

RIVER NITH CATCHMENT FISHERY MANAGEMENT PLAN

2008



CONTENTS

Foreword	2
Introduction	3
Description of the Catchment and Factors Affecting it	4
Aims and Objectives	6
Scope	6
Management Structures	6
All Species	6
Fishery Development	6
Bio Security	7
Education	7
Aims and Objectives for all Fish Species	8
Salmon	8
Sea trout	8
Brown trout	8
Grayling	8
Pike	9
Eels	9
Lamprey	9
Minnows	9
Stone loach	10
Stickleback	10
Tench	10
Perch	10
Rainbow trout	10
Description of the Fishery and Factors Affecting it	11
Analysis and Evaluation	15
Limiting Factors in the Nith Catchment Fisheries for each Species	16
Salmon	16
Sea trout	17
Grayling	17
Brown trout	17
Pike	17
Tench	17
Prescriptions	18
Monitoring and Review Process	20
Plan Monitoring and Review	20
References	21
Plates	21
Appendices	22

Cover photographs clockwise from bottom left - Blackaddie Bridge near Sanquhar, The Caul at Dumfries, Portrack Rail Bridge



FOREWORD

The River Nith Catchment Fishery Management Plan has been produced by the Nith District Salmon Fishery Board in consultation with other statutory agencies, proprietors of fishings, local government authorities, land managers and associated business and interest groups. The Plan sets out the proposed management actions considered necessary to maintain and where appropriate improve the fishery of the River Nith and catchment.

The River Nith is recognised for producing more salmon than any other river in Southwest Scotland. Salmon and Sea trout are economically important species to the River Nith corridor and surrounding area. However, the river contains many other species of fish which are equally important to the aquatic ecosystem and will require management input in the future. The River Nith Catchment Fishery Management Plan recognises the importance of all species and apports equal weighting to their management.

It is only through knowledge and understanding of the aquatic ecosystem, the species contained within and their interactions with the terrestrial environment, that we can begin to consider management. It is equally important to understand and appreciate the many organisations and different interest groups associated within the catchment.

I believe that the key to successful management of the fishery is to view the river and its catchment in a holistic way, recognising the importance of all species in the aquatic and riparian ecosystems. Equally, it is only via the mechanism of working with other stake holders in the catchment that effective management will be achieved without compromising other interests.



A handwritten signature in black ink that reads "T C Florey".

Thomas C Florey
Chairman
Nith District Salmon Fishery Board

INTRODUCTION

The River Nith is located in South West Scotland and discharges onto the north shore of the Solway Firth. The Nith rises from its source in Ayrshire and flows in an easterly direction before heading south through Dumfriesshire, travelling approximately 90 kilometres to its tidal estuary. The total catchment area drained by the Nith is around 1,200 km² (SEPA, 2007) and includes many significant tributaries that converge with the main river as it follows its course.

There are economically important fisheries for both salmon and sea trout in the River Nith catchment. In addition, other freshwater species co-exist with these migratory salmonid species and are the subject of some limited angling effort.

The Nith District Salmon Fishery Board (NDSFB) currently undertakes fisheries management within the River Nith catchment area. This statutory organisation has existed by reason of relevant fisheries legislation for approximately 150 years (NDSFB, 2008) and is currently constituted in terms of the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003. The basic remit of the Board is to manage and protect migratory salmonid species of fish. There is no management body in existence to manage non-migratory freshwater species of fish within the River Nith catchment. However, necessary steps are being taken to develop a Fishery Trust within the River Nith catchment area and it is anticipated that this body will assist in managing all fish species in the future as part of its function/remit.

The purpose of this River Nith Catchment Fishery Management Plan (RNCFMP) is to establish and correlate the current status of all fish stocks and fisheries within the River Nith catchment and to set out a strategy for their future management. The plan will set out the requirements for management structures, resources, research, investigation, protection and conservation initiatives necessary to overcome limiting factors impacting upon fish stocks within the Nith catchment. The goal of this plan is to ensure the sustainability of all species of fish and fisheries within the Nith catchment for the purposes of the environmental preservation of the indigenous species of fish and the ecosystems that they inhabit and for the educational and socio-economic benefit of future generations of people living within and who travel to the catchment for the purposes of recreational enjoyment.



DESCRIPTION OF THE CATCHMENT AND FACTORS AFFECTING IT

The River Nith is one of several rivers that flow into the north shoreline of the Solway Firth in South West Scotland. The Nith has a very productive salmon and sea trout fishery and on the basis of average annual catch statistic returns for salmon and sea trout from river systems throughout Scotland in recent years, as published by the Scottish Government agency Fisheries Research Services (FRS), it consistently produces returns of these species to rank it among the top ten rivers in Scotland.

The catchment of the River Nith is long and narrow in shape and spans an area of approximately 1,200 km² SEPA, (2007). The catchment originates from the upland, industrialised landscape around New Cumnock, noted for its traditional local industry of coal mining. Historically this industry employed underground methods for the winning of coal but now the coal is worked using surface mining techniques. The catchment extends from the industrialised upper catchment in East Ayrshire south through Dumfries & Galloway to the estuary in the Solway Firth. The land use through the majority of the catchment is dedicated to agriculture and many of the watercourses are foliated by deciduous trees. The river then traverses an urbanised area through the town of Dumfries, the largest town in South West Scotland. The tidal limit of the River Nith is at Dumfries but the river actually enters the sea at Glencaple village located approximately 7 kms to the south of Dumfries. To the west, the catchment includes the area around the village of Moniaive and eastwards to the Lowther Hills.



Water quality in the River Nith catchment has been classified by the Scottish Environment Protection Agency (SEPA) as A1 (Excellent), or A2 (Good) throughout the entire catchment area (SEPA, 2007). This greatly enhances the basis of a successful fish producing river system.

The River Nith catchment is amongst the most populated and industrialised catchments in South West Scotland. The catchment features a diversity of habitats including peat bogs, upland moorland, conifer and broadleaf woodlands, wetlands and semi-natural grasslands. Much of the catchment in the mid section, extending from north of Thornhill to Dumfries, is designated as a nitrate vulnerable zone.

The coastal section of the catchment of the River Nith is located in the Solway Firth. The tidal influence on this area is considerable and can range from 1 - 6 metres, depending on the height of the tide. Much of this coastal part of the catchment is dry at low tide.

The rainfall experienced in the Nith catchment area is impacted upon by the topography of the region. Annual average rainfall across the catchment is calculated at 1429 mm. (SEPA, 2007)

