



NITH CATCHMENT FISHERY TRUST



ANNUAL REPORT

JANUARY TO DECEMBER 2013

PUBLISHED MARCH 2014

Nith Catchment Fishery Trust

Nith Catchment Fishery Trust (NCFT) is a Scottish registered Charity which was formed in late 2009 to conserve and enhance all native freshwater fish and their habitats located within the inland and coastal waters of the River Nith catchment and the jurisdictional area of the Nith District Salmon Fishery Board.

The aims of the Nith Catchment Fishery Trust are:

- To advance environmental protection and improvement by conserving and enhancing all species of freshwater fish and their environs within the River Nith catchment, for public benefit.
- To advance the education of the general public through raising awareness of aquatic ecosystems including their fauna, flora and economic activity within the River Nith catchment.

Trust Directors

Mr E P K Weatherall - Chairman
Mr A Bryden - retired 11.3.13
Mr R Clark
Mr T C F Florey - appointed 11.3.13
Mr J Henderson
Mr P Hutchison
Mr D Kempself - appointed 11.3.13
Mr B Lord
Mr J McKie
Mr R Schiller
Mr A S Wood - appointed 11.3.13

Staff

Ms Debbie Parke
Miss Emily Iles — Project Officer
Miss Amy Fergusson — Seasonal Invasive Species Officer
Miss Sophie Henderson — Seasonal Invasive Species Officer

The work carried out in 2013 by the NCFT would not have been possible without the support and funding of the following organisations:



The 2013 season catch statistic returns for salmon and sea trout in the Nith system were disappointing. Despite our best endeavors to protect the juvenile and returning adult fish in the river by mounting river patrols to curtail poaching, continuing with the work in respect of established habitat enhancement projects and mitigation of damage to the fishery from the adverse effects of open cast coal mines, energy wind farms, micro hydro schemes and industrial agricultural and forestry operations, the numbers of adult fish returning from sea to our river system appears to have fallen.



I take little reassurance from the fact that the downturn in catches occurred not only in the Nith system but in the Solway Rivers and many rivers throughout Scotland. This gives real cause for concern in respect of what is happening to the fish during the marine part of their life cycle.

It is at this time when catches are low that we must maintain our policies of conservation of stocks and encourage all who have an interest in having salmon and sea trout in our river system to follow our recommended catch and release policy, encouraging anglers who are visiting the river system to do the same. This enhances maximum spawning potential of adult fish, one of the best ways of promoting a recovery of the salmon and sea trout resource.

The Celtic Sea Trout Project is coming to a close and the preliminary results of the research into sea trout are emerging. It is clear that we still know very little about this fish, a disadvantage when trying to implement best management practice.

At the time of writing this the Nith has breached its banks yet again, almost a weekly occurrence, consequently offering additional challenges to effective management.

I would like to take this opportunity to wish all our fishers a successful 2014 season.

E.P.K. Weatherall
Chairman
Nith Catchment Fishery Trust

The 2013 season has been a poor one with low numbers of salmon returning from the Atlantic to run the river. This has been experienced in the majority of rivers throughout Scotland and there is increasing concern about the fate of salmon in the marine environment. Research carried out by Dr Chris Todd from St. Andrew's University has highlighted the poor condition of salmon returning from the sea, indicating that they are not finding enough food to be able to put sufficient weight on to survive their return journey and the subsequent trials of spawning. There is very little that fishery managers can do to assist salmon whilst they are at sea but by striving to increase the number of salmon smolts leaving the system hopefully more salmon will survive to return. Dr Chris Todd states "This approach might be considered as "lambs to the slaughter", but over millions of years salmon have survived ice ages and eras of global warming. Helping salmon populations recover naturally is clearly a better strategy than rearing them artificially." It is important that we all continue to try to conserve salmon within our river through increasing catch and release, improving habitat both in-river and on the banks and increasing the amount of habitat available for fish to spawn in.



In river, conditions were difficult for anglers with low water conditions and bright days making fishing hard. The low water had the additional effect of holding salmon back in the lower stretches and the higher catch returns for the lower river reflect this. However, once the water levels increased in late summer the salmon appeared to run straight through the system resulting in low catch returns in the middle and upper beats. Good numbers of salmon were found in the upper spawning grounds towards the end of the year.

On a positive note, catch and release rates for rod and line caught fish have increased from 40% in 2012 to 59% in 2013. This is a really positive step in the right direction and will have resulted in at least an additional 2.5 million salmon eggs being laid down that previously would never have made it that far. The number of sea trout being released has also increased from 55% in 2012 to 62% in 2013. A number of beats have decided to go to 100% release for all sea trout during the 2014 season.

Juvenile electrofishing surveys carried out during the summer of 2013 demonstrate that although there were low returns of salmon and sea trout during the 2012 season, spawning was successful and there has been no significant decline in the number of salmonid fry throughout the system.

The NCFT has continued to tackle Japanese knotweed and Giant hogweed, treating over 12840m² of knotweed within the catchment during 2013. This project has been funded by SEPA, Landfill Communities Fund and D&G Council. However, funding for the Riparian INNS project finishes at the end of 2014 but we are already looking into new funding streams to improve habitat and biodiversity throughout the catchment.

The NCFT feels that in the future, young people will play an important part in protecting our river and the fish species within. To this end the NCFT have put together an education project called "Fishing for the Future" and have received funding from D&G European Fisheries Fund and Holywood Trust for the next two years. This project aims to introduce pupils from schools throughout the Nith catchment to the aquatic environment and about the sustainability of our fish stocks. The project also gives the participants a chance to try fishing, hopefully encouraging them to take it up as a hobby.

A handwritten signature in black ink, appearing to read 'Debbie Parke'.

Debbie Parke
Operations Manager/Biologist
Nith Catchment Fishery Trust

The River Nith Catchment

Vital Statistics

The total catchment area is 1596km² which includes the main stem River Nith, its tributaries, coastal burns and connected still waters.

The length of the main stem of the River Nith is 98km from source to estuary.

Fish Species Present

- Atlantic salmon
- Sea trout
- Brown trout
- Grayling
- Pike
- Eel
- Lamprey
- Minnow
- Stone loach
- Stickleback
- Tench
- Perch
- Bream
- Roach

Salmon and Sea Trout Fishery

The salmon and sea trout fisheries are owned by 36 proprietors within the Nith catchment.

Average annual catch of:

- 2873 Atlantic salmon
 - 1032 Sea trout
- (5 year average from 2008-2012)

Salmon and sea trout angling on the River Nith contributes £2.9 million into the local rural economy (based on 2000 data +RPI) (Leslie 2000).

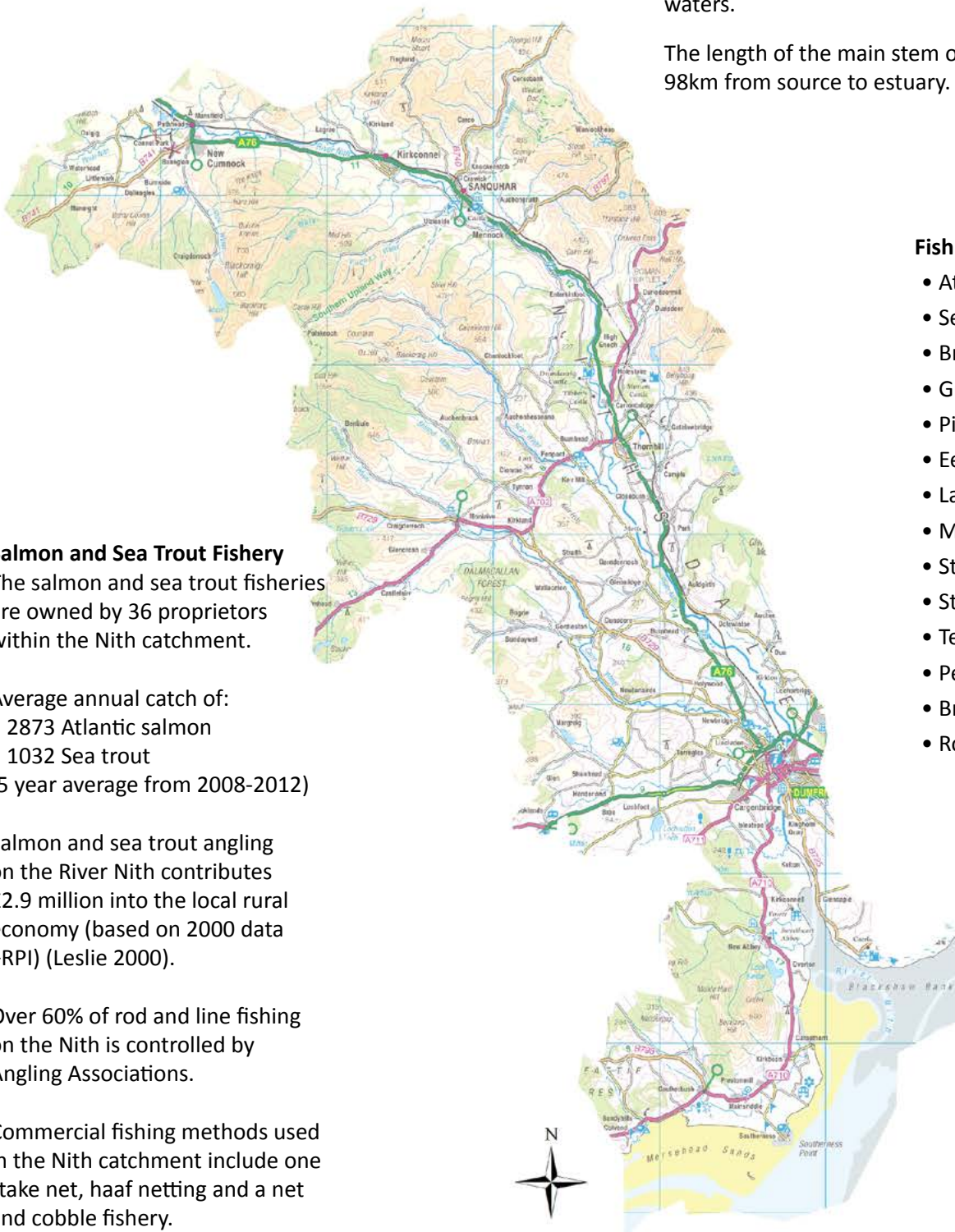
Over 60% of rod and line fishing on the Nith is controlled by Angling Associations.

