Council

CNL(05)16

Progress with Application of the Decision Structure for Management of North Atlantic Salmon Fisheries – Returns by the Parties

Progress with Application of the Decision Structure for Management of North Atlantic Salmon Fisheries – Returns by the Parties

Summary

1.   To assist NASCO and the relevant authorities in applying the Precautionary Approach to the management of North Atlantic salmon fisheries, a Decision Structure was adopted on a provisional basis in 2000. After further development and evaluation, a revised Decision Structure was adopted by the Council in 2002 in order to provide a basis for more consistent approaches to the management of exploitation of salmon throughout the North Atlantic region. It was the Council's intention that the Decision Structure would be widely applied, without delay, by managers in cooperation with stakeholders on salmon rivers. In order to facilitate annual reporting by the Parties on the extent of implementation of the Decision Structure and their experiences with its application, a reporting format was agreed and revised in 2003. This revised format was used for the first time for last year's returns and has again been used in 2005. Under this format the Parties are requested to:

-       provide a summary of fisheries for which the Decision Structure has been applied, indicating whether it has been used as a guide to, or a record of, management decisions;
-       indicate where and how completed Decision Structure forms are being compiled and retained and provide, annually an example of its application;
-       provide comments on how useful managers have found the Decision Structure and suggestions for its improvement;
-       provide details of any additional guidance that has been developed.

The information provided by the Parties is presented in the attached tables for both 2004 and 2005 returns. At the time of preparation of this report, no return of information for either 2004 or 2005 was available for some EU Member States (France and Portugal) with salmon stocks.

Use of the Decision Structure

3.   Last year it was reported that the returns indicated that real progress had been made by a number of Parties and EU Member States in using the Decision Structure either as a guide to management decisions (Canada, EU (Ireland and UK (England and Wales and Northern Ireland), Norway and the Russian Federation), or as a record of management decisions (in Iceland – for 2 rivers). Some new information on the use of the Decision Structure has been provided in the 2005 returns. For the European Union, Finland has indicated that elements of the Decision Structure are being addressed in management of the Finnish-Norwegian border rivers and while no river-specific conservation limits have been established, indices of abundance and biological characteristics of the stocks are taken into account in developing management measures. In Ireland, the Decision Structure has been applied to the national fishery but as new information becomes available on conservation limits for individual rivers it will be applied to individual salmon fishery districts with the ultimate aim of applying it on a river-by-river basis. It is used as a guide to managers. In England and Wales, the Decision Structure is used as a summary record of regulatory decisions and the form has been completed for the Rivers Lynher, Tavy and Tamar for which management decisions were approved in

2004. In Northern Ireland, the Decision Structure has been used as a guide to management decisions. In Scotland, the Decision Structure is still being developed but it is concluded that management on a temporal basis is likely to be more useful to maintenance of diversity and abundance than management on a fishery basis. In the Russian Federation, application of the Decision Structure was expanded in 2004 from its use on the Kola Peninsula to include rivers in the Archangel Region, Nenets Okrug, Komi Republic and Karelia. In both Canada and Norway, the Decision Structure continues to be used as a guide to management decisions. In Norway, work is in progress to develop biological reference points and thus improve the use of the Decision Structure with the goal of applying spawning targets in the next extensive revision of the salmon fishery regulations in 2007. The Decision Structure has not been applied by Denmark (in respect of the Faroe Islands and Greenland), EU (Denmark, Spain, Sweden, UK (Scotland)) or Iceland. There are no salmon fisheries in EU (Germany) or in the US.

Compilation of Decision Structure forms and examples of its application

4.   Information has been provided by Canada, EU (Ireland, UK (England and Wales, and Northern Ireland), Norway and the Russian Federation on how the Decision Structure forms are being compiled and retained. EU (Finland) has indicated that data for the Decision Structure is compiled and retained by the relevant authorities and research bodies. Examples of the Decision Structure's application in 2004 have only been provided by UK (England and Wales and Northern Ireland) and the Russian Federation.

Usefulness of the Decision Structure

5.   EU (Finland, Ireland and UK (Northern Ireland)), Norway and the Russian Federation have indicated that initial feedback on the Decision Structure is that it is useful to managers of salmon fisheries. EU (UK – England and Wales) has indicated that as the current procedure was only initiated in 2004 it is too early to assess its usefulness. EU (UK – Scotland) has, however, indicated that the Decision Structure format does not lend itself to management of Scottish salmon fisheries which occur between mid-January and the end of November, and which exploit different stock components originating from different parts of the catchment at different times of the year. Work is therefore being undertaken to further adapt the Decision Structure to the Scottish situation. Similarly, Iceland reports that the Decision Structure does not lend itself to the privately owned terminal angling fisheries with a fixed number of rods set by managers and that Iceland needs to adopt a variation of the approach to the management of its angling fisheries after setting egg deposition requirements for its salmon rivers. Norway has initiated a new project to develop spawning targets and conservation limits have been calculated for 6 rivers. This should increase the usefulness of the Decision Structure in Norway.

Additional guidance on the use of the Decision Structure

6.   In the EU (UK – England and Wales), the Environment Agency is currently developing a Decision Structure with CEFAS to aid in determining requirements for management measures across salmon fisheries in England and Wales. The model will be used in 2005 to review the Salmon Action Plans for a number of rivers identified in the Environment Agency's stock conservation review as needing further measures.