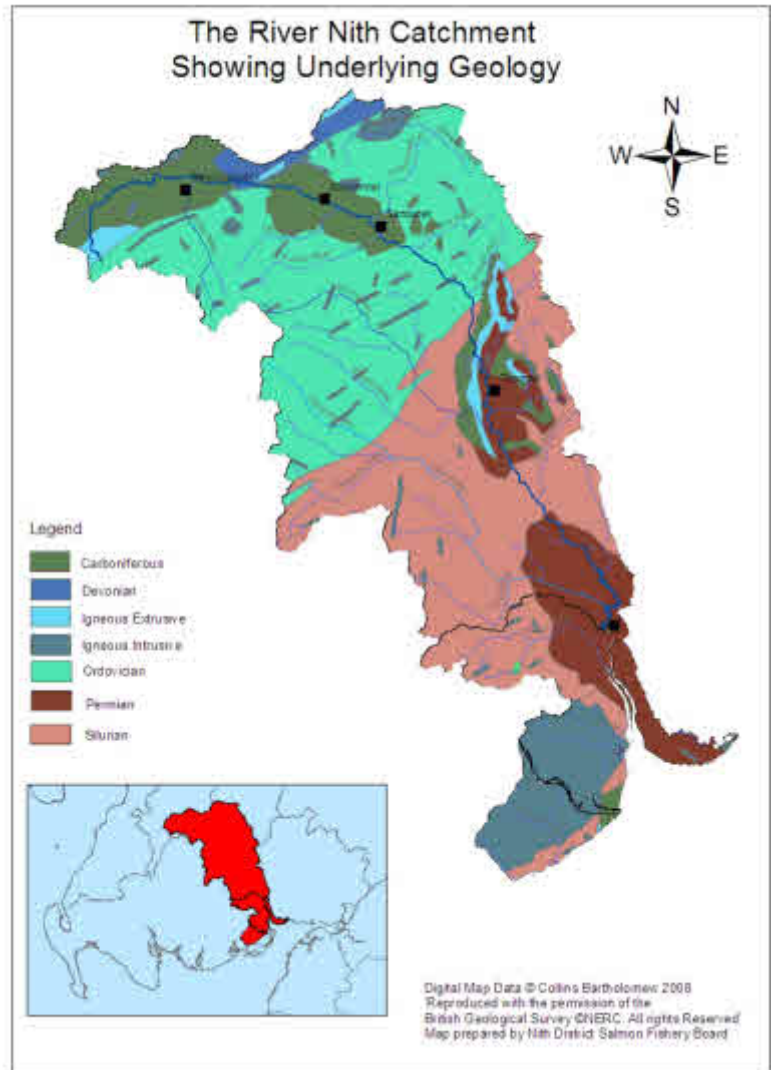
The geology of the River Nith catchment differs from many of the other south west catchments draining into the Solway Firth. Much of the geology to the west of the Nith catchment is predominantly granite. However, the granite gives way to a mixture of other geological features and combinations in the Nith catchment.

Large reserves of coal exist in the upper River Nith catchment in Ayrshire and extend down the River Nith valley to south of the town of Sanquhar. Sandstone is present around the village of Thornhill in the mid river reaches and large reserves of sandstone exist in the Dumfries area. Indeed, many grand buildings in the town of Dumfries and some in the city of Glasgow are constructed with locally quarried sandstone. Currently, coal is mined in the Nith catchment and sandstone is still quarried. Whinstone is quarried within the catchment on the western side of the River Nith.

Some areas of the upper River Nith catchment have been planted with conifer trees. Some of these plantation areas have since been deemed to be an inappropriate use of land for economic reasons and by reason of conflict with modern biodiversity theory and practice. Planting undertaken 40-50 years ago has been detrimental to nursery areas for salmonids and has changed the flood flow/retention characteristics of the river and its main tributaries. However, the situation is improving. Modern forestry plans within the River Nith catchment make provision for the removal of riparian coniferous trees and replanting with native broadleaf species. Conifer forests currently cover 15% and broadleaf forests cover 3% of the catchment area. (SEPA, 2007)

Large areas of the upper catchment are utilised by the industrial process of surface coal mining. Often these areas are reinstated to their former land use. However, long term conservation objectives are given a priority.

The land use in the River Nith catchment is predominantly agricultural. Sheep and beef farming comprise the mainstay land use although there are over 100 dairy units within the catchment. The more intensive dairy units are generally located in the lower valley bottoms while sheep are grazed on the hill tops. Arable land accounts for 13% of land use within the catchment (SEPA, 2007) with wheat and winter/spring barley as two standard examples of diverse crop farming. Large areas of the upper Nith catchment are categorised as rough grazing having Less Favoured Area (LFA) status (SEERAD, 2008).



AIMS AND OBJECTIVES

Scope

The scope of this plan is to encompass the management of all species of fish and their habitats for the benefit of fish communities within the River Nith catchment. Whilst this plan is intended to have a five year life span, it is designed to be flexible to adapt to the latest information, theories and best practices relating to fish conservation and related habitat. This fishery management plan will attempt to ensure that current populations of fish throughout the catchment are sustained, and wherever possible improved upon, having regard to the need to ensure that an ecological balance amongst all fish species is recognised and sustained. In addition, where absence of a species is discovered due to inadequacies then positive management actions will be instigated to reverse those absences, where possible and appropriate to do so.

Management Structures

One of the aims of the RNCFMP is to identify the requirements of specific fishery management organisations to ensure the proper and efficient management of all species of fish within the catchment area of the River Nith. Currently fisheries management in this area is conducted by the statutory body, the Nith District Salmon Fishery Board (NDSFB). The Board is a member of the Association of Salmon Fishery Boards (ASFB) and attends all council meetings of the Association. Through this membership, the Board plays an active participative role in Government consultation processes and development of national fishery and other related policies. It is envisaged that the proposed Nith Catchment Fishery Trust (NCFT) will manage non migratory salmonid species and, like the Board, will become a member of the Rivers and Fisheries Trusts of Scotland (RAFTS). Thus the Nith Trust will become part of the national network of Trusts and participate in relevant coordinated management policies where appropriate for the Nith catchment. One of the aims of this plan is to set out the working relationship and demarcation of responsibilities between the two management bodies. (Ref: Appendices 1 and 2)

All Species

As a consequence of the terms of freshwater fisheries legislation combined with the socio-economic importance of migratory salmonid species of fish in the River Nith catchment, the main thrust of fisheries management has been devoted to these species. Whilst many of the management interventions intended to benefit migratory salmonid species have borne generic benefits for other species of fish, these have been incidental. One aim of this plan is to recognise the importance, value and parity of status of non salmonid species of fish within the catchment.

Fishery Development

There are many established fisheries within the Nith catchment area and one aim of this plan will be to protect and expand existing fisheries, whilst exploring the opportunities for developing new fisheries for species that are presently not fished for or exploited. Any new fishery development must ensure that it is sustainable and does not compromise the current ecological balance.

Bio Security

A primary aim of this fishery management plan will be to ensure that the bio security of the River Nith catchment area is maintained. High profile publicity campaigns have been adopted throughout the catchment by NDSFB to ensure that parasites such as the devastating *Gyrodactylis salaris* do not get a chance to manifest themselves in the Nith catchment. The presence of American signal crayfish in the neighbouring Kirkcudbrightshire River Dee catchment has also been identified as a threat to the catchment's bio security. The fishery management plan recognises these issues and the necessity to take all required measures to preserve the bio security of the River Nith catchment.

Education

The current fisheries management policy actively promotes education in order to provide best information on the importance and significance of fisheries and the aquatic environment to the public. Fisheries managers regularly meet with local government departments, statutory bodies such as SEPA, Scottish National Heritage (SNH), non governmental organisations such as Royal Society for the Protection of Birds (RSPB), representatives of the construction, coal mining and forestry industries, as well as local community focus groups and schools. These meetings provide a forum to promote an awareness of the environmentally sensitive nature of watercourses within the catchment and to encourage and advise upon best practice in respect of any activities that might have an adverse impact upon them. There is no doubt that this proactive approach has yielded a greater awareness of the importance of the fisheries to the locality and the need to consult amongst interested stakeholders in order to preserve and protect the natural resources of the River Nith catchment fisheries. Accordingly the RNCFMP will provide for the continued development of education and awareness of the requirement to preserve all fisheries.

The fishery management plan for the River Nith catchment does not exist in isolation. It is essential that it is linked with other wildlife, conservation and land management plans due to the dependency and connectivity that many species of fish have on management actions and other species in the terrestrial environment.

The RNCFP is linked to and works in conjunction with:

- The European Water Framework Directive

- Dumfries & Galloway Biodiversity Action Plan

- The Scottish Environment Protection Agency (SEPA) River Nith Catchment Plan

- Forest Design Plans

- Ayrshire Biodiversity Action Plan

- Long term land management plans by the many country estates within the Nith catchment

The area over which the RNCFMP influences fishery management is the entire area within the jurisdiction of the Nith District Salmon Fishery Board. The catchment area includes the source of the River Nith at Prickenny Forest in East Ayrshire and all tributaries entering the Nith on its course through north Dumfriesshire to the Solway Firth. The catchment area also includes the water courses flowing into the Solway Firth on the north shore between the mouth of the River Nith and westwards to White Hill near to Sandyhills Bay (SFS Act 1868).

