REPORT OF THE INDEPENDENT

Salmon Group

Established to Examine the Implications of Alignment with the Scientific Advice for the Commercial Salmon Fishing Sector in 2007 and Beyond

A Report to Minister for State at the Department of Communications, Marine and Natural Resources, John Browne T.D.

Prof. Tom Collins, Mr John Malone, Mr Padraic White

OCTOBER 2006

EXECUTIVE SUMMARY

Established in March 2006, the specific remit of the Independent Salmon Group is to advise the Government of the implications of fully aligning with the scientific advice in 2007 and in particular the hardship that may arise for individuals in coastal communities; to determine the scale of financial loss which will be experienced as a result of any measures imposed on the commercial salmon fishery; to make recommendations, if appropriate, to address any financial hardship experienced; to consider the extent to which those stakeholders, who would be the main economic beneficiaries of more salmon being returned to the rivers, should contribute to any scheme, whether in cash or in kind (including improved tourist access); and, to determine the implications for the angling sector. In addition the Independent Group was free to advise the Minister on any aspects of the commercial salmon fishing sector that in its view merits comment.

The Group sought guidance and advice from a wide range of state agencies and other statutory bodies including the Marine Institute, the Central Fisheries Board, the National Fisheries Managers Executive and Bord Iascaigh Mhara and undertook a direct consultation process meeting with 87 individuals representing 46 different agencies, organisations, groups, as well as individual stakeholders. The Group received 64 written submissions and reviewed the many reports generated through the National Salmon Commission and its Standing Scientific Committee, the National Fisheries Management Executive, and available publications dealing with related issues from a wide range of sources. The Group also traveled on three occasions to meet directly with salmon fishermen.

The status of salmon stocks in Ireland and elsewhere is well documented and it is evident that these have declined in the years since an historic high in the mid-seventies. Estimated returns to the coast are currently the lowest on record for the past 35 years and the Standing Scientific Committee estimates that, compared to the 1970's, there are now less than a third of the fish returning annually. The fact that salmon stocks in many countries bordering the North Atlantic are affected suggests that a wide range of factors are contributing to the decline.

Reflecting these trends in stock abundance, conservation measures have been introduced progressively over the past decade principally targeted at reducing the fishing effort associated with commercial fishing. However the 2006 report of the Standing Scientific Committee confirms that despite recent reduced exploitation, many stocks are still falling well below their conservation limit.

The Standing Scientific Committee has provided advice on a number of key issues in relation to management of the salmon resource.

- The overall exploitation in most districts should immediately decrease, so that conservation limits can be consistently met.
- Furthermore, due to the different status of individual stocks within the stock complex, mixed stock fisheries (MSF) present particular threats to the status of individual stocks.
- Thus, the most precautionary way to meet national and international objectives is to operate fisheries on individual river stocks that are shown to be within precautionary limits i.e. those stocks which are exceeding their conservation limits.
- Fisheries operated in estuaries and rivers are more likely to fulfill these requirements.

Defined by North Atlantic Salmon Conservation Organisation (NASCO) as *any fishery exploiting a significant number of salmon from two or more river stocks*, mixed stock fisheries and particularly at-sea drift-net fishing has been

the focus of much concern recently. The Marine Institute has identified the interceptory effects of these mixed stock fisheries by tagging and releasing salmon in river systems and later monitoring where the tagged salmon are caught. The evidence indicates that salmon from many rivers (some with low levels of conservation limit attainment) are subject to interception by drift-nets at distant locations around the Irish coast.

- At successive meetings of NASCO Ireland has come under pressure to comply with international best practice and to eliminate indiscriminate mixed stock fishing at sea. In this regard certain commitments have been given by Ireland at the 2006 meeting of NASCO.
- The European Commission has also taken the view that by allowing drift-netting for salmon to continue in 2006, Ireland disregarded the scientific advice of the Standing Scientific Committee. In their reasoned opinion delivered in July 2006, the Commission has stated that to avoid further infringements cases Ireland must comply with this directive (the habitats directive) and eschew drift-netting (MSF) in 2007.

In 2006 the Standing Scientific Committee advised that the best way to meet national and international objectives of meeting conservation limits in all salmon rivers was to only allow fisheries in estuaries and rivers as there was a greater probability that these would only be targeting single stocks. The SSC also advised that fisheries should only take place on stocks that were meeting their conservation limit. The SSC further noted real concerns relating to factors causing mortality at sea such as predation by seals, diseases and parasites, marine pollution etc. Clearly, more directed investigations need to be carried out on these other factors.

Direct Implications of Aligning with the Scientific Advice

1. National management of wild salmon should be based on the individual river as the fundamental unit of management.
2. Harvesting should be permitted only on stocks that are classified by the SSC as meeting their conservation limits.
3. Harvesting should be managed in such a way that the quantity fish harvested does not exceed the surplus specified in the annual report of the SSC.
4. There will be no mixed stock fishery permitted at sea from 2007. This implies a complete cessation of drift-net fishing or any other form of harvesting outside rivers and estuaries.
5. The harvesting of salmon will only be allowed in rivers that have an identifiable surplus.
6. The harvesting of salmon will be prohibited in rivers which do not have an identifiable surplus.
7. Based on the precautionary approach, harvesting of salmon will be prohibited in rivers that currently have inadequate information to allow an appropriate assessment or where the average rod catch is less than 10 salmon per annum.
8. In the region of 68,000 fish that might otherwise have been taken in at-sea drift-net fishery in 2007 are available for redistribution to their natal rivers.
9. As a consequence of the redistribution of the foregone at-sea drift-net catch up to 10 rivers, which would otherwise not meet their conservation limit in 2007, will now have a surplus over the conservation limit requirement.

10. As a consequence of the redistribution of the foregone at-sea drift-net catch, in the region of 40,000 *additional* fish will be available for harvesting in rivers that have an identifiable surplus. (This *new surplus* is in addition to the surplus that would have been available in these rivers had the at-sea drift-net fishery continued).

11. As a consequence of the redistribution of the foregone at-sea drift-net catch, in the region of 28,000 fish will return to rivers that will continue to be below their conservation limits after redistribution.

Implications of the New Surplus

The management and allocation of any new surplus provides a significant opportunity to address the demands of various competing sectoral harvesters including, recreational fishermen, domestic and international angling tourism development, private fishery owners, fish processors, and net fishermen in rivers in estuaries. As the new surplus will be the result of management changes introduced in 2007 and beyond, there can be no *a priori* claim to these fish.

We came to the conclusion that the redistribution of this new surplus is a critical issue which will have consequences across a number of headings, including management, allocation between different stakeholders and, depending on that allocation, alleviation of hardship.

Any model for the allocation of this surplus should:

1. Be predicated on the assumption that this is a public good.

2. Recognise the case of groups such as processors, restauranteurs and retailers, who have traditionally accessed wild salmon from the commercial sector, for a continued source of supply.

3. Accommodate the interests of the tourism sector, given the potential of international angling.

It is possible to devise models for allocating the surplus either at a regional or national basis. Regardless of the model chosen, changes to the current legislation will be required to permit the sale of rod caught fish, as was the case prior to 2001.

Given that this surplus is a public good, it seems reasonable that the beneficiaries should make a proportionate payment. The income the state derives from such payments could productively be used to enhance the management and development of the salmon resource at an individual river level.

Implications for Salmon Management

There will be specific implication for the fishery managers in relation to:

1. River based management;

2. Conservation limits;

3. Mixed stock fisheries in rivers and estuaries;

4. Management Information systems;
5. Stock rebuilding programmes;
6. Control and Enforcement;
7. Research;
8. Water Quality and physical conditions;
9. Increased pressure on other species.

Implications for Commercial Fishermen

1. **Fisheries at sea:** There will be no fishing permitted at sea from 2007. This implies a complete cessation of drift-net fishing or any other form of harvesting outside rivers and estuaries.
2. **Mixed Stock Fisheries in rivers and estuaries:** Mixed Stock Fisheries in estuaries or freshwater will be prohibited where any component of the mixed stock is not meeting its conservation limit.
3. **Rivers not meeting their Conservation Limits:** All fishing will be prohibited on rivers that are currently not meeting their conservation limits.
4. **Increased availability of fish:** Additional surplus will be available in a number of rivers and estuaries. Additional opportunities will arise in the context of the distribution of 'new' surplus.

Implications for Recreational Fishermen

1. **Fisheries in rivers and estuaries:** Single stock fishing will be allowed only where rivers meet their conservation limits.
2. **Rivers not meeting their Conservation Limits:** All fishing will be prohibited on rivers that are currently not meeting their conservation limits.
3. **Mixed Stock Fisheries:** Mixed Stock fisheries for salmon in rivers or estuaries will be prohibited where any component of the mixed stock is not meeting its conservation limit.
4. **Catch & Release:** There will be general presumption against the use of catch-and-release as a fishing method on stocks classified as not meeting their conservation limits.

Implications for Processors, Retailers, Restauranteurs

For the processing sector it is evident that the main traditional channels of supply will cease. Also the total commercial harvest of wild salmon will be less than that available heretofore. Various options for the allocation of any new surplus are suggested, and depending on the management decisions taken in this respect, the impact on this sector can be mitigated.

Implications for Angling Tourism

Fáilte Ireland has ambitious plans for this sector that are contingent upon successfully rebuilding stocks. Given that a key impact of the new management regime proposed will be to generate additional harvestable surplus in certain rivers, then, depending on the management decisions taken in regard to the new surplus, it should be possible to enhance the potential of the tourist sector.

In the longer term the objective should be to develop Ireland as a sustainable and competitive international angling destination, based on the recovery and growth of the national salmon resource.

The success of this strategy will be dependent on enhanced access for tourist anglers. It was not apparent to us that this is currently the case.

Scale of Financial Loss in The Commercial Sector

- There are a large number of salmon drift-net fishermen (584 or two-thirds of the total) who caught less than 100 fish and who earned less than €3,300 from this activity in 2005. Of the remainder, 119 earned more than €15,000 in 2005.
- The total catch by drift-netting has fallen sharply in recent years, and the total catch in 2005 is only slightly more than half (51%) what it was in 2001.
- The scientific advice available to us is that falling productivity is the main driver of change, and that all else being equal catches would probably have fallen sharply even in the absence of a TAC based management regime. Nor is there any evidence of this trend changing in the immediate future.
- Though locally important fewer than 1 in 15 draft-net fishermen/teams currently catch more than 100 fish per annum, while over 50% of licence holders catch less than 20. Given that the majority of draft-net teams number three men it cannot, for the majority of participants, be regarded as a significant source of income. There are a large number of salmon draft-net fishermen/teams (400 – 500) for whom annual salmon fishing represents but a modest source of income, and probably no more, on average, than €1,000 per team in 2005.
- In 2005 some 33 licensed draft-net fishermen/teams recorded catches in excess of 100 fish each. One fisherman/team recorded between 500 and 1,000 fish and one recorded a catch in excess of 1,000 fish. For these fishermen salmon makes up a modest portion of their current annual income (>€5,000 on average). For the 2 exceptional licence holders with catches greater that 500 fish, salmon fishing makes up a significant portion of their current annual income (>€20,000 and >€40,000 respectively).

- As with drift-netting, it is clear that the total catch by draft-net fishermen has fallen sharply in recent years. The total catch in 2005 (16,735) is only slightly more than half (54%) what it was in 2001 (30,861).
- Traditional fishing using head-weir traps, loop-nets, bag-nets, and snap-nets currently accounts for less than 3% of the annual salmon catch in Ireland. Even the largest of these, the snap-net fishery, probably accounts for fewer than 2,500 fish annually (average value over the period 2001 – 2005, €57,000). Given the number of participants in relation to the catch it is clear that in no case does the catch represent any more than a very small part of the annual income of the licence holder. There are, however, strong traditions associated with these very old, and culturally distinct fisheries.

Addressing Financial Hardship

Recommendations

We are proposing that:

1. A total fund of €30 million is established to address hardship.
2. We recommend that the fund be allocated on the following basis:
    - The fund is available to all those subject to a compulsory closure of their current fishery, namely the holders of drift-net licences.
    - The fund is available, on a voluntary basis, to all those engaged in draft-net, loop-net, bag-net, snap-net, and head-weir fishing. This scheme should be open up to the end of 2007.
3. The level of payments should be determined as follows:
    a. Payments should be based on the average verifiable (tag return) catch for each licence holder for the past 5 years (2001 – 2005). (A)
    b. Payments should be based on the average net income *per salmon* in the commercial drift and draft-net fishery for the past 5 years (2001 – 2005). We estimate this to be €23 per salmon. (B)
    c. Each individual licence holder should receive 6 times their average catch (A) multiplied by the average net income per salmon (B).
    d. In all cases a payment equal to 6 times the current licence fee in respect of each licence surrendered will be made. For example, in the case of drift-net fishermen, this equals a payment of €2,022. In the case of draft-net fishermen participating in the voluntary scheme the payment will be €1,140.
4. Given the immediate impact of the new regime we recommend that payments under this scheme should be made in one installment in 2007.

5. In every case, those who avail of the direct payment scheme should be required to:

    a. Surrender their licence immediately and permanently.

    b. Verifiably decommission their net(s) and/or fixed fishing engines to the satisfaction of the competent authority.

6. We estimate that the total fund required for this part of the scheme will be of the order of €25 million.

7. That a community support scheme to a value of €5 million be established to support the development of additional economic opportunities in communities affected by the closure of the drift-net fishery. The focus of this measure should primarily be those communities where drift-net fishing has been a well established activity and where its withdrawal demonstrably impacts on their economic and social fabric, e.g. Gaeltacht areas. Those eligible under this scheme would especially include those formerly involved in the drift-netting sector, or, alternatively, where a promoter proposes to employ a significant number of people formerly engaged in drift-netting.

Contributions to the Hardship Scheme

Contributions In Cash

It has been clearly indicated to the Group that anglers, fishery owners and the holders of estuarine net licences should contribute to the cost of any hardship scheme introduced. On that basis we recommend the introduction of an 'environmental or stock rebuilding stamp' equivalent to the cost of each licence category.

We emphasise that this contribution be designated for the purposes of salmon conservation which is a critical requirement for a sustainable recreational angling sector.

Contributions In Kind

We recognise that the angling community makes a significant contribution to protecting and managing salmon stocks at the individual river level. This role should be further enhanced and developed and should be recognised as a contribution in kind.

Increased tourist access to rivers is a critical issue for the angling tourism sector if it is to develop from its current position.

REPORT OF THE INDEPENDENT SALMON GROUP

Professor Tom Collins

Professor Tom Collins is Dean of the Faculty of Social Science and Head of Education at NUI Maynooth. Prior to taking up his current position he was Director of the Dundalk Institute of Technology. Professor Collins has written extensively on the theme of participatory development and has been active in local development work for many years. He is a member of the Broadcasting Commission of Ireland and is Chairman of the National Rural Water Monitoring Committee and the National Council for Curriculum Assessment.

John Malone

John Malone served as Secretary General of the Department of Agriculture and Food from 1997 to 2004. During his career in that Department he occupied a variety of positions and was centrally involved in the formulation of agri-food policy, EU negotiations on the Common Agricultural Policy as well the WTO Round. He is a member of the Board of Bord Bia, the Dairygold Co-operative Society Board, and the Public Service Benchmarking Body.

Padraic White

Padraic White served as Chairman of the National Strategy Review Group on the Common Fisheries Policy from December 1998 until December 2003. This Group developed strategies and policies for the review of the Common Fisheries Policy. Mr White also chaired the North West Pelagic Task Force in 2000. He is the author of the report 'Decommissioning Requirements for Ireland's Demersal and Shellfish Fleets', July 2005, whose recommendations were accepted by the Government: this scheme is currently being implemented in stages. He is the former Managing Director of the Industrial Development Authority (IDA) and is the current Chairman of the Railway Procurement Agency. He is also Chairman and Director of several private companies.

CONTENTS

GLOSSARY

Bag-net: A net comprising a leader stretching from the shore and a trap (head) that is held in a fixed position by anchors and buoys. The trap is chambered, with inward pointing sheets of netting, known as in-scales, leading fish eventually into the fish court, where they remain free-swimming until they are removed by the fishermen. The net is also supported by three wooden poles, which do not reach the seabed. The net frame is attached to the bottom and top of each of the poles to hold it open vertically.

BIM: Bord Iascaigh Mhara

CFB: Central Fisheries Board

CFP: The Common Fisheries Policy of the European Union. It provides the framework for the management of Fisheries within the EU.

Conservation: The process of ensuring that the abundance of salmon in a stock is maintained at or above a satisfactory level (i.e. above the conservation limit with an agreed probability) and that natural diversity is maintained.

Conservation Limits (CL): NASCO and ICES define the CL as the spawning stock level that produces maximum sustainable yield.

Distant water fisheries: Fisheries in areas outside the jurisdiction of the country of origin.

Draft-nets: Consists of a wall of netting with a weighted foot rope and floated head rope. One end is held on the shore while the rest is paid out from a boat to enclose an area of water between two points on the shore. The net is then retrieved and any fish enclosed drawn up onto the shore. Draft-nets normally operate within estuaries.

Drift-net: A drift-net consists of a sheet of netting which hangs from a floated head rope to a weighted foot rope and is designed to drift with the current or tide. The length of netting used is regulated.

ESB: Electricity Supply Board

Exploitation: Any means whatsoever by which fish are removed from any stock and killed.

Grilse: Salmon that have spent from one year to eighteen months feeding at sea, or 1 sea-winter salmon.

Habitats directive: EU council directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna.

Harvesting: Any means whatsoever by which fish are removed from any stock and killed.

Head-weir fishery: Head-weirs are erected between tide marks in such a way as to trap fish on a falling tide.

Home water fisheries: Fisheries within the jurisdiction of the countries of origin (within 12 miles of the baseline).

ICES: International Council for the Exploration of the Sea.

Index Rivers: A small number of rivers of different characteristics selected to be representative and reflective of the totality of inland waterways.

Loop-net: A curved landing net fished in deep soft muddy conditions in the Lough Swilly estuary.

MI: Marine Institute.

Mixed stock fishery: A fishery exploiting a significant number of salmon from two or more river stocks.

Monofilament Net: Fishing net made from a material consisting of one single strand of synthetic thread.

NASCO: North Atlantic Salmon Conservation Organisation.

NFME: National Fisheries Management Executive.

NSC: National Salmon Commission.

Quota: A portion of a total allowable catch (TAC) allocated to an operating unit, e.g. the draft-net quota.

RFB: Regional Fisheries Board.

SSC: Standing Scientific Committee of the National Salmon Commission.

Snap-nets: Operated within estuaries in the Waterford and Lismore districts. The net is fished between two small boats or cots each fisherman holding both the head rope and lead rope in one hand and an oar in the other to control the direction of the boat and keep the net fishing between the boats. Fishing against the current in either the ebb or flowing tide, the net forms a bag projecting backwards against the tidal flow. A fish striking the net alerts the fishermen who then 'snap' the lead rope sharply upwards and over the head rope wrapping the fish in the bag.

Spring Salmon: Multi-sea-winter salmon appearing in rivers from January to May.

Stock: A management unit comprising one or more salmon populations. Salmon from separate rivers are referred to as 'river stocks'.

Stock Rebuilding Programme (SRP): A SRP is an array of management measures, including possibly habitat improvement, exploitation control and stocking, designed to restore a stock above its conservation limit.

TAC: Total allowable catch.

TERMS OF REFERENCE OF THE INDEPENDENT SALMON GROUP

Background to the Terms of Reference

The Minister has undertaken to follow the recommendations of the Standing Scientific Committee of the National Salmon Commission (NSC) to fully align the management of the fishery with their scientific advice for 2007. If the scientific advice is followed, and the precautionary approach fully implemented, then it will have serious implications for drift-net fishing.

Purpose of the Independent Group

The Minister established an Independent Group to examine the implications for the commercial sector in 2007 and beyond. The Group will make recommendations on the options available to address any financial hardship arising for individuals involved in commercial salmon fishing from full compliance with the scientific advice for 2007.

Remit of the Independent Group

The specific remit of the Independent Group will include:

1. Advise the Government of the implications of fully aligning with the scientific advice and in particular the hardship that may arise for individuals in coastal communities.
2. Determine the scale of financial loss which will be experienced as a result of any measures imposed on the commercial salmon fishery.
3. Make recommendations, if appropriate, to address any financial hardship experienced.
4. Consider the extent to which those stakeholders, who would be the main economic beneficiaries of more salmon being returned to the rivers, should contribute to any scheme, whether in cash or in kind (including improved tourist access).
5. Determine the implications for the angling sector.