Secretary
Edinburgh
27 May, 2005

1.	Provide a summary of the fisheries for which the Decision Structure has been applied, indicating whether it has been used as a guide to, or a record of, management decisions.	
Party	**Year of return**	**Information provided**
Canada	2004	For Atlantic salmon management, Canada uses a river classification system. River classifications establish certain management measures (e.g. retention limits, closures, catch and release only) for each river, based on factors such as: are conservation spawning requirements being met, level of angling effort, proximity to densely populated areas, and overall size of the river and of the salmon population in it. Conservation limits are set where enough information exists, management targets are established, and in-season monitoring indicates whether conservation limits will be met. When the limits are not met, the management process provides for pre-agreed management actions to be implemented, such as catch and release fishing only, or complete closure of the river. The NASCO Decision Structure is used as a guide to management decisions.
	2005	No change from 2004.
Denmark (in respect of the Faroe Islands and Greenland)		
Faroe Islands	2004	
	2005	Not applicable.
Greenland	2004	The Decision Structure has not been applied.
	2005	No change from 2004.
European Union		
Denmark	2004	
	2005	
Finland	2004	
	2005	The Decision Structure has not been applied as such on the Finnish side of the Finnish-Norwegian border rivers, nor in the bilateral management of the river systems. However, elements of the Decision Structure have being addressed in management of these fisheries although no river-specific conservation limits have been established for these rivers. Long-term monitoring covers catch statistics and juvenile salmon abundance and also provides information on different stock components and their biological characteristics. These indices are used to assess the status of the stocks in relation to the management measures taken. A database including monitoring data and the current management restrictions is available to support implementation of the Decision Structure.
Germany	2004	Northrhine-Westfalia: The Decision Structure has not yet been applied, since there are no fisheries as salmon populations have first to be re-established.
	2005	Baden-Wuertemberg, Brandenburg and Northrhine-Westfalia: Not applicable.
Ireland	2004	The Decision Structure has been applied to the national fishery and all fishing methods.
	2005	The main purpose of the Decision Structure is to aid managers in implementing the Precautionary Approach. It also provides a record of decisions taken in the management of individual stocks; a guide to managers on how to reach management decisions. The form of the Decision Structure has been developed in recent years. In this regard, the development of the Irish management system has also evolved rapidly since 1997 in parallel with the development of the Decision Structure. Therefore, the Irish management plan fundamentally reflects the Decision Structure currently as the Decision Structure has been used as a template to design the overall national strategy and to organise information on the fisheries, initially starting with the National Fishery. CNL(04)15 indicates how the decision structure has been applied specifically to

		structure the national strategy. It starts by describing and defining the fishing methods and the catches. The current management restrictions (regulations and by-laws) are then outlined. The derivation of reference points (Conservation Limits) used for management are then described for national and district salmon fisheries. The Decision Structure allows documentation of the management measures taken in Ireland in response to the prevailing stock status situation and a synopsis of the recent application of District TACs, applied to take account of districts which are below their CL. The Decision Structure in CNL (04)15 for Ireland is currently reported at National level. However, as new information is available on CLs for individual rivers, it will be possible to apply this to the individual salmon fishing districts and this will be the next step in the application of the Decision Structure for Ireland. Ultimately, the aim will be to apply this on a river-by-river basis starting with approximately 28 rivers where counting facilities are available to provide a measure of compliance for these specific stocks.
Spain	2004	
	2005	
Sweden	2004	Work to establish an index river on the Swedish West Coast has continued in 2003.
	2005	Not applicable.
UK - England and Wales	2004	Conservation Limits and Management Targets have been set for all principal salmon rivers in accordance with the Decision Structure. Salmon Action Plans are used to address other issues defined within the Decision Structure, including: the status of the stock; other diversity criteria; selectivity of fisheries; factors threatening the stock; and proposed management actions.
	2005	The NASCO Decision Structure is used as a summary record of the regulatory decisions made for salmon fisheries in England and Wales; this does not include non-statutory management actions. Copies of the form have been prepared for the following river fisheries for which management decisions were approved in 2004: Rivers Lynher, Tavy and Tamar joint estuary fishery.
UK - Northern Ireland	2004	The Decision Structure has been used as a guide to the implementation of a Salmon Management Plan in the Fisheries Conservancy Board (FCB) area of Northern Ireland which mirrors that developed in the Foyle area. In 2003 habitat, juvenile populations and adult escapement data were complied for the Rivers Bush, Glendun, Maine and Blackwater in the FCB area and the Foyle system. Conservation limits were updated as more information is assembled.
	2005	Northern Ireland/Partial Republic of Ireland. Fisheries Conservancy Board (FCB). Loughs Agency (cross – border Northern Ireland/Republic of Ireland) Foyle system. The Decision Structure has been used as a guide to management decisions (see Annex 1).
UK – Scotland	2004	Discussions have continued with Fisheries Research Services (FRS), the Association of Salmon Fishery Boards (ASFB), and District Salmon Fishery Boards (DSFBs) to develop the Decision Structure as a tool for use in management operations.
	2005	The Decision Structure is still being developed to take account of the complex stock structuring in the salmon that inhabit Scottish rivers. It has been established that this structuring has an important genetic component, and traits such as run-timing are heritable. See: Stewart, D.C., Smith, G.W. and Youngson, A.F. 2002. Tributary-specific variation in timing of return of adult Atlantic salmon (*Salmo salar*) to freshwater has a genetic component. Can.J.Fish.Aquat.Sci. 59: 276-281. Stewart, D.C., Middlemas, S.J. and Youngson, A.F. (in prep). Population structuring in Atlantic salmon (*Salmo salar*): evidence of genetic influence on the timing of smolt migration in sub-catchment stocks. It has been concluded that management on a temporal basis is likely to be more useful to the maintenance of both abundance and diversity than management on a fishery basis. Initiatives such as the voluntary deferment of the start of netting by 6 weeks, the Conservation of Salmon (Esk Salmon Fishery District) Regulations 2005, and the Annual Close Time (Esk Salmon Fishery District) Order 2005 are designed to reduce exploitation of early-running MSW salmon.
Iceland	2004	The Decision Structure has been used as a record of management decisions in the salmon river Vesturdalsá in eastern Iceland (see CNL(03)36), and in the River Hvítá in Borgarfjörður.
	2005	The Decision Structure has not been applied.

