



Transferring the catch onto the telehandler as a full moon comes up shortly before 10pm

Fixed engine bag nets

Specifically designed for catching salmon and sea trout close to the shore, bag nets are in effect a floating fish trap, consisting of one or more fish courts and associated inscales and wings, together with a leader net designed to lead the salmon into the trap, the whole of which is fixed or moored to the shore or seabed.

As laid down in The Salmon (Definition of Methods of Net Fishing and Construction of Nets) (Scotland) Regulations 1992 and amended by SI 1993/257 and SI 1994 111(4):

- no part of the bag net, fly net or other stake net except mooring warps and anchors shall extend seawards beyond 1300 metres from the mean low water mark

- no part of the net or trap is designed or constructed for the purpose of catching fish by enmeshing them

The regulations also say: "No monofilament netting shall be used in the construction of any net used in fishing for or taking salmon" and "Any net used in fishing for or taking salmon shall have a mesh size of not less than 90mm."

The design concept of bag nets has remained virtually unchanged since similar types of fish traps were first used over 200 years ago.

In general terms, a bag net can be described as an elongated diamond, in which a short leader set at 90o to the longer axis is used to encourage salmon/sea trout to swim into the fish court/trap.

Most of the bag nets worked by Usan Salmon Fisheries catch salmon during



A fixed engine bag net hung up for repair in traditional manner outside

the ebb tide, when salmon following their natural instinct of swimming with the tide encounter the leader while heading north along the shoreline.

After initially being turned by the leader into the body of the bag net, fish generally swim into the tide and in the process, passing through the wider outer opening before entering the fish court through the now stainless steel framed inner gap into the fish court itself.

The bag nets positioned at Scurdieness lighthouse are the only Usan nets to catch both the ebb and flood tides, so these have fish courts in each end. All the other nets feature single fish courts arranged at the southern tip.

Constructed from 90mm mesh, the bag nets are 40-50 meshes deep. Preferably 6in mesh netting is used for the 40 fathom

leaders, increasing to 14in when jellyfish are particularly prevalent.

Five single fluke anchors weighing 200-300kg each are used to secure bag nets not attached to the shore (outriggers). Inshore bags are held in place with three anchors in addition to ropes secured to ring bolts cemented into rocks ashore.

Clearly the job of positioning up to 50 large anchors weighing in excess of 12t from a small coble at the beginning of the netting season is a labour intensive and potentially hazardous task.

It becomes even more fraught with danger at the end of the season when even though the leaders have already been removed (slapped) and the bag nets, as a designated part of the station's fishing gear, all anchors are required to be removed within 36 hours of the closure date.

Challenging environment is the backdrop to Usan Salmon Fisheries

Report and pictures by **David Linkie**

That most of images used to illustrate this feature were taken at the second attempt one week later than initially intended reflects the degree to which an already short netting season for Usan Salmon Fisheries is frequently further restricted by natural conditions.

Timed to coincide with a mid-afternoon low tide in the first week of July, the first attempt was knocked on the head by lashing rain driven onshore by a 5/6 north-easterly - conditions that probably would have meant game-over for an already much abused camera.

Although the Usan team was still struggling to repair gear damaged the previous week as well as maintain their regular programme of net maintenance/cleaning, a more stable area of high pressure presented a second opportunity the following Wednesday evening and fitted in fairly well

with other work commitments in north-east Scotland for later in the week.

Evidence of the gear damage sustained the previous week was apparent on arrival at the Bothy at the Old Fishertown of Usan, 2.5 miles south of Montrose, as bag nets were hung up for repair on poles at various locations.

Owned since 1960 by the Pullar family, which previously worked similar bag net stations in Caithness and Carnoustie, Usan Salmon Fisheries Ltd is run today by brothers David and George Pullar. David's sons John and Kevin are also part of the five-man boat crew, together with Sean Johnstone, highlighting the strong family dependence on the heritable title fishery.