Salmon

Stocks of salmon in the River Nith are relatively healthy. However, some areas of the catchment do not contain salmon in sustainable numbers e.g. above difficult but passable obstructions. An aim of this plan will be to ensure that salmon can access as much of the catchment as possible to maximise the potential for salmon production within the Nith catchment. This aim will be achieved without compromising natural features or barriers.



Sea trout

Catch statistic returns and surveys of stocks of sea trout in the River Nith, like most other rivers in Britain, show a continued downward trend. This plan recognises separate habitats and areas throughout the Nith catchment accessible only to sea trout. These areas will be preserved for sea trout in order that this species does not have to compete with hatchery produced salmon. An aim of this plan will be to research the phenomenon of reduced sea trout numbers and conduct specific works with a view to restoring populations of this species.



Brown trout

Brown trout exist throughout the entire Nith catchment and there are some specific areas which this species favour. The River Cairn, Upper Nith and some of the major tributaries contain strong populations with large individual specimens. Conservation conscious anglers seldom take large brown trout, preferring to return these fish for future sport. It is known that separate genetic strains of brown trout exist in some of the inaccessible parts of the catchment. An aim of this plan will be to ensure that these populations are protected and not genetically altered by inappropriate propagation/hatchery operations. Another aim of this plan will be to further promote the conservation of brown trout in general throughout the entire catchment.



Grayling

Stocks of this species are healthy in the River Nith and they are actively pursued as a quarry species by a small number of anglers. Concern has been expressed in the recent past about the practice of wading by anglers in watercourses whilst fishing for grayling during winter months when salmon spawn is present in the gravels. An aim of this plan will be to develop best practice and fishing regulations for pursuit of grayling throughout the catchment. An aim will be to ensure that grayling fishing can continue to be developed further without compromising salmon stocks.



Pike

Pike exist in some of the lochs that are located within the River Nith catchment area. These fish are the subject of angling effort during the winter months. Pike also exist in the upper catchment of the River Nith in the New Cumnock area and are fished for but there is a perception that this species predares heavily on salmonids giving rise to persecution by well intentioned anglers. An objective for this plan will be to inform anglers about the likely levels of predation on salmonid species by pike. An aim of this plan will be to reduce the unnecessary, counter productive culling of pike.



Eels

Eels do exist throughout the catchment of the River Nith and over recent years there has been interest expressed by some people wishing to set up commercial fisheries to exploit this resource. Fisheries legislation relating to the Solway rivers stipulates that permission is required from the riparian land owner to fish for “white fish” and eels are considered to fall within this category. Fishery owners have sought advice and guidance from NDSFB when faced with requests for fishing rights from eel fishermen. In recognition of the fact that populations of eels are depleted across Europe, NDSFB has to date, advised against developing an eel fishery within the Nith catchment. An aim of this plan will be to record the presence of eels within the Nith catchment in the fish species database to identify specific key areas of the catchment favoured by this species in order to provide for their better protection.



Lamprey

Two species of lamprey exist in the River Nith catchment. Brook lamprey thrive where habitat exists in tributaries throughout the entire catchment. Sea lamprey are often observed in the lower sections of the main stem of the River Nith. No commercial fishery exists for these species, however large sea lamprey are known to have been killed in the past by anglers who are believed to have thought that by killing these species they were in some way protecting salmon. Their actions being justified by the fact that these species parasitize other fish. An aim of this plan will be to raise awareness about lampreys and their interrelationship with other species in the aquatic environment. The plan will also aim to support lampreys Annex II listing on the European Habitats Directive.



Minnnows

Minnnows exist throughout the catchment of the River Nith where suitable habitat exists, generally where quieter areas of the main flow of the river are found. This is an important species for the Nith catchment and forms part of the diet of many fish predators. In addition, the presence of this species is important in acting as an environmental monitoring species. An aim of this plan will be to monitor and record the presence of minnows within the fishery catchment.



Stone loach

Stone loach are plentiful throughout the entire catchment of the River Nith and, like minnows, this species forms an important part of the aquatic eco system of the River Nith catchment. Stone loach form part of the diet of predatory fish species. An aim of this plan will be to monitor and record the presence of stone loach within the NDSFB fishery database.



Stickleback

The three-spined stickleback exists in various parts of the catchment. This species has the tolerance to survive in aquatic environments when other species cannot. It is therefore deemed to be even more important than minnows or stone loach as an environmental quality indicator species.



Tench

Tench do not exist in the main stem of the River Nith. However they are found in a few still waters in the mid catchment (Bucleuch Estates). These are a sport fish quarry, and coarse anglers travel long distances to come to the area to fish for tench. Many still waters within the Nith catchment have the potential to be developed as tench fisheries. An aim of this plan will be to explore the opportunities to sustain and develop this fishery further.



Perch

Perch are present in very small numbers in the River Nith and in many still waters throughout the catchment. Anglers very occasionally catch perch when fishing for other species. An aim of this plan will be to determine population locations and densities within the catchment and monitor and control populations if required.



Rainbow trout

Rainbow trout are not native to the River Nith but are present throughout the catchment, primarily as a consequence of escapes from fish farms located in the catchment. Other sources of rainbow trout gaining access to the river Nith are the many still waters which stock this species for sport. Some of these still waters have inadequate screening to prevent rainbow trout escaping into the river system. This species has the potential to have an adverse impact upon native species of fish in the catchment by predation on indigenous native species and carrying disease vectors from fish farm to river. Aims of this plan will be to:

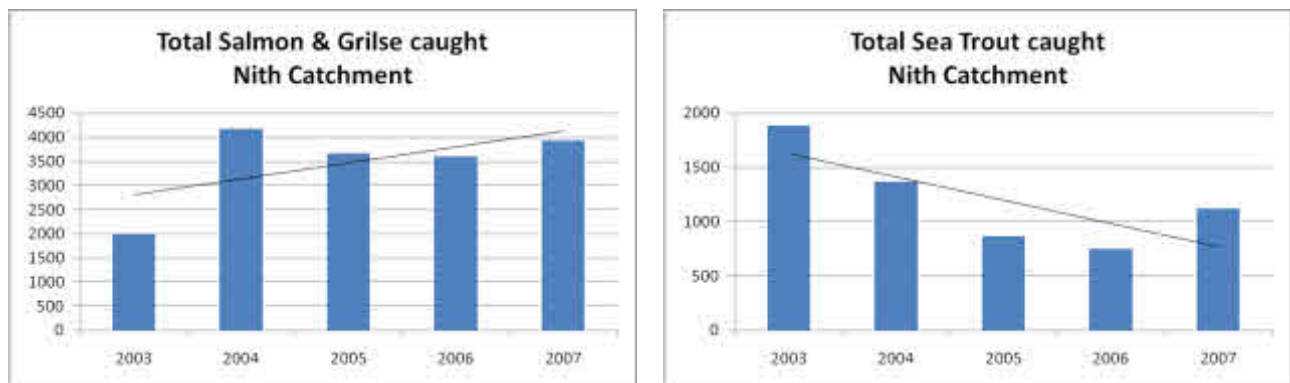


- Raise awareness among anglers about the environmental impacts of rainbow trout and what actions they can take to give assistance with control measures for this species
- Visit still waters to inspect bio security and fish retention systems to ensure that any stocked fish remain in the still water and are denied access to the river system
- Visit commercial fish farms on a regular basis to inspect their bio security methodology and to assist where possible in advising how to avoid instances of escapes

DESCRIPTION OF THE FISHERY AND FACTORS AFFECTING IT

Fishing for salmon and sea trout has for many years been important to communities throughout the catchment of the River Nith. Angling has also been exercised and developed by the owners of country estates bordering the Nith and its main tributaries. Angling associations have access to substantial parts of the river system from upper waters to tidal reaches. In addition there is public access for visiting anglers to a substantial part of the fishings available in the catchment at reasonable cost.