In addition to its specific remit, the Independent Group was free to advise the Minister on any aspects of the commercial salmon fishing sector that in its view merits comment.

The Group will be expected to draw on the reports already generated through the National Salmon Commission, by the National Fisheries Management Executive and the Standing Scientific Committee and engage in appropriate consultation with relevant stakeholders.

FOREWORD

As set out in our terms of reference, the purpose of the Independent Salmon Group is to examine the implications for the commercial sector in 2007 and beyond of fully aligning the management of Ireland's salmon fisheries with the scientific advice and to make recommendations on the options available to address any financial hardship experienced. Needless to say this is an extremely complex issue and we have endeavoured to ensure that we have studied all the factors involved, consulted broadly with stakeholders and taken account of the socio-economic effect on vulnerable rural communities of any changes likely from 2007. Likewise we have examined the extent to which the main economic beneficiaries of more salmon returning to rivers should contribute to any scheme going forward.

From the outset we also recognized that to *advise the Government of the implications of fully aligning with the scientific advice* it was necessary to first obtain a clear understanding of the scientific report in 2006, to determine its implications, and thereafter to consider the likely advice for 2007. (In the normal course of events the scientific advice for 2007 would not be available until the early part of next year). To this end we met with the members of the principal scientific advisory group, the Standing Scientific Committee (SSC) of the National Salmon Commission (NSC). We also reviewed their preliminary advice for 2007, aspects of which are included in this Report. We are grateful to the members of the Committee for making the preliminary advice available in such a timely manner.

In addition we sought further guidance and advice from a wide range of state agencies and other statutory bodies whose remit includes aspects of wild salmon management or development, including the Marine Institute, the Central Fisheries Board, the National Fisheries Management Executive and Bord Iascaigh Mhara. Based on these consultations we established, to our satisfaction, the likely practical implications, in fisheries terms, of the scientific advice. This served as a starting point for the remainder of our work as set out in the terms of reference.

An important development in the course of our work was the reasoned opinion addressed to Ireland under Article 226 of the Treaty of Rome, establishing the European Community, on account of its failure to fulfill obligations under Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna, the Habitats Directive, specifically in relation to the management of salmon, mixed stock fishing, and the continued licensing of drift-netting at sea. Specifically the Commission has stated that to avoid further infringements cases Ireland must comply with the habitats directive and eschew drift-netting (MSF) in 2007.

We undertook a detailed series of meetings, consultations and site visits. These are summarised below.

- We consulted with senior officials in the Department of Communications, Marine and Natural Resources and other Government agencies involved in the sector.
- We undertook a direct consultation with 46 different agencies, organisations and groups, as well as individuals, all with an interest in Salmon, including the Standing Scientific Committee (SSC) of the National Salmon Commission (NSC), the National Fisheries Management Executive (NFME), and stakeholders from the angling and commercial sectors as well as other government organisations and NGO's. A total of 87 people participated in the consultative meetings.
- We met with these parties over the course of 23 separate meetings and convened 14 additional plenary meetings in our own right.

- We received written submissions from 64 individuals, organisations, state agencies and private companies representing a comprehensive range of interest groups.
- We undertook an extensive programme of desk research on previous reports and a wide variety of other background material on the sector.
- We reviewed the many reports already generated through the National Salmon Commission and its Standing Scientific Committee, the National Fisheries Management Executive, and available publications dealing with related issues from a wide range of sources.
- We travelled on three occasions to meet with salmon fishermen and view, at first hand, drift-netting off Ballydavid, County Kerry and draft-netting on the River Lee at Blackrock Castle, County Cork. We also met with representatives of the Lough Foyle Drift-net Fishermen's Association in Greencastle, County Donegal.
- We met with the Chief Executive and senior scientist of Loughs Agency.

We wish to acknowledge the inputs, support and cooperation which we received from all concerned and of the hard work, thought and effort which went into many of the submissions and other inputs received. We are also grateful for the assistance and advice of the Secretary General and officials of the Department of Communications, Marine and Natural Resources, all of whom gave generously of their knowledge, experience and expertise.

It is clear to the Group that:

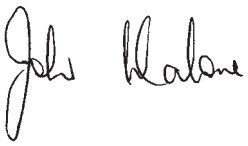
- There is a widely held view that the salmon resource is under serious threat from a combination of over-exploitation, pollution, habitat degradation and poor water quality management.
- There is no single solution to the challenges facing the salmon fisheries sector which will meet with universal approval. Many of the sectoral stakeholders have opposing views as to what needs to be done and, yet, in almost every case there is an acceptance that the well being and maintenance of national salmon stocks is of vital importance.
- Traditional salmon fishing is an integral part of the fabric of coastal communities, a number of which are in Gaeltacht areas.
- There is a widely shared belief that the economic and tourist potential of the sector is not sufficiently recognised and that, in particular, the potential of the wild salmon recreational fishery is not being fully exploited. Many believe that indiscriminate drift-net fishing has damaged this potential.
- One issue on which there was a unanimous view amongst the various interests who contributed to the review was that the current management strategy is not succeeding and is not adequate to prevent further decline of the salmon resource.
- The persistent and increasingly intense pressure on Ireland to come into line with best international practice and end indiscriminate mixed stock fishing. This is starkly reinforced by the European Commission's reasoned opinion on the Habitats Directive.

We are now at a critical juncture in our efforts to halt the catastrophic decline of Irish salmon stocks. It is clear to us that a radical and comprehensive new management approach is now needed. The scientific advice is unequivocal that the ending of indiscriminate mixed stock fishing at sea and the restriction on angling in certain rivers are essential parts of a national strategy to arrest this decline. These must be complemented by a wide range of other national measures to include improved water quality, enhanced river management and protection of spawning beds. In addition there should be an enhanced and more targeted programme of evaluation of conservation measures. On the international front we were struck by the very high marine mortality rates (of the order of >90%) and a better understanding of the factors involved is required.

As we complete our task it is clear to the members of this Group that fully aligning with the scientific advice in 2007 and beyond will necessitate considerable change in the way we manage, exploit, and enjoy our wild salmon resource. Far from simply being an exercise directed at drift-net fishermen, the challenges and recommendations in this report, and the opportunities that emerge, affect practically everyone with an interest in wild salmon. We fundamentally believe however, that these changes, if fully implemented, will create an entirely new vision of the salmon resource and how we should manage it into the future and offer significant new opportunities right across the sector.

Finally, we would like to thank Michael Keatinge and Emmet Jackson of BIM for their outstanding support to us throughout.

Professor Tom Collins



John Malone

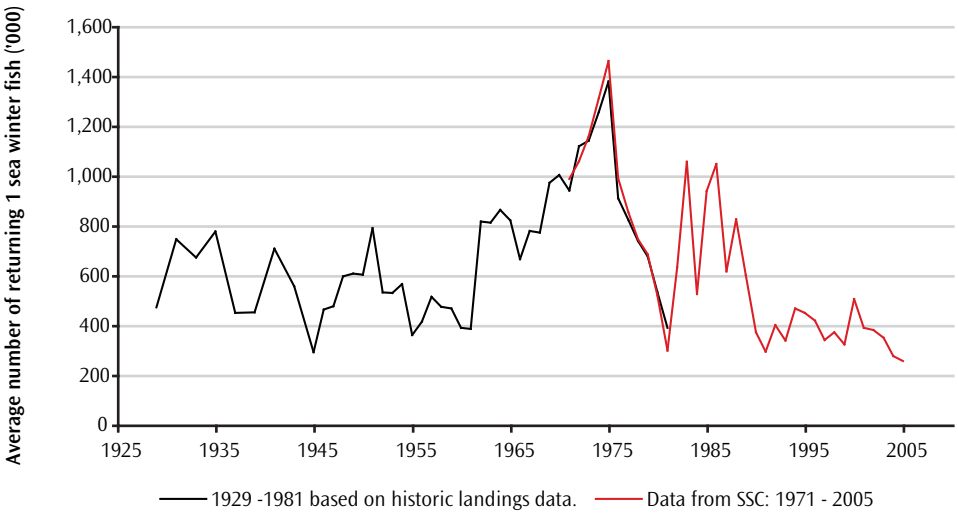
Padraic White

1 SCIENTIFIC BACKGROUND

1.1 CURRENT STATUS OF SALMON STOCKS

The current status of salmon stocks in Ireland and elsewhere is well documented and a considerable volume of work was readily available to us from the outset. This deals extensively with the current biological status of salmon stocks not only in Ireland but more generally in the North Atlantic and come from a number of international and inter-governmental organisations including, inter alia, the International Council for the Exploration of the Sea (ICES), the North Atlantic Salmon Conservation Organisation (NASCO), as well as from reports of the Standing Scientific Committee (SSC) of the National Salmon Commission (NSC) and individual publications in international journals. It is evident from all of these that Ireland's salmon stocks have declined in the years since an historic high in the mid-seventies (see figure 1.1). Currently estimated returns to the coast are the lowest on record for the past 35 years and the Standing Scientific Committee estimates that, compared to the 1970's, there are now less than a third of the fish returning annually to the Irish coast. And it is not just Irish stocks that are declining: according to ICES salmon stocks are shrinking in many parts of the North Atlantic - this despite fairly restrictive management measures and reductions in fisheries and exploitation rates.

Figure 1.1 Average Number of Returning 1 Sea Winter Fish: 1926 - 2005



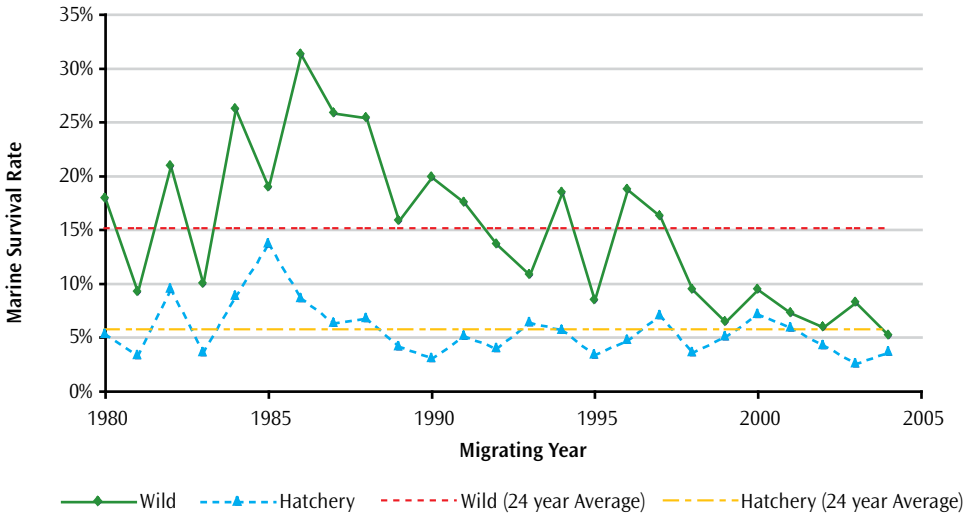
There does not appear to be any one answer to this problem of wide scale decline. The fact that salmon stocks in many countries bordering the North Atlantic are affected suggests that, while a wide range of factors are undoubtedly contributing, climatic changes and, more specifically, the climate at sea may be playing a significant part. There is, for example, growing evidence to suggest that sea temperatures can affect migration speeds and routes, can impact on the extent to which migrating salmon are preyed upon, and can restrict food availability. Whatever the cause, the effect is clear; the number of Atlantic salmon surviving the marine phase of their life-cycle (that is the period between smolts migration from freshwater into the sea and their subsequent return as adults to their river of birth) is now much lower than in the past.

While the cause of the decline in marine survival may be poorly understood, the magnitude of this decline has been estimated and the 2006 Report of the Standing Scientific Committee points out that marine survival of salmon from Irish rivers is currently the 'lowest it has been since the present national assessment programme commenced in 1980 and that data available from the Burrishoole index site indicates that the current marine survival is also lower than that recorded since the 1970s.'

Historically returns to the coast increased significantly during the 1960's and 70's, was highest between 1970 and 1975, peaking at approximately 1.8 million 1-sea-winter fish in 1975 and then declined thereafter. Whatever the cause(s) it is now clear that marine survival for both wild and hatchery raised salmon from Irish rivers has fallen below 10% and may have fallen to as little as 5% - 6% (see Figure 1.2). And while there has been considerable fluctuation, in years prior to 1996 estimates of marine survival for wild stocks indicate rates in excess of 20% and up to 30% in at least one year. The effects of changing marine mortality are clearly evident in salmon production at a national level. From 1975, salmon production decreased significantly, with some recovery during the 1980's. However, since 1990, the national production has been much lower with on average just over 400,000 salmon being produced.

The overall spawning stock too has fluctuated in the same way as the overall returns, with the highest spawning stock recorded in the 1970s. And despite meeting the national conservation limit in 25 of the previous 35 years, since 1981 the aggregated spawning stocks have fluctuated around the conservation limit, with periods during the 1990's where it consistently failed to achieve the spawning requirement. It is currently estimated that on average, between (2001 and 2005) only 70% of the aggregated 1-sea-winter conservation limit was attained. The estimated Irish 1-sea-winter spawning stock in all rivers in 2005 (based on district catch statistics) was 157,870 fish.

Figure 1.2 Marine survival 1980 – 2004



There are concerns too about the fresh water phase of the salmon life cycle. Land use changes have affected the quantity and quality of in-river habitat. The intensification of agriculture has resulted in higher densities of livestock, which in turn has led to erosion of riverbanks and the accelerated silting of spawning gravels. (Salmon eggs require a constant flow of well-oxygenated water if they are to survive to hatching. Excessive silt loads can reduce the amount of oxygen supplied to the eggs resulting in lowered survival rates). Pollution from urban settlements, agriculture and industry resulting in acid rain, inputs of excessive nutrients, heavy metals, pesticides and other toxic substances degrade habitat quality and may have direct impacts on mortality and behaviour. Poor quality water containing sewage and other organic pollutants with high biological oxygen demand leads to low levels of available oxygen, which can kill fish.

Various impediments to the upstream movements of adult salmon and the downstream migration of smolts too can have dramatic impacts on the viability of local stocks.

All of these potential impacts can result in significant increases in the level of mortality experienced by a salmon stock in the freshwater phase, as it completes its life cycle. And, unlike marine mortality – which applies to salmon stocks in general in the marine environment – freshwater impacts are specific to individual rivers or groups of rivers when they share a common estuary. Consequently, while it is may be possible to construct an overall index of freshwater mortality (akin to marine mortality discussed above), it is not meaningful to apply this globally. Instead freshwater mortality should be considered on a river-by-river basis.

Whatever the ultimate cause of the decline in salmon productivity in the North Atlantic or the negative impacts on the fresh water phase of the salmon life cycle, the consequences cannot be ignored. The number of salmon available for harvesting is the difference between the spawning stock biomass necessary to meet stock specific conservation limits and the number of fish remaining after all other forms of mortality have been accounted for. It is self evident that as mortality increases the number of fish available for harvesting is reduced and adjustments must be made if the conservations limit is to be met.

Whatever the causes of the increased mortality it is clear that the sustainable harvest now available from Ireland's salmon stocks is significantly less than it has been in the past. The most recent report of the Standing Scientific Committee of the National Salmon Commission (2006) notes that only four of the 17 salmon management districts in Ireland are meeting their conservation limits consistently (Cork, Kerry, Connemara, and Ballinakill). Less than 50% of the conservation limit is being attained in eight districts (Sligo, Shannon, Waterford, Dublin, Drogheda, Dundalk, Wexford, and Galway). The remaining districts have consistently met over 50% of the conservation limit but less than 100% on average. Even in districts which met their conservation limits, some individual rivers within the district did not. The report goes on to note that four of seven rivers in the Cork district did not meet their conservation limits. Similarly, four of nine rivers in Kerry, two rivers in Connemara, four of five rivers in Ballinakill, three of five rivers in Bangor, four of six rivers in Ballyshannon and five of the ten rivers in Letterkenny failed to meet conservation limits.

It is also clear that production in the 40 years or so leading up to the peak observed in the 1960's and 1970's was significantly lower. Figure 1.1 clearly highlights that the average number of returning 1-sea-winter fish between 1926 and 1961 was in the order of 500,000. This jumped to more than 1.4 million in 1975, and thereafter between 1990 and 2005 it was less than 400,000. Indeed it can be seen that, nationally, production has retreated to levels at least as low, and probably lower, than in the period from the mid 1920's up to the exceptionally high levels observed between 1965 and 1975. Clearly the stock is not in a position to sustain the level of harvesting it did between 1965 and 1975.

1.2 RECENT CONSERVATION MEASURES

Recognising the declining status of wild salmon stocks, additional conservation measures have been introduced progressively over the past decade. These have, in the main, been targeted at reducing fishing effort associated with commercial fishing.

In 1997 the opening of the draft-netting season was deferred until the 12th of May; a cap was placed on the number of public commercial fishing licences for draft and drift-nets; the 'area' of fishing at sea was reduced from twelve nautical miles from the baseline to six; the drift-netting season was restricted both in duration (1st June to 31st July) and time allowed for fishing (the fishing day was restricted to the hours of 4am to 9pm).

In 2001 additional measures were put in place including a mandatory carcass tagging and logbook scheme for all salmon fishing practices including angling. This scheme was introduced to provide a verifiable account of the quantity of wild salmon being caught by both the commercial and angling sectors. The sale of rod-caught salmon was prohibited and the angling fishing effort was reduced with an angling bag limit of one fish per day applied from September 1st to December 31st and three fish per day from January 1st to 31st May up to a season limit of twenty fish. Finally, in 2002, the first Total Allowable Catch (TAC) was introduced for commercial catches of salmon. Since its introduction, the TAC has been reduced in every year and this has resulted in a 60% reduction in allowable catch between 2002 and 2006 (Table 1.1)

Table 1.1 Total Allowable Commercial Catch (Excludes Angling).

Year	2002	2003	2004	2005	2006
TAC	219,619	182,000	161,951	139,900	91,367
Total Reported Commercial catch	206,899	166,874	143,606	121,180	n.a.

These conservation measures have had a significant impact on harvesting and since 2001 the total catch of salmon caught by all fishing methods has dropped from 259,475 to 143,541 fish in 2005, or a decrease in catches of 47.5%. In fact the annual TAC, introduced in 2002, has never been fully taken up (Table 1.1 and 1.2). In this regard the Group did note a point made during the consultation process, that as a 'minimum' number of carcass tags are distributed to all commercial licence holders – whether active or not – this has undoubtedly led to some tags effectively being taken out of circulation and, consequently, not being used. This should be borne in mind when considering the total catch in relation to the commercial TAC.

Table 1.2 Total Salmon Catch 2001-2005

Year	Drift	Draft	Other*	Total Reported Commercial	TAC	Angling Catch	Overall Total	% Change
2001	197,172	30,861	5,368	233,401	n.a.	26,074	259,475	n.a.
2002	179,177	23,032	4,690	206,899	219,649	29,408	236,307	-8.9%
2003	141,222	21,100	4,552	166,874	182,000	20,888	187,762	-20.5%
2004	120,303	19,443	3,860	143,606	161,951	26,202	169,808	-9.6%
2005	101,231	16,735	3,214	121,180	139,900	22,361	143,541	-15.5%

**Snap, Loop, Bag-nets and Head-weir fisheries.*

1.2.1 The Impact of Conservation Measures Taken to Date

In their Report 'The Status of Irish Salmon Stocks in 2005 and Precautionary Catch Advice for 2006' the Standing Scientific Committee present the results of the most recent assessment of Irish salmon stocks. In light of what has been presented here on the status of stocks generally in the North Atlantic and more specifically in Irish waters, along with the introduction and implementation of conservation measures since 1997, the SSC report provides little grounds for optimism. It points out that:

> 'Given the current poor marine survival conditions, the expectation of large catches is unrealistic at present and there should be a priority given to conservation rather than catch. Despite the recent reduced exploitation on stocks, many are falling well below their conservation limit'.

It would appear therefore that the conservation measures introduced over the past decade or so have not achieved the desired results. It can be argued that they have only succeeded in preventing an even more significant collapse in salmon stocks generally. It would also appear that these measures have been especially inadequate in some cases judging by the poor status of certain stocks particularly those in rivers in the east and south-east of the country.

It is equally apparent from the report of the Standing Scientific Committee that it may not just be a failure of conservation measures that must be addressed going forward; the basis on which the advice has been traditionally formulated i.e. on a district level, may also be inadequate.