Norway	2004	The Decision Structure has been used as a guide to management decisions in all salmon fisheries. The Decision Structure for sea-fisheries requires identification of the river stocks being exploited by the fishery. To approach this problem the coast has been divided into 19 regions, each constituting a fishery that mainly exploits river stocks within the region's boundaries. The sea-fishery is regulated according to the status of the stocks within the region.
	2005	The Decision Structure has been used <u>as a guide</u> to management decisions in all salmon fisheries. The Decision Structure for sea-fisheries requires identification of the river stocks being exploited by the fishery. To approach this problem the coast has been divided into 19 regions, each constituting a fishery that mainly exploits river stocks within the region's boundaries. The sea-fishery is regulated according to the status of the stocks within the region. Work is in progress to develop biological reference points (see section 3 below), and thus improve the use of the Decision Structure. The goal is to apply spawning targets to a great extent in the next extensive revision of the salmon fishery regulations in 2007.
Russian Federation	2004	The Decision Structure has been applied to the management of fisheries on 38 White Sea rivers and 37 Barents Sea rivers on the Kola Peninsula. For each river the Polar Research Institute (PINRO) provides advice on the abundance of the spawning stocks, conservation limits and the catch options. On the basis of this advice the Science and Fisheries Council makes management decisions concerning catch limits in each fishery (commercial, catch-and-retain, catch-and-release) on a river-by-river basis. Murmanrybvod details the fishing regime for each river including time of fishing, fishing gears, sites and catch limit for each site. This information is notified to the users of the resource on a given river. Control and enforcement is the responsibility of Murmanrybvod.
	2005	The Decision Structure has continued to be applied for management of fisheries on 38 White Sea rivers and 37 Barents Sea rivers on the Kola Peninsula. For each river the Polar Research Institute provides advice on the abundance of the spawning stocks, conservation limits, catch options. On the basis of this advice the Science and Fisheries Council makes management decisions concerning catch limits in each fishery: (commercial, catch-and-retain, catch-and-release), on a river-by-river basis. Murmananrybvod (Control and Enforcement authority) details the fishing regime for each river including time of fishing, fishing gears, sites, and the catch limit for each site. Users then base their operations on these decisions. The application of decision structure was expanded in 2004 to include a number of rivers in the Archangel Region, Nenets Okrug, Komi Republic and Karelia.
USA	2004	There are no salmon fisheries within US jurisdiction.
	2005	No change from 2004.

Party	Year of return	Information provided
Canada	2004	The Decision Structure forms are not being regularly used by those making decisions on Atlantic salmon fisheries. Atlantic salmon fishing is regulated under management plans that are developed for each area, with conservation limits, and pre-agreed rules for actions to be taken if conservation limits are not being met. These management plans are held in each regional office of the Department of Fisheries and Oceans and by the Province of Québec.
	2005	The NASCO Decision Structure is used as a guide only to management decisions. Fishing management plans are developed and held in the various Regional Offices of the federal Department of Fisheries and Oceans and by the Province of Québec.
Denmark (in respect of the Faroe Islands and Greenland)		
Faroe Islands	2004	
	2005	Not applicable.
Greenland	2004	Not applicable.
	2005	Not applicable.
European Union		
Denmark	2004	
	2005	
Finland	2004	
	2005	The data for the Decision Structure forms are compiled and retained by the relevant authorities and research bodies.
Germany	2004	Northrhine-Westfalia: Not applicable.
	2005	Baden-Wuertemberg, Brandenburg and Northrhine-Westfalia: Not applicable.
Ireland	2004	Forms are being compiled on behalf of the Department of Communications, Marine and Natural Resources by the Marine Institute for general discussion before formal application. See CNL(04)15 for an example of its application.
	2005	No change from 2004 – see CNL(04)15.
Spain	2004	
	2005	
Sweden	2004	
	2005	Not applicable.
UK - England and Wales	2004	Completed Salmon Action Plans, which cover all aspects of the Decision Structure, are available from the Environment Agency, UK.
	2005	The NASCO Decision Structure form is being completed by scientists at CEFAS once regulations have been approved by the Minister, and summarise the basis for the decision. The completed forms are collated by CEFAS and copied to the DEFRA and the Environment Agency. An example for the fishery in the joint estuary of the Rivers Lynher, Tavy and Tamar is in Annex 2.

UK - Northern Ireland	2004	The form has already been completed and retained for the Foyle system and will be completed for the other catchments in 2004. Failure to achieve conservation limits in the Bush in recent years has prompted management action to restrict exploitation for both commercial fisheries and angling throughout the FCB area.
	2005	Compiled and held by Fishery Managers/Scientists in FCB and Loughs Agency and held centrally by DCAL Inland Waterways and Inland Fisheries, Belfast, Northern Ireland. It is applied through Salmon Management Plans operating in both jurisdictions.
UK - Scotland	2004	The Decision Structure is still being developed for use by managers.
	2005	See section 1 above.
Iceland	2004	The Decision Structure is still in an evaluation stage in the Icelandic management system. An example of its application in a mixed stock situation, the River Hvítá in Borgarfjörður, has been provided.
	2005	The Decision Structure has not been applied.
Norway	2004	The Decision Structure form has not been used to keep a record of management decisions. This information is still being stored in existing databases and archives. A reporting system for the Decision Structure will be developed and included in the existing reporting under the river categorization system. Many of the elements in the Decision Structure are being addressed through the Norwegian river categorization system. There is a form to be filled in for each fishery. The forms are stored digitally in a central database called the Salmon Register, which is administered by the Directorate for Nature Management. The forms contain information on: category, threatening factors (including overfishing) and stock restoration. This reporting system and the Salmon Register is being developed to cover all the questions raised by the Decision Structure.
	2005	No change from 2004.
Russian Federation	2004	An example of the application of the Decision Structure is the Kola river. In 2003 the spawning stock was 7,410 salmon. The conservation limit is 1,560 salmon. 300 salmon were allocated for fishing to monitor the biological structure of the population. 200 salmon were allocated for use by the hatchery for enhancement purposes, 20 salmon were allocated for scientific studies. The allocated catch in the catch-and retain fishery was 1,200 salmon and in the catch-and-release fishery 1,300 salmon. The fishing was conducted in accordance with established fishing regimes. Catch-and-retain fishing was conducted at two sites, time of fishing per licence was 6 hours, permitted catch per licence was 1 salmon. Catch-and-release was conducted at three sites in the main stem of the river and on three tributaries. A licence was issued to an angler for one-day fishing on one of the allocated sites. When fishing, anglers are obliged to follow the fishing regime and comply with the Regulations for the recreational fisheries. Each fisherman is responsible for recording the catch and reporting it to Murmanrybvod.
	2005	Completed Decision Structure forms are being compiled and retained by the Control and Enforcement authorities (Murmanrybvod). Example: Iokanga river (Kola Peninsula). In 2004 the spawning stock was 4,470 salmon. The conservation limit was 2,100 salmon. 150 juvenile salmon were allocated for scientific studies. Catch in catch-and retain was 224 salmon and in catch-and-release 1,099 salmon. The fishing was conducted in accordance with the established fishing regimes. Catch-and-retain fishing was conducted at one site; the period of fishing was from 29 May to 1 September; the time of fishing per licence was 6 hours, permitted catch per licence was 1 salmon. Catch-and-release was conducted in the main stem of the river and on some tributaries. The period of fishing was from 29 May to 19 September. A licence was issued to an angler for one-day fishing on one of the allocated sites. When fishing, anglers are obliged to follow the fishing regime and comply with Regulations for recreational fisheries. Fishermen are responsible for recording the catch and reporting it to Murmanrybvod.
USA	2004	Not applicable.
	2005	Not applicable.