The angling season for salmon and sea trout on the River Nith extends from 25th February - 30th November. The recorded average annual catch of salmon for the catchment using all methods over the previous five year period is 3357 and is following an increasing trend. Conversely the recorded average catch of sea trout using all methods over the same period is 1497 and is following a decreasing trend (SEERAD, 2008). It is noteworthy that the River Nith produces on average an annual catch of salmon and grilse which places it amongst the top ten salmon producing rivers in Scotland.



Whilst angling effort is predominantly directed at salmon and sea trout, there are a number of anglers throughout the Nith catchment who have an interest in fishing for grayling. In the upper reaches of the River Nith, and some of the major tributaries, fishing for brown trout is popular. Fishing for pike is enjoyed by anglers in the very upper reaches of the River Nith.

Fishing in the tidal estuarial waters of the lower section of the River Nith is traditionally conducted by use of Haaf nets. This ancient method has Nordic roots and has been practiced on the Nith for hundreds of years. Haaf netting for salmon and sea trout is exercised on both sides of the River estuary. Fishing effort using this method is very much reduced from its former popularity in the 1970's/1980's. Some Haaf netting beats have been purchased by angling interests in an attempt to allow for better escapement and permit more fish to ascend into the upper River.



PLATE 4

One range of stake nets is located on the western side of the catchment. Salmon and sea trout fishing by net is conducted within the open season from 25th February - 9th September with a weekly “slap time” from 6pm on a Friday evening to 6am on a Monday morning.

Fishing for salmon and sea trout is conducted on one beat of the River Cairn by means of “net and cobble”. This fishery was once extensively exploited and produced many fish. However, in these conservation enlightened times, the fishery, whilst still operational, is only fished a couple of times per year.

Factors that affect the fishery of the Nith catchment include:

- **Inappropriate human exploitation** The River Nith catchment, like every other catchment with a stock of salmon and sea trout, suffers from the actions of a minority who seek to over-exploit the resource. Over exploitation manifests itself in many ways. Some fishers have the desire to kill every fish they catch. NDSFB encourages management organisations and owners of fishings to apply regulations to their individual beats to control the level of exploitation by limiting the number of fish killed and by encouraging the practice of “catch and release.” The NDSFB enforcement team enforces these regulations. In addition, NDSFB derives powers from fisheries protection legislation allowing it to apply to the Scottish Government for orders to regulate the fishery. Current management actions to mitigate against the inappropriate exploitation include the promotion of conservation of all stocks of fish but particularly sea trout, spring salmon and coloured unseasonable salmon.
- **Predation.** Predation of fish stocks occurs throughout the Nith catchment by a diverse range of species. Natural predation by native species can be considered to be “acceptable” provided that the natural balance is maintained. Current management policies and actions designed to reduce unacceptable predation on fish stocks include the trapping of mink throughout the catchment. Mink, which are non native to Britain, have been proven to predate on fish especially in areas where alternative prey is absent. The Nith catchment hosts significant populations of cormorants and goosanders. These species are controlled by NDSFB through the mechanism of government licensing. Seals are known predators of salmonid and other species of fish. NDSFB does not control seals as a matter of course, however, it retains the capability of doing so.
- **Poaching.** Poaching occurs throughout the River Nith catchment primarily due to the proximity of the river to significant centres of population and a localised tradition of “taking” fish. Practically every known method for removing fish from a river has at some time been used within the catchment. Some examples of popular techniques are netting, snaring, gaffing, ripping, use of poisons, explosives and traps. Current management actions to suppress poaching include the funding and operating of an effective fishery enforcement team. NDSFB operates a zero tolerance attitude to poaching and all cases are reported to the relevant authorities. Poaching is intended to catch salmon and sea trout but unfortunately also removes larger specimens of brown trout and grayling as a by-catch.
- **Habitat degradation.** Historically, the various types of state grant aid to the agricultural industry encouraged farmers to maximise the use and stocking of agricultural land in order to secure maximum grant aid benefit. This practice was to the detriment of natural habitats at field and watercourse margins. Bank side cover has become over grazed resulting in the subsequent loss of vegetation and the stabilising function that these plants provide to vulnerable water side margins. This has led to excessive erosion occurring in some tributaries. These impacts have also occurred on a greater scale in the main stem of the

River Nith. Large areas of banking are eroded during flood episodes with the resultant siltation and gravel being conveyed downstream. Lack of cover for fish has resulted and on occasions, water courses have become abraided, leaving large expanses of gravel where water used to flow. Despite the protection provided to riverine habitats through the Controlled Activities Regulations (C.A.R.) emanating from the European Water Framework Directive, some land owners and tenants continue to remove river substrate in contravention of C.A.R (EU Water Framework Directive, 2000). Measures designed to improve the fishery are also subject to C.A.R. and fishery owners are often frustrated by the bureaucracy and licensing system associated with applications. This plan supports those fishery improvement schemes that work within the C.A.R regulations and in consultation with SEPA in general. Current management actions designed to reverse habitat degradation include the NDSFB habitat enhancement programme. Examples of works undertaken include the fencing off of tributaries to prevent over grazing by agricultural stock. Planting of native hard wood species is undertaken to promote the regeneration process. The physical repair of riverbanks, where necessary, is conducted along with the creation of suitable habitats for fish.



- **Access.** The River Nith catchment has many tributaries that are blighted by physical obstacles that create difficulties for the free passage of ascending migratory salmonids. Many of these obstacles are passable only during very short windows of opportunity when spates are receding. When water conditions are not ideal, the fish are unable to ascend the obstacles in sufficient numbers to spawn and sustain viable populations. Current management actions designed to overcome the problems of fish gaining access to all parts of the catchment include the easement of difficult barriers. Obstructions to the free migration of fish are removed from the river wherever feasible. Cognisance is given to the importance and preservation of natural features which create an obstruction to the migration of fish.
- **Construction activities.** The Nith catchment is the subject of frequent industrial activity, with construction and related work occurring throughout the catchment. Within the last few years the mainstem Rivers Nith and Cairn have been the subject of substantial civil engineering works.

The BGE gas interconnector pipeline passed through the region approximately ten years ago. It is understood that a second pipeline following a similar route may be laid in the near future.

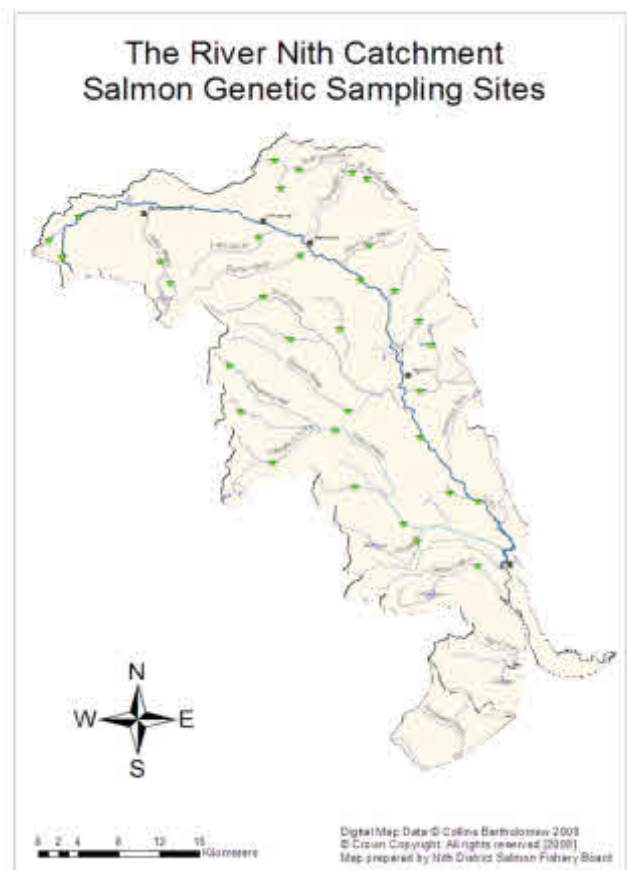
The Dumfries Bypass construction, to divert the A75 Euroroute trunk road around the town, involved the crossing of the River Nith at three separate points

At the very upper parts of the catchment in East Ayrshire surface coal mining activity is increasing. The mining operations are often in very close proximity to sensitive fish habitats. On two occasions in the last ten years, substantial mainstem river diversions have been undertaken, requiring detailed input, monitoring, habitat restoration and the restocking of new river channels with juvenile salmonids.