Commercial fishing methods used in the Nith catchment include one stake net, haaf netting and a net and cobble fishery.



Other Fisheries

The Nith also has healthy brown trout and grayling fisheries which are owned by landowners throughout the catchment. There are also a number of still water trout and coarse fisheries within the catchment. Sea fishing is popular at the quay at Glencaple and off the coast.



Salmon and Sea trout catch data for 2013

by Debbie Parke, Operations Manager and Biologist

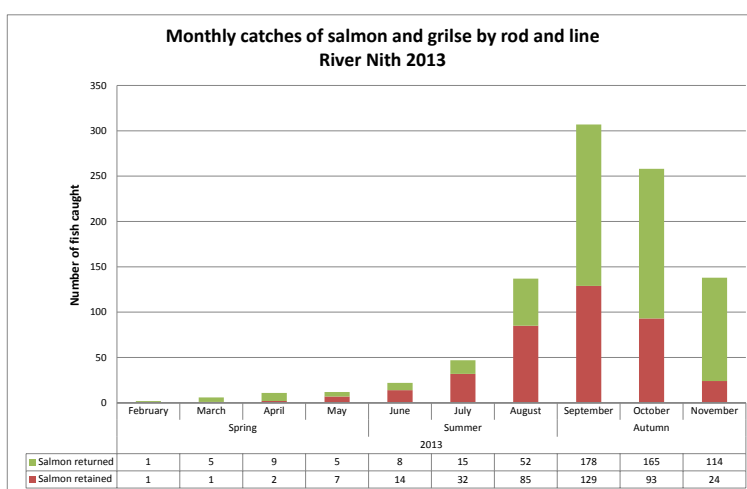
The 2013 salmon and sea trout fishing season on the Nith saw a continued decline in the number of salmon and sea trout being caught. Overall, 1405 salmon and grilse and 841 sea trout were caught during 2013. The distribution and timing of salmon and sea trout caught in the Nith is discussed in detail below.

Salmon and grilse

Of the 1405 salmon and grilse caught, 940 were caught by rod and line. Thirty one spring salmon were caught by rod and line between the 25th February and 31st May. Of those caught, 20 of them were returned (65%). Spring salmon are a very important component of our salmon stocks and, especially during times when salmon numbers are declining; we encourage anglers and nets men to always return them to the river.

A total of 206 summer salmon were caught between 1st June and 31st August. Of those caught, 75 of them were returned (36%). A breakdown of the summer months shows that in June, 22 salmon and grilse were caught (36% returned), in July 47 salmon and grilse caught (32% returned), in August 37 salmon and grilse were caught (38% returned).

Between 1st September and 30th November, 703 salmon and grilse were caught. During that period, 457 salmon and grilse were returned (65%). September recorded the highest catches with 307 salmon and grilse being caught with 58% being returned. Catches decreased in October with 258 salmon and grilse being caught (63% returned). In November, 138 salmon and grilse were caught with the highest return rate of 83%.



In total, 465 salmon and grilse were caught by nets on the coast and in the estuary. Sixteen of those were spring salmon, 426 were summer salmon and 23 were autumn salmon. No fish were returned.

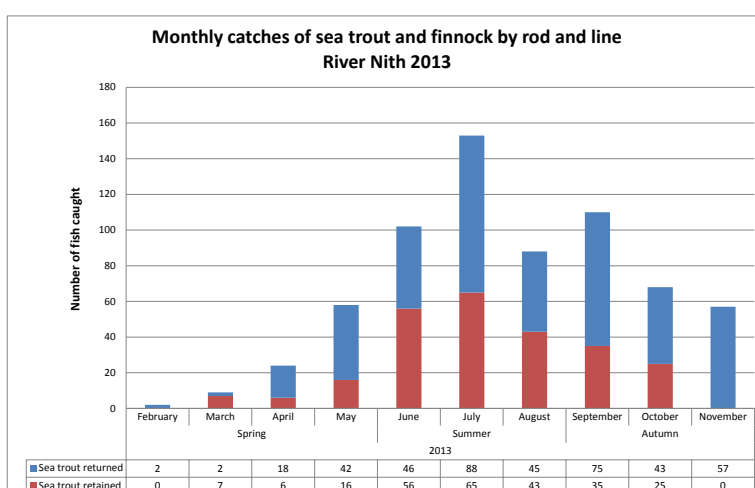
Sea trout and finnock

Out of the 841 sea trout caught during 2013, 671 were caught by rod and line and of those 418 were returned (62%). During the spring, 96 sea trout were caught with 69% being returned. In February, 2 sea trout were caught (100% returned); in March, 9 were caught (22% returned); in April 24 were caught (75% returned) and in May 58 were caught (72% returned).

During the summer, 343 sea trout were caught with 52% of them being released. In June 102 sea trout were caught and 45% were returned. The highest number of sea trout captured was in July with 153 were caught and 58% of them were returned. There were 88 sea trout caught in August and 51% were returned.

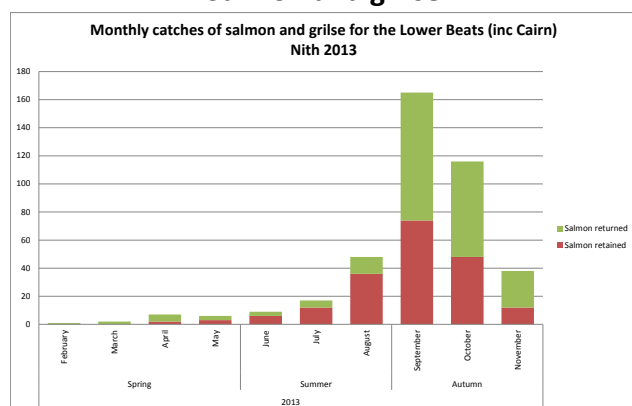
During the Autumn, 235 sea trout were caught and 74% were returned. A breakdown of the Autumn months show that in September, 110 sea trout were caught (68% returned), in October 68 sea trout were caught (63% returned) and in November 57 sea trout were caught, 100% of which were released.

In total, 170 sea trout were caught by nets. Of these 64 were caught in the Spring, 105 in the Summer and 1 in the Autumn. Fourteen sea trout were returned (8%).