3.   Provide comments on how useful managers have found the Decision Structure and suggestions for how it might be improved

Party	Year of return	Information provided
Canada	2004	Not applicable.
	2005	
Denmark (in respect of the Faroe Islands and Greenland)		
Faroe Islands	2004	
	2005	Not applicable.
Greenland	2004	Not applicable.
	2005	Not applicable.
European Union		
Denmark	2004	
	2005	
Finland	2004	
	2005	The concept the Decision Structure and the information needed for it has been found to be useful.
Ireland	2004	The Decision Structure is useful for focusing on the main issues which need to be considered when managing fisheries. The national example is used to provide a comparative platform for application at a river, district or regional level. The Decision Structure represents guidelines, which may be modified in their application in particular circumstances.
	2005	Feedback is still being generated on a regional level. However, initial comments are favourable and indicate that the format can be adopted.
Germany	2004	Northrhine-Westfalia: Not applicable.
	2005	Baden-Wuertemberg, Brandenburg and Northrhine-Westfalia: Not applicable.
Spain	2004	
	2005	
Sweden	2004	
	2005	Not applicable.
UK - England and Wales	2004	The Decision Structure has been used as an aide-memoire.
	2005	The current procedure was only initiated in 2004.
UK - Northern Ireland	2004	Information consistent with the Decision Structure is fundamental to management decisions.
	2005	Managers have found the structure useful in that it provides a regime which gives a uniform direction within which to deliver the NASCO plan of action.
UK – Scotland	2004	Working Group (FRS/ASFB/DSFBs) has been supportive of the general proposal and are collaborating in the development of the Decision Structure to reflect more closely the Scottish salmon fishery management requirements.

	2005	Whereas the current Decision Structure format fits those fisheries where all the fish returning to rivers do so within a short season, it does not lend itself to management of fisheries, such as those in UK (Scotland), where fish enter in every month of the year and fishing occurs between mid-January and the end of November, exploiting different stock components, originating from different parts of catchment systems, at different times of the year. Work is being undertaken to develop a user-friendly Decision Structure for use in UK (Scotland) that takes account of these stock complexities.
Iceland	2004	Icelandic salmon fisheries are based on a terminal fishery with severely limited entry. There are thus no options for in-season measures except in an emergency situation. The use of the Decision Structure in Icelandic rivers is thus likely to be of a descriptive nature. It might, for example, be useful to document other Icelandic salmon angling rivers in a similar manner as was done for River Vesturdalsá (see CNL(03)36).
	2005	The Decision Structure for the Management of North Atlantic Salmon Fisheries does not lend itself well to the Icelandic Management System. Most of the salmon fisheries are privately owned terminal angling fisheries with a fixed number of rods set by managers. The number of rods is a maximum number, which must not be exceeded and is considered precautionary in relation to the run size in respective rivers. Additionally the river associations frequently decrease the rod numbers to increase angler satisfaction. The official rod numbers have basically been unchanged for decades in most of Icelandic salmon rivers with the exception of rivers where angling catches are maintained artificially through smolt releases. As all of the salmon rods are sold up to a year prior to the angling season there is no way to carry out day-to-day management once the fishing season has started with the aim of decreasing the fishing effort. In the event, however, of a disaster, emergency measures could be taken by demanding the release of fish or decreasing the number of rods for the following season and river associations could further limit the numbers of salmon retained per rod during the same season but such bag-limits are common although not universal. This system is not comparable to a public system with a national fishing licence and an unlimited entry of anglers where managers have to resort to regulations regarding numbers of salmon retained and shortening of the season even as the season progresses. Iceland needs to adopt a variation of this approach to the management of its angling fisheries after setting egg deposition requirements for the respective rivers.
Norway	2004	Both central and regional managers have found the Decision Structure useful as an aid in determining the regulatory regime. However, in many cases the data requirements cannot be met and must be substituted by sound judgement based on whatever information is available. The Decision Structure has inspired authorities, managers and researchers to fill the information gap. Among several initiatives that have been taken are: a research project on the stock-recruitment relationship and methods for determining conservation limits; research and other activities aimed at increasing knowledge on the productive capacity of salmon rivers. We see no immediate need to make changes to the Decision Structure.
	2005	Both central and regional managers have found the Decision Structure useful as an aid in determining regulatory regime. However, in many cases the data-requirements cannot be met and must be substituted by sound judgment, based on whatever information is available. The Decision Structure has inspired authorities, managers and researchers to fill the information gap. Among several initiatives that have been taken are: a new project aimed at developing spawning targets was initiated in 2004. So far the conservation limit has been calculated for 6 rivers; a research project on stock-recruitment relationships and methods for determining Conservation Limit continued throughout 2004; research and other activities aimed at increasing the knowledge of the productive capacity of salmon rivers also continued in 2004. We see no immediate need to make changes to the Decision Structure.
Russian Federation	2004	The Decision Structure has been effectively applied in setting catch limits for salmon fisheries in rivers on the Kola Peninsula to ensure rational exploitation of the resource.
	2005	The Decision Structure has been effectively applied by government management bodies for regulation of fisheries in rivers on the Kola Peninsula, Archangel region, Nenets Okrug, Komi Republic and Karelia to ensure rational exploitation of the resource.
USA	2004	Not applicable.
	2005	Not applicable.

4. Provide a copy of any additional guidance which has been developed on the use of the Decision Structure.

Party	Year of return	Information provided
Canada	2004	Not applicable.
	2005	No additional guidance has been developed.
Denmark (in respect of the Faroe Islands and Greenland)		
Faroe Islands	2004	
	2005	Not applicable.
Greenland	2004	Not applicable.
	2005	Not applicable.
European Union		
Denmark	2004	
	2005	
Finland	2004	
	2005	
Germany	2004	Northrhine-Westfalia: Not applicable.
	2005	Baden-Wuertemberg, Brandenburg and Northrhine-Westfalia: Not applicable.
Ireland	2004	
	2005	No additional guidance has been developed.
Spain	2004	
	2005	
Sweden	2004	
	2005	Not applicable.
UK - England and Wales	2004	
	2005	The Environment Agency is currently developing a Decision Structure, with CEFAS, to aid in determining requirements for management measures across salmon fisheries in England and Wales. The Decision Structure will be a tool to enable those responsible to apply conservation measures, and particularly fisheries regulations, in a logical and consistent manner. It also aims to ensure that all necessary measures to conserve stocks are fully considered and will assist in refining national policies and processes. The Decision Structure will guide judgements and decisions, and ultimately focuses on an assessment of the probability of achieving management targets and on the level of any change required in exploitation rates. The model will be used in 2005 to review SAPs for a number of rivers identified in the Agency's 2004 stock conservation review as needing further measures.
UK - Northern Ireland	2004	None to date.
	2005	Not applicable.