1.3 MIXED STOCK FISHING

1.3.1 Defining Mixed Stock Fisheries

The issue of mixed stock fishing is fundamental to the strategy on salmon conservation. NASCO (the North Atlantic Salmon Conservation Organisation) has defined mixed stock fishing as "any fishery exploiting a significant number of salmon from two or more river stocks". The Group has adopted this definition.

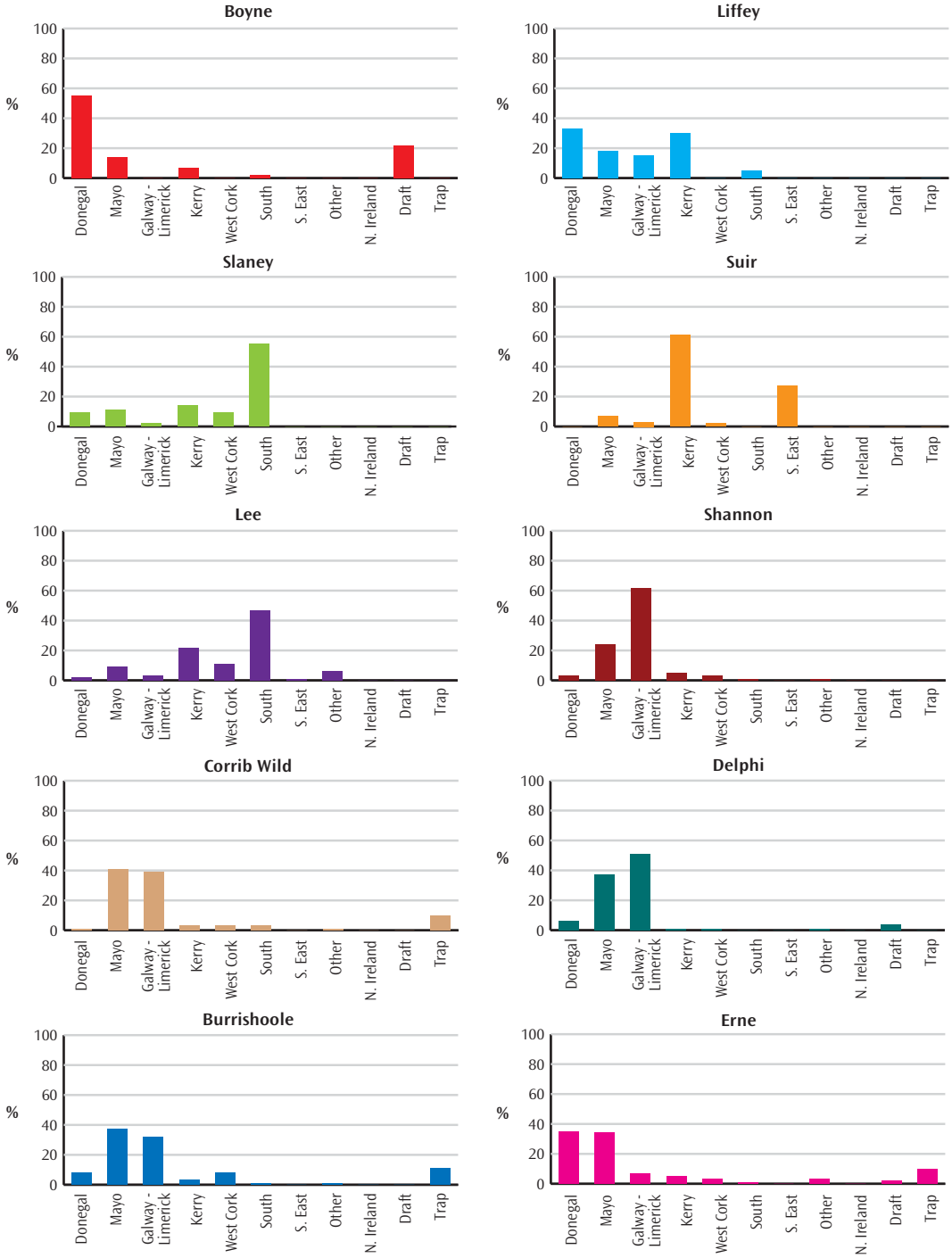
1.3.2 Quantifying at-sea Drift-net Mixed Stock Fisheries

Drift-netting at sea is the main form of mixed stock fishing. This arises because each net can i) intercept fish returning to multiple rivers including salmon originating in rivers quite distant from the district of the fishery and ii) it does not distinguish between fish attempting to return to rivers with adequate numbers of spawning fish and those returning to rivers with seriously depleted stocks.

The Marine Institute has identified the interceptory effects of drift-netting by tagging and releasing salmon in certain river systems and later monitoring where these tagged salmon are caught. The evidence (figure 1.3) indicates that salmon from many rivers (some with low levels of conservation limit attainment) are subject to interception by drift-nets at distant locations around the Irish coast.

The Standing Scientific Committee report notes that *'the National Coded Wire Tag and Tag Recovery Programme currently provides information on the extent of mixed stock element of the commercial salmon fisheries. It has been estimated from coded wire tag returns that up to 50% of the catch of individual river tagged stock may be taken outside the fishery region where they originated and in most cases in several fishery regions'.*

Figure 1.3 The proportion of fish tagged in the rivers indicated in the title of each figure (Boyne, Liffey, Slaney etc.), that turned up in each of the commercial fisheries monitored (Donegal, Mayo, Galway - Limerick etc., drift-net fisheries; other drift-net, Northern Ireland, Draft-net and trap fisheries). Tagging data are from 1997 – 2004 with the exception of the Boyne, Liffey and Slaney which are results from all years, and the Suir which are from 2006 only.



1.4 INTERNATIONAL DIMENSION

1.4.1 NASCO

At successive meetings of NASCO Ireland has come under pressure to comply with international best practice and to eliminate indiscriminate mixed stock fishing at sea. In this regard certain commitments have been given by Ireland at the 2006 meeting of NASCO.

1.4.2 UK

It must also be noted that expert opinion in the UK considers that the Irish drift-net fishery has a significant effect on salmon destined for rivers outside Ireland including the United Kingdom. More Specifically English Nature considers that the Irish fishery is currently contributing towards the failure of rivers on the west and south coasts of England to comply with their conservation limits. A 2003 report notes "the Irish drift-net fishery is thought to take as much as 15% of the salmon stock from west coast rivers in England and Wales and up to 20% of the stock from southern English rivers". The Environment Agency for England and Wales has similarly noted that *"prior to the introduction of the management measures in 1997, exploitation rates in the Irish fishery were estimated at about 1% for stocks from the north east of England, higher (15 to 22%) for two rivers in Wales, but highest (28%) for the river Test in southern England. Since the introduction of the regulatory changes in 1997 and subsequently, exploitation rates have fallen to 0.5% for the River Tyne (data for one year only), 2% - 10% for Welsh rivers and 12% for the River Test"*. It has also noted: *"rivers affected by exploitation in the Irish net fishery include several designated Special Areas for Conservation with salmon as a listed species. On the river Test all rod caught fish are released and there is no net fishery"*. Therefore, it is concluded, *"the Irish fishery is probably the biggest exploiter of this stock"*.

1.4.3 EU Commission/ Habitats Directive

EU Nature conservation policy is currently based on two main pieces of legislation - the Birds directive and the Habitats directive. Council Directive 92/43/EEC of the 21st May 1992, on the conservation of natural habitats and of wild fauna and flora, otherwise known as the Flora-fauna-habitats directive (FFH) or more commonly as simply the 'habitats' directive constitutes, as do all Council Directives, a set of objectives that have to be achieved. While each member state is allowed to choose how to achieve the objectives, directives must normally be transposed into national legislation within two to three years after adoption.

Salmon have a specific relevance in respect of the Habitats Directive and Ireland is considered by many including the European Commission to be of particular importance to salmon conservation by virtue of the number of freshwater salmon habitats that are found here as well as the fact that salmon migrating to natal rivers and streams in the United Kingdom, France, Spain, Portugal and Germany, as well as Ireland swim through our coastal waters. In line with our obligations under the Habitats Directive Ireland has nominated as proposed Sites of Community Importance (SCI), twenty-five rivers or river systems in which salmon is included as a conservation objective. However an infringement case has being brought against Ireland on the basis that Ireland, by continuing to license drift-netting, is in conflict with Community nature conservation laws. This arises because indiscriminate mixed-stock drift-netting is considered to exploit fish bound for different spawning rivers where numbers are low.

In terms of its listing in the Directive, the Atlantic salmon is only a protected species in respect of its freshwater habitats. Hence wild salmon migration routes are not subject to the requirement to nominate proposed Sites of Community Importance (SCIs) under Article 4(1) of the Directive. However, the life-cycle of wild salmon involves a return to freshwater rivers and streams to spawn, and these categories of water-body come within the scope of the Directive's obligation to nominate and safeguard sites as SCIs for the species.

While it would appear that the European Commission considers that a salmon fishery may be permitted if it has been demonstrated (through scientific assessment) that exploitation will have no deleterious effect on the stock; it is clearly the view of the Commission that by allowing drift-netting for salmon to continue in 2006, Ireland disregarded the scientific advice of the Standing Scientific Committee. In their reasoned opinion delivered in July 2006, the Commission have clearly stated that "to avoid further infringements cases Ireland must comply with this directive (the habitats directive) and eschew drift-netting (MSF) in 2007".

2 SCIENTIFIC ADVICE

2.1 SCIENTIFIC ADVICE FOR 2006

The Standing Scientific Committee has provided advice on a number of key issues in relation to management of the salmon resource in 2006. The SSC summarises its advice as follows:

1. The overall exploitation in most districts should immediately decrease, so that conservation limits can be consistently met.

2. Furthermore, due to the different status of individual stocks within the stock complex, mixed stock fisheries present particular threats to the status of individual stocks.

3. Thus, the most precautionary way to meet national and international objectives is to operate fisheries on individual river stocks that are shown to be within precautionary limits i.e. those stocks which are exceeding their conservation limits.

4. Fisheries operated in estuaries and rivers are more likely to fulfill these requirements.

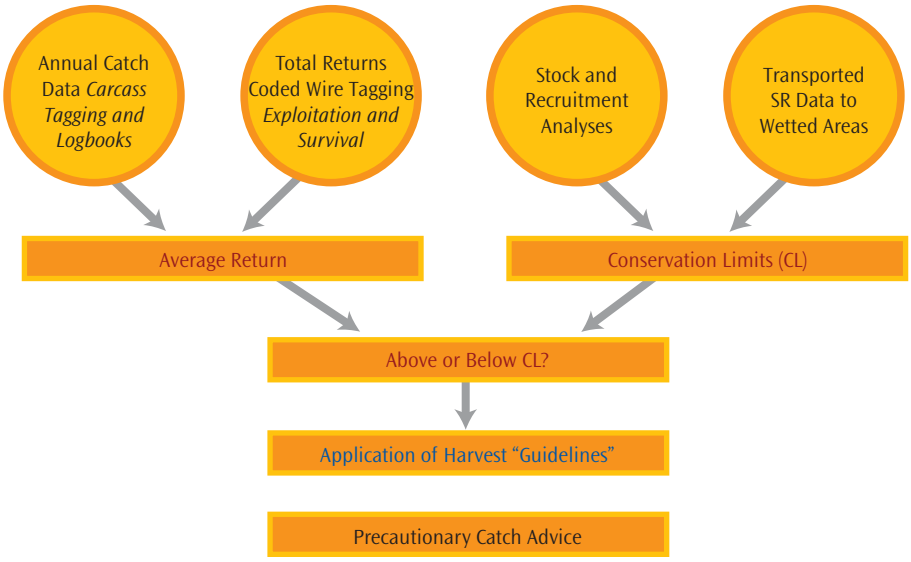
They conclude that "it is not currently possible to manage existing mixed stock fisheries (i.e. drift-nets and some draft-nets) such that only those stocks meeting their conservation limits will be caught and that only the number of fish in excess of the conservation limits for these stocks will be harvested."

While the main focus of the report is on fisheries and fisheries effects, the SSC also note 'real concerns' relating to factors causing mortality at sea such as predation by seals, diseases and parasites, marine pollution etc. However, it continues, 'there is insufficient empirical information to allow anything other than general advice to be given on these at this stage i.e. the more the effects of each individual factor can be reduced the more salmon will return to our coasts and rivers. Clearly, more directed investigations need to be carried out on these other factors'.

2.2 ASSESSMENT MODEL USED IN 2006 – DISTRICT BASED MODEL

In 2006, the SSC used a catch (commercial and recreational) based assessment model to derive returns of salmon to each district before fisheries took place. This was done by applying the exploitation rate in the fishery (based on coded wire tag returns for the past 25 years) to the reported catches and including an estimate of unreported catch. Once the number of salmon returning to each district (prior to the fisheries commencing) was estimated, it was compared to the district conservation limit (i.e. the sum of the spawners required in the individual rivers in the district) to establish whether the returns met or exceeded the conservation limit. In a situation where the conservation limit was exceeded a fishery could take place on the surplus fish. Where the conservation limit was not being achieved, the fishery had to be reduced or even closed to allow the required spawners to enter the individual rivers.

Figure 2.1 The Scientific Process up to 2006



The 2006 approach consisted of six steps: 1) Record the catch, 2) Estimate catch rates, 3) Derive spawner numbers and total returns, 4) Estimate conservation limits, 5) Assess how far spawners are above or below their conservation limits, and 6) Recommend precautionary catch limits in each district. Estimates of average spawners, average catch, and district conservation limits were produced, and thereafter harvest options were provided along with the associated probability of meeting the district conservation limit. Following the procedure used by ICES (for the provision of catch advice for West Greenland), the harvest option that provided a 0.75 probability level (or 75% chance) of meeting the conservation limit in a given district was highlighted.

2.2.1 Implications of District Based Advice

In their report (2006) the SSC note that prior to 2005 precautionary catch advice was provided on a district basis. However they further note that with the establishment of the new terms of reference for the National Salmon Commission it became necessary to examine all information available on a river-by-river basis and this formed part of the advice process in the 2006 report. However, recognizing that it was not, for practical reasons, possible to move to single stock fisheries in 2006, and that a mixed stock fishery would take place, the Committee provided a precautionary catch table based on the most recent district analyses.

2.3 THE SCIENTIFIC ADVICE FOR 2007 – RIVER BASED ADVICE.

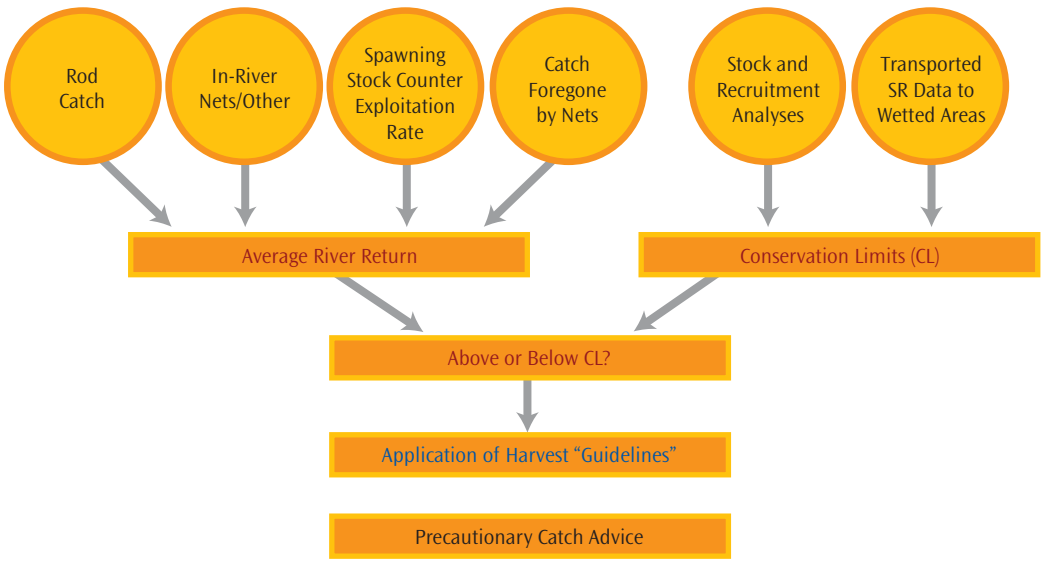
In 2006 the Standing Scientific Committee advised that the best way to meet national and international objectives of meeting conservation limits in all salmon rivers was to only allow fisheries in estuaries and rivers as there was a greater probability that these would only be targeting single stocks. The SSC also advised that fisheries should only take place on stocks that were meeting their conservation limit.

Mindful that our terms of reference explicitly require us to examine the implications of aligning with the scientific advice in 2007, and that this advice would not normally be available until early next year, the Group sought preliminary advice from the Standing Scientific Committee. This advice, while preliminary, is based on:

- Elimination of indiscriminate mixed stock fishing at sea.
- Individual river based management replacing the district based model.

Given an end to indiscriminate mixed stock fishing at sea, and based on the model used to calculate the TAC in previous years, the SSC estimate there will be up to 68,000 wild salmon available for distribution back to their rivers of origin next year. These are fish that in other years would have formed part of the at-sea drift-net catch. To gauge the impact of this change, and in order to provide advice in 2007, the Standing Scientific Committee have performed a preliminary analysis to re-allocate these salmon back to their rivers of origin, based on distributions from the National Coded Wire Tagging Programme.

Figure 2.2 The Scientific Process for 2007



The estimate of spawners and returns to each individual river for the preliminary assessment has been based either on an estimate from a fish counter or by applying a rod exploitation rate derived from the literature or from supporting information from the fish counters. For their preliminary analysis the SSC used an average value of 18.4% for illustrative purposes, but stress that this figure will be higher in some rivers and lower in others. The SSC has similarly stressed the need 'to evaluate all existing information on individual rod fisheries to derive a more precise estimate of the rod exploitation rate'.

The information available for estimating river specific spawners and returns prior to fisheries consists of 17 rivers with counter data and 52 rivers without a counter but with an average rod catch (2001 to 2005) of 10 salmon or more. These two groups, 69 rivers in all, comprise the *Assessed Rivers*. In addition there are a further 76 rivers with a rod catch average of less than 10 salmon.

2.4 PRELIMINARY SSC 2007 ADVICE FOR INDIVIDUAL RIVERS.

Based on their preliminary analysis for 2007 and 'assuming the absence of an at-sea mixed stock commercial fishery in 2007' and after reallocating the stock which would in previous years have been taken in the at-sea drift-net fishery to their natal rivers, the Standing Scientific Committee have advised as follows:

1. There are 34 assessed rivers (Table 2.1 - green rivers in Map 1) which have an identifiable surplus over the conservation limit and harvesting could proceed in 2007.

2. There are 32 assessed rivers (Table 2.2 - red rivers in Map 1) which do not have an identifiable surplus over the conservation limit. Therefore there are no harvest options available to allow a fishery to take place such that the stock will meet its conservation limit.

3. There are 76 rivers (Table 2.3 - yellow rivers Map 1) with no counter or an average rod catch of less than 10 salmon per annum. Given the tenuous state of many of the smaller rivers, the general advice of the SSC is that 'there should be no harvest fishery until other information is made available to indicate that these rivers are exceeding their conservation limits". Note: This is in line with the precautionary approach, and is being applied here on the basis that there are reasonable grounds for concern that harvesting would, or could, cause harm but where there is uncertainty about the probability of the risk and the degree of harm.

4. There are 7 rivers (Table 2.4 - grey rivers Map 1) with high proportions of hatchery-reared salmon (Erne, Shannon, Lee etc) and a number of rivers with high proportions of multi-sea winter salmon (e.g. Slaney), which will be assessed separately by the SSC and is expected to be available subsequent to the completion of our report.

As explained above, Map 1 illustrates the distribution of rivers in each of the 4 categorise presented in the 2007 preliminary advice. The contrasting situation in 2006 is shown in Map 2. As a consequence of the redistribution of the foregone at-sea drift-net catch up to 10 rivers (Bandon, Illen, Coomhola, Maine, Corrib, Dawros, Ballysadare, Drumcliffe, Glen, and Crana) which did not meet their conservation limit in 2006 will have a surplus over the conservation limit requirement in 2007.

Table 2.1: Assessed rivers (34 in total) where a surplus over the conservation limit requirement is possible following redistribution of foregone catch from the 'at-sea' drift-net fishery.