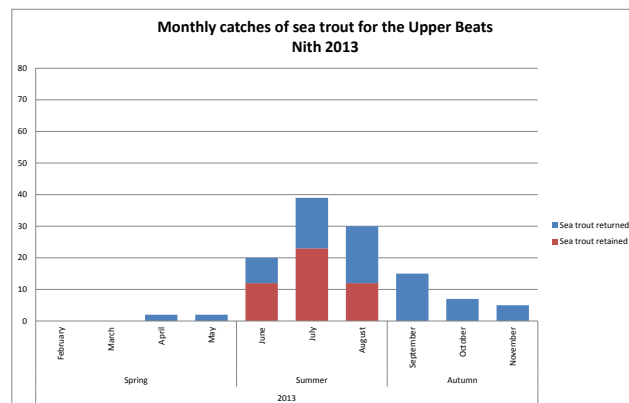
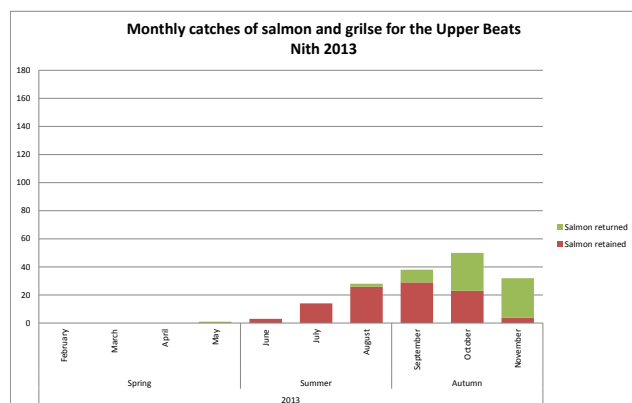
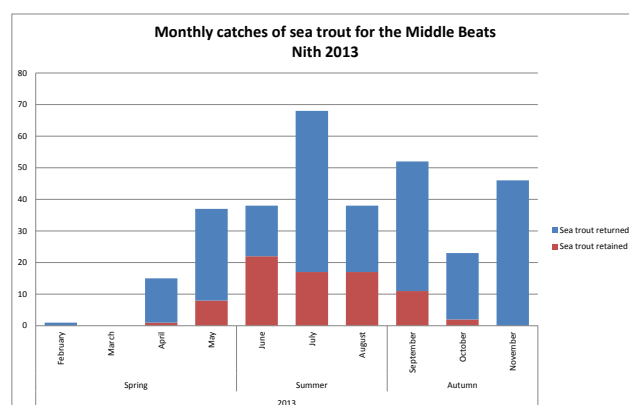
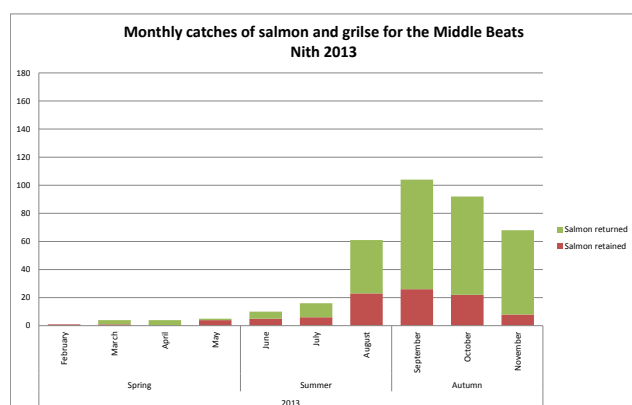
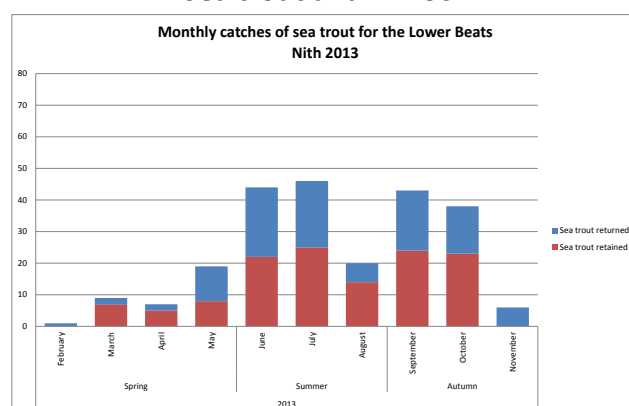


Distribution of salmon and sea trout catches for Lower, Middle and Upper beats during 2013

Salmon and grilse



Sea trout and finnock



salmon returned salmon retained

sea trout returned sea trout retained

The above charts show the distribution and timing of salmon and sea trout caught during 2013. The charts highlight the fact that the majority of the salmon were caught in the Lower beats during this season, most likely due to the lower water levels holding them back. It can also be seen that the peak run of salmon occurred in September rather than October.

As can be seen from the sea trout catches, the main run occurred in July although there does appear to have been reasonable numbers of sea trout present in the river from May/June right through the season. The majority of sea trout were caught by the Middle beats.

Overall, 552 salmon and 418 sea trout were returned. Given an average of 4500 eggs per salmon and estimating that 75% of those salmon returned were female we could estimate that an additional 1.8 million salmon eggs were laid down this year from salmon that were returned. Surmising an average weight of 1760 eggs per sea trout (2.2 lb average) and that 80% of sea trout returned were female, we can estimate that an additional 588,544 sea trout eggs were laid down in the Nith from sea trout that were returned.

Juvenile salmonid surveys 2013

by Debbie Parke, Operations Manager and Biologist

Every year the Nith Catchment Fishery Trust conducts juvenile salmonid surveys to establish if there have been any decreases in the number of juvenile salmonids spawned within the Nith catchment. These surveys are carried out using electrofishing techniques where a small electric current is passed through the water using specialised equipment, temporarily stunning the fish and allowing them to be captured. The fish are then anaesthetised, counted and measured before being revived and returned to the river. The data collected allows fishery managers to calculate the density of fish present within a given area. The densities of fry and parr are then classified using the Scottish Fisheries Co-ordination Centre national classification scheme (Godfrey, 2005). This classification scheme categorises the data according to five categories derived using data from over 1600 Scottish sites, allowing the performance of each site surveyed to be demonstrated graphically.

During the course of 2013, over 80 sites were surveyed using this technique and it was found that the average classification of sites in the main stem River Nith was “Good” for salmon fry and parr and “Moderate” to “Poor” for trout fry and parr. This ratio of salmon to trout is to be expected as the majority of trout spawn in small watercourses i.e. burns under 4m wide, whereas salmon favour larger watercourses. This was highlighted when Peter Landale from Dalswinton Estate joined us electrofishing one evening. Two watercourses were surveyed (see Table 1 below). The first was a tributary of the Nith with an average width of 3 metres. In this watercourse, no salmon fry were found but excellent densities of salmon parr were present. Trout fry and parr were found in excellent densities. The second site was located in the main stem of the River Nith, downstream of Policeman’s Pool on Dalswinton Estate. At this site moderate densities of salmon fry were found and excellent densities of salmon parr. The lower densities of fry were expected at this site as there was limited fry habitat (smaller pebbles and cobbles) and more parr habitat (larger cobbles and boulders). Trout fry densities were very low at this site and no trout parr were found.

Table 1. Density of juvenile salmonids per 100m²

Watercourse	Salmon fry	Salmon parr	Trout fry	Trout parr
River Nith	18	27	3	0
Pennyland Burn	0	13	72	8

Excellent	Good	Moderate	Poor	Very Poor	Absent
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These ratios of salmon to trout can be seen all over the catchment with the majority of juvenile trout being found in smaller watercourses. It is vital that these small, sometimes seemingly insignificant burns are taken into account when decisions regarding the placement of wind farms, micro hydro schemes, culverts and dredging are being made. These small burns are also more likely to be severely impacted by pollution incidents than larger watercourses, purely due to the dilution rate in larger watercourses being greater.

It has become more apparent in recent years that coastal burns also have an important part to play in our populations of brown and sea trout. These burns are not often considered but electrofishing surveys carried out in the Kirk Burn near New Abbey found some of the highest densities of juvenile trout ever found within the Nith catchment. A section of the burn was found to contain 165 trout fry per 100m² and 38 trout parr per 100m². The burn is not large enough to be able to support large numbers of adult brown trout and therefore, we expect the majority of these trout to smolt and become sea trout. These small coastal burns could be vital in the future when sea trout populations are at a national low.

Dumfries and Galloway Angling Association also joined us out electrofishing for a couple of days during 2013 and it gave them a great opportunity to see the fish being captured and for them to ask questions. If you would like to come out with us, please email Debbie at trust@river-nith.com.



Brown trout from the Kirk Burn

Conservation Policy 2014

Nith District Salmon Fishery Board and Nith Catchment Fishery Trust are issuing the following guidelines for the 2014 season to encourage the conservation of salmon and sea trout within the River Nith and its tributaries. With both salmon and sea trout stocks at low levels it is more important than ever that fishers adopt the following guidelines.

- All salmon caught prior to 1st June must be returned
- All hen fish caught in November must be returned
- All sea trout under 10 inches or over 3 lb must be returned
- No more than 2 salmon and 2 sea trout to be kept in any day
- Barbless hooks to be used to 1st June and during November
- Foul hooked fish must be returned to the water
- Ripe or darkly coloured fish should be returned to the water.
If in doubt, RETURN it!



Throughout the Nith catchment there are various additional conservation measures that local beats put in place to protect our stocks of salmon and sea trout. Further information can be found on proprietors' websites, which can be accessed via www.river-nith.com.