UK - Scotland	2004	
	2005	
Iceland	2004	
	2005	
Norway	2004	Elements from the Decision Structure are incorporated into the general guidelines for regulation of salmon fisheries, and the specific guidelines for each category in the river categorization system. These guidelines (in Norwegian only) are issued by the Directorate for Nature Management and distributed to all parties taking part in the regulation process.
	2005	
Russian Federation	2004	No additional guidance has been developed.
	2005	No change from 2004.
USA	2004	Not applicable.
	2005	Not applicable.

European Union – UK (Northern Ireland)

Decision Structure to Aid the Council and Commissions of NASCO and the Relevant Authorities in Implementing the Precautionary Approach to Management of North Atlantic Salmon Fisheries

A.   *Brief description of the fishery(ies):*   *Date of review:*

Fishery location:	Loughs Agency (cross-border Foyle system)
Gear types:	88 Drift Nets, 52 Draft Nets,
Magnitude of fishery *(e.g. catch or effort):*	32,732 salmon caught in 2003 22,290 salmon caught in 2004
Current management restrictions:	Six-week season for the commercial nets; drift nets fish for 4 days each week (6am-6pm) draft nets 5 days (are restricted also by tides).
Outline pre-agreed procedures (or provide references)	The Loughs Agency manage the commercial and recreational exploitation of salmon through the application of a real-time management regime. If counts (using electronic counters) do not reach defined in-season targets (based on available nursery habitat) then the fisheries may be closed or extended if the conservation limit is achieved.
Principal river stock(s) exploited:	Mainly River Foyle and tributaries but also fish from north coast of Ireland
Other fisheries exploiting stock(s)	Donegal Area, Fisheries Conservancy Board area, ROI drift nets
Other information:	

If fishery primarily exploits salmon from only one river answer all questions in Section B;
If fishery exploits salmon from more than one river answer all questions in Section C.

B.   *Single River Stock Fisher(ies)*

B1. *Specify the reference points (Conservation Limit and/or Management Target) or alternative measures used to define adequate abundance of the stock.*

B2. *Describe the status of the stock relative to the abundance criteria in B1.*
-      Include trends and forecasts of abundance.

B3. *Is the stock meeting other diversity criteria (e.g. age structure, run-timing, fecundity)?*
-      Describe criteria assessed:
-      Identify possible reasons for any failure.

B4. Is the fishery(ies) selective for certain stock components (e.g. age groups, size groups, populations)?
- If yes, describe reasons.

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B5. Is the stock threatened by factors other than fisheries (e.g. habitat degradation, disease/parasites, predators)?
- If yes, describe threat and management action that will be taken (e.g. establish gene bank; habitat mitigation.

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B6. Describe management actions that will be employed to control harvest, including measures that will be used to address any failure or trend in abundance or diversity, taking account of pre-agreed procedures:
- Decisions should take account of: uncertainty in the assessments; abundance of the stock (q. B2); diversity of the stock (q. B3); selectivity of the fishery (q. B4); any non-fishery factors affecting the stock (q. B5); and socio-economic factors; other fisheries exploiting the stock;
- Describe the expected extent and timescale of effects.

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B.7 Outline programmes (including in-season programmes) that will be used to monitor the effect of the management measures and identify information deficiencies and time-frame for resolution;

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C. *Mixed River Stock Fishery*

C1. Specify the reference points (Conservation Limits and/or Management Targets) or alternative measures used to define adequate abundance of the exploited stocks.

Reference points defining adequate abundance levels are available for all of the main rivers (R Mourne and tributaries; R Finn; R Roe; R Faughan) in the Loughs Agency area, in the form of individual catchment conservation limits. These values are based on salmonid habitat inventory data and transported stock recruitment parameters from the River Bush and Burrishoole projects.

C2. Describe the status of all stocks relative to the abundance criteria in C1.
- Include trends and forecasts of abundance.

The River Mourne consistently exceeds its conservation limit and management target; the River Finn in 2004 did not meet these targets but had exceeded these in the previous two years. The River Faughan consistently has exceeded its targets while the River Roe, for the first time since the electronic fish counter was installed in 1998, did not meet its targets; however, there were a number of difficulties with the counter site in 2004 which resulted in an underestimate of fish crossing the site.

C3. Are all the stocks meeting other diversity criteria (e.g. age structure, run-timing, fecundity)?
- Describe criteria assessed
- Identify possible reasons for any failures.

Age composition and run timing of returning mature salmon are assessed from catch returns, fish counter data and scale readings. The adult run is dominated by 1SW grilse with relatively low numbers of larger MSW fish.

The River Finn is the main multi-sea-winter salmon river in the Foyle area and this tends to peak in April; this river tends to get the first run of grilse which usually happens at the end of May and into June. The River Mourne run tends to peak during late June and July with lower numbers of salmon entering for the rest of the year. The River Faughan again peaks during the summer months while the Roe tends to get the majority of its fish in late summer early autumn. These runs are monitored using fish counters.

C.4 Is the fishery selective for certain stock components (e.g. age groups, size, populations, river stocks)?
- If yes, describe reasons.

The commercial fishing effort in the Loughs Agency area extends from 15th June to the 31st of July with the possibility of a four-day extension. Analysis of the Commercial catch indicates that exploitation focuses mainly on the 1SW stock component.

C5. Are any of the stocks threatened by factors other than fisheries (e.g. habitat degradation, disease/parasites, predators)?
- If yes, describe threat and management action that will be taken (e.g. establish gene bank; habitat mitigation).

A number of local and regional factors impact on salmon stocks in the Loughs Agency area. Habitat quality and quantity have been degraded in many areas due to a range of pressures including arterial drainage, overgrazing, gravel extraction and sedimentation. Pollution and decreased water quality are unpredictable factors, impacting in a number of localities, whilst organic enrichment and eutrophication are ongoing regional issues. Avian predators have been demonstrated to impact significantly on nearby wild River Bush smolts, and anecdotal information is available for localised seal predation at and around individual netting stations.