Until March 2011, the Usan crew had to complete all net repairs and construction outside on open grassed areas of varying steepness. Following construction of an extensive net and boat manufacturing and repair facility (aided by a European Fisheries Fund grant of more than £100,000) for the first time work can now be

carried out inside with greater efficiency under much improved conditions.

Supported by Scottish ministers and Marine Scotland staff, the funding also included provision of three new power net washing beds. Located

on the foreshore adjacent to the traditional and still used vaulted fish/ice house, the washing beds are in constant use for eight hours each day during the salmon season.

This reflects the ever present difficulties created

by weed growth on the nets, with the result that they need to be changed at least once a week. If this is not possible for any reason, the strong smell associated with copious amounts of rapid growth green weed (which make the nets

even heavier and therefore increasingly dangerous to work) results in salmon and sea trout steering well clear of the bag nets.

Being unable to fish their 13 bag nets that are fished over five miles of foreshore between Scurdieness lighthouse at the mouth of the River Southesk south to Ethie Haven at the southern end of Lunan Bay for two days the previous week because of the rough seas, also meant that the crew were well behind with their almost daily programme of net replacement which, by necessity, can only be carried out at low water slack. As a consequence, some nets were coated with considerably more weed than usual and therefore not fishing efficiently.

Worked as an ebb tide fishery when salmon and sea trout usually swim north with the tide, Usan bag nets are fished as near to low water slack as possible, when the tidal strain on the gear is at a (supposedly) minimum.

After donning their sea gear, life jackets and protective glasses in the fish house 90 minutes before low water, the five-man crew waded out to



David and George Pullar weigh and grade each fish in Usan ice house



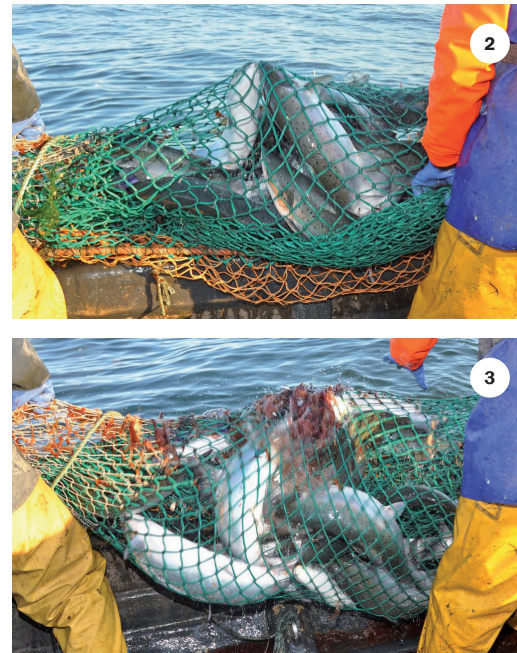
Above: A salmon nears the surface as the 4mm braided side netting of the fish court is hauled aboard Boddin Lass
Below: The Usan netsmen clear Boddin Lass's mooring in freshening weather



Turn to page 14



1: Hauling the floor of the fish court to the surface...
2: ...before rolling a bigger than average bundle of fish...
3: ...mixed with jellies over the port gunwale



From page 13
 crew started to haul the bottom coble, Ethie Lass, which would come into play later in the night, by having an additional two feet of beam.

Intended to create a more stable working platform and able to carry more weight, this was achieved by cutting the in-house produced mould in half along the centreline and inserting a parallel full length section. The crew speaks very highly about the safety of the new design, which handles well in testing conditions.

With the intention of using the low water slack to replace a bag net south of Usan, George Pullar headed for the first of two nets located around 1.5 miles north off Usan harbour to the prominent Scurdieness lighthouse, which stands on the southern side of the River Southesk estuary leading into Ferryden and Montrose harbour.

As Boddin Lass was taken port side alongside the fish court of the first net, the leader of which was positioned across the tide, the 4m wooden vertical staff was quickly untied from a slightly shorter horizontal pole floating on the surface as the

crew started to haul the bottom coble, Ethie Lass, which would come into play later in the night, by having an additional two feet of beam.