District	CFB Number	OSI Number	River name
Dundalk	3	91	Castletown
Dundalk	4	94	Fane
Lismore	59	190	Blackwater
Cork	69	229	Bandon
Cork	72	233	Ilen
Cork	79	225	Coomhola
Kerry	88	217	Roughty
Kerry	90	215	Kerry B'water
Kerry	92	214	Sneem
Kerry	104	208	Caragh
Kerry	106	207	Laune
Kerry	107	197	Maine
Limerick	119	194	Feale
Galway	147	143	Corrib
Connemara	152	138	Cashla
Ballinakill	163	135	Owenglin
Ballinakill	166	133	Dawros
Ballinakill	168	131	Erriff
Bangor	185	106	Owenduff (Glenamong)
Bangor	186	105	Owenmore R.
Ballina	195	110	Moy
Ballina	200	114	Easky
Sligo	202	116	Ballysadare
Sligo	205	119	Drumcliff
Ballyshannon	208	120	Duff
Ballyshannon	209	121	Drowes
Ballyshannon	215	57	Eany
Ballyshannon	219	52	Glen
Letterkenny	223	50	Owenea
Letterkenny	225	48	Gweebarra
Letterkenny	229	23	Clady
Letterkenny	235	24	Tullaghobegly
Letterkenny	236	3	Ray
Letterkenny	253	9	Crana

Table 2.2: Assessed rivers (32 in total) where a surplus over the conservation limit requirement is not likely even following redistribution of forgone catch from the 'at-sea' drift-net fishery.

District	CFB Number	OSI Number	River name
Dundalk	5	95	Glyde
Dundalk	6	96	Dee
Drogheda	8	159	Boyne
Dublin	15	168	Liffey
Dublin	18	169	Dargle
Waterford	38	183	Barrow
Waterford	38	184	Nore
Waterford	39	182	Black
Waterford	43	182	Suir
Waterford	53	188	Colligan
Lismore	60	190	Bride
Cork	80	219	Glengarriff
Kerry	84	222	Croanshagh (Glanmore R. and L.)
Kerry	85	221	Owenshagh
Kerry	87	218	Sheen
Kerry	98	212	Inney
Limerick	126	155d	Maigue
Limerick	128	155a/b,156,157	Mulkear
Limerick	131	158	Fergus
Limerick	142	149	Inagh
Connemara	161	136	Ballynahinch (Owenmore)
Ballinakill	167	132	Culfin
Ballinakill	171	128	Carrownisky
Ballinakill	172	127	Bunowen
Ballinakill	173	126	Owenwee (Belclare)
Bangor	178	108	Newport R. (Lough Beltra)
Bangor	187	100	Glenamoy
Sligo	203	117	Garvogue (Bonnet)
Ballyshannon	214	58	Eske
Letterkenny	228	22	Gweedore (Crolly R.)
Letterkenny	240	27	Lackagh
Letterkenny	248	31	Leannan

Table 2.3: Rivers (76) which cannot currently be assessed (no counter or average rod catch < 10 salmon).

District	CFB Number	OSI Number	River name
Dundalk	2	91	Flurry
Dublin	21	170	Vartry
Wexford	26	171	Avoca
Wexford	28	177	Owenavorragh
Waterford	33	180	Corock R
Waterford	34	181	Owenduff
Waterford	35	183	Pollmounty
Waterford	41	182	Lingaun
Waterford	44	182	Clodiagh
Waterford	50	185	Mahon
Waterford	51	186	Tay
Lismore	55	190	Lickey
Lismore	57	190	Finisk
Lismore	58	190	Glenshelane
Lismore	61	190	Tourig
Lismore	62	191	Womanagh
Cork	64	192	Owennacurra
Cork	70	232	Argideen
Cork	77	227	Mealagh
Cork	78	226	Owvane
Cork	81	224	Adrigole
Kerry	82	223	Kealincha
Kerry	83	h3	Lough Fada
Kerry	86	220	Cloonee
Kerry	89	216	Finnihy
Kerry	93	214	Owenreagh
Kerry	99	o3_21	Emlaghmore
Kerry	101	211	Carhan
Kerry	102	210	Ferta
Kerry	103	209	Behy
Kerry	105	207	Cottoners
Kerry	108	t3_22	Emlagh
Kerry	109	200	Owenascaul
Kerry	111	206	Milltown
Kerry	112	205	Feohanagh
Kerry	114	203	Owenmore
Kerry	117	196	Lee

District	CFB Number	OSI Number	River name
Limerick	118	194	Brick
Limerick	120	194	Galey
Limerick	125	155d	Deel
Limerick	130	155c	Owenagarney
Limerick	133	154	Doonbeg
Limerick	134	153	Skivaleen
Limerick	135	152	Annageeragh
Limerick	143	149	Aughyvackeen
Galway	144	148	Aille (Galway)
Galway	145	15	Kilcolgan
Galway	146	144	Clarinbridge
Galway	148	142	Knock
Galway	149	141	Owenboliska R (Spiddal)
Connemara	154	r4	L.Na Furnace
Bangor	181	i5_32	Owengarve R.
Bangor	188	98	Muingnabo
Ballina	193	102	Ballinglen
Ballina	194	104	Cloonaghmore (Palmerstown)
Ballina	196	110	Brusna
Ballina	198	q5	Leaffony
Sligo	207	x5	Grange
Ballyshannon	211	123	Abbey
Ballyshannon	212	60	Ballintra (Murvagh R).
Ballyshannon	213	59	Laghy
Ballyshannon	216	55	Oily
Ballyshannon	217	54	Bungosteen
Ballyshannon	220	52	Owenwee (Yellow R)
Letterkenny	221	h6_38	Bracky
Letterkenny	222	56	Owentocker
Letterkenny	226	47	Owenamarve
Letterkenny	234	21	Glenna
Letterkenny	249	51	Swilly
Letterkenny	250	51	Isle (Burn)
Letterkenny	252	34	Mill
Letterkenny	256	4	Clonmany
Letterkenny	257	5	Straid
Letterkenny	258	6	Donagh
Letterkenny	259	7	Glenagannon
Letterkenny	261	a nth	Culoort

Table 2.4 Rivers (7) with high proportions of hatchery-reared salmon and rivers with high proportions of multi-sea winter salmon.

District	CFB Number	OSI Number	River name
Wexford	31	175	Slaney
Cork	66	228	Lee
Kerry	97	213	Cummeragh
Connemmara	155	r4	Screebe
Ballinakill	169	130	Bundorragha
Bangor	179	107	Scrahmore (Burrishole)
Ballyshannon	210	123	Erne

Map 1: Summary of preliminary scientific advice for 2007.
Blue dots refer to the inner limits of tide.
Rivers in green have a harvestable surplus.
Rivers in yellow are closed on the basis of the precautionary approach.
Rivers in red are closed as they are failing to meet their CL.

Map 2: Summary of scientific advice for 2006.
Blue dots refer to the inner limits of tide.
Rivers in green have a harvestable surplus.
Rivers in yellow are closed on the basis of the precautionary approach.
Rivers in red are closed as they are failing to meet their CL.

3 IMPLICATIONS OF ALIGNING WITH THE SCIENTIFIC ADVICE

3.1 DIRECT IMPLICATIONS

The implications set out in this chapter are based on our analysis of the preliminary scientific advice for 2007:

1. National management of wild salmon should be based on the individual river as the fundamental unit of management.
2. Harvesting should be permitted only on stocks that are classified by the SSC as meeting their conservation limits.
3. Harvesting should be managed in such a way that the quantity fish harvested does not exceed the surplus specified in the annual report of the SSC.
4. There will be no mixed stock fishery permitted at sea from 2007. This implies a complete cessation of drift-net fishing or any other form of harvesting outside rivers and estuaries.
5. The harvesting of salmon will only be allowed in 32 rivers[1] that have an identifiable surplus.
6. The harvesting of salmon will be prohibited in 32 rivers[1] which do not have an identifiable surplus.
7. Based on the precautionary approach, harvesting of salmon will be prohibited in a further 76 rivers[1] that currently have inadequate information to allow an appropriate assessment or where the average rod catch is less than 10 salmon per annum.
8. In the region of 68,000 fish that might otherwise have been taken in at-sea drift-net fishery in 2007 are available for redistribution to their natal rivers.
9. As a consequence of the redistribution of the foregone at-sea drift-net catch up to 10 rivers, which would otherwise not meet their conservation limit in 2007, (Bandon, Illen, Coomhola, Maine, Corrib, Dawros, Ballysadare, Drumcliffe, Glen, and Crana) will now have a surplus over the conservation limit requirement.
10. As a consequence of the redistribution of the foregone at-sea drift-net catch, in the region of 40,000 *additional* fish will be available for harvesting in the 32 rivers that have an identifiable surplus. (This is in addition to the surplus that would have been available in these rivers had the at-sea drift-net fishery continued).
11. As a consequence of the redistribution of the foregone at-sea drift-net catch, in the region of 28,000 fish will return to rivers that will continue to be below their conservation limits after redistribution.

Apart from the direct implications that derive immediately from the scientific advice, there are further implications for many groups of stakeholders; commercial and recreational fishermen, fish processors and ancillary service industries, fisheries managers (including the Central and Regional Fisheries Boards) and the National Salmon Commission, as well as the Department of Communications, Marine and Natural Resources, and Government agencies including the Marine Institute, Fáilte Ireland and Bord Iascaigh Mhara. These additional implications are detailed in the following sections on a group-by-group basis. However as many of these derive from the management strategies adopted in 2007 and for which the SSC provides no direct advice, it is useful to consider first the implications for this part of the process.

1 These values given will become definitive *after* the scientific advice for 2007 is finalised.

3.2 IMPLICATIONS OF THE NEW SURPLUS

A considerable additional surplus (in the region of 40,000 fish) will be available in certain individual rivers in 2007 following redistribution of foregone catch from the at-sea drift-net fishery. The management and, more particularly the allocation, of this surplus provides a significant opportunity to address the demands of various competing sectoral 'harvesters' including, recreational fishermen, domestic and international angling tourism development, private fishery owners, fish processors, and net fishermen in rivers in estuaries. As these 'new' fish will be the result of management changes introduced in 2007 and beyond, there can be no *a priori* claim to these fish.

We came to the conclusion that the redistribution of this new surplus is a critical issue which will have consequences across a number of headings, including management, allocation between different stakeholders and, depending on that allocation, alleviation of hardship.

Any model for the allocation of this surplus should:

1. Be predicated on the assumption that this is a public good.

2. Recognise the case of groups such as processors, restauranteurs and retailers, who have traditionally accessed wild salmon from the commercial sector, for a continued source of supply.

3. Accommodate the interests of the tourism sector, given the potential of international angling.

It is possible to devise models for allocating the surplus either at a regional or national basis. Regardless of the model chosen, changes to the current legislation will be required to permit the sale of rod caught fish, as was the case prior to 2001.

Given that this surplus is a public good, it seems reasonable that the beneficiaries should make a proportionate payment. The income the state derives from such payments could productively be used to enhance the management and development of the salmon resource at an individual river level.

3.3 IMPLICATIONS FOR SALMON MANAGEMENT IN 2007

In our terms of reference the Group was asked to 'advise the Government of the implications of fully aligning with the scientific advice'. We have come to the conclusion that a revised management strategy for salmon fisheries is required. This should include new harvest rules for mixed stock fisheries in rivers and estuaries and a revised operational model to better deliver on the key goals of protecting and conserving the wild salmon resource and of optimising its long-term economic and social contribution at national and local community level. It should also be based on international obligations and incorporate international best practice.

The following implications will create challenges for the DCMNR, the National Salmon Commission, the Central and Regional Fisheries Boards, Marine Institute, Bord Iascaigh Mhara, the ESB, and Fáilte Ireland.

1. **River based management:** River based management must incorporate the following:

- Establish the conservation limit for each river and the status of the river stock in relation to this reference point.

- Introduce real time monitoring and management of fish returns and fish harvesting as to ensure that the quantity of fish harvested does not exceed the surplus available in any river.
- Implement river management plans, as a priority, for all salmon rivers.

2. **Conservation limits:** The primary objective of national management measures will be to maintain all salmon stocks above their conservation limit, which is the spawning stock level that produces maximum sustainable yield.

3. **Mixed stock fisheries in rivers and estuaries:** Harvesting salmon from two or more river stocks should be considered as harvesting from a 'mixed stock fishery'. This applies at any point downstream of where two salmon rivers meet (including rivers, estuaries and at sea). Mixed Stock Fisheries for salmon in rivers or estuaries, by whatever means, should be prohibited where any component of the mixed stock is not meeting its conservation limit. Conversely, harvesting should only be permitted when all components of the mixed stock are meeting their conservation limits, and subject to all components being managed in such a way that the quantity of fish harvested does not exceed the surplus specified in the annual report of the SSC for any of the components.

4. **Management Information systems:** There will be a clear need for central database, replacing the current system, to manage the distribution of angling licences and monitor the harvesting of salmon/use of tags. Likewise there will be a need for improved data collection mechanisms (including counters, surveys, redd counts etc). This has human resource implications for the Marine Institute and the Central and Regional Fisheries Boards.

5. **Stock rebuilding programmes:** As many Irish salmon stocks are now known to be below their conservation limits stock rebuilding programmes will be required, as a priority, for these stocks. (NASCO provides guidance on what such a plan might contain).

6. **Control and Enforcement:** The implementation of the various elements in this report along with the increased risk of illegal fishing arising from increased salmon availability, will give rise to new control and enforcement requirements. It is important that this risk be assessed and the human resource implications arising therefrom be established.

7. **Research:** The sharp decline in Atlantic salmon stocks has being attributed, in part, to the phenomenon of increased marine mortality and there are clearly real concerns relating to factors causing this mortality, including predation by seals, diseases and parasites, marine pollution. Given there is insufficient empirical information to allow anything other than general advice on these issues at this stage, more directed investigations should be carried out on these and other factors. Clearly this represents an ongoing challenge for salmon biologists (particularly the Marine Institute), to work towards a better understanding of the causes of this mortality and where possible to seek to reverse or mitigate the trends that have been evident for the past 20 or more years. In addition there should be an enhanced and more targeted programme of evaluation of conservation measures.

8. **Water Quality and physical conditions.** Freshwater mortality is a problem for many river stocks. While considerable effort is being expended in improving water quality and habitats, continued vigilance is required in this area and a coordinated multi-agency response is required. This will involve both statutory and voluntary agencies, to include, *inter alia* local authorities, EPA, OPW, as well as angling groups, private fishery owners, tourist interests, group water schemes and other voluntary environment bodies.

9. **Increased pressure on other species:** It is estimated that 35% or some 300 – 350 of the vessels involved in the drift-net fishery are licensed and registered fishing boats. This represents nearly 25% of the inshore fleet and an estimated 30% of inshore fishing effort. The primary species targeted by these fishermen outside the salmon season are lobster with a by-catch of brown crab. However the resource analyses recently completed indicate that these stocks are currently fully exploited and that any increase in their exploitation would be detrimental to their long-term sustainability. BIM is currently in the process of developing and implementing Management Plans for the various Irish inshore fisheries under the Shellfish Management Framework.

3.4 IMPLICATIONS FOR COMMERCIAL FISHERMEN

1. **Fisheries at sea:** There will be no fishing permitted at sea from 2007 because of its mixed stock character. This implies a complete cessation of drift-net fishing or any other form of harvesting outside rivers and estuaries.

2. **Mixed Stock Fisheries in rivers and estuaries:** Mixed Stock Fisheries for salmon in estuaries or in freshwater will be prohibited where any component of the mixed stock is not meeting its conservation limit.

3. **Rivers not meeting their Conservation Limits:** All fishing, including commercial fishing using draft, snap, loop, and bag-nets as well as head-weir fisheries will be prohibited on rivers that are currently not meeting their conservation limits or for which there is inadequate information on which to base an assessment.

4. **Increased availability of fish:** As stated in section 3.2, arising from the redistribution of foregone catch from the 'at-sea' mixed stock fishery, additional surplus will be available in a number of rivers and estuaries. Additionally opportunities will arise in the context of the distribution of 'new' surplus.

3.5 IMPLICATIONS FOR RECREATIONAL FISHERMEN

1. **Fisheries in rivers and estuaries:** Single stock fishing will be allowed only where rivers meet their conservation limits. Currently 34 rivers are above their conservation limits. Arising from the redistribution of forgone catch from the 'at-sea' mixed stock fishery, additional surplus will be available in a number of rivers and estuaries. Additionally opportunities will arise in the context of the distribution of 'new' surplus as discussed in section 3.2.

2. **Rivers not meeting their Conservation Limits:** All fishing, including rod and line fisheries will be prohibited on rivers that are currently not meeting their conservation limits or for which there is inadequate information on which to base an assessment.

3. **Mixed Stock Fisheries:** Mixed Stock fisheries for salmon in rivers or estuaries will be prohibited where any components of the mixed stock is not meeting its conservation limit. This means that in estuaries which are fed by more than one river, fishing will be prohibited downstream from the point where any river not meeting its conservation limit joins the estuary.

4. **Catch & Release:** Based on the premise that there is always a fishing (harvesting) mortality associated with catch and release, and in line with the precautionary approach, there will be general presumption against the use of catch-and-release as a fishing method on stocks classified as not meeting their conservation limits. In situations where the Standing Scientific Committee has advised that such a fishery is not incompatible with the management objectives then catch-and-release may be allowed.

Clearly, when a river stock recovers to a level above the conservation limit it will re-open to harvesting. We are conscious too that closing a river to angling should be seen as an investment rather than a hardship. It will create a strong positive image of Ireland's custodianship of its salmon resources that will appeal to the foreign as well as the domestic angler, and will in all likelihood, result in increased angling tourism even in the short term.

3.6 IMPLICATIONS FOR PROCESSORS, RETAILERS, RESTAURANTEURS

For the processing sector it is evident that the main traditional channels of supply will cease. Also the total commercial harvest of wild salmon will be less than that available heretofore. We have set out in section 3.2 various options for the allocation of the new surplus. Depending on the management decisions taken in this respect, the impact on this sector can be mitigated.

3.7 IMPLICATIONS FOR ANGLING TOURISM

We were impressed with the arguments presented to us for the economic potential in the development of domestic and international angling tourism. The added value to the economy from the expenditure from the angling tourist is a multiple of the average tourist spend. Additionally, it is a multiple of any other alternative use of salmon.

We noted the impact that declining stocks has had on this sector in Ireland in recent years, which contrasts with the success achieved by other countries in developing a vibrant and lucrative international tourist angling sector e.g. Russia, Norway, and Argentina.

Fáilte Ireland has ambitious plans for this sector that are contingent upon successfully rebuilding stocks. It has already been shown in this report that the impact of the new management regime will generate additional harvestable surplus in certain rivers. Depending on the management decisions taken in regard to the new surplus it should be possible to enhance the potential of the tourist sector.

In the longer term the objective should be to develop Ireland as a sustainable and competitive international angling destination, based on the recovery and growth of the national salmon resource.

The success of this strategy will be dependent on enhanced access for tourist anglers. It was not apparent to us that this is currently the case.

4 SCALE OF FINANCIAL LOSS IN THE COMMERCIAL SECTOR

4.1 INTRODUCTION

In this section of the report we present an overview of the value of commercial fisheries along with some historical information that shows how they have developed over time. The intention is to focus on the scale of financial loss which will be experienced as a result of any measures imposed on commercial salmon fishing in 2007 on foot of the current scientific advice. At the outset it is of value to recognise that wild salmon has long been regarded as one of Ireland's most prized fish, instilled in our traditional mythology as the bradán feasa, the salmon of knowledge, and is valued as both a cultural and economic resource.

4.1.1 Drift-netting

While drift-netting is a well-established method of salmon harvesting the catches evidenced in the past 30 or so years are not typical of the long history of salmon fishing prior to that. From a base in 1960 of some 20% of the total catch, drift-netting increased quickly to a point where, in less than 20 years, it accounted for up to 80% of the total catch. Today that figure is nearer to 70%.

There are a large number of salmon drift-net fishermen (584 or two-thirds of the total) who caught less than 100 fish and who earned less than €3,300 from this activity in 2005. Of the remainder, 119 earned more than €15,000 in 2005. Other factors too must be borne in mind. These include:

- The total catch by drift-netting has fallen sharply in recent years, and the total catch in 2005 is only slightly more than half (51%) what it was in 2001.
- The scientific advice available to us is that falling productivity (leading to reduced salmon returns to the coast each year) is the main driver of change, and that all else being equal (time constraints, gear limitations etc.) catches would probably have fallen sharply even in the absence of a TAC based management regime. Nor is there is any evidence of this trend changing in the immediate future.