Habitat Improvement on the Crawick Water

During 2013, additional fencing was completed along the Crawick Water on Knockenhair Farm. A further 150 metres has been identified for fencing during 2014. This now means that 11.5 kilometres of the Crawick Water (total length 15km) is protected by fencing and planting. As the Crawick Water is one of the most important spawning tributaries within the Nith catchment this work is vital for ensuring that there is suitable habitat for salmon to spawn in and for juveniles to inhabit for the first few years of their lives. There is a three kilometre section of the Crawick which has not been fenced and planted due to the wild camping which takes place there during the summer. Unfortunately, fences are likely to be broken and removed in this area.



Fencing on the Crawick Water

Habitat fencing is an acknowledged fishery management/restoration tool used to enhance the holding capacity of nursery areas used by salmonids. The Nith District Salmon Fishery Board and Nith Catchment Fishery Trust have been engaged in this type of habitat improvement within the Nith catchment since 1995 and are convinced of its benefits. However, erecting fences on the banks of rivers carries with it inherent risks. Floods can wipe out riparian fences in a single episode so a winter like the one we have just experienced can prove costly. Fortunately, we have not suffered too much damage to our riparian fences and most of the repairs can be carried out by Board and Trust staff.

The Trust continues to explore funding streams to assist with the creation of more habitat schemes and is looking to the new tranche of SRDP funding to assist with this.

Barriers

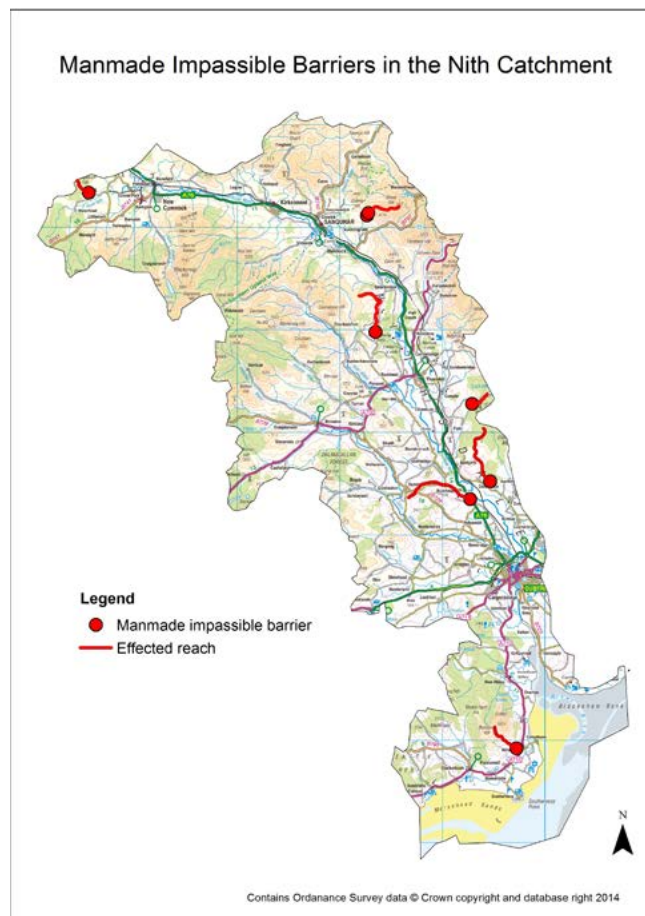
by Debbie Parke, Operations Manager and Biologist

The Nith Catchment Fishery Trust has been working with River and Fisheries Trust of Scotland to prioritise barriers within Scotland in a bid to gain funding from SEPA's Water Environment Fund to have the barriers removed. This has been a long process but finally two barriers within the Nith catchment are being put forward for removal out of a possible 4 barriers. This does not necessarily mean that they will be removed as they will be ranked against other barriers in Scotland depending on the environmental benefit. In order to qualify, their removal will have to positively impact on the Water Framework Directive classification that has been assigned to those watercourses. The two barriers being put forward are both disused weirs that are preventing the upstream migration of salmonids, one on the Laggan Burn and the other on the Clauchrie Burn. The removal of these barriers would open up over 8 kilometres of habitat to salmon and sea trout.

During the course of electrofishing and habitat surveys being carried out last year, an additional 3 barriers were found. One was located on the Kirkbean Burn. This is an old dam which is no longer used. Electrofishing surveys have found that there are good populations of trout upstream from this barrier and excellent populations of trout downstream. We believe that the populations upstream are resident populations, probably isolated when the dam was erected whilst the populations downstream are likely to be migratory and resident given that there are no other barriers present on the burn. The lower survey site was found to contain the highest densities of trout ever recorded within the Nith catchment. SEPA are aware of the barrier and are currently trying to determine who owns it.

The other two barriers that have been found are located on the Glendyne Burn, a tributary of the Mennoch Water. These barriers appear to be old water dams and we are currently trying to establish ownership. The Mennoch Water is an important sea trout spawning tributary and from walk over surveys, there appears to be no reason why sea trout should not also utilise the Glendyne Burn. The removal of both of these structures could potentially open up over 3.5 kilometres of new habitat.

Prioritisation within the Nith catchment has identified eight impassible man-made barriers present on the Nith which are preventing access to approximately 20 kilometres of habitat.



Barrier on the Glendyne Burn



Barrier on the Kirk Burn

Fishery Management Plan 2014 - 2018

During 2013, the 2nd five year Nith Catchment Fishery Management Plan was written jointly by the Nith District Salmon Fishery Board and the Nith Catchment Fishery Trust and was open for consultation. It has now been published and is available on our website www.river-nith.com. The Fishery Management Plan considers the management of all species of fish within the Nith catchment, as required by Scottish Government, and contains a list of prescriptions covering the next 5 years.

Summary of Prescriptions

Poaching (High Priority)

- Maintain a team of Water Bailiffs commensurate with the threat of illegal fishing.

Exploitation (High Priority)

- Encourage the promotion of sustainable fishing throughout the catchment with all of its proprietors using the angling code and to develop an annual conservation code to be made available to all anglers.
- Promote accurate recording of all catches.
- Further endorse sustainable fishing via its education programme and by raising awareness of the benefits of catch and release.
- Adopt and promote carcass tagging which is anticipated will be initiated within the term of this fishery management plan for the purpose of assisting with the sustainable management of fish stocks.
- Discourage further exploitation of the resource.

Engineering procedures (High Priority)

- Respond to applications to conduct engineering and offer advice on mitigation and environmental protection in order to prevent degradation of habitat or fishing potential.
- Conduct monitoring in relation to engineering works.

Renewable energy (High Priority)

- Respond and comment on applications to construct renewable energy projects.
- Provide data and scientific input in relation to consideration of all renewable energy projects.
- Conduct monitoring to establish fishery data.
- Recommend mitigation to prevent damage to the resource.

Biosecurity (High/Medium Priority)

- Take full cognisance of the River Nith Biosecurity Plan when responding to consultations.
- Combat invasive non-native species throughout the catchment and continue to raise awareness about this issue.
- Participate in catchment, local, national and international initiatives to combat INNS.

Habitat degradation (High Priority)

- Carry out habitat surveys within catchment to identify potential habitat improvements.
- Carry out habitat works where identified and permitted.
- Maintain existing habitat schemes.

Access for fish (High Priority)

- Prioritise barriers within the Nith catchment using recognised barrier assessment tools.
- Remove temporary impediments to migration.
- Seek removal of any man-made obstruction to fish.

Water Quality (Medium Priority)

- Liaise with SEPA and other agencies regarding potential or existing water quality issues.
- Respond to any reported incident with the potential to impact on fish stocks and pursue through appropriate channels.
- Expand the Riverfly Partnership Anglers Monitoring Initiative.

Marine survival (High Priority)

- Participate in appropriate local, national and international research projects.
- Work with other agencies to gain knowledge.
- Use latest science to advise and make informed management decisions on local and national levels.

Predation (Medium Priority)

- Conduct predator counts to provide accurate data for license applications.
- Apply for annual licences to cull predators.
- Conduct annual licenced predator culls.
- Conduct mink trapping within the Nith catchment.
- Improve counting techniques and keep abreast of alternative means of control.

Fish stock data (High Priority)

- Conducting electrofishing surveys throughout the catchment.
- Conduct repeat annual electrofishing surveys at core sites throughout the catchment to assess annual fluctuations.
- Carry out scale reading of adult and juvenile salmonids to gain data on the structure of fish populations.
- Continue to participate in national research programmes to determine stock dynamics and populations trends within the Nith catchment.

Artificial enhancement programmes (High Priority)

- Continue to operate a hatchery at levels agreed by the NDSFB Stocking Committee.
- Endeavour to maximise natural stock production by improving habitat, access and conserving stocks of returning adults rather than stocking artificially.
- Authorise and stock fry into areas identified.
- Monitor any salmon and sea trout stocking.
- Comment on applications made to Marine Scotland to stock brown trout.