Following a shout of "Yes, he's there" from David, two retaining pins were lowered through a handful of meshes fore and aft into the gunwale before a pocket of netting, containing three salmon were brought over the side of the coble. Quickly opening the release lacing enabled two fish to fall out of the fish court onto the deck, allowing Kevin to immediately dispatch, bleed (with a nick in the gill) and tag the salmon.

On lifting the net clear of the holding pins, the net slipped clear of the gunwale back into the water as the three forward men raised the vertical staff before pushing it back down into the water for most of its length before tying it off once again on the top spreader.

Within three minutes of coming up to the first net, George Pullar was heading for the second. Although it was a fine quiet summer's evening, a growing swell close in to the exposed rocks provided a timely reminder of the struggle

the netsmen face more often than not.

The second net yielded a further three fish, again all salmon between 4kg-6kg. While heading back to the mooring inlet, David Pullar explained that with a record run of prime quality multi-wintered salmon having been caught at Usan since the voluntary delayed start of the netting season on 1st May, this predominance of big fish (which was also mirrored by licensed netsmen in north-east England), given that the smaller grilse (single-wintered fish) were following their now well established pattern of not showing until well into August, was a welcome boost for the netters.

Having invested in a Manitou telehandler the previous year, since when it has proved invaluable for moving nets, anchors, fish and cobbles around the station, John and Sean were quickly lowering a freshly washed net onto Boddin Lass while David and Kevin readied Ethie Lass for action. Within 10 minutes, the two cobbles set off together to change the Pebble House net.

On taking a single salmon

out of the fish court at the same time as David and Kevin on Ethie Lass untied the back of the net and the seaward end of the leader (the inshore end of the leader is fixed to the rocks with eyebolts cemented into place) the three crew left on the larger coble started to haul a thickly weeded net.

This meant that the replacement bag net was free to go over the starboard side of Boddin Lass at the same time as the dirty net was hauled aboard over the port gunwale.

Forty minutes later, during which time the small winch on Boddin Lass was used to tighten up the anchor ropes to securely position the new bag net, both cobbles headed back to the inlet where the weeded net was quickly picked up by the telehandler and deposited ashore above the high-water mark to be dealt with the following morning by the powerwashers.

With the crew back together again on the bigger coble, George Pullar headed for the first of two bag nets moored in close proximity to each other off Usan harbour. The fish court of the first of these nets

MODIFIED BAG NETS TO COUNTERACT SEAL MENACE

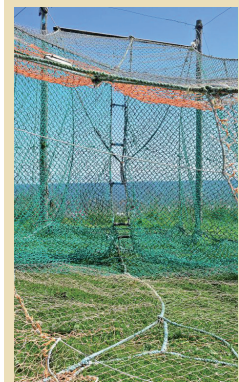
Rather than continue to lose too many salmon to marauding seals, which often also damage the nets, Usan netsmen have spent considerable time and money in recent years modifying their bag nets to make them more seal-proof.

George Pullar said that rather than any one idea in particular, a combination of integrated modifications incorporated into the traditional design of bag net are performing well and that the number of salmon and sea trout lost or damaged by seal activity, and torn nets, is now much lower.

The floor and sides of the bag are now constructed from 4mm braided 90mm mesh netting to prevent seals from tearing the net before attacking the fish.

Doublers have also been used within the bag to square off the corners of the court so that salmon cannot get trapped in what was previously a narrow tapering pocket of netting fairly accessible from outside the bag.

To prevent seals from swimming through the already small inner door into the court before feeding on fish already captive inside, rigid stainless steel frames are now used to create 6 x 6.5 x 14in panels. By replacing the thick twine, the relatively narrow openings, which are wide enough to allow the biggest class of salmon to swim freely into the court, are proving more than adequate to all attempts by seals to tear the opening apart.