TABLE 4.1 2005 DRIFT-NET FISHERY

Number of fish caught	0 to 50	51 to 100	101 to 250	251 to 500	501 to 1000	1001 to 2000	Total
Number of Licence holders in each band	445	139	174	84	32	3	877
% licence holders in each band	51%	16%	20%	10%	4%	0.3%	100%
Total catch per band in 2005	9,022	10,339	29,074	28,888	20,469	3,439	101,231
							Average
Average catch per band in 2005	20	74	167	344	640	1,146	115
Average income per licence in 2005	€1,000	€3,300	€7,500	€15,500	€29,000	€52,000	€5,200
Average net income 2001 -2005 (actual)	€465	€1,706	€3,831	€7,885	€14,667	€26,285	€2,647

4.1.2 Draft-netting

Draft-netting is another well established method of salmon harvesting, and like drift-netting the catches evidenced in the past 30 or so years are not typical of the long history of salmon fishing prior to that. From a base in 1960 of some 50% of the total catch, draft-netting has undergone a steady decline to a point where, in less than 20 years, it accounted for only 15% of the total catch. The decline in draft-net catches has been contemporaneous with increased catches from drift-netting.

- Though locally important fewer than 1 in 15 draft-net fishermen/teams currently catch more than 100 fish per annum, while over 50% of licence holders catch less than 20. Given that the majority of draft-net teams number three men (with the crew only taking home a 20% share of the gross earnings) it cannot, for the majority of participants, be regarded as a significant source of income. There are a large number of salmon draft-net fishermen/teams (400 – 500) for whom annual salmon fishing represents but a modest source of income, and probably no more, on average, than €1,000 per team in 2005.
- In 2005 some 33 licensed draft-net fishermen/teams recorded catches in excess of 100 fish each. One fisherman/team recorded between 500 and 1,000 fish and one recorded a catch in excess of 1,000 fish. For these fishermen salmon makes up a modest portion of their current annual income (>€5,000 on average). For the 2 exceptional licence holders with catches greater that 500 fish, salmon fishing makes up a significant portion of their current annual income (>€20,000 and >€40,000 respectively).
- As with drift-netting, it is clear that the total catch by draft-net fishermen has fallen sharply in recent years. The total catch in 2005 (16,735) is only slightly more than half (54%) what it was in 2001 (30,861).

TABLE 4.2 2005 DRAFT-NET FISHERY

Number of fish caught	0 to 50	51 to 100	101 to 250	251 to 500	501 to 1000	1001 to 2000	Total licence holders
Number of Licence holders in each band	429	56	28	3	1	1	518
% licence holders in each band	83%	11%	5%	1%	0%	0%	100%
Total catch per band in 2005	6,406	3,987	3,693	782	620	1,247	16,735
							Average
Average catch per band in 2005	15	71	132	261	620	1,247	32
Average income per licence in 2005	€672	€3,200	€6,000	€11,750	€28,000	€56,000	€1,500
Average net income 2001 -2005 (actual)	€342	€1,632	€3,024	€5,977	€14,216	€28,593	€741

4.1.3 Other Traditional Fishing Methods.

Traditional fishing using head-weir traps, loop-nets, bag-nets, and snap-nets currently accounts for less than 3% of the annual salmon catch in Ireland. Even the largest of these, the snap-net fishery, probably accounts for fewer than 2,500 fish annually (average value over the period 2001 – 2005, €57,000). Given the number of participants in relation to the catch it is clear that in no case does the catch represent any more than a very small part of the annual income of the licence holder. There are, however, strong traditions associated with these very old, and culturally distinct fisheries and the snap-net fishery, in particular, is responsible for the survival of the traditional boat known as a 'cot' and which is unique to the fishery and the area in which it is practiced.

4.1.4 Processing Sector

There are currently some 12 companies involved in the processing of wild salmon (in 2001 there were 20). These range in size from very small entities with 1 or 2 employees, to other main stream fish processors with sizeable employment (albeit on a season basis reflecting the short catching season).

Processing is significant in the context of wild salmon because of the added value it gives to the fish: effectively doubling the value of the commercial catch. Indeed the majority of this added value comes from the production of smoked product which can treble the value of the landed catch. Additionally there is some primary processing for the retail trade. As the preferred catch for the processing sector - wild salmon taken in drift-nets at sea - will not be available in 2007 and beyond and the total commercial harvest of wild salmon will be significantly reduced on the level available in 2006, there will be an impact on the processing in the short term. As already indicated in this report there are options for mitigating the impact on this sector in the allocation of the new surplus. We recognise that this will require legislative change to allow for the sale of rod caught fish.

It is worth noting that the processing sector is already diversifying by establishing alternative 'farmed' product lines, as well as through the development of other speciality product lines.

5 ADDRESSING FINANCIAL HARDSHIP

The level of hardship likely to be experienced by the groups directly impacted on by the recommendations in this report will vary both in extent and scale. Taking all factors into account and based on the information available to the Group, noting particularly that there is no legal compunction on the State to provide compensation in a situation where it is imposing management measures that are fundamentally in the public good, it is none the less our opinion that it is also in the public good to provide a measure of relief to each group in line with level of hardship likely to be experienced and to provide some measure of relief in a more general way for the wider coastal communities dependent on wild salmon fishing.

It is the opinion of the Group that any hardship payment must be in line with level of hardship likely to be experienced by an individual, and that this should, therefore, be based on the recent catch history of the individual licence holder. Consequently only verifiable catch, that is catch based on tag returns, should count in this regard.

On that basis we make the following recommendations:

Recommendations

We are proposing that:

1. A total fund of €30 million is established to address hardship.
2. We recommend that the fund be allocated on the following basis:

- The fund is available to all those subject to a compulsory closure of their current fishery, namely the holders of drift-net licences.
- The fund is available, on a voluntary basis, to all those engaged in draft-net, loop-net, bag-net, snap-net, and head-weir fishing. This scheme should be open up to the end of 2007.

3. The level of payments should be determined as follows:

    a. Payments should be based on the average verifiable (tag return) catch for each licence holder for the past 5 years (2001 – 2005). (A)

    b. Payments should be based on the average net income *per salmon* in the commercial drift and draft-net fishery for the past 5 years (2001 – 2005). We estimate this to be €23 per salmon. (B)

    c. Each individual licence holder should receive 6 times their average catch (A) multiplied by the average net income per salmon (B).

    d. In all cases a payment equal to 6 times the current licence fee in respect of each licence surrendered will be made. For example, in the case of drift-net fishermen, this equals a payment of €2,022. In the case of draft-net fishermen participating in the voluntary scheme the payment will be €1,140.

4. Given the immediate impact of the new regime we recommend that payments under this scheme should be made in one instalment in 2007.

5. In every case, those who avail of the direct payment scheme should be required to:

   a. Surrender their licence immediately and permanently.

   b. Verifiably decommission their net(s) and/or fixed fishing engines to the satisfaction of the competent authority.

Table 5.1 Examples of hardship payments – Drift-net fishery

Average number of fish 2001 - 2005	50	100	200	500	750
Licence Payment	€2,022	€2,022	€2,022	€2,022	€2,022
Drift-net Payment	€6,900	€13,800	€27,600	€69,000	€103,500
Total	**€8,922**	**€15,822**	**€29,622**	**€71,022**	**€105,522**

Table 5.2 Examples of hardship payments – Draft-net fishery

Average number of fish 2001 - 2005	25	50	100	150	200
Licence Payment	€1,140	€1,140	€1,140	€1,140	€1,140
Draft-net Payment	€3,450	€6,900	€13,800	€20,700	€27,600
Total	**€4,590**	**€8,040**	**€14,940**	**€21,840**	**€28,740**

6. We estimate that the total fund required for this part of the scheme will be of the order of €25 million.

7. That a community support scheme to a value of €5 million be established to support the development of additional economic opportunities in communities affected by the closure of the drift-net fishery. The focus of this measure should primarily be those communities where drift-net fishing has been a well established activity and where its withdrawal demonstrably impacts on their economic and social fabric, e.g. Gaeltacht areas. Those eligible under this scheme would especially include those formerly involved in the drift-netting sector, or, alternatively, where a promoter proposes to employ a significant number of people formerly engaged in drift-netting.

6 CONTRIBUTIONS TO THE HARDSHIP SCHEME

We have been asked in our terms of reference to consider the extent to which those stakeholders, who would be the main economic beneficiaries of more salmon being returned to the rivers, should contribute to any scheme, whether in cash or in kind (including improved tourist access).

Aligning with the scientific advice will see considerable benefits accrue to those remaining both in 2007 and beyond. There will be a benefit to certain rivers currently below their conservation limits arising from the availability of the foregone drift-net catch. This will give rise to direct benefits for the recreational angling sector. These benefits include protecting the status of rivers currently above their conservation limits; enhancing the potential of rivers currently below their conservation limit to recover; and some 10 rivers which would otherwise not meet their conservation limit will have a surplus over the conservation limit requirement in 2007.

As already pointed out in section 3.2 there will also be a considerable additional surplus available in 2007 following redistribution of forgone catch from the at-sea drift-net fishery. The management and, more particularly the allocation, of this surplus provides a significant opportunity to address the demands of various competing sectoral 'harvesters' including, recreational fishermen, domestic and international angling tourism development, private fishery owners, fish processors, and net fishermen in rivers in estuaries. At this juncture we are not in a position to anticipate the decisions in regard to allocation, and accordingly any income, which may be derived from the allocation of this surplus has not been included in our revenue estimates for funding the hardship scheme.

We are satisfied that there exists scope to recover a proportion of the financial outlay provided for in the hardship scheme detailed in the previous section.

The schemes envisaged here can be either direct cash-based schemes, including increased licence fees, increased rates from private fishery owners, or an environmental/stock rebuilding 'stamp' for a set period. There are also possibilities for contributions in kind.

6.1 CONTRIBUTIONS IN CASH

It has been clearly indicated to the Group that anglers, fishery owners and the holders of estuarine net licences should contribute to the cost of any hardship scheme introduced. Indeed in their combined submission the National Anglers Representative Association, Salmon and Sea Trout Recreational Anglers of Ireland, Trout Anglers Federation of Ireland, Donegal Angling Federation, Eastern Salmon Anglers Federation, Federation of Cork Salmon and Sea Trout Anglers, Kerry Angling Federation, Midland Salmon Anglers Federation, South East Salmon Anglers Federation, Stop Salmon Drift-Nets state that *"it is estimated that the maximum annual contribution from these sources is of the order of €2/2.5 million per annum"*. However the same submission also points out that *"there is a ceiling to what the private sector can realistically be expected to raise for a compensation scheme. The fragmented structure of Irish fishery ownership makes the potential for large scale contributions very limited compared with, for instance, Scotland or England. Two estimates, generated independently of one another, have put the figure for a domestically generated contribution at between €2 and €3 million per annum with the possibility of some limited additional funding being raised from overseas beneficiaries of the cessation of drift-netting.* Here the private sector is taken to encompass anglers and their associations, fishery owners (including the ESB), tourism interests and estuarine nets and includes a possible levy on salmon angling and estuarine net licences.

6.1.1 Environmental Stamp

Having regard to the undertaking on behalf of the angling sector we recommend the introduction of an 'environmental or stock rebuilding stamp'.

In 2005 some 28,700 licences were sold to the recreational angling sector generating a total income of almost €1 million. We envisage an environmental stamp equivalent to the cost of each licence category; for example the cost of an environmental stamp for an 'annual all district' licence would be €64 or, the equivalent stamp for a Juvenile all district annual licence would be €10.

We emphasise that this contribution be designated for the purposes of salmon conservation which is a critical requirement for a sustainable recreational angling sector.

We have considered the position of draft-net fishermen who do not avail of the voluntary scheme. They are currently capped by quota and should any additional allocation be made to them it should be done on the basis of the principles outlined in section 3.2

In calculating the income flow from the proposed environmental stamp we have taken account of reduced uptake of licences arising from the increased cost and the restrictions on additional rivers.

If this stamp was levied annually for 10 years, and on the basis of a 25% reduction in licence uptake, the combined fund generated would have a net present value of €10 million.

Table 6.1 Breakdown of quantity, annual fee, and type of licences sold in 2005.

Licence Category	Annual all districts	Annual one district	21 days all districts	Juvenile all district annual	1 day all districts	Foyle Area extension	Special Local *	Total
Cost	€64	€30	€24	€10	€17	€40	€12 / €48	
Total Number	5,611	10,966	6,915	1,874	3,046	66	260	**28,738**
Total Income	€359,104	€328,980	€165,960	€18,740	€51,782	€2,640	€3,120	**€930,326**

** Annual license holder €12, Non annual license holder €48*

There is a deficit of hard information on the status of private fishery owners and on the actual and legal situation in regard to fishery rates. A more detailed study is required in this area before proceeding with a specific proposal for an income contribution by them to the hardship fund.

6.2 CONTRIBUTIONS IN KIND

We recognise that the angling community makes a significant contribution to protecting and managing salmon stocks at the individual river level. This role should be further enhanced and developed and should be recognised as a contribution in kind.

Increased tourist access to rivers is a critical issue for the angling tourism sector if it is to develop from its current position. However, the ownership of many rivers can be complex and can vary considerably from river by river. Many are in State ownership, some are in private ownership and, most problematically, the issue of ownership is uncertain in relation to at least a number of fisheries.

7 ANNEX 1: BACKGROUND TO THE IMPACT ASSESSMENT

Salmon fisheries in Ireland, like many other countries in Europe and North America, have traditionally been conducted both in fresh water and at sea and are divided amongst recreational fisheries and six distinct commercial fisheries. Of the commercial fisheries the largest by far is the drift-net; this is generally (though not entirely) undertaken at sea, from boats often fishing out of remote and culturally distinct coastal communities. The other commercial fisheries, draft, loop, and bag-net fishing, as well as head-weir fishing all take place exclusively in rivers or estuaries. All salmon fishing in Ireland is controlled and managed by seven Regional Fisheries Boards, with the management area of each regional board further sub-divided into districts, of which there are currently seventeen.

All harvesting of salmon, be it recreational (i.e. undertaken for sport) or commercial (undertaken for profit) is confined to holders of licences issued by the Government. In 2005, the last year for which figures are available, a total of 28,738 recreational and 1,553 commercial salmon licences were issued. A full breakdown of the commercial licences showing the number issued for each fishing method and district is shown in Table 7.1.

It is clear that three, at least, of the commercial fishing methods (loop-net, bag-net and head-weir fishing) are, today, being undertaken on a very limited scale. Indeed only 17 licences were issued in 2005 for these fisheries and the total catch from the three methods did not exceed 300 fish in any of the last five years.

With 139 licences in operation (all in the southern district) snap-netting accounts for some 9% of the commercial licences issued in 2005. Once again the total catch from this fishery is modest and fell from some 5,000 fish in 2001 to just over 3,000 fish in 2005.

Table 7.1 Numbers of Licences by Engine , District, and Cost, 2005

Region	District	Drift-net	Draft-net	Snap-net	Loop-net	Bag-net	Head-weir
Cost per licence 2005		€337	€190	€80	€21	€190	€68
Eastern Region	Dundalk		42				
	Drogheda		50				
	Dublin	16	10				
	Wexford		75				
Southern Region	Waterford	171	3	132			1
	Lismore	81	6	7			1
South Western Region	Cork	106	33			1	
	Kerry	39	52			1	
Shannon	Limerick	86	87				
Western Region	Galway	37	4				
	Connemara	29	0				
	Ballinakill	40	17				
North Western Region	Bangor	41	29				
	Ballina	68	1				
	Sligo	10					
Northern Region	Ballyshannon	28	73				
	Letterkenny	125	36		15		
TOTAL (1,553)		**877**	**518**	**139**	**15**	**2**	**2**
% Of Total		**56%**	**33%**	**9%**	**1%**	**0.1%**	**0.1%**

Ranking less than drift-net fishing (and coming below recreational harvesting in terms of the overall catch) 518 draft-net licences (56% of the total) were issued in 2005 and these licence holders' harvested some 16,735 fish equal to 11.7% of the total harvest.

The final category of licence holder, generally referred to as the recreational or sporting sector, account for the vast majority of all licences, with 28,738 issued in 2005. This sector was also the second largest in terms of salmon harvested, accounting for a total of 22,361 fish in 2005, or 15.6% of the total harvest. Overall, however, the recreational catch (22,361) was only 18.5% of the combined commercial catch (121,180 salmon).

In all 4 districts (Kerry, Ballina, Cork and Letterkenny) account for more than 56% of all salmon harvested in 2005. While, in the main, this is a reflection of the drift-net catches recorded there, two districts (Ballina and Kerry) are ranked first and fourth in terms of recreational catches. At the other end of the spectrum 7 districts (Dundalk, Drogheda, Dublin, Wexford, Galway, Connemara, Ballinakill and Sligo) collectively recorded less than 10% of the national catch; two of these districts (Galway and Sligo) are in the top 10 districts based on rod returns however.

Table 7.2 Relative Catches by Fishing Method for Each District in 2005

District	Drift-net	Draft-net	Snap-Net	Loop-net	Bag-net	Head-weir	Rod	Total	% Catch by district
Dundalk	0	468	0	0	0	0	219	687	0.48%
Drogheda	0	1,361	0	0	0	0	749	2,110	1.47%
Dublin	4	2	0	0	0	0	37	43	0.03%
Wexford	0	434	0	0	0	0	311	745	0.52%
Waterford	4,766	8	2,703	0	0	4	1,755	9,236	6.43%
Lismore	4,850	6	307	0	0	20	1,743	6,926	4.83%
Cork	14,743	1,415	0	0	110	0	1,116	17,384	12.11%
Kerry	18,448	5,561	0	0	39	0	1,537	25,585	17.82%
Limerick	7,391	1,777	0	0	0	0	1,300	10,468	7.29%
Galway	3,075	70	0	0	0	0	990	4,135	2.88%
Connemara	1,867	0	0	0	0	0	42	1,909	1.33%
Ballinakill	3,737	677	0	0	0	0	534	4,948	3.45%
Bangor	6,228	1,448	0	0	0	0	904	8,580	5.98%
Ballina	15,442	13	0	0	0	0	6,997	22,452	15.64%
Sligo	2,326	0	0	0	0	0	1,418	3,744	2.61%
Ballyshannon	5,392	2,068	0	0	0	0	1,465	8,925	6.22%
Letterkenny	12,962	1,427	0	31	0	0	923	15,343	10.69%
Unknown	0	0	0	0	0	0	321	321	0.22%
Total	**101,231**	**16,735**	**3,010**	**31**	**149**	**24**	**22,361**	**143,541**	**100.00%**
% Catch	70.52%	11.66%	2.10%	0.02%	0.10%	0.02%	15.58%	100.00%	