Further down catchment the main trunk road A76 runs along side the “Glasgow to Carlisle” railway line. Both of these travel routes run parallel with the main stem of the River Nith. These transport links coupled with the urban areas in the lower catchment dictate that construction activity is continually occurring. In recent years the Nith catchment has experienced a plethora of wind farm proposals and these create potentially challenging construction issues in environmental terms.

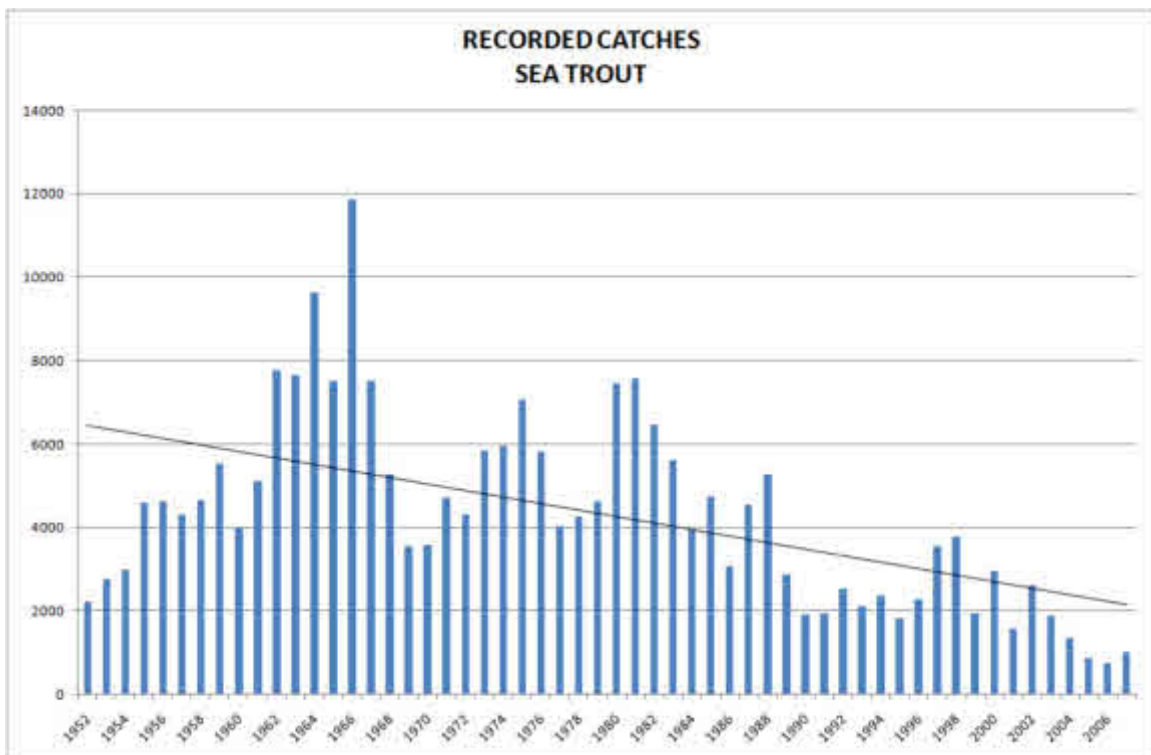
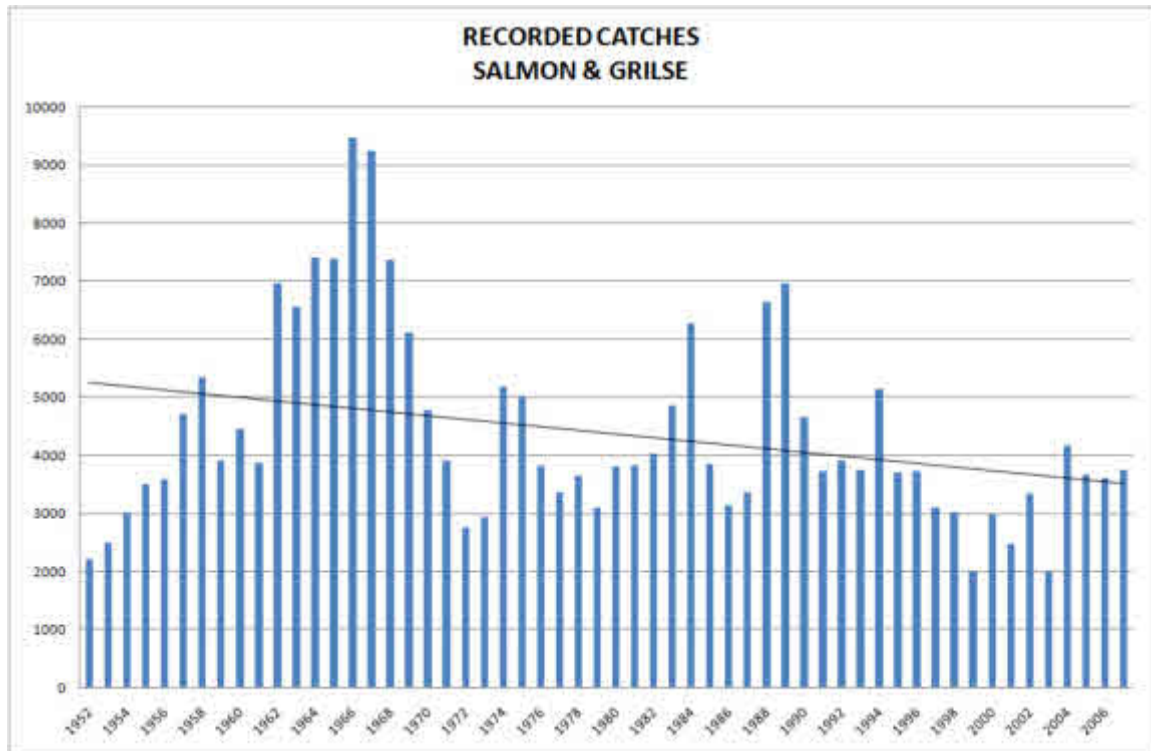
The current management action of consultation with all construction organisations and participating in the planning consultation process for all construction proposals throughout the catchment, results in fisheries interests gaining a higher profile and being taken account of in respect of any planning determination and subsequent operations.

- **Depletion / loss of stock.** Areas of the River Nith catchment have suffered significant loss of fish for a diverse range of reasons. Poaching using poisons has previously “wiped out” individual tributaries. On many occasions construction activity has either led to the direct loss of fish and their habitats. Indeed the Nith catchment has, due to mining activity, suffered the fate of some of its tributaries flowing subsurface. Issues associated with the water industry have on occasion caused the complete loss of all fish in areas of the catchment. When only limited numbers of fish are able to negotiate obstructions the overall production from that part of the catchment suffers. Having identified these problems and the potential requirement for compensatory restocking, NDSFB constructed and now utilises a modern hatchery operation to augment the natural stocks of fish within the River Nith catchment. Modern fisheries management recognises separate genetic strains of salmon within the same catchment. NDSFB is currently undertaking a genetic survey throughout the Nith catchment in conjunction with Fisheries Research Services (FRS). This work will help guide on best practice and future use of hatchery reared stock. The above map shows sites throughout the River Nith catchment where genetic samples will be taken from salmon to provide a genetic profile of stocks.