To prevent seals gaining entry, the inner door leading to the fish court is now constructed from stainless steel frame rather than twine, which is still used across the wider first bag door



1: Removing a heavily weeded bag net onto Boddin Lass...
2: ...at the same time as the replacement net is shot over the starboard gunwale of the coble



Ongoing fishery management issues



David Pullar with two prime multi-wintered salmon which have been recorded in record numbers this year on the River North Esk

yielded three more salmon, along with a noticeable increase in the amount of jellyfish.

Together with their well proven stinging abilities, the cumulative weight of up to 30/50 large red jellies (a medium sized Lions mane jellyfish typically weighs around 7kg) often causes considerable difficulties for the Usan team. In an attempt (frequently forlorn) to reduce the number of jellies being swept along the leader into the fish court, larger mesh (12-14in) netting is used although these are not ideal as the salmon often swim through the meshes and evade the nets.

We then steamed to the net shot off the distinctive and self-explanatory Elephant rock where increased activity by the crew shortly after taking hold of the next bag net indicated a possible better showing of fish. Thirty seconds later, this proved to be the case, when after a well practiced co-ordinated lift, a sizeable bundle of salmon, liberally mixed with jellies, were rolled over the port gunwale.

Releasing the contents of the court onto the deck could be likened to turning on an uncovered food blender, as an arsenal of powerful tail fins launched a cascade of scalding swithers over Boddin Lass and the crew, which more by good luck than intent avoided the camera lens long enough for some photos to be taken. Following a few minutes of frantic activity, 15 salmon, two grilse and one sea trout, (which had been stung to death by the jellyfish and therefore couldn't be released) had been tagged and boxed as the crew prepared for the next net, which yielded another six fish.

Following a blank fish court (apart from ever more jellies) at the Lions net George Pullar headed North towards the remaining four nets situated under the higher cliffs at the north end of Lunan Bay.

Set fairly close to the shore in a secluded bay, these nets can be among the most consistent performers of those fished by the Usan station.

While not approaching the evening's highest catch rate, a steady run of up to 6/7 fish per net ensured that the five well filled boxes were offloaded onto the waiting telehandler as a full-moon created a tranquil scene over the mooring inlet shortly after 22:00hrs.

Returning to the fish house where a better than expected night's work was individually weighed and selected to show 49 salmon, 75% of which were over 4kg, 13 grilse and one sea trout, with another three released alive.

That the balance of catch composition for this evening tide in mid-July would probably have been reversed in favour of grilse it had been undertaken 10 years ago highlights the extent to which run timings are progressively becoming ever later in the season, as well as the marked abundance of bigger multi-wintered salmon currently being experienced; a fact which some highly respected experts are increasingly referring to as a new golden era for wild salmon.

attitude has been implemented is shown by the fact that on a number of occasions in recent years Usan Salmon Fisheries has tabled voluntary conservation proposals to ensure sustainable stocks of migratory fish.

Although there are no legal restrictions preventing netting from beginning from 16 February, because of perceived concerns expressed by anglers over the numbers of spring salmon, at the beginning of this year Usan Fisheries gave a voluntary undertaking to the Scotland's fisheries minister, Richard Lochhead, to delay starting to fish until 1 May, even though doing so meant losing 54 fishing days.

Although some compensation was initially offered from the Esk Board for losing 40% of their season, this came nowhere near matching the income lost by not being able to fish during the time of the voluntary closure.

The government's fish counting station on the North Esk recorded 6,209 salmon returning from the North Atlantic in April and May 2011 – more than three times the number recorded at the same time last year. In 1981, only 744 salmon were recorded swimming upstream in the same river.

This pattern or unprecedented numbers of spring fish was mirrored when, following the commencement of netting, Usan Salmon Fisheries experienced record catches in May and June, when a large run of superb quality multi-wintered salmon, mostly between 4.5-6kg were caught from the first tide.

Delaying the start of their season means that Usan Fisheries has to operate its business on a maximum of 87 fishing days. In reality, this figure is reduced by environmental factors, such as poor weather when fishing from a traditional salmon coble is impossible.