Figure 7.1a Historic Catches (Tonnes) by Commercial Fishing Method, 1929-1981

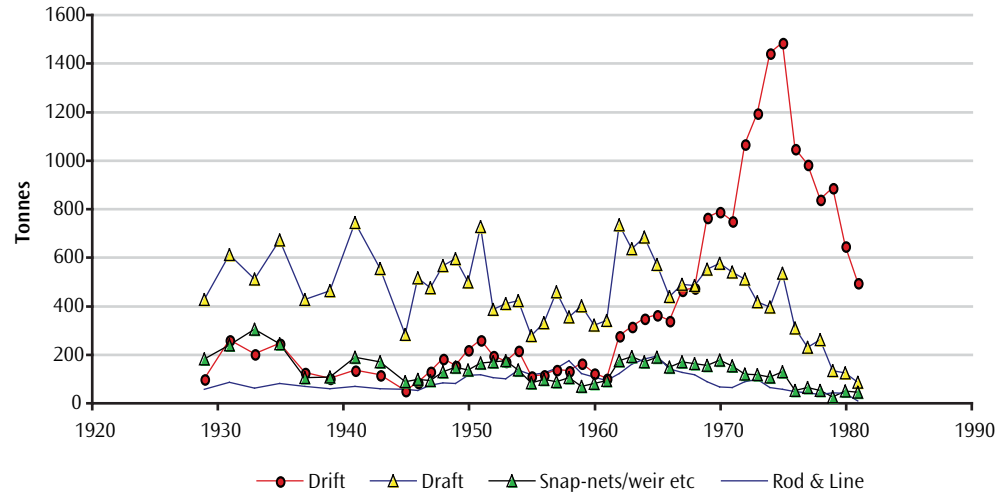
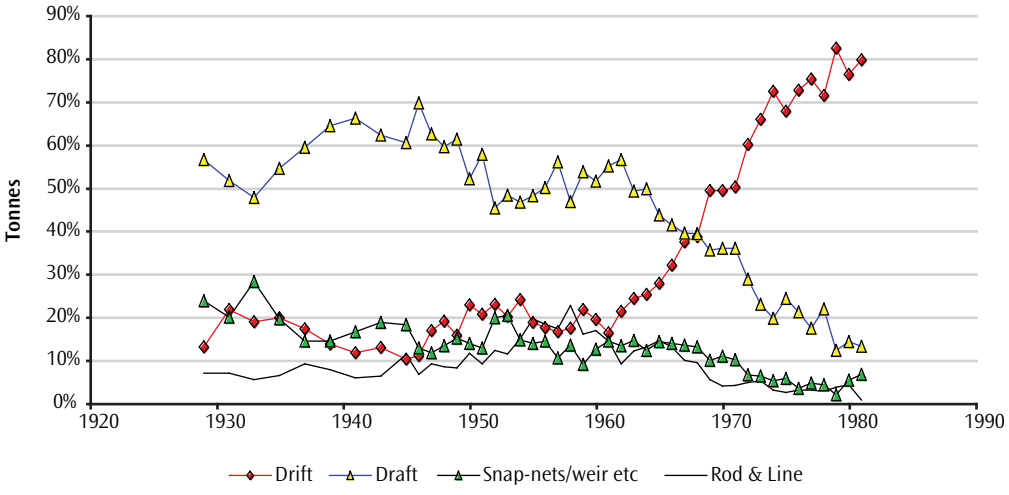


Figure 7.1b Historic Catches (%) by Commercial Fishing Method, 1929-1981

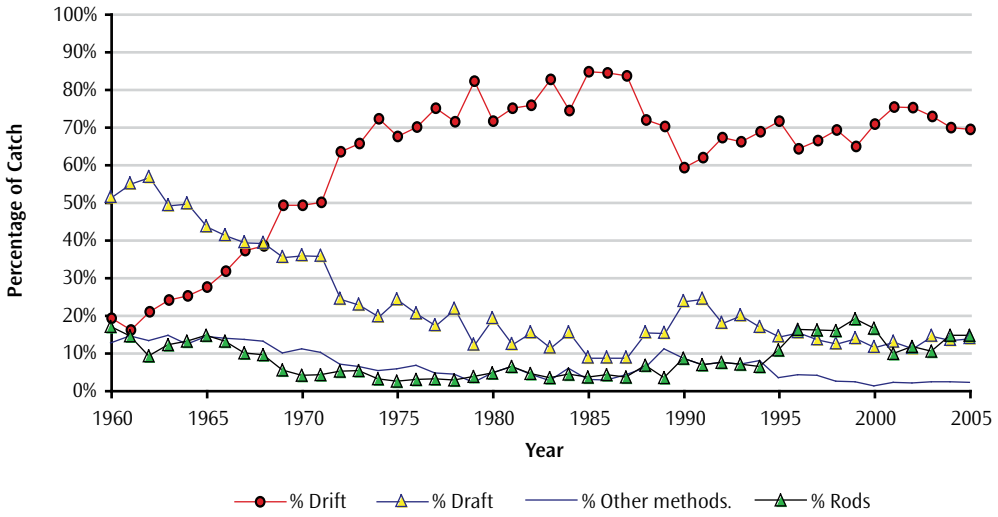


Drift-netting has not always represented the principal fishing method for salmon. Between 1955 and 1965 some 400 licenced drift-nets caught about 20% of the salmon catch (by weight), however the method greatly expanded in the 1970's when many new licenses were issued: by 1972 there were 1,156 licences in operation. This has been gradually reduced to 877 licences in 2005 (see Table 7.3).

Table 7.3 Licences Issued by Harvesting Method 1955 – 2005

	Drift-net	Draft-net	Snap-net	Loop-net	Rod & Line
1955	383	625	129	31	7,649
1960	318	633	144	29	8,477
1965	488	683	151	40	12,378
1970	817	667	153	34	11,181
1975	1,046	672	138	31	13,751
1980	959	601	136	31	12,954
2005	877	518	139	15	28,738

Figure 7.2 Percentage of the Total Catch Taken by Each Fishing Method 1960-2004



Not surprisingly the relative percentage of the stock taken by draft and drift-netting has shown a dramatic change about from the 1960's. Prior to this the principal method of capture, the estuarine and river draft-net, accounted for more than 70% of the total catch while drift-netting was carried out on a much smaller scale, in general, accounting for less than 20% of the total catch (see figure 7.2).

The growth of drift-netting, as the preferred method of commercial fishing, is, to a large extent, correlated with the development and introduction of better nets, in particular monofilament netting. Once in water, the near invisible monofilament net contrasts greatly with the older nets in use in earlier times. Far from invisible, they were most often used after periods of bad weather when a murky and wave tossed sea afforded a degree of camouflage, and it was not uncommon to see small open salmon boats putting to sea often in dreadful weather. Tragically many fishermen lost their lives as a result.

7.1 DRIFT-NETTING

The largest commercial fishery, in terms of the proportion of salmon harvested, is the drift-net fishery. A drift-net consists of a sheet of netting which hangs from a floated head rope to a weighted footrope and is designed to drift with the current or tide. Regional names in England and Wales include 'hang', 'whammel', 'sling' and 'tuck' nets.

Drift-netting is difficult to define precisely and the European Commission is only now attempting to place a formal definition on it. According to the EU a drift-net means 'any gillnet held on the sea surface or at a certain distance below it by floating devices, drifting with the current either independently or with the boat to which it may be attached. It may be equipped with devices aiming to stabilise the net and/or to limit its drifting.' This is not substantially different to the traditional definition of salmon drift-nets; 'a single sheet of netting attached to a floating head rope and a weighted ground rope, designed to drift freely at the surface of waters for the purpose of taking or fishing for, or attempting to take or to fish for, salmon to which net no ropes or weights or anchoring devices are attached which in any way hinder or prevent the free movement of the net in those waters."

Irish drift-netting is legally confined to the months of June and July. In general it takes place in the open sea and is carried on by holders of licences issued by the Government in waters up to six miles out to sea from the baseline. The times of fishing, the nature of the gear and the maximum number of salmon allowed are all subject to management measures.

Figure 7.3 Drift-netting at sea

Since, 2001, all Irish salmon exploitation by drift-nets (as well as estuarine and river nets) has been managed within a Total Allowable Catch (TAC) framework controlled through a system of tagging of individual fish and the maintenance of logbooks. The Minister for Communications, Marine and Natural Resources annually determines the national TAC and its distribution throughout the seventeen fishery districts based on advice from the National Salmon Commission. Within each fishery district, the commercial catch is distributed between drift-nets and estuary nets (draft, snap, loop, head-weir).

In Ireland the fishery takes place in all districts except Dundalk and Drogheda and extends offshore to 6 miles. All drift-nets are limited to a maximum depth of 45 meshes with each mesh no smaller than 130mm (5.25 inches). The maximum length of net permitted for open sea drift-netting varies according to district and is currently set at 1.372 km (1500 yards) in all districts from Letterkenny to Bangor (approximately Malin Head to Achill Island) and at 0.732 km (800 yards) in districts from Ballinakill to Drogheda. Net lengths permitted in tidal areas are shorter and vary by river.

In 2005 this fishery accounted for 56% (877) of all commercial licences issued and 70% of the total commercial salmon harvest. Vessels of all sizes are involved in the fishery, from small punts to sizeable half-deckers, and their areas of operation vary accordingly. Typically the net is shot across the prevailing tidal stream and should one section of the net start to drift faster than others it will be hauled back and re-shot so as to straighten the drift of the net. Vessels usually keep a close patrol on the net so that fish caught may be removed as soon as possible, lessening the chance that they are damaged or taken by seals.

Table 7.4 Historic Drift-net Catches by District

District	2001	2002	2003	2004	2005
Dundalk/ Drogheda/ Wexford	0	0	0	0	0
Dublin	44	42	20	3	4
Waterford	12,351	11,753	9,758	8,303	4,766
Lismore	14,332	12,746	9,461	9,173	4,850
Cork	36,287	25,462	21,644	19,134	14,743
Kerry	23,224	25,309	24,943	17,720	18,448
Limerick	20,646	15,119	11,299	9,148	7,391
Galway	5,685	5,254	4,494	3,736	3,075
Connemara	3,290	4,224	3,043	2,626	1,867
Ballinakill	6,733	8,610	5,484	4,026	3,737
Bangor	26,907	29,122	21,399	21,023	6,228
Ballina	7,861	6,408	4,541	4,143	15,442
Sligo	6,775	7,088	5,028	2,698	2,326
Ballyshannon	11,248	9,688	6,758	5,271	5,392
Letterkenny	21,789	18,352	13,800	13,299	12,962
Total	197,172	179,177	141,222	120,303	101,231
% Reduction from previous year	-	9.13%	21.18%	14.81%	15.85%

Not surprisingly there are few drift-net licences in operation on the east coast, no doubt reflecting the poor state of salmon stocks there. However if one considers the district catches (Table 7.3) with the number of licences issued (Table 7.1), then it is apparent that in some districts with quite significant stock problems there are still large numbers of active licences, particularly in Waterford, Lismore, Galway, Connemara and Ballinakill.

This is reflected however in the catch per licence and in the Kerry 39 licences harvested over 18,000 fish in 2005 whereas in Ballinakill 40 licences took only 3,737 fish. Table 7.5 summarises these rates, wherein it can be seen that if we assume all licences are used to the same extent (which is not the case) then the average catch (over the period 2001 – 2005) would vary between 1 and 562 fish per licence. With an average of 169 it is clear that there are too few fish available to provide all of the licences with anything resembling a decent income.

Of course it is the case that not all licences are used to the same extent and this is demonstrated in Table 7.6. Here the breakdown of individual catches shows that only a relatively small proportion of fishermen are catching the majority of fish. About one third (293) of the licensees catch over 80% of the fish (81,870), landing on average more than 250 fish per licence during the season. It is likely that the majority of these are full-time fishermen with vessels that are fully licensed and registered; a supposition borne out by an analysis of the fishing boat register and list of salmon licences, which shows that approximately 35% of salmon licensees are fully licensed and registered. These operators are full-time fishermen and are active in other inshore fisheries, particularly lobster and crab from April to October and in some instances all year round.

Table 7.5 Average Drift-net Catches by District

District	Licences Issued in 2005	Average catch 01-05	Average Catch per licence.
Kerry	39	21,929	562
Bangor	41	20,936	511
Sligo	10	4,783	478
Ballyshannon	28	7,671	274
Cork	106	23,454	221
Limerick	86	12,721	148
Ballinakill	40	5,718	143
Letterkenny	125	16,040	128
Lismore	81	10,112	125
Galway	37	4,449	120
Ballina	68	7,679	113
Connemara	29	3,010	104
Waterford	171	9,386	55
Dublin	16	23	1
Dundalk /Drogheda/Wexford	0	0	0
Average (all districts)			**169**

It is immediately clear also from Table 7.4 that the total catch by drift-net fishermen has fallen sharply in recent years. Indeed the total catch in 2005 (101,231) is only slightly more than half (51%) what it was in 2001 (197,172). To many commercial fishermen, rather than pointing to a stock decline, it is, instead, a direct result of the introduction of Total Allowable Catches in 2001. However others contend that this has not been the case as the data appear to show that the sector has not been constrained by the TAC and point to the fact that the TAC has not been caught in any year since its introduction. In 2005, for example, the total commercial catch fell short of the TAC by almost 13% (the shortfalls in previous years were 10.3% in 2004, 7.2% in 2003, and 4.9% in 2002). Again the commercial sector argue that this is not the case, but comes about because a) tags are issued to all commercial licence holders even those who are inactive and, consequently, tags are left unused, and b) fish are 'now running later'. While this latter explanation may have limited merit, based on the expert opinion received by us it is not sufficient to explain fully the observed trends in recent years.

At the other end of the spectrum some 584 drift-net licence holders (66%) account for 19,361 or less than 20% of the total catch. This equates to an average catch of just over 33 fish in a season.

Whatever the arguments, the data strongly point to falling productivity (leading to reduced salmon returns to the coast each year) as the main driver of change, and that all else being equal (time constraints, gear limitations etc) catches would probably have fallen sharply even in the absence of a TAC based management regime. Nor is there is any evidence of this trend changing in the immediate future.

Table 7.6 Breakdown of Individual Catches by Drift-net Licence Holders (2005)

District	0	1-10	11-20	21-50	51-100	101-250	251-500	501-1000	1001-2000	Total licence holders
Dundalk	0	0	0	0	0	0	0	0	0	0
Drogheda	0	0	0	0	0	0	0	0	0	0
Dublin	14	2	0	0	0	0	0	0	0	16
Wexford	0	0	0	0	0	0	0	0	0	0
Waterford	1	68	25	58	13	4	2	0	0	171
Lismore	5	16	8	16	17	19	0	0	0	81
Cork	4	4	11	18	20	26	21	2	0	106
Kerry	0	0	0	0	0	8	14	16	1	39
Limerick	7	11	8	26	19	5	8	2	0	86
Galway	4	1	2	15	7	5	2	1	0	37
Connemara	8	3	5	3	4	4	2	0	0	29
Ballinakill	2	2	2	9	12	10	3	0	0	40
Bangor	1	0	3	9	3	18	6	1	0	41
Ballina	4	2	2	8	9	27	7	7	2	68
Sligo	0	1	1	1	0	2	4	1	0	10
Ballyshannon	1	0	2	2	6	9	6	2	0	28
Letterkenny	1	2	6	41	29	37	9	0	0	125
Licences holders	52	112	75	206	139	174	84	32	3	877
% Licence holders	5.9%	12.8%	8.6%	23.5%	15.8%	19.8%	9.6%	3.6%	0.3%	100%
Catch per band	0	643	1,210	7,169	10,339	29,074	28,888	20,469	3,439	101,231
% Catch per band	0.0%	0.6%	1.2%	7.1%	10.2%	28.7%	28.5%	20.2%	3.4%	100%

7.2 DRAFT-NETTING

The other and more traditional method of netting, the draft-net (also known as a seine or draw-net), consists of a wall of netting with a weighted footrope and floated head rope. One end is held on the shore while the rest is paid out from a rowing boat or punt to enclose an area of water between two points on the shore. Engines cannot be used for this operation because they impede shooting the net over the transom. The net is then retrieved by a man or men hauling the ends ashore with any fish enclosed drawn up onto the shore; an operation that requires a minimum of two operators and more typically three. Such nets normally operate within estuaries, although some are also fished off coastal beaches.

In 2005 draft-net licences were issued in every district with the exception of Sligo and accounted for 33% (518) of the commercial licences issued and for just over 11% of the commercial salmon catch. Draft-net fish tend to be smaller than drift-net caught fish at about 2.2kg. They do have a reputation, however, for occasionally acquiring a musty taste, particularly if the fish have been in the estuary for a considerable period. This has been known and commented on as long ago as the last century and in Wallop Brabazons account of the Deep Sea and Coast Fisheries of Ireland published in 1848 it is described thus; 'A salt water salmon is far superior to a salmon that has been even a short time in river water, the flesh is a better colour with a large flake of curd between each flake of fish, which is both firm and rich.'

Figure 7.4 Shooting a draft-net

Table 7.7 Historic Draft-net Catches by District

District	2001	2002	2003	2004	2005
Dundalk	1,191	717	427	634	468
Drogheda	2,136	1,254	1,248	1,788	1,361
Dublin	12	12	25	7	2
Wexford	956	805	874	1,097	434
Waterford	0	10	8	0	8
Lismore	196	0	0	0	6
Cork	3,788	2,699	2,995	2,662	1,415
Kerry	5,129	4,820	5,386	6,279	5,561
Limerick	6,715	3,528	2,838	2,005	1,777
Galway	72	6	60	63	70
Connemara	0	0	0	0	0
Ballinakill	1,472	467	1,487	355	677
Bangor	37	30	30	26	1,448
Ballina	2,141	2,048	1,554	1,357	13
Sligo	0	0	0	0	0
Ballyshannon	4,423	4,725	2,695	1,934	2,068
Letterkenny	2,593	1,911	1,473	1,236	1,427
Unknown	0	0	0	0	0
Total	30,861	23,032	21,100	19,443	16,735

It can be seen (Table 7.7) that the draft-nets are most numerous in districts with large river estuaries such as the Boyne (Drogheda), Lee, Bandon, Blackwater (Cork), Shannon (Limerick) and Erne (Ballyshannon). A notable exception is Waterford where due to the steep and muddy nature of the estuary snap-netting is used instead.

As with drift-netting, it is immediately clear from Table 7.6 that the total catch by draft-net fishermen has fallen sharply in recent years. The total catch in 2005 (16,735) is only slightly more than half (54%) what it was in 2001 (30,861). While, once again, this has been put down to the introduction of Total Allowable Catches in 2001, it is again clear from the data that the sector has not been constrained by the TAC. As with drift-netting this again raises the strong possibility that falling productivity has been a main driver of change, and that all else being equal catches would probably have fallen sharply even in the absence of a TAC based management regime. There is no evidence of this trend changing in the immediate future.

Table 7.8 Breakdown of Individual Draft-net Licence Holder Catches by District For 2005

District	0	1-10	11-20	21-50	51-100	101-250	251-500	501-1000	1001-2000	Total licence holders
Dundalk	9	14	11	8	0	0	0	0	0	42
Drogheda	12	4	5	22	4	3	0	0	0	50
Dublin	8	2	0	0	0	0	0	0	0	10
Wexford	15	51	8	1	0	0	0	0	0	75
Waterford	1	2	0	0	0	0	0	0	0	3
Lismore	4	2	0	0	0	0	0	0	0	6
Cork	2	7	3	7	11	3	0	0	0	33
Kerry	9	4	4	5	13	13	2	1	1	52
Limerick	8	28	21	24	5	1	0	0	0	87
Galway	2	0	0	2	0	0	0	0	0	4
Connemara	0	0	0	0	0	0	0	0	0	0
Ballinakill	5	1	4	3	3	0	1	0	0	17
Bangor	0	1	9	10	3	6	0	0	0	29
Ballina	0	0	1	0	0	0	0	0	0	1
Sligo	0	0	0	0	0	0	0	0	0	0
Ballyshannon	5	13	11	35	9	0	0	0	0	73
Letterkenny	2	3	10	11	8	2	0	0	0	36
Licences holders	82	132	87	128	56	28	3	1	1	518
% Licence holders	15.8%	25.5%	16.8%	24.7%	10.8%	5.4%	0.6%	0.2%	0.2%	100%
Catch per band	0	765	1,482	4,159	3,987	3,693	782	620	1,247	16,735
% Catch per band	0.0%	4.6%	8.9%	24.9%	23.8%	22.1%	4.7%	3.7%	7.5%	100%

Once again the breakdown of individual catches from the 2005 season (Table 7.8) demonstrates that only a relatively small proportion of fishermen are catching the majority of fish harvested. Indeed less than one fifth (89) of the licensees catch over 60% of the fish (10,329), and these landed on average in excess of 100 fish per licence during the 2005 season. It is likely that some, at least, of these are full-time fishermen with vessels that are fully licensed and registered. In contrast to drift-netting, however, only 6.4% of draft-net licensees actually caught over 100 fish in 2005; over 50% caught less than 20 fish. Given that the majority of draft-net 'teams' number three men (with the crew only taking home a 20% share of the gross earnings) it cannot, for the majority of participants, be regarded as a significant source of income.

7.3 OTHER FISHING METHODS (SNAP-NET, LOOP-NET, BAG-NET & HEAD- WEIR)

Apart from drift-and draft-netting, the other commercial fisheries use snap-nets, loop-nets, bag-nets, or head-weir traps. These fishing methods are extremely localised in distribution, snap-nets being peculiar to the Waterford (132) and Lismore (7) districts and loop-nets to a single river in Lough Swilly in the Letterkenny district (15). There are single bag-net licences found in both the Cork and Kerry districts and, similarly, single head-weir licences are found in both Waterford and Lismore districts (Table 7.9).

