow) when it spawned for the first time, so only added around 2½ lbs in the three years afterwards. This is fish is the only four-time returning Sea-trout yet recorded for the Tweed.



Repeat spawning Sea-trout need not take long to recover. When the nets in the estuary operated in Spring, Sea-trout kelts could be tagged and it was found that they could return to the estuary in as little as 60 days, though most recaptures were from 90 to 120 days after tagging.



Recaptured, Sandstell, as a fresh fish 20th July 1994, 465mm

Tagged, Whitesands, as a kelt, 21st April 1994, 430mm

Diagram 2: A scale from a Sea-trout, tagged and recaptured at estuary netting stations. The eroded edge of the scale when the fish was a kelt persists as a scar, the "Spawning Mark", after new growth starts back in the sea.



LARGE TWEED SEA-TROUT

Sea-trout can get very big on the Tweed - the largest known was taken at Norham in July 1987 and weighed 28lbs 9oz

:



Photo 2: The largest known Tweed Sea-trout. It had spawned for the first time after two winters in the sea, then for a second time the winter before it was taken, so was returning for a third time

The characteristic of this type of fish, the “extra-ordinary” large Sea-trout of the Tweed is that they do not come in for the first time until they are a good size, 10lbs or more. This is how they differ from the “ordinary” large Sea-trout such as the one illustrated in Diagram 1 which only reached 8½ lbs after spawning three times, starting at around 6lbs. The contrast can be seen by comparing its scale-pattern (Diag. 1) with that of the largest rod-caught Tweed Sea-trout of recent times, one of 20lbs caught at Peebles in November 1993 (Diag. 3):

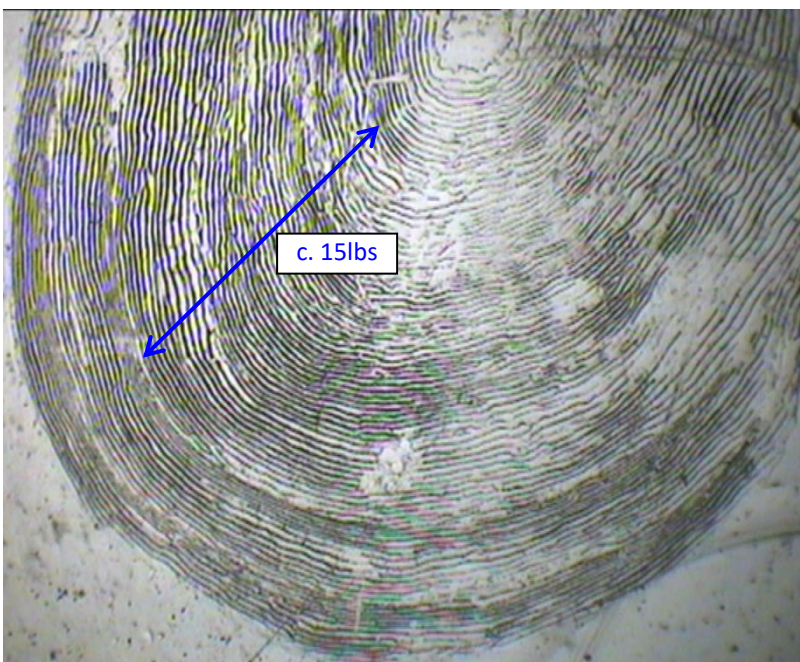


Diagram 3: Two spawning marks [numbered in blue] on a 20lbs Sea-trout caught at Peebles on the 11th November, 1993. Note the amount of sea-growth made before the first spawning mark [blue arrow]. This fish was probably around 15lbs before it spawned for the first time. Much less growth was put on after spawning started.

One possibility is that these large Sea-trout come from a specific population in a specific part of the catchment. However they have been caught on both the upper Tweed and the Till and have been seen on the fish counter videos of both the Ettrick and the Gala, showing that they are not limited to any one part of the catchment. They do, though, share the characteristic that they do not return for the first time till they have reached a large size which

Review: The Sea-trout of the Tweed



might have some genetic basis. DNA analysis of their scales should show if they had some connection of this sort.