ANALYSIS AND EVALUATION

In the early 1900's the River Nith was a very poor fishery, primarily due to extremely poor water quality caused by industrial and agricultural discharges into watercourses within the catchment. The river was used as an open sewer and produced no more than a handful of fish annually. However, environmental awareness and regulation by SEPA and their predecessors have resulted in agricultural and industrial processes reducing their impacts on the aquatic environment. With the will and commitment of the anglers and the owners of the salmon fishings, the fishery has recovered to its present state. Generally speaking, the Nith has a very good recorded catch of salmon and in the last decade an increasing trend can be seen. Conversely, the recorded catches of sea trout over recent years has decreased dramatically. (Ref: Appendix 3)



The geographical area covered by the RNCFMP includes still waters and despite many of these being considered valuable fisheries, there is a lack of detailed fishery information regarding them. A future goal for the NCFT will be to map all still waters within the catchment and compile an inventory of fishery information. The purpose of this will be to advise the relevant management structures about the presence of fish species in each body of water.



Limiting factors in the Nith catchment fisheries for each species

It is fair to say that most of the fishing effort throughout the Nith catchment is aimed at salmon and sea trout. However, other species are fished for and this section of the report seeks to acknowledge the limiting factors that affect the species that are specifically fished for.

Salmon

- Poaching continues to be a problem throughout the catchment of the River Nith. The problems of poaching are now only a fraction of what they were in the 1980's however they do exist and are the cause of the loss of fish.
- Habitat degradation is a problem throughout the Nith catchment. Habitat enhancement schemes have been conducted but much still needs to be done.
- Inappropriate exploitation by fishers continues to be an issue and further education is required to inform the various fishing interests regarding the ecological value of each fish to the river.
- Access into some tributaries is a problem for salmon in the Nith catchment. All steps must be taken to maximise the potential spawning area for salmon whilst preserving naturally occurring geological features.
- Conservation of existing salmon stocks is an issue for fishing interests in the Nith catchment. Promotion and education is important in conveying the benefits of showing restraint and returning salmon to the river once caught.
- Detrimental engineering procedures can detract from the salmon population, at various stages in their lifecycle.
- Insensitive/inappropriate land management operations such as poorly managed forestry procedures or farming practices can detract from salmon populations.
- Predation by both avian and mammalian predators can impact on salmon populations.

Sea trout

- A major limiting factor for this fishery is the lack of adult brood stock.
- There is a lack of understanding of the life cycle of sea trout particularly in the marine environment.
- Poaching continues to be a problem throughout the catchment of the River Nith. Poaching activity has substantially decreased since the 1980's, however it still persists and is the cause of the loss of sea trout.
- Habitat degradation is a problem throughout the Nith catchment. Habitat enhancement schemes, specifically designed to improve areas utilised by sea trout have been conducted but much still needs to be done.
- Physical conditions within sensitive spawning habitats are perceived to be a limiting factor for sea trout.
- The use of estuarial gill nets, intended to catch sea bass and mullet, also capture sea trout as a by-catch.
- Conservation of existing sea trout stocks is an issue for fishing interests in the Nith catchment. Promotion and education is important in conveying the benefits of showing restraint and returning sea trout to the river once caught.
- Predation by both avian and mammalian predators can impact on sea trout populations.

Grayling

- Perceived detrimental impacts on salmon spawning areas resulting from wading.
- Perceived abuse of salmon fishing by those targeting grayling.
- Lack of access to suitable water.
- Lack of awareness regarding grayling and their interconnectivity with other species of fish in the Nith catchment.
- Large-scale loss of grayling as a by-catch from salmon/sea trout poaching.
- Predation by both avian and mammalian predators can impact on grayling populations.

Brown trout

- Lack of access to some beats of the river.
- Failure to appreciate the fishery i.e. many anglers prefer not to fish for brown trout and concentrate their efforts on the perceived greater species of salmon and sea trout.
- Loss of brown trout as a by-catch from salmon/sea trout poaching.
- Predation by both avian and mammalian predators can impact on brown trout populations.

Pike

- Failure by many anglers to rate this species as a worthy sport fish quarry.
- Considered by many as a predator that should be eradicated.

Tench

- Shortage of suitable still water fisheries.
- Traditional game fishing ethos fails to recognise the potential of this species as a sporting resource.

PRESCRIPTIONS

Fish	Management actions prescribed to deliver RNCFMP aims and objectives
Salmon	<ul style="list-style-type: none"> • Protect existing stocks by enforcement of fisheries legislation throughout entire catchment • Conduct habitat enhancement works to redress issues of degraded habitats • Removal of obstacles to migration • Conducting predator control • Promoting conservation • Utilising hatchery facilities
Sea trout	<ul style="list-style-type: none"> • Protect existing stocks by enforcement of fisheries legislation throughout entire catchment • Conduct habitat enhancement works to redress issues of degraded habitats • Removal of obstacles to migration • Conducting predator control • Promoting conservation • Utilising hatchery facilities • Promoting regulation to prohibit the removal of potential spawners
Trout	<ul style="list-style-type: none"> • Protect the genetic integrity of separate distinct genetic strains of brown trout • Perform predator control to protect those strains of brown trout • Promote conservation of brown trout stocks throughout the entire catchment • Raise awareness amongst anglers regarding the brown trout/sea trout life cycle, and thus the importance of preservation of large specimen brown trout • Recognition of the importance of woody debris in specific brown trout habitats within the catchment
Grayling	<ul style="list-style-type: none"> • Protect stocks of grayling through the catchment from perceived increase from predation • Raise the profile of grayling amongst game angling enthusiasts • Recognise the potential fishery of the River Nith as a specimen producing water for grayling • Ensure adequate fishery enforcement throughout the main stem River Nith corridor against netting which devastates grayling numbers
Pike	<ul style="list-style-type: none"> • Promoting sustainable management • Promote conservation • Raise awareness of interconnectivity with other species
Tench	<ul style="list-style-type: none"> • Raise awareness of the sporting potential of tench • Explore the possibilities of developing more tench fisheries within the catchment (still waters)

Stone loach	<ul style="list-style-type: none"> • Continue to note during electrofishing surveys throughout catchment
Stickleback	<ul style="list-style-type: none"> • Continue to note during electrofishing surveys throughout catchment
Perch	<ul style="list-style-type: none"> • Raise awareness of potential issues of spreading this species
Eel	<ul style="list-style-type: none"> • Promote conservation • Resist applications for commercial exploitation • Raise awareness of European population crash • Raise awareness of the potential for eels to be impacted by hydro electric generation scheme proposals
Lamprey	<ul style="list-style-type: none"> • Raise awareness of the presence of this species • Continue to note during electrofishing surveys throughout the catchment • Support the protection offered to these species in Annex II of the European Habitats Directive (EU, 1992)
Rainbow trout	<ul style="list-style-type: none"> • Raise awareness of the potential impacts on native species resulting from introductions into the catchment • Mount a campaign to remove rainbow trout from the river environment • Make site visits to all potential sources of rainbow trout to the Nith catchment to discuss their security arrangements • Engage with the aquaculture industry to assist them in ensuring that their security is appropriate and mechanisms are in place to report any escapes
Alien species	<ul style="list-style-type: none"> • Raise awareness of the issues regarding alien species



PLATE 8

MONITORING AND REVIEW PROCESS

Fisheries management throughout the Nith catchment area is currently supported by a comprehensive electrofishing monitoring programme. Baseline data is obtained prior to any management actions being undertaken. The data gained from baseline surveys is used to enable an assessment of the future state of fish stocks following management initiatives. This monitoring process should be used as one means of validating the effectiveness of the actions as discussed in the Prescriptions section of this plan.

Electrofishing monitoring is conducted prior to any engineering procedures conducted within the RNCFMP area. This is done to alert both the fisheries management body and those who are contemplating construction activities, to the likely impacts and necessary mitigation required to avoid such impacts on fish communities. This monitoring process should continue to be used as a means to deliver the aims and objectives of this plan.