The Loughs Agency, Department of the Environment in the south of Ireland (ROI) and the Department of the Environment, Environment and Heritage Service (EHS) in the north prosecute polluters and those directly damaging salmonid habitat.

C.6 Describe management actions that will be employed to control harvest, including measures that will be used to address any failure or trend in abundance or diversity, taking account of pre-agreed procedures:
- Decisions should take account of: uncertainty in the assessments; abundance of the stock (q. C2); diversity of the stock (q. C3); selectivity of the fishery (q. C4); any non-fishery factors affecting the stock (q. C5); and socio-economic factors; and other fisheries exploiting the stock.
- Describe the expected extent and timescale of effects.

A Carcass Tagging and Logbook scheme was introduced in 2001. This programme sought to inhibit illegal catch of salmon and quantify the commercial and recreational landings of salmon in the Loughs Agency area.

The Agency operates a real-time management regime whereby if the number of salmon across the fish counting facility on the River Mourne do not exceed specified targets by key dates (based on nursery habitat available) then action can be taken to close both commercial and recreational angling exploitation for defined periods (two 24-hour or one 48-hour period).

C7. Outline programmes (including in-season programmes) that will be used to monitor the effects of the management measures, and identify information deficiencies and the timeframe for their resolution:

The Loughs Agency currently operate five fish-counting sites within the Foyle catchment; these are used to monitor the runs in real time and if the index river Mourne is not achieving the specified targets then measures as outlined above are in place to protect the stocks. One potential deficiency in the current management approach is weak stocks being masked by stronger stocks. The Agency, in order to address this, has instigated a genetic survey of the catchments and the commercial and recreational fisheries and a Prefishery Abundance programme which is scheduled to run for two years initially and it is hoped will address these issues. In addition the Agency has ongoing work programmes to build up core databases which include habitat inventories to assess habitat quality and calculate conservation limits, juvenile electric fishing surveys to monitor recruitment success and a carcass tagging and logbook scheme to tabulate exploitation. The genetic information will help aid the direction of resources to target stocks which can most benefit from instream works, etc.

Decision Structure to Aid the Council and Commissions of NASCO and the Relevant Authorities in Implementing the Precautionary Approach to Management of North Atlantic Salmon Fisheries

A. _____Brief description of the fishery(ies):_____   *Date of review:*

Fishery location:	Fisheries Conservancy Board (FCB) Area
Gear types:	2 Drift Nets, 2 Draft Nets, 2 Bag Nets in 2004
Magnitude of fishery *(e.g. catch or effort)*	2,362 salmon caught in 2003 *2,479 salmon caught in 2004*
Current management restrictions:	FCB Byelaws, season 18th March – 15th Sep, in-season weekend closure 8am Saturday – 8am Monday
Outline pre-agreed procedures (or provide references)	The salmon management plan has been established to provide biological reference information with which to assess the conservation status of stocks and to direct management in the FCB area. A conservation limit has been derived for the River Bush and provisional conservation limits have been established for four other index rivers based on ground truthed habitat surveys and the application of stock recruitment data from the River Bush project.
Principal river stock(s) exploited:	Lower River Bann and Lough Neagh tributaries, Co. Antrim/Down coastal rivers, Lough Erne Catchment and Northern Area of Lough Melvin.
Other fisheries exploiting stock(s)	Donegal Area, Loughs Agency (LA) Area
Other information:	The management and direction of policy for salmon fisheries in the FCB area of Northern Ireland lies with DCAL. The FCB enforces fisheries legislation and is responsible for the protection and conservation of salmon in inland and coastal waters. The River Bush Project and research and development into salmonid biology are administered by DARD.

If fishery primarily exploits salmon from only one river answer all questions in Section B;
If fishery exploits salmon from more than one river answer all questions in Section C.

B. _____Single River Stock Fisher(ies)_____
B1.   Specify the reference points (Conservation Limit and/or Management Target) or alternative measures used to define adequate abundance of the stock.

B2. Describe the status of the stock relative to the abundance criteria in B1.
-      Include trends and forecasts of abundance.

B3. Is the stock meeting other diversity criteria (e.g. age structure, run-timing, fecundity)?
-      Describe criteria assessed:
-      Identify possible reasons for any failure.

B4. Is the fishery(ies) selective for certain stock components (e.g. age groups, size groups, populations)?
- If yes, describe reasons.

B5. Is the stock threatened by factors other than fisheries (e.g. habitat degradation, disease/parasites, predators)?
- If yes, describe threat and management action that will be taken (e.g. establish gene bank; habitat mitigation.

B6. Describe management actions that will be employed to control harvest, including measures that will be used to address any failure or trend in abundance or diversity, taking account of pre-agreed procedures:
-      Decisions should take account of: uncertainty in the assessments; abundance of the stock (q. B2); diversity of the stock (q. B3); selectivity of the fishery (q. B4); any non-fishery factors affecting the stock (q. B5); and socio-economic factors; other fisheries exploiting the stock;
-      Describe the expected extent and timescale of effects.

B.7 Outline programmes (including in-season programmes) that will be used to monitor the effect of the management measures and identify information deficiencies and time-frame for resolution;

C.   *Mixed River Stock Fishery*

C1.   Specify the reference points (Conservation Limits and/or Management Targets) or alternative measures used to define adequate abundance of the exploited stocks.

Reference points defining adequate abundance levels are available for several rivers in the FCB area, in the form of individual catchment conservation limits. These values are based on salmonid habitat inventory data and transported stock recruitment parameters from the River Bush project. A conservation limit has been finalised for the River Bush and four provisional conservation limits have been established for the Rivers Main, Blackwater, Glendun and Shimna.

C2. Describe the status of all stocks relative to the abundance criteria in C1.
- *Include trends and forecasts of abundance.*

Initial comparisons based on fish counter results and provisional conservation limits indicate that stocks have consistently fallen under conservation limits in the Rivers Main, Blackwater and Glendun since 2002. A fish counter is not presently available in the southern eastern region of the FCB area (Shimna River). In 2004, only 57% of target egg deposition was achieved from wild spawning in the R Bush, a reduction compared to the previous 10-year average (85%). The CL on this river has been reached or exceeded in only 2 of the last 10 years.