Another constraint is that by only being able to check the bag nets at low water, the leaders often have to be removed by 1pm on a Friday, five hours before the weekend close time, which can often be further extended by poor weather, when fishing cannot be carried out due to the well established Health and Safety assessments implemented and closely followed at all times by the proprietors.

After river anglers expressed concern about lower numbers of sea trout in the local rivers, last year Usan Salmon Fisheries released all the healthy sea trout they took from their bag nets. This amounted to over 2000 fish; again well above the compensation received.

Faced with the virtual certainty that the losses incurred by refraining to exercise their legal rights to fish for the full duration of the netting season will not be covered by the Esk Fishery Board, Usan Salmon Fisheries has proposed an alternative solution for future years.

This proposal involves a seasonal swap, under which refraining from netting for six weeks from 16 February until 31 March in exchange for the entitlement to fish during the first two weeks in September.

The benefits of this, which demonstrates a proportionate response to the conservation case, include protecting the most vulnerable early spring component; preserving Usan Salmon Fisheries legal rights; avoiding the need for payment of monetary compensation, thereby addressing socio-economic issues; and aligning Usan to the position of the Salmon Net Fishing Association of Scotland of starting on 1 April and bringing the fishery into line with the current netting season end on the River Tweed.

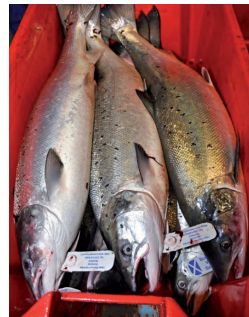
differing views of netsmen and anglers.

Usan Salmon Fisheries operates within the area managed by the Esk Fishery Board, one of 41 Local Fishery Boards in Scotland. Their composition is currently dominated by angling interests. Achieving a more democratic, accountable and fit-for-purpose structure is one of the reasons the Scottish Government recently announced plans to review the make-up of Local Fishery Boards.

Acutely aware of the need to ensure the continuation of a sustainable fishery for future generations, both with regard to the eleven workers currently employed at Usan through the fisheries private heritable title and protecting the valuable Scottish resource of salmon and sea trout, directors George and David Pullar are totally committed to offering an evidence-based approach with the aim of promoting an innovative way forward.

The extent to which this proactive

Changing run times



The last 10 years have seen a significant change in the timing of the main run of young salmon. Commonly known as grilse, these are fish (up to 3kg) returning to their river of origin after spending just one winter in the sea.

For decades grilse started to show in abundance around the coast of Scotland (and north-east England) from the beginning of July onwards. This timing is still reflected today by traditional local festivals such as the crowning of the Berwick Salmon Queen, which always coincided with peak grilse fishing in the days when over 30 netting stations operated on the River Tweed, compared with the present day total of two.

For some unexplained reason, the timing of the grilse run has become progressively later, to the extent that now it sometimes has not peaked before the close of the netting season on 31 August.

Grilse previously dominated catches, so this is a big loss to netsmen, as well as local fish buyers, who always meet a firm demand from the local public who find smaller fish ideally suited for picnics and salads, not to mention household budgets, when compared with the bigger and more expensive multi-wintered salmon.

Until the middle of August, the total salmon caught at Usan since the start of fishing at the beginning of May has outnumbered grilse by 7:1 – an unprecedented ratio. The salmon/grilse ratio only reached parity for the first time with just two weeks of the season remaining and some six weeks later than would have been expected a few years previously.

Rather than constantly facing the gamble of whether or not the grilse run will fully materialise before their season ends, netsmen continue to advocate that the start of the netting season be delayed (allaying perceived conservation concerns by not fishing the most vulnerable early spring stock) and for the closure date to be put back until 30 September. In other words, altering the start and closure dates of the season which would still be one month before the end of angling activity on most river systems. Implementing such a change would also go some way to compensate for the fact that since 1988 the weekly close time for netsmen has been 60 hours, compared to the previous 42 hours; a change that again unfairly discriminated against netsmen because the angling weekly close time remained the same.