Fisheries Management in the Nith Catchment



The Nith Catchment Fishery Trust (NCFT) is a company set up in 2009 with charitable status whose aims and objectives are:

- To advance environmental protection and improvement by conserving and enhancing all species of freshwater fish and their environs within the River Nith catchment, for public benefit.
- To advance the education of the general public through raising awareness of aquatic ecosystems including their fauna, flora and economic activity within the River Nith catchment.

The NCFT works within the jurisdiction of the NDSFB, an area of 1200km².

In 2008 a Fisheries Management Plan (FMP) was developed for the Nith Catchment. The Nith FMP was one a series of plans developed throughout Scotland supported by the Scottish Government. The FMP incorporated strategies and plans to address issues specific and unique to the River Nith Catchment with its thriving industry of open cast coal mining. The plan also recognised the growing awareness of the threat of non-native invasive species and to that end the Nith Trust developed the Nith Catchment Biosecurity Plan. Both the Trust and the Board work together closely to achieve the objectives of the FMP.

Coal Mining and River Diversions

There are a number of Open Cast Coal Mines located in the upper region of the Nith catchment. Since 2000, 3km of the River Nith has been diverted in order to access coal reserves. The Trust is involved with the consultation process, habitat restoration and the monitoring associated with these diversions.



Pier Mining Ltd river diversion near New Cummock



Maxwelltown High School Angling Day at Drum Loch

Youth Angling

As the average age of anglers increases it is important to encourage young people to take up the sport. The Trust arranges angling days for schools throughout the catchment to introduce them to angling. The Trust has also been involved with the Dumfries and Galloway Fishing for Knowledge Project.

Education

One of the main aims of the Trust is to increase the awareness and knowledge people have about the aquatic environment. Projects such as Salmon in the Classroom and Raging Rivers enable us to target primary and secondary school pupils. Other events such as local environment fairs and country fairs also help to get the message out.



Pre School pupils visiting the NDSFB hatchery

Crayfish Monitoring

American Signal Crayfish are found in some of the catchments that border the Nith. The NCFT carries out regular monitoring of selected sites throughout the catchment. If crayfish are detected, containment and eradication options can be quickly put into action.



Signal Crayfish, a threat to the Nith



Habitat Improvement

During 2010/11 fencing was erected along the Crawick Water, an important spawning tributary, to prevent livestock from



DG Riparian Invasive Non-Native Species Project

The NCFT has been targeting the control of Japanese knotweed, Giant hogweed and Himalayan balsam along the banks of the River Nith and its tributaries. SEPA, Landfill tax and Dumfries & Galloway Council fund this project and Trust staff, Board water bailiffs and volunteers all assist with carrying out the work.

Fishery Awareness Seminar

Industry and the associated development/construction can have serious impacts on the aquatic environment. In order to raise the awareness of these impacts a Fisheries Awareness Seminar was held to which local stakeholders and those involved in the planning processes were invited. The day included an electrofishing demonstration and presentations.

Riverfly Anglers Monitoring Initiative

Volunteer anglers were trained, using the Riverfly Partnership methodology, to carry out aquatic invertebrate surveys. The data gained from these surveys is shared with SEPA so that pollution incidents can be identified and dealt with promptly.

Contact details

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board@river-ntih.com
www.river-ntih.com



Injecting Japanese knotweed for the Nith INHS Project



Looking at the catch from the electrofishing demonstration



Training in aquatic invertebrate surveying



Corsebank habitat scheme on the Crawford Water



Setting netting Shaver Loch for brown trout

Stillwater Fishery Census

The NCFT carried out a still water census to record all of the still waters in the catchment. The species of fish, size and type of fishery was inputted into the database which continues to be built on.



A lamprey captured during an electrofishing survey

Electrofishing Surveys

Electrofishing surveys are carried out to monitor the health of the catchment. Surveys are primarily aimed at salmonids but all fish species are recorded.

Celtic Sea Trout Project

The Celtic Sea Trout Project is a partnership between the countries bordering the Irish Sea. The project is designed to gain a better understanding of the marine life of sea trout. The Board and Trust sample sea trout from the freshwater and marine environments for genetic and micro chemical analysis.



Sampling for sea trout in the Solway



Celtic Sea Trout Project

by J. Henderson, Trust Director

The Nith Catchment Fishery Trust has assisted the Nith District Salmon Fishery Board to complete the work required in relation to the Celtic Sea Trout Programme (CSTP). This work has involved the Trust in the collection of a number of samples at various stages of the sea trout's life cycle. Scales were taken from adult fish and genetic samples from juveniles. Samples were obtained from the fresh water and the marine environment over a period of three years. The CSTP project has now come to a close and while it will be some time before the project papers are finally written and published, there are some very interesting results emerging broadening our knowledge about sea trout.

So what do we know now about our Nith sea trout that we did not know prior to the CSTP?

Sea Lice

Concerns have been raised that the reduced numbers of sea trout are the result of increased numbers of sea lice on our fish returning from the sea. The presence of sea lice on sea trout captured at sea was studied during the CSTP.

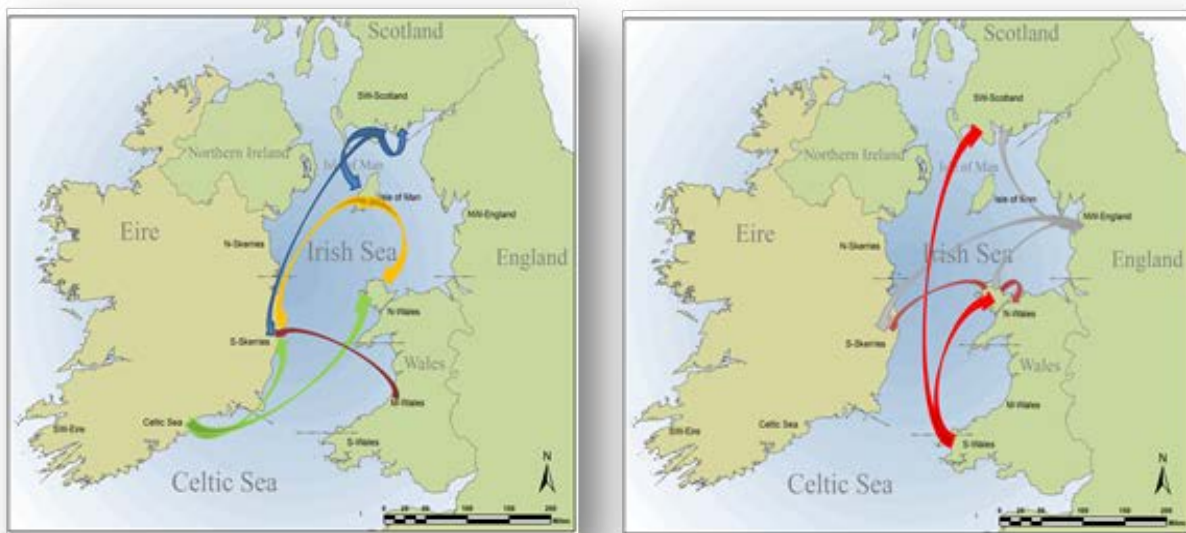
Two species of sea lice were found on sea trout captured during the marine sampling conducted by the CSTP they were **Lepeophtheirus salmonis (LS)** and **Caligus elongates (CE)**. Over the course of the project 1014 sea trout were captured in the marine environment. The mean burden of *Lepeophtheirus* was 3.5 lice per fish and for *Caligus* it was 3.8 lice per fish. These results prove to us that our population of sea trout that are returning from the Celtic Sea are not carrying sufficient levels of sea lice to warrant concern.



Sea lice

Migration

Ask any angler on the river bank where our sea trout go when they migrate to sea and the responses are many and varied. The facts are that we knew very little about where our sea trout migrated to until the work of the CSTP. Part of the research conducted by the CSTP involved the collection of samples for genetic analysis. Using samples obtained from juveniles captured in the freshwater environment in rivers which discharged into the Celtic Sea, a genetic baseline was established for regions surrounding the Celtic Sea.



Sea trout migration routes within the Irish Sea

Fish captured at sea could then be assigned back to region of origin. This work has enabled us to prove that some of our fish are migrating as far as 300 kilometres from their region of origin. Indeed the results have proven that sea trout are utilising the Celtic Sea as one large territory i.e. fish of Welsh origin were found in the Solway, fish of Solway origin were found off the coast of the Republic of Ireland. The fact that sea trout from all around the Celtic Sea are utilising it as a communal territory was unknown prior to the CSTP.

Prey Species

The CSTP research looked at the stomach contents of sea trout captured at sea. This work identified, where possible, the dietary preferences of sea trout in the Celtic Sea at different stages of their development. The results of this work has revealed the level of dependency that sea trout in the Celtic Sea have for a limited number of prey species.