Table 7.9 Numbers of Licences by Fishing Method and District

Region	District	Snap-Net	Loop-Net	Bag-Net	Head-Weir
Southern Region	Waterford	132			1
	Lismore	7			1
South Western Region	Cork			1	
	Kerry			1	
Northern Region	Letterkenny		15		

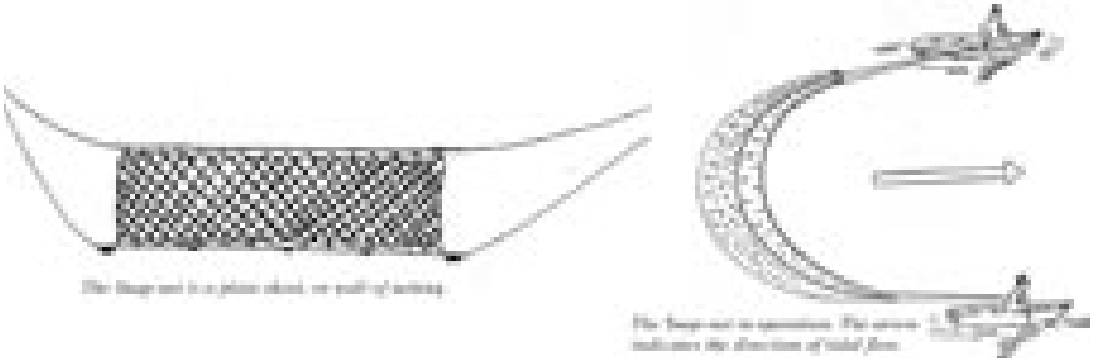
Overall the contribution of these fishing techniques to the commercial salmon catch is negligible, typically 2 to 3%. (Catches are given in Table 7.10). However the continuation of the snap-net fishery, in particular, is responsible for the survival of the traditional boat known as a 'cot' and is unique to the fishery and the area in which it is practiced.

Table 7.10 Historic Snap-net, Loop-net, Bag-net and Head-Weir Catches by District

District	2001	2002	2003	2004	2005
Waterford (snap-net & head-weir)	5,041	4,418	4,280	3,467	2,707
Lismore (snap-net)	32	53	61	115	327
Cork (bag-net)	113	72	120	151	110
Kerry (bag-net)	112	70	59	90	0
Letterkenny (loop-net)	70	77	32	37	31
Total	5,368	4,690	4,552	3,860	3,214

7.4 SNAP-NETTING

The Snap-net fishery is operated within estuaries in the Waterford and Lismore districts only. The net, approximately 15 metres long and 2 to 3 metres deep, is fished between two small boats or "cots". Each fisherman holds both the head rope and leaded foot rope in one hand and an oar in the other to control the direction of the boat and keep the net fishing between the boats. Fishing takes place while being carried on the ebb or flood tide. As the current carries the cots faster than the net the net forms a bag projecting backwards against the tidal flow. A fish striking the net alerts the fishermen who then "snap" the foot rope sharply upwards towards, and sometimes over, the head rope wrapping the fish in the bag. A total of 139 snap-net licences are fished in the Waterford District.

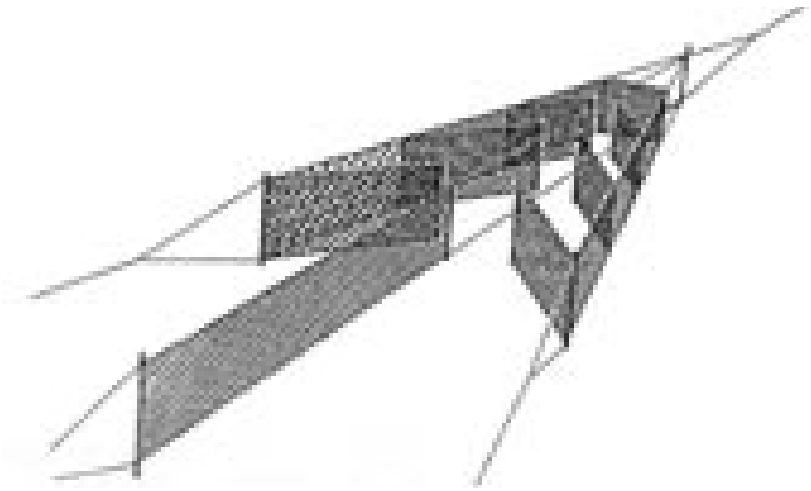


7.5 LOOP-NETTING

Loop-nets are unique to the Swilly estuary in county Donegal and consist of a net bag attached to a narrow trapezoidal wooden frame which is extended into a narrow river channel when the tide is flowing. The frame is approximately 6 metres long on the long axis, 2 metres across at the outer end and 1 meter across at the inner end - which is held ashore. Having extended the net into the flow, the fisherman rotates the frame from the horizontal so that the opening of net is perpendicular to the water flow and it is then maintained in this position by resting a 0.5 metre length of heavy dowel attached to the frame just in from its outer end at right angles on the channel bed. When the fisherman senses a fish striking the net he tips the frame back to the horizontal and the wooden frame floats to the surface trapping the fish. Fifteen licences were in operation in 2005 in the Letterkenny district.

7.6 BAG-NETTING

Bag-nets are fixed engines that are used in the estuaries. They consist of a series of vertical net panels supported by stakes fixed in the shore arranged to form a single leader running perpendicular to the shore which then enters a funnel shaped bag-net. A series of net baffles are placed along the sides of the funnel pointing towards its apex. Fish swimming along the shore encounter the leader and turn to follow it out into deeper water in order to avoid it. In doing so they enter the funnel of the bag-net and are hindered in their attempts to escape by the net baffles which keep directing them away from the exit. Ultimately the fish are trapped in the bag and removed by the fishermen. There are currently only two bag-net licences, one each in the Cork and Kerry districts. In 2005 these two licences caught 149 fish, constituting 0.10% of the total catch.



7.7 HEAD-WEIR

Head-weirs are fixed engines (commonly referred to as 'head-weir' or an 'ebb and flow weir'). They are a permanent structure of timber poles fixed across an estuary or river channel and arranged to form a v-shape pointing upstream with a narrow gap at the apex which leads into a trap chamber. Fish that swim into the structure are caught in the trap chamber. There are only two head-weir licences both of which are found in the Southern regional fisheries board in the Waterford and Lismore districts. These catch 10 to 20 fish per season.

7.8 PROCESSING SECTOR

There are currently some 12 companies involved in the processing of wild salmon. These range in size from very small entities with 1 or 2 employees, to other, main stream, fish processors with sizeable employment (> 50). These processors produce a range of high-value speciality and gourmet products with considerable appeal not just locally in Ireland but commanding quite significant market appeal on the continent and further a field.

For wild salmon processing is significant because of the added value it gives to the fish: the processing of wild salmon effectively doubles the value of the commercial catch. The majority of this added value comes from the production of smoked product which trebles the value of the landed fish; however there is some primary processing for the retail trade.

Wild smoked salmon has long been a highly prized and high value product and demand has always tended to exceed supply, a fact borne out by the continued rise in popularity of the lower priced, and thus more accessible, farmed product. Smoked Irish wild salmon has an unrivalled reputation internationally for quality and flavour, particularly as the majority of processors involved are small scale artisanal producers dealing with only a few thousand fish each year and as recently as September 2006 this was recognised when Sally Barnes' Woodcock Smokery was named Supreme Champion at the Great taste Awards 2006 beating 4,500 other entrants from all over Britain and Ireland.

BIM estimated that in 2002 approximately 47% of the commercial catch, some 100,000 fish went to smoking. Some 20 significant processors were identified as having smoked a significant number of fish that year with the final product valued at €10 million[2]. In 2005 a BIM analysis of the logbook returns for commercial fishermen suggests that this high percentage fell to 35% of the commercial catch or 42,000 fish, valued at €4.2 million. It was noteworthy, however that the numbers of smokers had dropped to approximately 12 with a direct seasonal employment of about 20. Of those that had stopped smoking wild salmon, one had closed completely and the others had substituted farmed fish in some cases specialising in organic products. From discussions with some of those processors that no longer deal in wild salmon it would appear that the increasing prices of wild salmon, despite the accompanying quality improvements from 2001 onwards, was one of the primary reasons for cessation. In addition these processors already had well established alternative farmed product lines. Those processors that continue to smoke wild salmon represent 25% of the 50 or so seafood processors that smoke salmon and as such have clearly specialised in the production of a niche product commanding a premium price at retail, typically over €60-70/kg. As previously mentioned there can be significant flavour problems associated with draft-net caught fish and for this reason the smokers use exclusively drift-net caught fish. This fact along their effective specialisation in wild product renders these companies vulnerable to the cessation of drift-net fishing for salmon.

7.8.1 Ancillary Sector: Co-operatives, Transport Companies etc.

In addition to the processors and commercial fishing sector described above there are a number of other groups that derive a portion of their annual income from the commercial salmon fishery. These are the fishermen's co-ops, fish buyers and wholesalers, refrigerated transport companies, gear manufacturers and vessel maintenance companies. Since the reduction of the commercial salmon fishing season to the months of June and July those groups that were heavily dependant on the fishery have diversified and salmon now make up a minor portion of

2 This figure is lower than that submitted to Indecon as the values have been recalculated using the same methodology as those for 2005

the annual income of the great majority. It is clear however that a small number of local fishermen's co-ops that have been unable to diversify over the past decade or so, mainly due to lack of alternative fishing opportunities for their members, and these have been significantly impacted upon to date. Further loss of access to wild salmon will, undoubtedly, impact further on this sector.

7.8.2 Recreational Fishing Sector

Recreational angling is restricted to rivers and lakes and there are over one hundred recognised salmon rivers within the state. A licence is required to fish for salmon (and sea trout) and these can be bought from any of the Regional Fisheries Boards as well as from angling and tackle shops. The Central Fisheries Board, in conjunction with Shannon Regional Fisheries Board, is currently piloting the sale of Salmon and Sea Trout Licences on-line.

The current total income from the sale in 2006 of recreational angling licences is €930,000.

Table 7.11 Breakdown of Quantity, Annual Fee, and Type of Licences Sold in 2005

Licence Category	Annual all districts	Annual one district	21 days all districts	Juvenile all district annual	1 day all districts	Foyle Area extension	Special Local*	Region Total
Designation	A	B	R	P	S	W	X	
Cost	€64	€30	€24	€10	€17	€40	€12 / €48	
Eastern	1,168	1,315	159	216	95	0	0	2,953
Southern	674	1,275	959	145	217	0	0	3,270
South Western	971	1,626	1,022	223	580	0	0	4,422
Shannon	625	1,091	175	128	64	0	0	2,083
Western	448	702	929	141	647	0	0	2,867
North Western	776	2,790	2,925	680	796	0	0	7,967
Northern	949	2,167	746	341	647	66	260	5,176
Total Number	5,611	10,966	6,915	1,874	3,046	66	260	28,738
Total Income	€359,104	€328,980	€165,960	€18,740	€51,782	€2,640	€3,120	€930,326

** Annual licence holder €12, Non annual licence holder €48*

In 2005 a total of 28,738 individual licences were sold and Table 7.11 gives a breakdown by region and type. The various licences differ in price and determine when and where fishing is permitted. It is also possible to buy a 'National' licence or a 'Regional' licence; the former covers all districts while the latter covers only the district in which the licence is purchased.

Table 7.12 Rod & Line Wild Salmon Catches by Region

Rod & Line Catches	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Eastern	1,710	795	2,100	1,888	1,635	1,030	1,240	1,229	1,398	1,316
Southern	7,491	5,291	10,295	7,668	8,421	3,202	5,338	2,996	4,444	3,498
South Western	5,114	4,500	3,571	3,722	3,900	4,133	2,627	2,601	3,135	2,653
Shannon	3,740	2,500	3,000	4,289	3,800	670	1,131	688	1,469	1,300
Western	2,746	3,529	3,714	2,594	3,797	2,726	1,820	1,797	1,823	1,566
North Western	15,696	11,557	10,848	8,969	10,938	10,403	14,025	9,371	11,171	9,319
Northern	5,010	5,025	5,832	5,286	5,199	2,872	2,709	1,961	2,307	2,388
Unknown	-	-	-	-	-	1,038	495	237	455	321
Total Number	**41,507**	**33,197**	**39,360**	**34,416**	**37,690**	**26,074**	**29,385**	**20,880**	**26,202**	**22,361**

The numbers of salmon harvested by recreational fishermen in a given year (Table 7.12) is estimated from the angling logbook returns (adjusted to account for logbooks that are not completed and returned). In 2005 the total logbook return for all districts was 61.5%, while the total (adjusted) angling salmon catch amounted to 22,361 fish (compared to 101,231 in the drift-net fishery and 16,735 in the draft-net fishery)

One significant feature of the angling statistics worthy of note is the significant catch taken in the Ballina district (Table 7.13); home of the River Moy. Here we find some 31% of the total annual angling catch taken: the next biggest districts, Waterford and Lismore account for only 7.8% (each) of the total catch.

Table 7.13 Number of Salmon Caught and Tagged by Districts.

District	Reported Tagged Catches	Proportional Increase	Adjusted Catches	% Catch by District
Dundalk	206	106%	219	1.0%
Drogheda	698	107%	749	3.3%
Dublin	35	106%	37	0.2%
Wexford	288	108%	311	1.4%
Waterford	1,539	114%	1,755	7.8%
Lismore	1,518	115%	1,743	7.8%
Cork	950	117%	1,116	5.0%
Kerry	1,311	117%	1,537	6.9%
Limerick	1,247	104%	1,300	5.8%
Galway	865	114%	990	4.4%
Connemara	38	111%	42	0.2%
Ballinakill	460	116%	534	2.4%
Bangor	725	125%	904	4.0%
Ballina	5,461	128%	6,997	31.3%
Sligo	1,102	129%	1,418	6.3%
Ballyshannon	1,132	129%	1,465	6.6%
Letterkenny	715	129%	923	4.1%
Unknown	292	110%	321	1.4%
Total	**18,582**	**120%**	**22,361**	**100%**

With almost 29,000 licence holders catching more than 20,000 fish in 2005, it is clear that salmon angling attracts a huge amount of interest. This interest comes not only from within Ireland but from abroad also. As in the analysis done in the 2002 *Indecon* report the 2005 statistics suggest that just over 70% of anglers were domestic and a little more than 25% were overseas visitors, primarily from the UK (50% of overseas) with lesser numbers of European and North American anglers. Total numbers of licences issued have declined slightly since 2001, from just under 33,000 to 29,000.

In 2002 overseas anglers were estimated to make an average of two trips to Ireland each year, spending an average of €406 per visit giving an annual gross spend of €10 million. To gain an idea of the net worth to the economy however *Indecon* discounted this figure must by 40% to take account of the import component of that spend leaving a total value of overseas angling of €6 million. However it is conceded that this is likely to be a considerable underestimate and given that reported daily spends ranging from a low of €20 to a high of €3,000, an average spend as high as €2,642 per visit could be derived which would value their contribution to the Irish economy at €38 million.

Domestic anglers account, as mentioned previously, for the bulk of the licences issued. *Indecon* found that these anglers made frequent (6) but short (2.5 days) trips. Their average daily spend was estimated at €136.50 giving a total value of €51 million. An interesting exercise was then performed, suggesting that as much as 85% of this total would have been spent on alternative activities in Ireland were the anglers not salmon fishing. No evidence is provided for this presumption and given the fact that anglers tend to be very faithful to their sport, not participating in alternative activities to any great degree, must be questioned. Again the resulting total is discounted by 40% giving a value of €4.6 million to the Irish economy. In 2005 the reported daily spends for 2002 bear little relation to what an angler might be expected to spend today. Even for domestic travelling costs, those with which we are all most familiar, today one would get little change out of the daily spend quoted by staying in B&B accommodation and eating 'pub grub' before even paying for the fishing. In conclusion it must be suggested that the 2002 *Indecon* analysis presents an absolutely minimal estimate of the value of salmon angling and that the real value is a multiple of the estimates given.

7.9 ANGLING TOURISM

Anglers from forty countries bought salmon and trout licences in 2005, the majority of which were held by those nationalities in table 7.14 (95.12%). In recent years however there has been a decline in the amount of overseas anglers visiting Ireland. There are many competitors in the markets such as Iceland, Russia, Norway, Scotland, Alaska and New Zealand to name a few. If Ireland can restore stocks of salmon it is felt that this will act as an incentive for anglers from abroad to visit.

Table 7.14 Licences Sold to Domestic and Foreign Anglers in 2005

Nationality	Licences sold (Year)		%
	2004	2005	2005
Ireland	17,547	16,881	58.7%
Northern Ireland	4,732	4,184	14.6%
Britain	4,429	3,853	13.4%
France	1,115	980	3.4%
Germany	756	882	3.1%
USA	662	557	1.9%
Other	1,507	1,409	4.9%

Between 2004 to 2005 there was a reduction in the number of licences sold to foreign anglers with the exception of Germany which showed a slight increase.

Fáilte Ireland estimates that overseas visitor that engaging in angling brought some €66 million into the country in 2004 and hope that by 2009 this figure will reach €100 million. Ireland has a reputation as a good angling country and coupled with the scenery and the promise of experiencing the 'craic' we have a natural advantage on the global stage and a marketable product for the estimated 150,000 to 250,000 international anglers willing to travel.

8 ANNEX 2: BACKGROUND TO THE PRECAUTIONARY APPROACH

8.1 NORTH ATLANTIC SALMON CONSERVATION ORGANISATION

Established in 1984, under the Convention for the Conservation of Salmon in the North Atlantic Ocean, the North Atlantic Salmon Conservation Organisation (NASCO) is an international organisation that has its objective, "To contribute through consultation and co-operation to the conservation, restoration, enhancement and rational management of salmon stocks taking into account the best scientific advice available".

- NASCO currently has seven Contracting Parties of which the European Union is one. The EU represents the coordinated interest of all its Member States, including Ireland, at meetings of the organisation (similar arrangements apply in other international contexts, for example the International Commission for the Conservation of Atlantic Tuna).

- Under the NASCO convention sovereign states retain their role in the regulation of salmon fisheries for salmon originating from their own rivers; distant water salmon fisheries (such as those at Greenland and the Faeroe Islands), which take salmon originating from rivers of another Party, are regulated by NASCO under the terms of the Convention.

8.2 THE NASCO AGREEMENT ON THE PRECAUTIONARY APPROACH

In 1998, NASCO and its Contracting Parties agreed to adopt and apply a precautionary approach to the conservation, management and exploitation of salmon in order to 'protect the resource and preserve the environments in which it lives'. The NASCO approach is derived from the Precautionary Principle, one of the key elements for policy decisions concerning environmental protection and management. It is applied in the circumstances where there are reasonable grounds for concern that an activity is, or could, cause harm but where there is uncertainty about the probability of the risk and the degree of harm.

- The Precautionary Principle has been endorsed internationally on many occasions. At the Earth Summit meeting at Rio in 1992 World leaders agreed Agenda 21, which advocated the widespread application of the Precautionary Principle in the following terms: 'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.' (Principle 15). In Fisheries Management the precautionary approach has been defined in at least two relevant international instruments: the FAO Code of Conduct for Responsible Fisheries (CCRF) and the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNIA). Both of these share common wording and ideas, and the wording used in the FAO Code of Conduct underlines that "States should apply the precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment. The absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures." While the FAO Code of Conduct is a voluntary, non-binding agreement, the UNIA is now a binding agreement amongst signatory States and entered into force on 11 December 2001.

The NASCO agreement on the precautionary approach requires that Ireland (as a contracting party), *inter alia*, gives consideration to the needs of future generations and avoids changes that are not potentially reversible; identifies undesirable outcomes and measures that will avoid them or correct them; initiates corrective measures without delay (these should achieve their purpose promptly); gives priority to conserving the productive capacity of its salmon resource where the likely impact of resource use is uncertain; and, places the burden of proof appropriately by adhering to the above requirements.

Clearly a fundamental aspect of the precautionary approach concerns the absence of adequate information and the Approach unambiguously states its requirements in this regard: "the absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures". Accordingly, 'NASCO and its Contracting Parties' (in this case Ireland) 'should be more cautious when information is uncertain, unreliable or inadequate'. This echoes the wording of Agenda 21; "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation". (Clearly salmon are part of the environment).