C3. Are all the stocks meeting other diversity criteria (e.g. age structure, run-timing, fecundity)?
- Describe criteria assessed
- Identify possible reasons for any failures.

Age composition and run timing of returning mature salmon are assessed from catch returns, fish counter data and scale readings. The adult run is dominated by 1SW grilse with relatively low numbers of larger MSW fish.

The largest salmon-producing catchment in the FCB region, the Lower Bann, illustrates peak migration of salmon between June-July, although penetration upstream to the Lough Neagh spawning tributaries often lags into the autumn. Late summer/autumn run salmon are an important component of Glendun River stock and often constitute the majority of the population; scale reading indicates these are principally large late-running 1 SW fish. A small number of large (MSW) fish are detected by fish counters principally during the spring months on the Main, Blackwater and the Glendun Rivers; however, numbers are limited and constitute less than 5% of the total seasonal migration.

C.4 Is the fishery selective for certain stock components (e.g. age groups, size, populations, river stocks)?
- If yes, describe reasons.

The commercial fishing effort in the FCB region extends from 18th March – 15th September. Commercial logbook returns indicate that peak exploitation is concentrated in June and July and focuses mainly on the 1SW stock component. Most exploitation occurs in the Northern region of the FCB area; in 2004 a total of 2,427 salmon were taken from the Northern region (North Antrim Coast) and 52 were caught in the South Eastern (County Down Coast) region.

C5. Are any of the stocks threatened by factors other than fisheries (e.g. habitat degradation, disease/parasites, predators)?
- If yes, describe threat and management action that will be taken (e.g. establish gene bank; habitat mitigation).

A number of local and regional factors impact on salmon stocks in the FCB area. Habitat quality and quantity has been degraded in many areas due to a range of pressures including arterial drainage, overgrazing, gravel extraction and sedimentation. Pollution and decreased water quality is an unpredictable factor, impacting in a number of localities, whilst organic enrichment and eutrophication are an ongoing regional issue. Avian predators have been demonstrated to impact significantly on wild River Bush smolts, and anecdotal information is available for localised seal predation at and around individual netting stations.

The FCB and the Department of the Environment, Environment and Heritage Service (EHS) prosecute polluters and those directly damaging salmonid habitat. The Nitrates Directive will provide EHS with greater management recourse against eutrophication. The Department of Culture, Arts and Leisure (DCAL) have managed a range of habitat enhancement measures funded by the European Union and continue to seek funding opportunities towards this end.

C.6   Describe management actions that will be employed to control harvest, including measures that will be used to address any failure or trend in abundance or diversity, taking account of pre-agreed procedures:
- Decisions should take account of: uncertainty in the assessments; abundance of the stock (q. C2); diversity of the stock (q. C3); selectivity of the fishery (q. C4); any non-fishery factors affecting the stock (q. C5); and socio-economic factors; and other fisheries exploiting the stock.
- Describe the expected extent and timescale of effects.

A Carcass Tagging and Logbook scheme was introduced in 2001. This programme sought to inhibit illegal catch of salmon and quantify the commercial and recreational landings of salmon in the FCB area.

No TAC has been established in the FCB area; however, in 2002 a voluntary buyout of salmon netsmen in the FCB region reduced the commercial exploitation of stocks. Prior to the buyout, between 1995-2000 an average of over 10,700 fish were landed annually by the fishery. Following the buyout 2,362 salmon were landed in 2003.

C7.   Outline programmes (including in-season programmes) that will be used to monitor the effects of the management measures, and identify information deficiencies and the timeframe for their resolution:

The Salmon Management Plan has been established to monitor stock status and assess the effectiveness of conservation and management measures in a number of index catchments around the FCB area. The plan is composed of several core conservation databases which including spawning run enumeration via fish counters, habitat inventories to assess habitat quality and calculate conservation limits, juvenile electric fishing surveys to monitor recruitment success and a carcass tagging and logbook scheme to tabulate exploitation.

At present, river-specific fish counters are available on four index rivers and have provided information on run strength to monitor compliance against conservation limits. A finalised conservation limit has only been established for the River Bush with provisional limits estimated for the other 3 index rivers since 2002. However, it is anticipated that habitat survey work on these three rivers will be completed in 2005, leading to the availability of full conservation limits in all present index catchments. Additionally, work is progressing to extend the number of index catchments in the FCB area.

European Union – UK (England and Wales)

Decision Structure to Aid the Council and Commissions of NASCO and the Relevant Authorities in Implementing the Precautionary Approach to Management of North Atlantic Salmon Fisheries

A. ***Brief description of the fishery(ies):***   ***Date of review:***

Fishery location:	Tamar Estuary, SW England
Gear types:	Seine nets Rod and line in freshwater

Magnitude of fishery (e.g. catch or effort):	Nets
	Tamar: 15 seine nets targeting salmon and sea trout.
	Catches: pre-1995 av. >1,000 fish;
	            1998-2002 av. 182
	Tavy: 4 seine nets ditto.
	Catches: pre-1995 av. >500 fish;
	            1998-2002 av. 9
	Lynher: 5 seine nets ditto.
	Catches: peak 1986/87, av. 729;
	            1995-2002 av. 41.
	
	Rod catches
	Tamar: significant decline since the early 1980s; catches in the 1990s are half of those in the 1960s and 1970s; <250 since 1999.
	Tavy: average 68 salmon since 1994
	Lynher: average 118 1972 – 1988, 54 1989 - 2002.

Current management restrictions:	Reducing NLO, 24 seine nets in 2003, fishing area and net size are also specified in byelaws. Season: Nets: 1st June to 7th August, 1999 – 2003; nets bought off from 2004 for 10 years. Rods: 1st March to 14th October; catch and release until 16th June since 1999.
Principal river stock(s) exploited:	Tamar, Tavy & Lynher
Other fisheries exploiting stock(s):	No coastal nets outside estuary.
Other information:	High socio-economic value of angling fishery, strongly represented interests.

If fishery exploits salmon from only one river answer all questions in Section B;
If fishery exploits salmon from more than one river answer all questions is section C.

B. ***Single River Stock Fisher(ies)***

B1.   *Specify the reference point (Conservation Limit or Management Target) or alternative measures used to define adequate abundance of the stock.*

B2. Describe the status of the stock relative to the abundance criteria in B1.
- Include trends and forecasts of abundance

B3. Is the stock meeting other diversity criteria (e.g. age structure, run-timing, fecundity, etc)?
- Describe criteria assessed;
- Identify possible reasons for any failure.