Part and parcel of the job – the torn and twisted remains of a beach bag net knocked down before being washed up the beach by a north-easterly sea the previous week

Lunan Bay beach nets

Six traditional single end bag nets are fished from Lunan Bay beach by Brian Miller.

The nets, positioned either side of Lunan Water, are checked every 12 hours towards low water by Brian regardless of the time of day or night.

Their being fished earlier than their sea worked counterparts gave me the opportunity to accompany Brian to Lunan beach before returning to Usan in time to meet up with the

crew of Boddin Lass.

The torn and twisted remains of two bag nets lying on the sand dunes near to Brian's trusty beach tractor provided a sharp reminder of the constant difficulties of working salmon nets on an exposed coastline. Three days of force 5/6 north-easterlies the previous week, which in turn had driven an abundance of seaweed inshore, had resulted in all the beach nets being knocked down within 24 hours.

While not an uncommon occurrence in itself, the following deep swell and breaking rollers on the shallow Lunan beach, resulted in the nets being rolled up into a badly twisted ball and deposited above the high water line more than 100m from where they were set.

Clearly this was a major setback both in terms of losing five fishing days, and the long hours involved in setting up replacement nets on the beach,

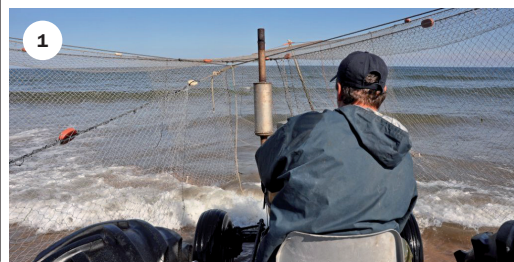
using a combination of reserve nets and whatever sections of the ruined ones that could be salvaged.

With the time available to reset and fine tune his nets limited to small tide windows either side of low-water, this was still a job in progress.

In principle, beach bag nets are similar to sea nets, apart from the obvious fact that they are single ended. A 40 fathom leader some two fathom deep, the inner end of which is positioned just below the high-water line, is used to direct fish seaward towards the bag net itself, which like the sea nets,



2



1



3



4

1: Arriving at the first bag net on Lunan beach
2: Brian Miller walks out towards the second net...
3: ...before taking the first salmon out of the scoop net to stun it and quickly bleed by cutting a gill to eliminate the risk of blood clots in the flesh
4: Finishing in style – Brian Miller holds up a superb quality multi-wintered 16lb salmon taken from the last bagnet



Splendid isolation - Brian Miller repairing a damaged fourth net

is rigged with outer and inner cleaks that hopefully lead the fish into an inner court.

Two wooden stakes, approximately 6m in length and with a diameter of 250mm, are used to hold open the mouth of the bag net. To retain its position, each pole is dug into the sand and further secured by a rope leading ashore at 45° to a single fluke anchor. A third stake of similar dimensions, positioned at the seaward side of the fish court, is used to retain the geometry of the triangular shaped net and keep tension on

the headlines of the side wings.

With all but the final few metres of the leaders dried out and lying on the sand, Brian left the tractor in the mouth of the first net to shoulder his tools of the trade – a long handled scoop net, priest and shoulder bag – before wading out to look for any signs of fish in the court.

With the water fairly shallow, it was possible to accompany Brian and step through the first opening and up to the second narrow gap, although the surge did come perilously close to the

top of the borrowed thigh boots.

With no encouraging swirls of water, flashes of silver or tightening netting, it was quickly a case of back to the tractor and onto the next net, which yielded two 3-4kg salmon.

Viewed from Usan bothy, the sea had appeared almost clock calm, with a barely discernable sea breeze – almost a perfect summer's afternoon. Down on Lunan beach however, it was a slightly different picture, with the shallow nature of the bay amplifying a low ground swell.

This was even more notice-

able at the north end of the beach, where a deeper lying third net was set some 20 yards from a low lying rock skier. Any intentions of following Brian were soon abandoned, although not quickly enough, even though he reported two salmon swimming in the court.