Sea trout gut analysis

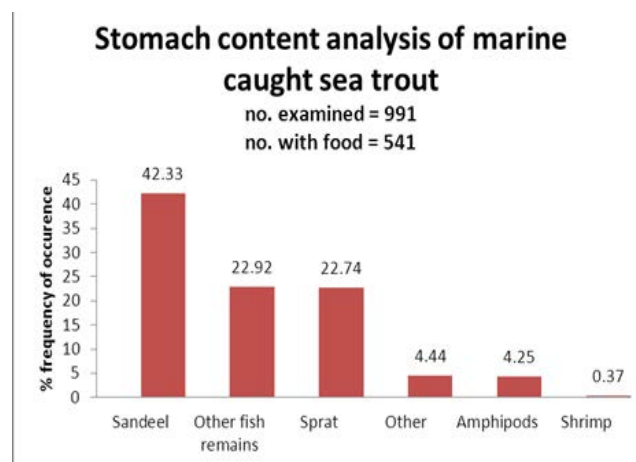
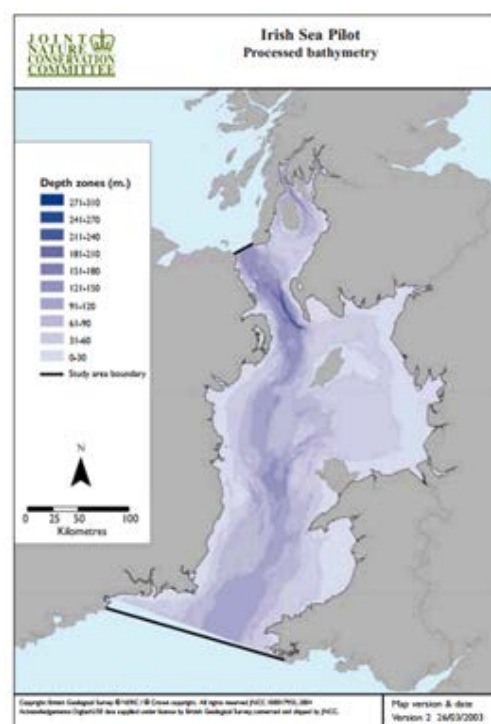
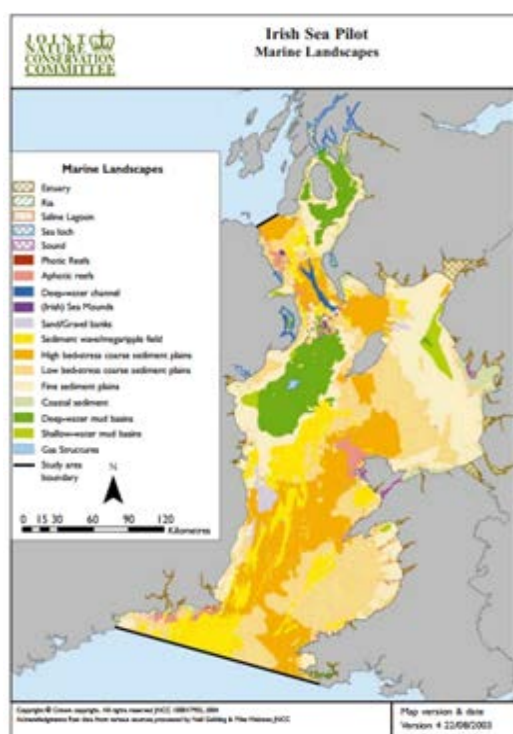


Chart showing stomach content of sea trout

The importance of Sandeel, sprat and herring cannot be underestimated as key components of sea trout diets in the Celtic Sea. These results have serious implications for fishery managers when considering developments such as renewable energy projects based in the marine environment in areas of, now known, sandeel, sprat or herring habitats.

Preferred Habitats at sea

The CSTP established that whilst sea trout utilised the whole of the Celtic Sea they were found to prefer areas of specific depth and sea bed. These areas consisted of shallow water with a sea bed consisting of fine/coarse sediment plains. Unsurprisingly these are the areas utilised by sandeels and sprats. These results further endorse the importance of specific areas within the marine environment in relation to potential development.



Marine charts of the Irish Sea

Sea trout stock status

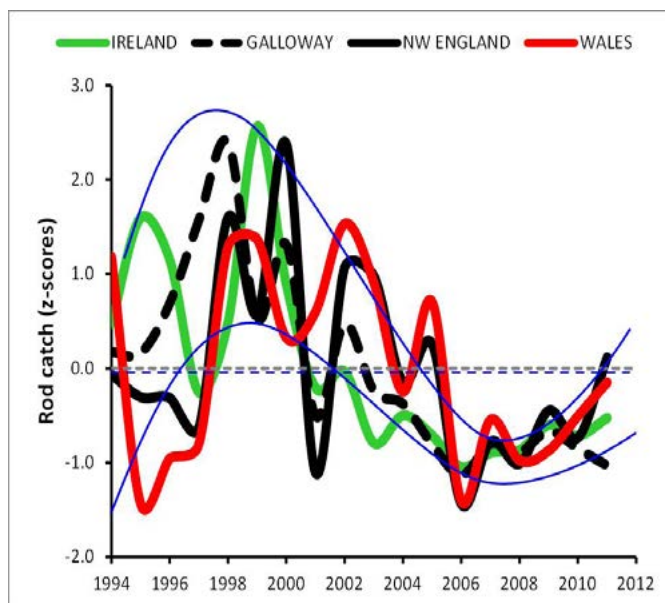
At this time when many rivers are experiencing reduced catches of sea trout many anglers compare the catches recorded on their local river with those of a neighbouring river or another famous fishery previewed in one of the glossy fishing magazines. We all hear of the “red letter” days experienced by individuals but to get a real picture of what is going on you have to compare catch data statistics which indicate trends. The CSTP looked at the current status of stocks of sea trout around the Celtic Sea based on previous recorded catch data from Ireland, England Wales and Scotland. Those figures show that whilst individual rivers do from time to time produce better catches than others, the trend for all rivers in all countries around the Celtic Sea is similar. From a peak in the mid-1990s catches dropped to a low point in 2006 and are now starting to rise again.

Implications For Management

Having gained this additional knowledge about our stocks of sea trout, what are the implications for managing these fish in the future? Currently, throughout the United Kingdom and Ireland there is the will to harness renewable energy in a bid to reduce the reliance on fossil fuels for our energy requirements. Projects such as the Robin Rigg Windfarm in the Solway appear to be given a presumption of a positive response in planning, despite vociferous objections from Nith District Salmon Fishery Board (NDSFB). The political will is firmly behind the renewable industry and it is difficult for a fisheries management organisation such as NDSFB to fight alone against a powerful industrial conglomerate with political support. However, armed with the knowledge now gained from CSTP we could expect the support from Wales, Ireland, Isle of Man, England and Northern Ireland in fighting any development that could potentially impact on sea trout in the Celtic Sea.

Commercial Fishing

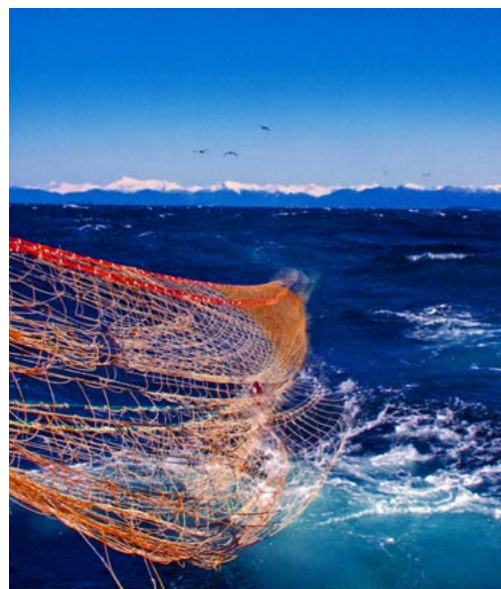
Now that we know that sea trout from all countries bordering the Celtic Sea communally use that marine area as a feeding /maturing territory prior to returning to their natal rivers of birth, we must be mindful of any commercial fishing activity which could potentially impact on sea trout. Prior to the CSTP proving that our Nith sea trout could migrate up to 300 kilometres away from the estuary of the River Nith we would not have been concerned about commercial fishing activity off the coast of Ireland for example. In fisheries management terms we must work with our colleagues around the Celtic Sea to ensure that commercial fishing, licenced in another country, does not adversely impact on our stocks of sea trout. An example of this would be a sandeel or sprat fishery taking industrial quantities of these fish from the Celtic Sea. Armed with the knowledge of the importance of these species in the food chain of sea trout in the Celtic Sea, we should collectively object to our respective governments.