B4. Is the fishery(ies) selective for certain stock components (e.g. age groups, size groups, populations, etc)?
- If yes, describe reasons.

B5. Is the stock threatened by factors other than fisheries (e.g. habitat degradation, disease/parasites, predators, etc)?
- If yes, describe threat and management action that will be taken (e.g. establish gene bank; habitat mitigation).

B6. Describe management actions that will be employed to control harvest, including measures that will be used to address any failure or trend in abundance or diversity, taking account of pre-agreed procedures:
- Decisions should take account of: uncertainty in the assessments; abundance of the stock (q. B2); diversity of the stock (q. B3); selectivity of the fishery (q. B4); any non-fishery factors affecting the stock (q. B5); and socio-economic factors; and other fisheries exploiting the stock.
- Describe the expected extent and timescale of effects.

B7. Outline programmes (including in-season programmes) that will be used to monitor the effect of the measures and identify information deficiencies and time-frame for resolution:

C.   *Mixed River Stock Fishery*

C1. Specify the reference points (Conservation Limits or Management Targets) or alternative measures used to define adequate abundance of the exploited stocks.

River Tamar: CL of 4.24 million eggs and MT of 7.22 million eggs River Tavy: CL of 1.37 million eggs and MT of 2.12 million eggs River Lynher: CL of 0.68 million eggs and MT of 1.09 million eggs

C2. Describe the status of all stocks relative to the abundance criteria in C1.
- Include trends and forecasts of abundance

Tamar: estimated egg deposition has fallen from above CL prior to 2000 to around 50% of CL 2001 – 2003.
Tavy: estimated egg deposition has only once exceeded the CL 1995 – 2003, and was around 20 % of CL 2002 – 2003.
Lynher: estimated egg deposition has only twice exceeded the CL 1995 – 2003, around 50-60 % of CL 2001 – 2003.

C3. Are all the stocks meeting other diversity criteria (e.g. age structure, run-timing, fecundity, etc)?
- Describe criteria assessed;
- Identify possible reasons for any failures.

Probably not, though there are no set criteria other than river CL. Early running MSW fish have decreased rapidly in all three rivers since mid 1990s and disproportionately compared to the total run. This is a national (at least) phenomenon and may be due to a number of causes, some affecting reproductive success of early-run fish in rivers, and others survival and growth of MSW fish at sea. Decline of MSW stocks has been addressed through National Byelaws to close net fisheries up to 1st June and restrict rods to C&R until 16th June.

C4. Is the fishery selective for certain stock components (e.g. age groups, size, populations, river stocks, etc)?
- If yes, describe reasons.

Yes. The net fishery open season was March – August inclusive until 1996, after which fishing was restricted mainly to June and July (to protect early-running MSW fish). By 1994, the highest catches were taken June – August. The rod fishery season is 1st March to 14th October, with over 40% of the total annual catch in the 1970s on the Tamar and Tavy taken prior to 1st June, decreasing to around 10% in 1997 – 2002. Catches on the Lynher averaged 4 fish prior to 1st June 1990 - 2002. A large proportion (around 20%) of the rod catch on these rivers is taken in October. Since 1999, the pre-June component has not been exploited (National SS Byelaws), and C&R of autumn-caught fish increased to 40-50 % through 1999 - 2002.

C5. Are any of the stocks threatened by factors other than fisheries (e.g. habitat degradation, disease/parasites, predators, etc) ?
- If yes, describe threat and management action that will be taken (e.g. establish gene bank; habitat mitigation).

Yes. Recent surveys show salmon fry and parr densities in the upper Tamar catchment to be at a low level, suggesting that the fresh-water environment is a continuing problem for salmon production, exacerbated by too few spawners. In-stream habitat improvements have been initiated within the Tamar catchment since 1994. The most recent survey in the Lynher (2000) showed fry and parr densities across the catchment to be at the lowest recorded levels. In contrast, trout fry and parr abundance was high in 2000, which suggests that the fresh-water environment of the Lynher is not the main problem for salmon production.

There is no recent information on juvenile salmon production in the Tavy, where a major concern has been the tide-head dam at Lopwell and its effects on increasing exploitation levels and predation on returning adults held up in low flows.

C6. Describe management actions that will be employed to control harvest, including measures that will be used to address any failure or trend in abundance or diversity, taking account of pre-agreed procedures:

- Decisions should take account of: uncertainty in the assessments; abundance of the stock (q. C2); diversity of the stock (q. C3); selectivity of the fishery (q. C4); any non-fishery factors affecting the stock (q. C5); and socio-economic factors; and other fisheries exploiting the stock.
- Describe the expected extent and timescale of effects.

Economic factors: The Environment Agency notes that poor returns to both the rod and net fisheries are undermining the economic value associated with exploitation. It is agreed that maximising salmon escapement from the fishery should be a priority.

Measures for nets: All current Byelaws will remain in force. The NLO will be reduced to zero, which will result in the fishery being reduced as fishermen retire. This will be supported by a 10-year buy-out of the net fishery from 2004. [Note that there may be a funding conflict between buying back netting effort and in-stream habitat improvements.]

Measures for rods: Mandatory C&R will continue before June 16th. C&R to be considered for all salmon caught in September and October for 10 years, with the intention to increase overall C&R levels to 75% from the current 35-50%. There is a voluntary bag limit of 10 salmon per season for "all Cornwall" applies, with 1 fish per rod per day on each of the rivers Tamar, Tavy and Lynher.

No evaluation of the expected extent of effects due to these measures has been carried out.

C7. Outline programmes (including in-season programmes) that will be used to monitor the effects of the management measures, and identify information deficiencies and the timeframe for their resolution:

The Tamar is an index river for the UK. The stock is monitored via annual counts of upstream migrating salmon (and sea trout) and from rod catches to estimate spawning escapement (and consequent egg deposition, in relation to the river's CL). Juvenile electro-fishing surveys are carried out annually, and the smolt run is monitored with a rotary screw trap. The results will enable managers to evaluate both the scale of recovery due to a reduction in exploitation levels and the benefits of habitat improvement. The Lynher and Tavy stocks are monitored from rod catches to estimate spawning escapement (and consequent egg deposition, in relation to the river's CL). Juvenile electro-fishing surveys are carried out every 5 years.

Results will be reviewed regularly to determine their efficacy and to inform the development of the Salmon Action Plans for the three rivers.