Attempting to scoop up a salmon with over 20sq m of area to swim in while standing in more than four feet of water is a skill in itself, particularly as the water clarity is usually thick due to swirls of sand and weed. Most times this task is

achieved with patience after working the fish into a corner of the net.

Regularly forced to jump in order to limit the breaking waves to chest height, Brian waded out of the net a few minutes later with two more salmon in his shoulder bag.

After re-crossing Lunan Water and making a longer than previous walk into the sea, the fourth net did not result in any more fish being put into the box on the back of the tractor, although it did lead to Brian spending time taking twists out of the leader and repairing a damaged section in the opening of the net.

A quick look into the last fish court of the evening tide led to Brian hooking his shoulder bag onto the doubling prior to spending a couple of minutes trying to scoop up an evasive fish. Even viewed from a few yards away, this proved to be easily the best fish, later weighing in at 16lb, considerably overshadowing a second salmon of 10lb.

Six fish was a lower than hoped for return, as it did not begin to make up for the loss of eight tides the previous week, not to mention the countless hours Brian had put in during the last seven days replacing nets damaged beyond repair, but it was a small positive step along what is frequently a rough and unpredictable path.

New marketing initiatives for Scottish wild salmon

Within a few minutes of each live fish coming aboard Boddin Lass and being stunned and bled, they were clearly labelled Scottish Wild salmon by placing a unique tag through a gill.

This voluntary salmon tagging scheme, undertaken in association with both the Scottish Government and the Salmon Net Fishing Association of Scotland (SNFAS), is designed to protect the reputation of Scottish Wild Salmon from unscrupulous dealers and follows recommendations made by the Mixed Stock Fishery Working Group, in which Usan Salmon Fisheries participated.

Similar in concept to the tagging system introduced a few years ago for migratory fish caught by licensed netsmen in north-east England, this initiative is a positive step in ensuring customers receive only the very highest quality fish. It provides a further guarantee to customers of the product's genuineness and ensures supply-chain traceability.

In a separate marketing development, Usan Salmon Fisheries, in association with the SNFAS and the Scottish Government, recently applied to have Scottish Wild Salmon registered as a Protected Food Name under EU legislation. If awarded, this will provide proper recognition for this unique iconic Scottish product and the few remaining traditional salmon netters.

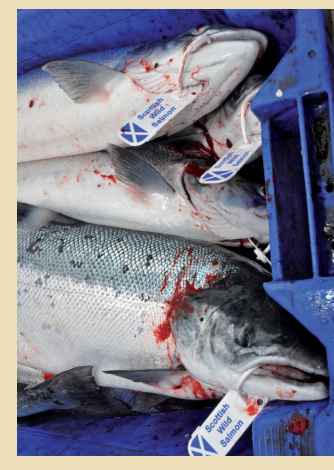
A large percentage of the bigger salmon caught by the Usan netsmen is regularly pre-sold and dispatched immediately to large-scale smokers locally and in Ireland, the UK and France.

Fresh salmon are also exported throughout Europe and the Middle East, and are regularly served at some of the most famous restaurants and hotels in the British Isles.

In April this year, Usan Salmon Fisheries, supported by Angus Council, Seafood Scotland, and Highlands and Islands Enterprise, achieved a first by exhibiting at the European Seafood Exposition in Brussels, where a number of valuable new contacts were made, which have since been turned into new market outlets.

Having already set up a successful online store (www.usansalmon.com), plans are now being made to begin producing smoked salmon in-house within the next two years.

Given that the price of wild salmon remains depressed after a drop of some 40% following the international monetary crisis three years ago, such marketing initiatives go some way towards maintaining income in a competitive marketplace where quality, although continually requested, is not always fully valued.



Right: Kevin Pullar places distinctive Wild Scottish Salmon tags through the gills of freshly caught fish on the deck of Boddin Lass
Left: The voluntary tagging provides customers with a guarantee of genuine, prime quality Wild Scottish Salmon