Trends in sea trout catches around the Irish Sea



An off shore wind farm - potential threat to our sea trout?



Commercial trawler

Ulcerative Dermal Necrosis update

by Sandra Schlittenhardt, PhD Student

My name is Sandra Schlittenhardt and I am currently in my second year as a PhD student at the Institute of Aquaculture in Stirling. The PhD is partly funded by the Association of Salmon Fishery Boards and is focussed on skin infections of wild salmonids (Atlantic salmon and sea trout) when they return from sea.

The original aim of my studies was aimed on finding a causative agent of Ulcerative Dermal Necrosis (UDN), a skin condition that lead to serious mortalities in wild salmon and sea trout stocks in Britain and Ireland in the late 1960's and early 1970's. As you might have heard, a couple of fish were diagnosed with UDN in 2012, which lead to the setup of my PhD since it was feared that an outbreak as severe as the one in the 1960's might occur in the following years and the ASFB wanted to know what was causing UDN and whether anything could be done to prevent the outbreak and spread of the disease.

A lot of research was done during the previous epidemic, but no cause for UDN could be identified. Since the isolation and cultivation techniques of fish pathogens have increased dramatically during the last 40 years, I decided to try isolating a possible pathogen that my predecessors were not able to isolate with their means in the 1960's, but might be possible to find with new and/ or improved techniques that are available nowadays. I therefore trained staff from various fishery boards, including Jim Henderson, Debbie Parke and David McMichael from the NDSFB to recognise diseased fish and sample them for me. Samples included blood samples, swab samples for microbiology and tissue samples for virology, electron microscopy and histopathology.

Unfortunately for me, but fortunately for everyone else, UDN did not break out as ferociously and widespread as predicted and diseased fish were only reported to me very sporadically and sampled even less frequently. The microbiology and virology samples did not show any significant results and evaluation of the histopathology samples revealed that not all of the fish sampled actually suffered from UDN. Therefore, I could not do any infection trials as planned and the PhD had to be altered.

I am still on the lookout for UDN affected fish, but am also looking at *Saprolegnia* species (the fungus that affects a lot of kelts very badly and is also frequently found on any other skin injury of fish) of different Scottish rivers to find out if it's always the same species causing mortalities in salmon and if that species has different virulence and pathogenicity from river to river.

The results of that study will hopefully be able to help explain why some rivers have severe problems with fungus while others are only affected mildly.

Therefore, I took swab samples from fungussed fish of the rivers Conon, Nith and Shin at the end of last year to isolate the fungus, a process that is still ongoing because *Saprolegnias* are very slow growing and need to be subcultured quite often.

I am planning on taking more samples from more Scottish rivers as soon as possible and also resample the rivers I already sampled to see if the species are changing throughout the year, but that has not been possible with the recent rain falls and high water levels. Once the fungi are isolated properly, it is planned to start some reinfection trials with farmed fish to see if the isolates from the different rivers show differences in pathogenicity and mortality.

Please be on the lookout for any suspicious fish, be it for UDN or for fungussed fish, and report them to the NDSFB or NCFT. Thank you very much for your help!



Salmon showing classic signs of UDN - white marks on head

Riparian Invasive Non-Native Species Project

by Debbie Parke, Operations Manager and Biologist

The Riparian Invasive Non-Native Species Project has been running since 2010 and completed its 4th year of practical, on the ground control in 2013. The Project is funded by the Scottish Environment Protection Agency's Restoration Fund, the Landfill Fund and through time inputted by both the Nith Catchment Fishery Trust and the Nith District Salmon Fishery Board. The project has been very successful and to date over 12840 m² of Japanese knotweed and 52 kms of Giant hogweed have been treated.

Both of these species are difficult to eradicate due to their life histories. Giant hogweed are perennial plants that take five years to become sexually mature and develop flower heads. They can grow up to 5 metres tall and each large white, umbrella like flower head can produce in excess of 20,000 seeds. In order to control them, annual spraying of any Giant hogweed plants is required for a period of 10 years or more. This is because the seeds can lie dormant in the soil for this length of time.

Japanese knotweed is a perennial plant that has large rhizomes beneath the soil. Although Japanese knotweed is not able to set seeds, as currently all of the plants in the UK are female, they are able to spread via small pieces of stem, crown and rhizomes, which produce roots and establish a new stand. Damaging an existing stand of Japanese knotweed by cutting, strimming or digging can cause it to spread and infect new areas. This is especially damaging if it is spread close to buildings, roads or other infrastructure as tarmac and concrete pose no problem to this plant which is renowned for establishing itself in lava fields in its native territory.

The dry weather experienced during the 2013 growing season made the treatment of Japanese knotweed and Giant hogweed more efficient as spraying could be carried out and lower river levels meant that stands on the very edge of the river could be accessed easily. Three Seasonal Invasive Species Control Officers were employed to carry out control of these species.

During May and June, 52km of river bank from Penpont to Dumfries was treated for Giant hogweed and was repeated twice. This large plant poses a risk to river bank users as contact with its sap can cause photodermatitis, leaving scars on the skin. Japanese knotweed is treated between July and September. During this period over 2836 m² of Japanese knotweed was treated for the first time and 9591 m² was checked and re-treated if required. This equates to a total of 86 stands.

In 2014, the Trust will continue with the control of Japanese knotweed and Giant hogweed along the banks of the River Nith, Cairn Water and Scaur water. Funding from Dumfries Common Good Fund, D&G Council has been secured to carry out the control of these species along the bank of the Nith in Dumfries. Through the project we have trained volunteers in the safe use of Pesticides (PA6AW) so that they will be able to continue the treatment of any emerging plants after the close of the project. In 2014, two volunteers will be offered full training to assist with treatment in the Burgh water.



Japanese knotweed at Six Mile Corner on the Cairn Water - before and after

American Skunk Cabbage

by Emily Iles, Project Officer

Invasive non-native species pose a threat to biodiversity, being capable of rapidly colonising a wide range of habitats and excluding the native flora and fauna. The Nith Catchment Fishery Trust is always on the lookout for new invasive species and in 2011 some anglers reported finding American Skunk Cabbage on the Cairn Water. Results of investigations by the NCFT have found that Skunk Cabbage had been introduced into ponds some years ago as ornamental plants. These plants are located at the top of the Cairn and subsequently, 40 plants have been discovered 3.5km downstream of the original site.

American skunk cabbage is native to North America and was introduced to the UK via horticulture, where it was prized as an ornamental plant. American skunk cabbage needs a wet site but has no specific soil requirements and occurs in a variety of soils from light sand to heavy clay that is acid, neutral or alkaline. It is a hardy perennial lowland plant, but has been known to grow at altitudes of up to 1400m.

Skunk cabbage can be identified by its large yellow flowers that emerge in spring and emit a strong odour, like that of a skunk, turning to small green berries in summer. The leaves can grow up to 90 cm height and are thick and leathery in texture. Seeds may be dispersed via waterways but also by birds and mammals, as occurs in its native range. American skunk-cabbage is able to form dense stands and may negatively impact on some native plants, out competing them by shading them out.



American Skunk Cabbage on the Cairn Water

The NCFT carried out control measures in 2013, spraying a glyphosphate solution onto the leaves of the plant. Repeat spraying of the plants will take place in 2014.

North American Signal Crayfish

by Debbie Parke, Operations Manager and Biologist

North American Signal Crayfish were found in the Cargen Water, a small lower tributary of the Nith, in 2012. During 2013 a detailed survey was carried out to identify their distribution within Cargen Water. To date they have been detected in Lochrutton Loch and 600m downstream of the outlet of the loch, in the Lochfoot Burn. Various control and containment options have been considered such as barriers, electrocution, biocide and manual removal but unfortunately none of these methods are more than 80% effective. Also due to the fact that it is not possible to remove the crayfish from the loch itself, any areas of removal work carried out in the burn will quickly be re-infected. The Trust will continue to look for ways to prevent the further spread of these crayfish but ultimately the only way to protect our watercourses is to stop them entering them in the first place!

To this end we have erected signs up around the catchment to inform water users of the risks posed by accidentally or intentionally transporting invasive non-native species between watercourses. Further information and signage will be distributed on an ongoing basis.



Bio-security sign at Nunholm

Fishing for the Future Project

by E. Iles, Project Officer

Education is an important objective of the Nith Catchment Fishery Trust. The Trust has delivered education projects since its inception. Recently the Trust has set up a new education project called 'Fishing for the Future', supported by The Holywood Trust and European funds through Dumfries and Galloway Fisheries Local Action Group (FLAG). Emily Iles has been appointed as Project Officer to deliver the project and it has now been up and running since the 1st of November 2013.