On all of the surface coal mines located in the upper reaches of the River Nith an annual electrofishing monitoring programme has been agreed with and will be paid for by the mine operators. These monitoring programmes will extend beyond the life of the mine and their restoration period post coal abstraction. This monitoring will ensure that any impacts emanating from the mine will be detected and will assist in delivering the objectives of this plan.

Temperature monitoring is currently taking place throughout the River Nith catchment in known sea trout spawning habitats. This work is considered important in the research into the cause of depleted numbers of sea trout. This is a long term monitoring programme and may assist in the delivery of some of the objectives of this fishery plan.

The fishery management staff from the River Nith has undertaken a catchment wide survey of alien plant species throughout the catchment. This was a collaborative project between SEPA, Solway Heritage and NDSFB that arose as an identified action from SEPA's River Nith Catchment Management Plan (SEPA, 2007). NDSFB staff now know the extent of this environmental issue and are in a position to monitor any change. The monitoring of alien species will assist in the delivery of the objectives of this fishery management plan with particular reference to habitat issues.

It is acknowledged that, if alien species or specific fish diseases/parasites are transferred into river catchments, their presence will most likely be discovered by those engaged in fishery monitoring. Therefore the annual electrofishing monitoring programme conducted by the fishery management staff will assist in the delivery of one of the primary aims of the RNCFMP to protect the bio security of the catchment.

Plan Monitoring and Review

In order that the RNCFMP remains current and relevant it will be reviewed by Nith catchment fisheries management organisations on an annual basis. This review will seek to audit any action taken over the previous twelve month period and identify the work proposed within the plan for the forthcoming 12 month period. The review is an essential process within the plan to acknowledge new priorities and take cognisance of changing circumstances. Whilst the plan is flexible and designed to adapt to changing/evolving circumstances, the actions intended within the plan should not be conducted unless agreed by the review process.

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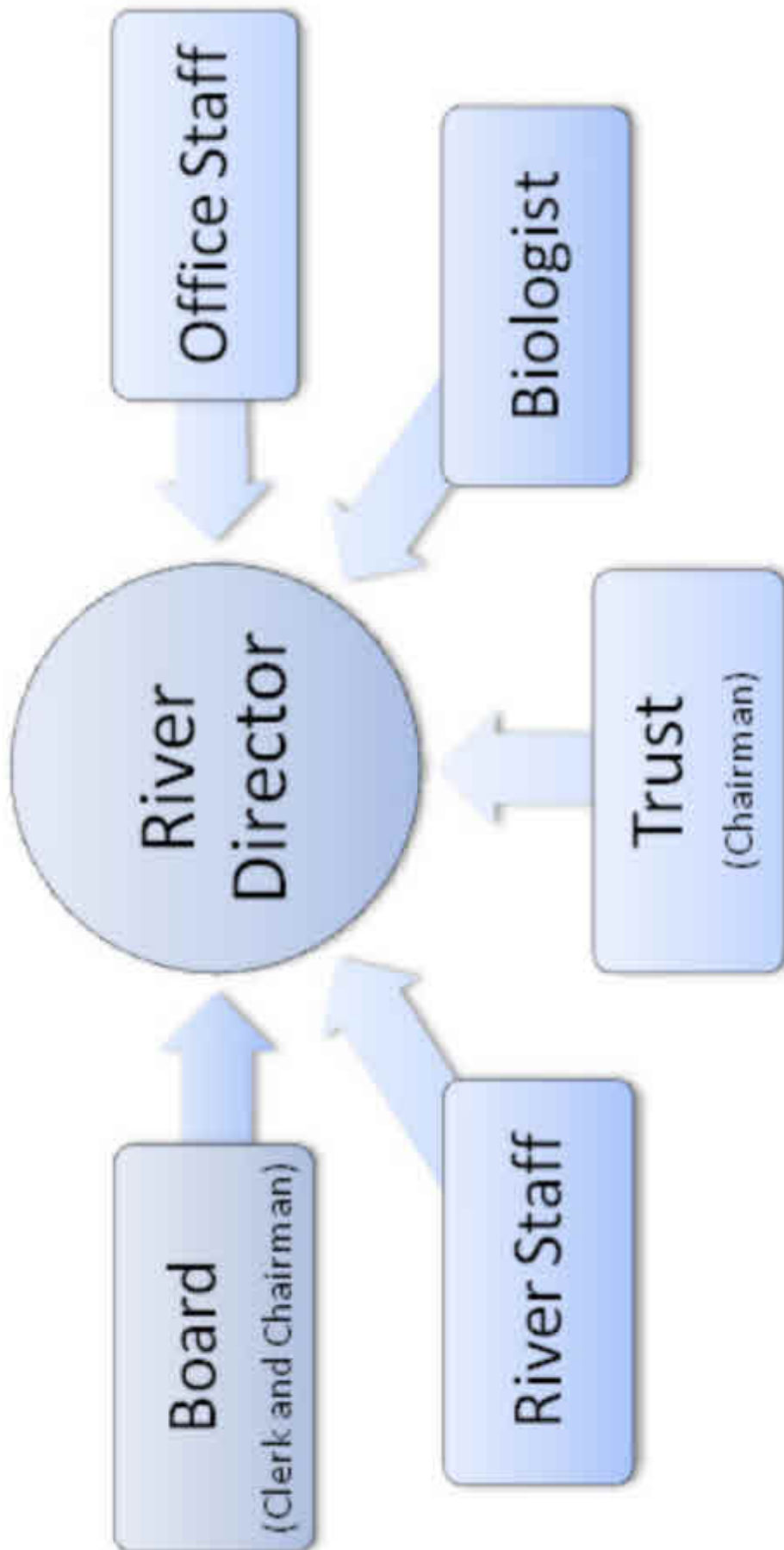
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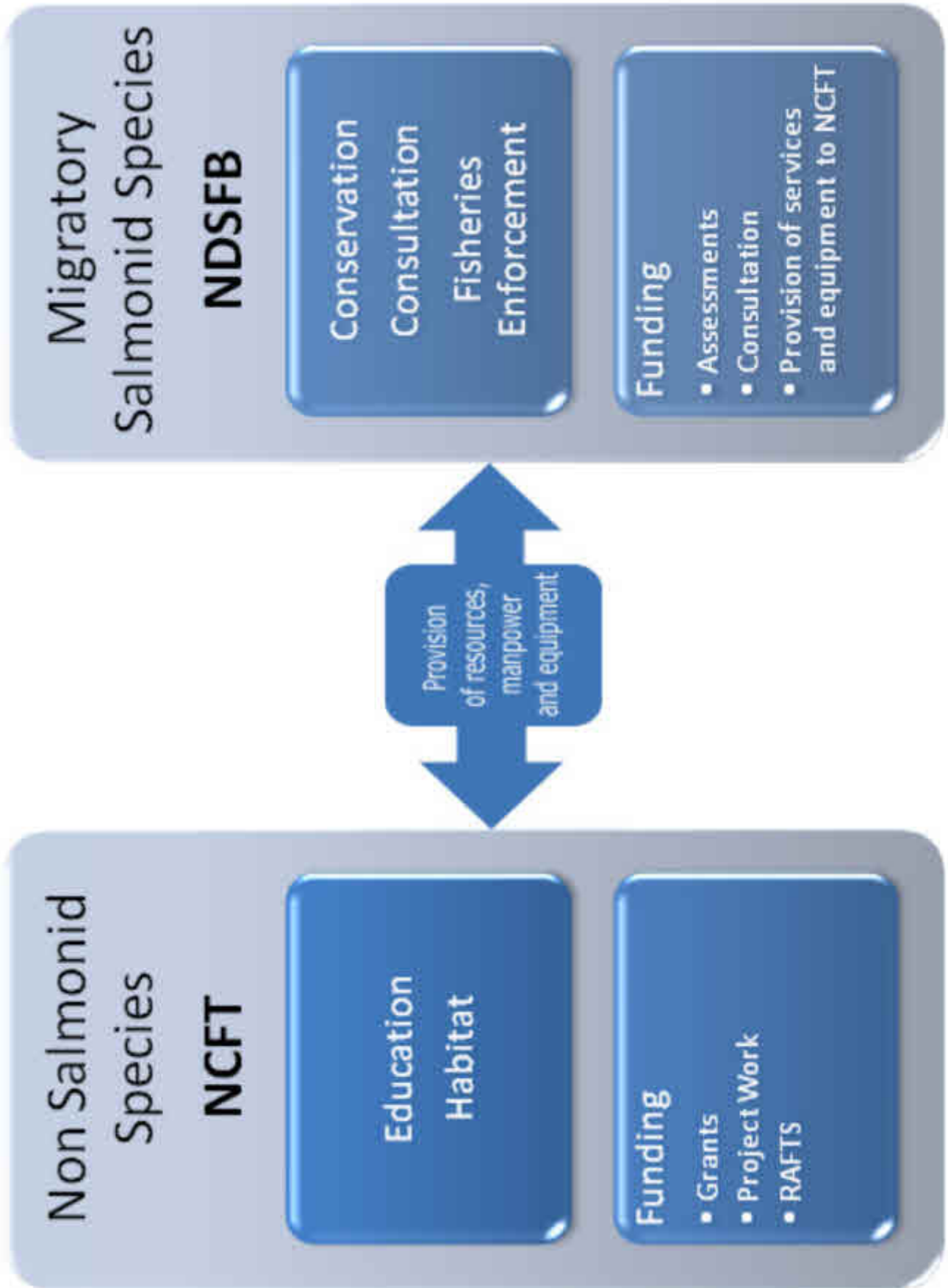
PLATES