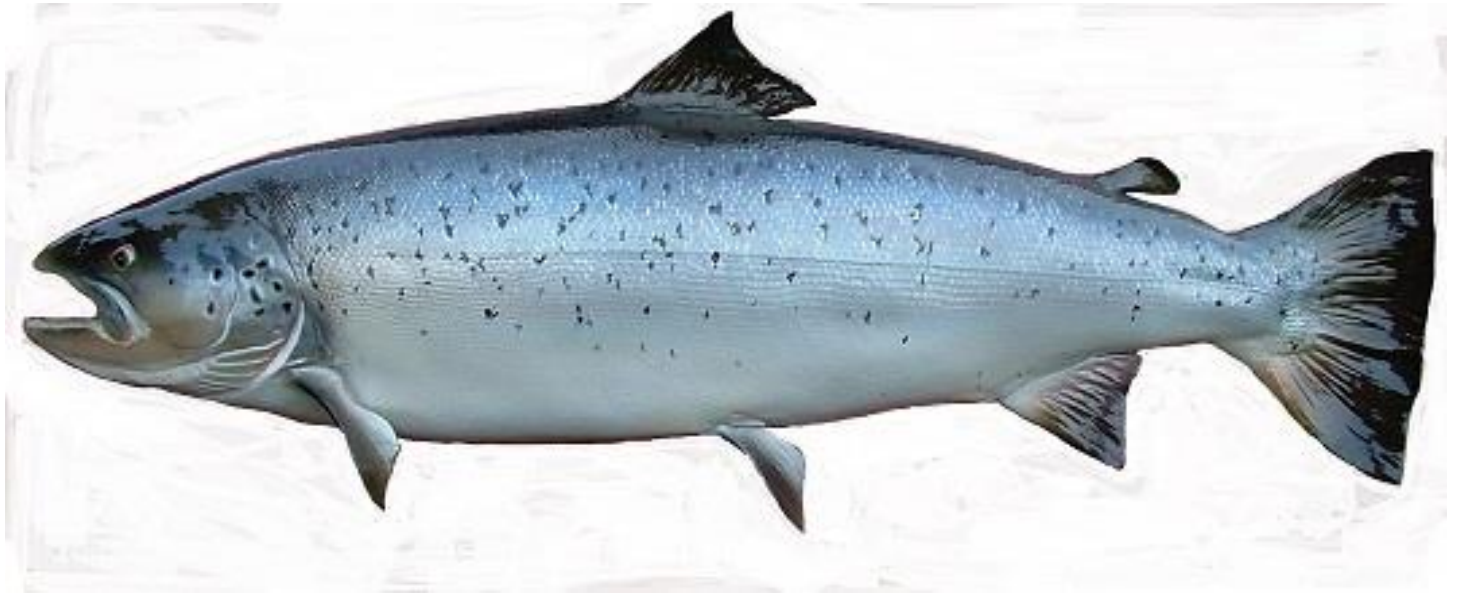


Photo 3: A cast of a Sea-trout of 18lbs, caught at Hendersyde on the 13th July, 2004. It was returning for the first time after two Winters at sea. This is the characteristic of these very large fish, to return for the first time at a large size.

Although seldom caught by anglers, these large Sea-trout are seen on the fish counter videos at both the Gala and the Ettrick (Photo 4).



Photo 4: One that got away – a 90cms Sea-trout caught on video at the Gala fish counter on the 29th September, 2011. This fish would have weighed around 20-25lbs, possibly a new British Sea-trout record if it had been caught on the rod.

Review: The Sea-trout of the Tweed



It would be interesting to establish what the rod-caught Sea-trout record for the Tweed is. At present it would appear to be one of 23lbs caught at Rutherford in Autumn 1925 by Lord Thirlestane. Whatever this might be, it is clear that these large Sea-trout are still very much around and there is probably a British rod-caught record in the river most years for anyone who can work out how to catch it! On a lesser level, there are plenty of Sea-trout in the Tweed of 10lbs and over, any one of which should be a trophy fish for an angler.

* On the Tweed, "Whitling" means a small Sea-trout of 1½ to 3lbs. Elsewhere, it means a "Finnock" a fish that has returned to fresh water in the same year that it left it as a smolt, sometimes to spawn. On the Tweed, such fish are uncommon and are known as "Blacktails". They are uncommon because most Tweed Sea-trout go on a long migration south, so by the time they are "Finnock" size and age, they are off the Thames estuary and nearing the Frisian Islands.

REFERENCES

- [1] Pratten D.J. & W.M. Shearer, 1983: The Migrations of North Esk Sea-trout. *Fisheries Management*, 14(3) pp 99-113
- [2] Balmain, K.H. & W.M. Shearer, 1956: *Records of Salmon and Sea-trout caught at sea*. Scottish Home Dept. Freshwater and Salmon Fisheries Research 11. HMSO Edinburgh.
- [3] Potter, E.C.E, 1987: Movements of Sea Trout (*Salmo trutta* L.) in the Central and Southern North Sea. In Picken M.J. & W.M. Shearer (Eds) *The Sea-trout in Scotland*. DAFS Montrose, Scotland.
- [4] Sinclair A., (ed) 1815 : *Old Statistical Account* (Parish of Duns, 1792)
- [5] Oliver, S., 1834: *Scenes and Recollections of Fly-fishing in Northumberland, Cumberland and Westmorland*. Chapman & Hall, London

Salmo eriox, or Bull Trout, is another British species which attains a large size and does not seem as yet clearly described as inhabiting any of the other European waters. It reaches a weight of twenty-five pounds. It is thicker in proportion to its length than the salmon..... The young fish, of from two to three pounds weight, and in this state known as Whitlings, enter the rivers about the beginning of June. In all its states it is a very powerful fish, and feeds voraciously and indiscriminately. When hooked it springs repeatedly from the water and runs (to use an anglers' expression) with extraordinary vigour to free itself. The river Tweed and its tributaries are among the principle localities for this fish. Encyclopaedia Britannica 1842 (7th Edition).*

*It was not till the work of the Experimental Committee of the RTC in the 1860s and 1870s that the different life histories of the Sea-trouts of the Tweed were disentangled