There are 15 schools and groups throughout the catchment involved. Seven sessions have been planned throughout the school calendar year, which have been designed to demonstrate the connectivity between the freshwater and marine environments. Sustainability of fishing, from recreational angling and commercial fisheries is introduced to participants and the importance of these industries to the rural economy and health of local communities explained.

So far, Session 1 has been delivered to 252 participants, which consisted of a field trip to the Trust's facility at Auldgirth. During their visit participants were introduced to the Atlantic salmon and their lifecycle, using colourful display boards and electrofishing equipment to explain the process of surveying the river for fry and parr during the summer months. The opportunity to see live adult salmon and their eggs got a great reception and many interesting questions were asked. The work of the Trust and the management of the river were explained in more detail, covering topics about certain threats that salmon face in the river, such as pollution and poaching. Different commercial and non-commercial fisheries were also explained. A haaf net was used to demonstrate a culturally important, commercial fishery, used in the River Nith's estuarine waters.



Pupils from Kelloholm Primary pretending to be salmon in a net!

Age ranges of the participants are from early primary to higher biology students. It is really exciting to have the support of the high schools and seeing the sessions expand slightly to more in-depth topics such as scale reading and fish dissections, used by fisheries scientists in the field.



Higher Biology students dissecting a rainbow trout

Fish tanks have now been set up in classrooms and community halls and are incubating salmon eggs. Teachers have mentioned how engaged participants are and how excited they are to learn more in future sessions. It is generally felt that by learning such topics, participants gain a better understanding for the environment, learn how to act responsibly towards nature, particularly when fishing, and how sustainable use of our fisheries can be achieved.

Outreach events

The Nith Catchment Fishery Trust attended and ran a number of events through out the year to raise awareness of the aquatic environment and demonstrate the work of the Trust.

Events attended

Burgh River Opening Ceremony
 D&G Environment Day
 Fintastic Tales Open Days
 Galloway Country Fair
 Allanton Peace Festival
 Two youth angling days at Drum Loch
 Salmon in the Classroom
 YPSS Pond Dipping Days
 Burgh Anglers work party days x 3
 D&G Invasive Non-Native Species Seminar
 SNH INNS Seminar
 Friars Carse Hotel Directors visit
 Rockcliffe World Oceans Day
 Celtic Sea Trout Project event
 Electrofishing demonstration with Peter Landale, Dalswinton Estate
 Electrofishing demonstration with Dumfries and Galloway Angling Association x 2
 YES project electrofishing demonstration
 Environment Day competition winners visit
 Poets and Land workers BLOG



Below is a summary of some of the meetings and training courses attended by Trust staff during 2013:

Meetings attended

NCFT Directors meetings
 NCFT AGM
 Fisheries Local Action Group meetings x 10
 Burgh Anglers AGM
 NDSFB Anglers meeting
 NDSFB Board meetings x 4
 NDSFB AGM
 D&G Council Outdoor Learning meeting
 RAFTS members meetings
 RAFTS AGM
 D&G Local Invasive Non-native Species meetings x 2
 D&G North American Signal Crayfish meetings x 2
 Funding meetings x 4
 RAFTS Barrier Priorisation meeting
 RAFTS Regional meetings x 1
 Friars Carse fishing meeting
 SEPA Flood Defence meeting
 Northern Periphery Project funding meetings x 2

SFCC committee meeting
 Inshore fisheries surveys meeting

Training courses and Conferences

SFCC Biologist's meeting
 UDN sampling procedure course
 RAFTS conference
 Tweed Sea Trout meeting
 Manual Handling course
 4x4 off road training course
 ATV training course
 Institute of Fisheries Management Noise and Vibration conference
 SFCC Habitat course
 PA6AW Pesticide courses x 2
 SFCC GIS course
 SFCC database course
 National Salmon Stocking conference

The Scottish Fisheries Co-ordination Centre (SFCC)

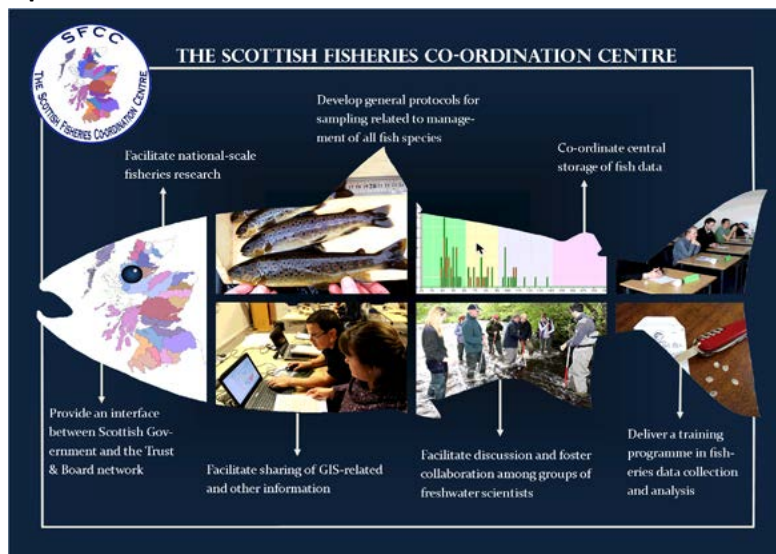
by Sean Dugan, SFCC Manager

Scottish Government and Fisheries Sector partnership

Formed in 1997 in response to salmonid population decline, The SFCC is an association of Fisheries Trusts, District Salmon Fishery Boards, Scottish Government, and others. Through ongoing collaboration with Marine Scotland Science, The SFCC provides a unique public-private partnership to ensure cross-pollination between local and national-scale fisheries management approaches.

Services provided to Fisheries Trust members in 2013

With The Nith Catchment Fisheries Trust joining the SFCC in 2013, a range of services will now be provided. These benefits are delivered in a cost-effective manner to all of the 23 SFCC member organisations.



CPD training

The centre established a number of new initiatives during 2013 under the broad aim of becoming more innovative, forward looking and inclusive which will serve Scotland's Fisheries Trusts in a more efficient and accessible manner. In 2013 members benefitted from courses in fish autopsy, database design, scale reading, and electro-fishing. The Nith Catchment Fisheries Trust specifically benefitted from additional courses in habitat surveying and Geographical Information Systems (computer mapping).



SFCC Habitat Surveying Course

Data storage and catchment mapping

The SFCC electro-fishing database, which currently holds data from over 19,000 electrofishing events across Scotland, allows input, storage and export of electro-fishing data, with training support provided by phone and online. With The Nith Catchment Fisheries Trust joining the SFCC in 2013, The Trust now have full use of the database already holding 56 electro-fishing events within the Nith Catchment area. Mapping data has also been provided to the Nith, with key data sets for map production and data analysis delivered at a lower cost to the Nith through group membership licence agreements.

Communication

The new SFCC website, www.sfcc.co.uk will be live in March 2014 and is aimed to be a valuable and innovative resource for members and other parties engaged in evidence-based fisheries management. Our YouTube channel is also being developed as a means to disseminate fisheries-related training and information in an instant and accessible manner. This is especially pertinent to Trusts in the South and North of Scotland who may find travelling to Pitlochry for courses cost-prohibitive.

Smolt data collation project

The SFCC was recently awarded a major contract from Marine Scotland Science (MSS) to collate all available data sets on smolt populations in Scotland. With assistance from fisheries Trusts and Boards, 29 smolt monitoring locations have been identified to date. The aim of this project is to assess the potential of identifying migration run times in the context of planned offshore renewables developments. An improved understanding of migration run timings is essential in designing development mitigation strategies if these are so required. This project will showcase the value of local data collected by Fisheries trusts and DSFB's in order to inform national-scale policy decisions.

Nith Catchment Fishery Trust

Statement of Financial Activities
(Incorporating an Income and Expenditure Account)
for the Year Ended 31st December 2013

	Notes	2013 Unrestricted fund £
INCOMING RESOURCES		
Incoming resources from generated funds		
Voluntary income		32,664
Activities for generating funds	2	591
Incoming resources from charitable activities		
Fishery Management		14,726
Invasive Non-Native Species Project		18,539
Young Anglers		-
North Atlantic Salmon Conservation Organisation		-
Events		-
Fishing for the Future		3,500
Education		1,860
Total incoming resources		71,880
RESOURCES EXPENDED		
Costs of generating funds		
Costs of generating voluntary income		-
Charitable activities		
Fishery Management		49,760
Habitat Works		-
Invasive Non-Native Species Project		17,415
Young Anglers		-
North Atlantic Salmon Conservation Organisation		-
Events		-
Fishing for the Future		3,548
Education		1,100
Governance costs		1,274
Total resources expended		73,097
NET INCOMING/(OUTGOING) RESOURCES		(1,217)
RECONCILIATION OF FUNDS		
Total funds brought forward		20,981
TOTAL FUNDS CARRIED FORWARD		19,764



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