Plate 1	River Nith at Estuary
Plate 2	Angling on Rosehill Beat, River Nith
Plate 3	River Nith at Friars Carse
Plate 4	Nith Estuary Haaf Netter at North Corbelly
Plate 5	River Nith diversion at House of Water 2005
Plate 6	River Nith diversion at House of Water 2008
Plate 7	Drum Loch near Dalswinton
Plate 8	Stake Net, Douglas Hall Fisheries, River Nith Catchment

Appendix 1. NDSFB/NCFT Management Organisational Chart



Appendix 2. Demarcation of Management Responsibilities

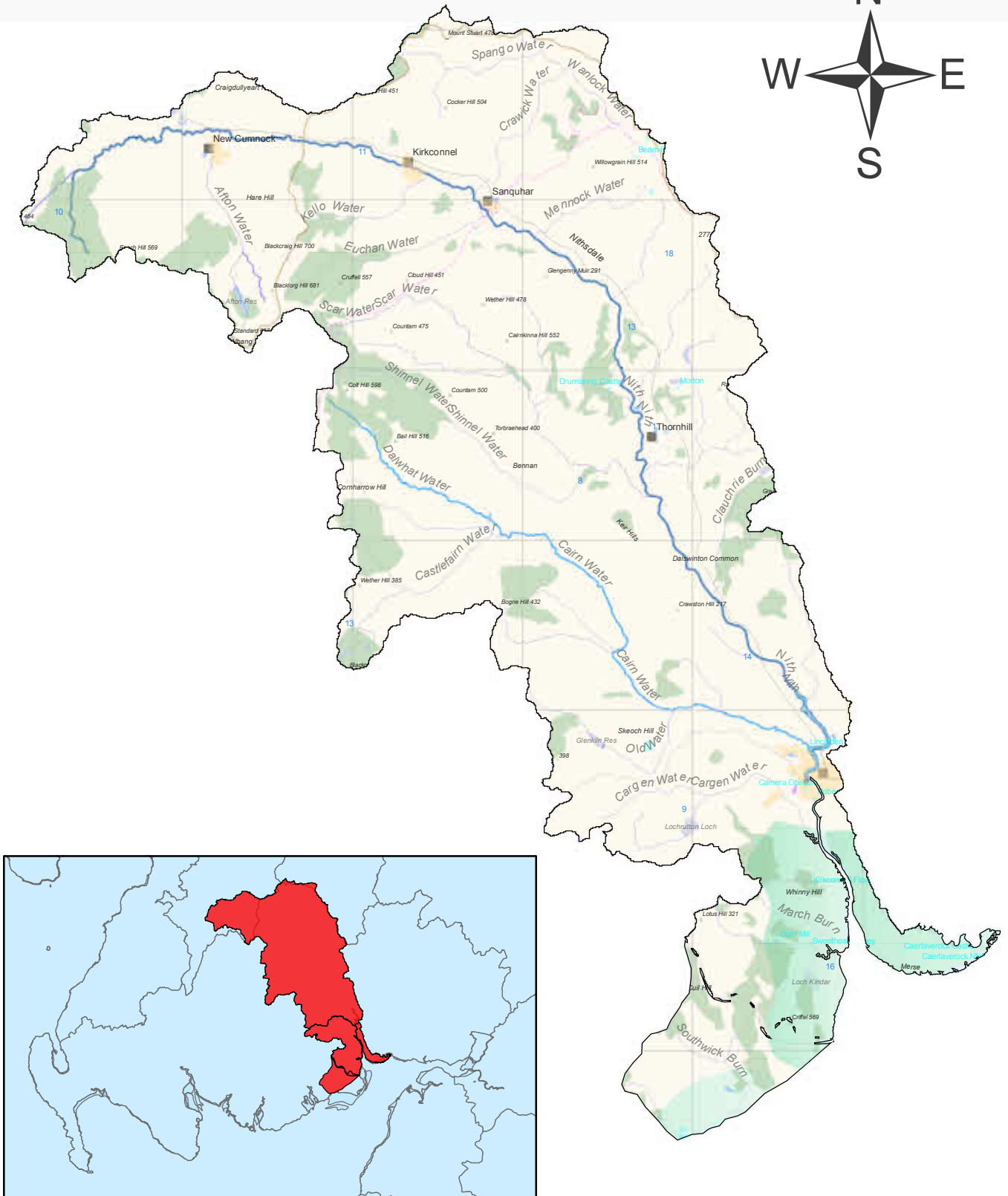


Appendix 3. Catch Returns from 1952 to 2007

YEAR	SALMON & GRILSE	SEA TROUT
1952	2220	2228
1953	2497	2778
1954	3018	2999
1955	3518	4599
1956	3585	4626
1957	4711	4317
1958	5336	4659
1959	3912	5521
1960	4447	3999
1961	3877	5095
1962	6960	7760
1963	6562	7642
1964	7407	9633
1965	7379	7517
1966	9452	11846
1967	9243	7511
1968	7353	5284
1969	6100	3559
1970	4781	3587
1971	3909	4724
1972	2768	4314
1973	2946	5837
1974	5174	5961
1975	5013	7048
1976	3839	5815
1977	3370	4043
1978	3640	4275
1979	3100	4637

YEAR	SALMON & GRILSE	SEA TROUT
1980	3811	7448
1981	3837	7563
1982	4040	6470
1983	4863	5618
1984	6270	3945
1985	3851	4749
1986	3147	3081
1987	3377	4537
1988	6643	5290
1989	6962	2887
1990	4663	1922
1991	3737	1953
1992	3917	2541
1993	3748	2105
1994	5145	2360
1995	3711	1834
1996	3735	2273
1997	3100	3564
1998	3034	3785
1999	1995	1945
2000	2977	2955
2001	2489	1589
2002	3353	2623
2003	1991	1884
2004	4177	1364
2005	3660	867
2006	3603	749
2007	3754	1030

The River Nith Catchment



0 2 4 8 12 16
Kilometers

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Map prepared by Nith District Salmon Fishery Board

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