8.2.1 Objectives, Scope, Stake-holder Involvement, Principles and Procedures of the NASCO Agreement

In specific terms, Article 6 of the NASCO agreement clearly articulates two key issues; 1) the objective of management measures, and 2) the scope of application. The same article also provides a key definition:

- The primary objective of management measures should be aimed at maintaining all salmon stocks in the Convention area above their conservation limit taking into account the best available information and socio-economic factors including the interests of communities which are particularly dependent on salmon fisheries.
- The Precautionary Approach will be applied to the management both of fisheries regulated by NASCO and those in home waters. (Therefore while sovereign states retain their role in the regulation of salmon fisheries for salmon originating from their own rivers, the management of home water fisheries must be approached taking full account of the NASCO agreement on the Precautionary Approach).

Definition: "The conservation limit is defined as the spawning stock level that produces maximum sustainable yield."

Though the wording of the objective "should be aimed at" can be interpreted, incorrectly, as a target, it is clear that it represents a limit – that is, stocks should be maintained above their conservation limit. The remainder of the objective (taking into account the best available information and socio-economic factors including the interests of communities which are particularly dependent on salmon fisheries) while recognising the interests of communities which are particularly dependent on salmon fisheries, clearly does not provide a basis for indiscriminate harvesting where a stock falls below its conservation limit. It suggests instead that socio-economic factors should be taken into account.

THE PRECAUTIONARY APPROACH IN AN INTERNATIONAL CONTEXT

NASCO is neither the first nor, indeed, the only organisation to adopt a precautionary approach. In 1982 the World Charter for Nature (adopted by the UN General Assembly in 1982) was the first international endorsement of the precautionary principle and by the late 1980's the principle was being incorporated into European environmental statements. It was subsequently incorporated into a number of international conventions, but the most widely cited is the 1992 Rio Declaration on Environment and Development. Principle 15 of the Rio declaration states that "in order to protect the environment, the precautionary approach shall be widely applied by States according to their capability. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation". While originally popularised in an environmental context, it has subsequently been embraced, in the wake of the mad cow outbreak in the late 1990's, to foods and other public policy areas.

In addition to the Rio Declaration, in 1992 both the United Nations' Framework Convention on Climate Change and the Convention of Biological Diversity referred to the precautionary principle. Both conventions, in slightly different ways, stated that the lack of "full scientific certainty should not be used as a reason for postponing" measures to prevent climate change or biological loss.

- In 1987 the Ministerial Declaration of the Second International Conference on the Protection of the North Sea (1987) invoked the precautionary approach as did the Third International Conference in 1990.
- At the Rio Earth Summit in 1992, precaution was enshrined as Principle 15 in the Rio Declaration on Environment and Development: "In order to protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."
- The Precautionary Principle was the basis for arguments in a 1995 International Court of Justice case on French nuclear testing. Judges cited the "consensus flowing from Rio" and the fact that the Precautionary Principle was "gaining increasing support as part of the international law of the environment."
- At the World Trade Organization in the mid-1990s, the European Union invoked the Precautionary Principle in a case involving a ban on imports of hormone-fed beef.

The precautionary principle and the European Union

- The Maastricht Treaty of 1992 and the later EC Treaty noted that European Union environmental policy would be "based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay".
- On April 13, 1999 the Council of the European Union adopted a resolution urging the Commission give greater emphasis to the precautionary principle "in preparing proposals for legislation and in its other consumer related activities and develop as priority clear and effective guidelines for the application of this principle".
- On February 2, 2000, the European Commission released a proposed interpretation, COM (2000) 1 final.

The precautionary principle and ICES

Following a request from the European Commission, the International Council for the Exploration of the Sea has developed a procedure for implementing a precautionary approach in its advice to the Commission on fish stocks and future catch levels. This is done by setting reference points - in effect trigger levels at which management action should be taken. ICES identify two types of reference points: 'limit' and 'precautionary'. The intention is that fish stocks are managed so they do not exceed the precautionary limit reference point. Fisheries managers can, therefore, be reasonably confident that limit reference points - at which there is a serious risk of stock collapse - are never reached. The precautionary reference figures produced by ICES are used by Member States to negotiate catch quotas.

Another key principle, relevant in the context of this report, is contained in article 3, wherein the agreement states that in terms of applying the Precautionary Approach "all parties concerned with salmon conservation, management and exploitation should be involved". We recognise that the National Salmon Commission provides an appropriate national forum in this context, but is mindful also of the absence of commercial fishing interest in the annual meetings of NASCO. This is in contrast to the participation of the recreational sector at these meetings.

A further article (article 7) recognises the integrated nature of the precautionary approach process and provides a minimum set of management principles, while article 8 provides management procedures. In our opinion these clearly form a basis for management going forward and as such, must be considered an intrinsic component of aligning with the scientific advice. These management principles are:

- That stocks be maintained above the conservation limits by the use of management targets;
- That conservation limits and management targets be set for each river and combined as appropriate for the management of different stock groupings defined by managers;
- The prior identification of undesirable outcomes including the failure to achieve conservation limits (biological factors) and instability in the catches (socio-economic factors);
- That account be taken at each stage of the risks of not achieving the fisheries management objectives by considering uncertainty in the current state of the stocks, in biological reference points and fishery management capabilities;
- The formulation of pre-agreed management actions in the form of procedures to be applied over a range of stock conditions;
- Assessment of the effectiveness of management actions in all salmon fisheries;
- Stock rebuilding programmes (including, as appropriate, habitat improvement, stock enhancement and fishery management actions) are developed for stocks that are below their conservation limits.

According to NASCO any management procedures adopted could include the following elements:

- Definition of target spawning stock levels in the relevant rivers;
- Definition of pre-fishery abundance of individual salmon stocks or groups of stocks occurring in the relevant fishery;
- Utilisation only of the surplus according to the first two points above;
- Socio-economic factors.

8.2.2 Guidelines for Incorporating Social and Economic Factors

With respect to the need to take into account socio-economic factors including the interests of communities which are particularly dependent on salmon fisheries NASCO has published guidelines for incorporating such factors in decisions under the Precautionary Approach, intended for use by those who have responsibility for managing the wild Atlantic salmon and its environments. They are also intended to be used for communicating concerns to other sectors whose proposals could impact on the wild salmon and its environments.

According to these guidelines, the means by which social and economic factors may be incorporated in decisions under the Precautionary Approach is through socio-economic impact assessments. In the NASCO guidelines, the purpose of socio-economic impact assessments is to support and inform decision-making, rather than to provide a mechanism for making the decision. The NASCO Guidelines comprise a series of 8 steps, along with detailed information on their application. The key elements of these guidelines have been incorporated in the framing of this report.

8.2.3 Stock Rebuilding Programmes.

As many Irish stocks of salmon are now known to be below their conservation limits it is appropriate that stock rebuilding programmes are undertaken. In this context the NASCO agreement states the application the Approach requires: all salmon stocks in the NASCO Convention Area to be maintained above their conservation limits by use of management targets; and stock rebuilding programmes are developed for stocks that are below their conservation limits. This inclusion of 'stock rebuilding programmes' within the NASCO Agreement reflects similar clauses in other agreements on the Precautionary Approach (e.g. UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks).

The NASCO Guidelines provides guidance on the process of establishing a Stock Rebuilding Programme (SRP) for a salmon stock and what such a plan might contain. It also provides a link between several other guidance documents developed by NASCO in relation to the application of the Precautionary Approach, including the Decision Structure for the Management of Salmon Fisheries, and the Plan of Action for the Protection and Restoration of Atlantic Salmon Habitats.

9 APPENDICES

1. Consultation Process: List of Consultations
2. Submissions received by the Independent Group
3. Summary of Submissions Received
4. Oireachtas committee report
5. NASCO Agreement on Adoption of a Precautionary Approach: CNL(98)46
6. NASCO Guidelines on the Use of Stock Rebuilding Programmes in the Context of the Precautionary Management of Salmon Stocks
7. NASCO Guidelines for incorporating social and economic factors in decisions under the Precautionary Approach
8. Summary of National Legislation
9. Overview of management structures
10. References

Consultation Process

The following individuals, bodies, representative organisations and state agencies were consulted, either individually, or in groups as part of the consultation process undertaken by the Independent Salmon Group.

List of Consultations

Friday 19th May 2006: Standing Scientific Committee of the National Salmon Commission

1. Dr Vera O'Donovan, Bord Iascaigh Mhara.
2. Dr Walter Crozier, Agri-Food and Biosciences Institute.
3. Dr Paddy Gargan, Central Fisheries Board.
4. Dr Martin McGarrigle, Environmental Protection Agency.
5. Dr Niall O'Maoileidigh, Marine Institute.
6. Dr Philip McGinnity, Marine Institute.
7. Dr Paddy Boylan, Loughs Agency
8. Dr Ferdia Marnell, National Parks and Wildlife.

Friday 19th May 2006: National Fisheries Management Executive

9. Dr Paddy Gargan proxy for Mr John O'Connor, CEO, Central Fisheries Board.
10. Mr Patrick Doherty, CEO, Eastern Regional Fisheries Board.
11. Mr Vincent Roche, CEO, North Western Regional Fisheries Board.
12. Mr Harry Lloyd, CEO, Northern Regional Fisheries Board.
13. Mr Eamon Cusack, Shannon Regional Fisheries Board.
14. Mr Aidan Barry, CEO, South Western Regional Fisheries Board.
15. Mr Brian Sheehan, CEO, Southern Regional Fisheries Board.
16. Dr Greg Forde, CEO, Western Regional Fisheries Board

Monday 29th May 2006: Organisations specified under the National Salmon Commission (Prescribed Bodies and Organisations) Order 2005 S.I No. 626 of 2005.

17. Coomola Salmon Trust Ltd.
18. Donegal Game Angling Federation
19. Electricity Supply Board
20. Fáilte Ireland
21. Federation of Irish Salmon and Sea Trout Anglers
22. Kerry Anglers Federation
23. National Anglers Representative Association
24. Salmon & Sea Trout Recreational Anglers of Ireland
25. South East Salmon Federation
26. Trout Anglers Federation of Ireland
27. Western Game-fishing Association

Organisations specified under the National Salmon Commission (Prescribed Bodies and Organisations) Order 2005 S.I No. 626 of 2005.

28. Barrow, Nore, and Suir Snap-net Fishermen's Alliance
29. Blackwater Fishermen's Association
30. Burtonport Fishermen's Co-operative Society Ltd.
31. Cork Drift-Net Association
32. Donegal Traditional Inshore Fishermen's Association
33. East and South East Netsmens Association
34. Galway, & Connemara Salmon Fishermen's Association
35. Irish Fish Processors and Exporters Association
36. Irish Fish Producers Organisation
37. Irish Fishermen's Organisation
38. Irish Salmon Growers Association
39. Irish Salmon Traditional Netsmen Association
40. River Suir Snap-net Fishermen's Association
41. Slaney Draft-Net Men's Association
42. Traditional Draft-net Fishermen's Association
43. Traditional Salmon-Net Fishermen of the Shannon Estuary and Tributaries

Monday 29th May:

44. Dr T. K. Whitaker

Tuesday 31st June:

45. Mr Peter Hunt (National Salmon Commission)

Irish South and East Fishermen's Organisation
46. Mr Michael Walsh
47. Mr Stephen Burke

Ballydavid Fishermen
48. An tUasal T.P Ó Conchúir
49. An tUasal Éamonn Ó Neachtain

Marine Institute
50. Dr Peter Heffernan, Marine Institute
51. Dr Ken Whelan, Marine Institute

Independent Scientist
52. Mr John Browne

Monday 19th June:
Fáilte Ireland
53. Mr Mark Rowlette
54. Mr John Rafferty

Private Fishery Owners
55. Mr Peter Mantle, Delphi Lodge
56. Mr Simon Ashe, Ballanahinch Castle

Friday 21st July:
Irish Association of Seafood Companies
57. Ms Martina Clarke

Electricity Supply Board
58. Mr Pat Gilbride

Údarás na Gaelteachta
59. An tUasal Micheál Seoighe

Private Fishery Owners
60. Mr Nicholas de Grub, Blackwater Fisheries

Central Fisheries Board
61. Mr David Mackey, Chairman
62. Mr John O'Connor, CEO
63. An tUasal Éamon de Buitléar
64. Cllr. Mary Bohan
65. Mr Eamon Cusack
66. Mr Naul McCole
67. Mr John Henry Mclaughlin
68. Mr Patrick F. Byrne

North Atlantic Salmon Fund
69. Mr Orri Vigfússon
70. Mr Noel Carr
71. Mr Patrick Peril
72. Mr Frank Curran
73. Mr Jim Haughey

Coiste Scruthlíonta Chaeltachta
74. An tUasal Sean Ó Conghaile
75. An tUasal Cormac McDonagh

Bord Iascaigh Mhara
76. Dr Ian Lawler
77. Dr Oliver Tully
78. Dr Vera O'Donovan

Wednesday 12th July:
Site visit to Dingle, Co. Kerry.
79. An tUasal Lorcán Ó Cinnnéide
80. An tUasal Martin Kearns
81. An tAthair Padraic O'Finnachta
82. An tUasal T.P. O Conchuir

Wednesday 12th July:
Site visit to Ballydavid, Co. Kerry to view commercial Drift-Netting

Thursday 13th July:
Observation of Draft-net fishery on the River Lee with members of the Southern Fisheries Board

Monday 24th July:
Site visit to the Loughs Agency
83. Mr Derik Anderson, Loughs Agency
84. Dr Paddy Boylan

Site visit to the Greencastle Co. Donegal
Foyle Drift-net Fishermen's Association
85. Mr John White
86. Mr Joe Kelly
87. Mr Gerry Kelly

Submissions received by the Independent Group

Written submissions were received from the following individuals, bodies, representative organisations and state agencies.

- Dr. T. K. Whitaker
- The Lismore Estates
- Clarke's Salmon Smokery
- Mr Dermot Layden
- Traditional Draftnet Fishermens Association
- An tUasal T.P. Ó Conchúir
- Dr Brendan Whelan (ESRI)
- Dr Brian Sheerin (SRFB)
- North Atlantic Salmon Fund
- Irish Fish Processors and Exporters Assoc.
- Mr Maurice Buckley
- Draft-Net Fishermen, Dundalk Bay Area
- Blackwater Drift-netting Assoc.
- An tUasal Pádraig Ó Fiannachta
- Mr Nicholas de C Grub
- Mr John J Doherty
- Prof Noel Wilkins
- Mr Michael T Connolly
- An tUasal Breandán Mac Gearailt
- Mr Peter Reilly
- Mr Denis Keane
- Owenmore Draft-Net fishermen
- Mr Pat Murphy
- Electricity Supply Board
- Irish South and East Fish Producers Organisation Ltd.
- Mr John Kilgannon
- Mr Thady Goonan
- Mr John Scanlon
- Shannon & Tributaries Traditional Net Fishermens Association
- Barrow Noir Suir Snap-Net Fishermen's Alliance
- Mr Patrick Peril
- Frankie Byrne Nets and Fishing Gear
- Mr Pat Moran
- Mr Frank Flanagan
- Mr John Kearney
- Mr Danny Bradley
- Federation of Irish Salmon and Sea Trout Anglers
- Mr Fred and Mary Cafferkey
- Mr Martin Goonan
- Mr Pat O'Donnell
- Burtonport Fishermens Co-op Soc. Ltd.
- Slaney River Trust Limited
- Waterford Harbour Salmon Fishermen's Assoc
- Backwater Salmon Development Group
- Mr Michael O'Donnell
- Mr Tom Scanlon
- Mr Padraig Brendan O'Donnell
- National and Regional Game Angling Federations & Stop Drift-Nets Now
- Delphi Lodge Failte Ireland & Ballynahinch Castle
- North West Regional Fisheries Board
- Donegal County Council
- Mr Enda Bonner (Mayor, Donegal)
- Irish Association of Seafood Companies
- Kevin Downey
- Irish Fish Producers Organisation
- Mr John Clarke
- Mr Henry Cowper
- Shannon Regional Fisheries Board
- Mr Cathal O'Donnell
- Mr Tony Beshoff & Mr Gillian Colfer
- Mr Michael Drought
- Cork Traditional Drift-Net Fishermen's Association
- BIM
- Údarás na Gaelteachta

Summary of Submissions Received

Sixty-two submissions were received following an advertisement campaign in the Cork Examiner, The Independent, The Irish Times, The Marine Times and The Skipper, calling for written submission in regards to the remit of the independent group. The group would like to thank those people that took time to share their views on this matter.

Care was taken to read all the submissions and for the purpose of this report a summary of the main points raised in each of the submissions were extracted and classes by related subject matter. These points have not being taken *verbatim* from submissions. They are interpretations of the main points raised by the submitters.

To protect the identity of individuals, submissions have being assigned a random reference number.

Commercial Fishing Methods

No	Comments/Views
42, 58, 62	With further reduction in TAC, there is little income to be made from drift-netting
56, 16, 15, 44, 6, 5, 45, 37, 55, 60, 21,	There cannot be indiscriminate killing of salmon at sea, recommend an end to drift-netting
48, 65, 61, 62, 33, 18, 58, 24, 54, 59, 38, 63	Drift-netting is a traditional method of fishing and should continue. There should be no closure of the drift-net salmon fishery
28, 42, 35, 22	
41, 37, 52	The issuing of drift-net licences in the late 1960's robbed the traditional nets men of their catch and assets
15	Drift-netting is uneconomic and is not a traditional method of fishing
15	There is serious international opposition to the continuation of drift-netting in irish waters
65, 24, 64, 63	Drift-net fishermen have made severe sacrifices over the last few years, while the blame attached to this sector for the demise of salmon is disproportionate.
24, 38	There has been an organised propaganda campaign to blame drift-netting for the demise of the salmon.
1	Snap-net fishing is similar to the coracle fishing of south Wales. This fishing method is protected under legislation. Snap-net fishing should be protected in a similar manner to preserve a traditional way of life; this could be achieved through establishing a heritage licence. Snap-net fishery is very small and cannot be held responsible for stock depletion.
59	Heritage licences should be established in small numbers to allow some fishermen to remain.
44, 55	The issuing of new drift-net licences in the 1960's couple with the move to sea fishing has caused the decline of the salmon stock

21	There must be a complete ban of drift-netting in 2007 and the formation of strict quotas for the reaming draft-net fishing.

Alignment with Scientific Advice

No	Comments/Views
56	It would be a tragedy and a national and international disgrace to fail to act affectively to save wild salmon
41, 21, 43	We fully support the alignment with the scientific advice for 2007
42	The work of the Standing Scientific Committee has never being validated by independent assessors and as such its advice should be questioned.
4, 9, 38	The scientific information provided is flawed
44	If the scientific advice is followed and interceptory drift-netting ceases, tidal and estuarine fisheries should not be stopped.
55	Scientists have not taken into account the amount of 'hatchery ranched salmon' that make up the composition of the 'wild salmon'.
22	If the scientific advice is followed the national resource, that is salmon, will become the exclusive property of anglers and private angling clubs
36	Alignment with the scientific advice is disregarding the basic rights of the native fishing population.
11	The scientific evidence for mixed stock fishery is not robust enough to base their recommendation on. There can only be a solution found when the necessary research and analysis has been completed. Such research should include genetic studies of the fish caught in mixed stock fisheries.
43	Anything but full alignment with the scientific advice would be a breach of the government's commitment to the commission in regards to the habitats directive.

Salmon Stocks

No	Comments/Views
4, 35, 27, 19 24, 33, 30	Increasing seal numbers along with other predators have had a negative effect on salmon stocks.
4, 19	There are unanswered questions regarding the decrease in marine survival, which is playing a pivotal role in the demise of the salmon.
53, 35, 24, 19, 30, 10, 59, 64, 13	Riverine pollution is among the problems affecting salmon stocks.
41, 66, 64, 13,	Offshore nets are the major cause of the decline in salmon numbers
17	Four-year life cycle of salmon emphasises the need for early and effective action to restore stocks.
57	There is a chance that salmon will disappear from Ireland. All relevant stakeholders must work together and co-ordinate to save salmon.
57, 13,	Global environmental changes are pushing northern species even further north.
34	It is unclear how a fishery that has had a very much-reduced time limit enforced upon it can be blamed for the decline of salmon stocks.
30	Poaching operations are among the problems facing the salmon stocks.
12	The government are not actively attempting to restore salmon stocks, salmon cannot even enter the spawning beds.
7, 64,	Angling is a component reason for the declining salmon stocks.

59, 11	Money needs to be invested in stock enhancing programs, water and habitat improvement schemes.

Management of Riverine Systems/Science

No	Comments/Views
56	Rivers should be closed to fishing until each river recovers. Rivers should be monitored closely to determine if they are above their CL.
15	The angling tagging scheme is not meeting its objective and is ineffective; it should be replaced by a system of local fishery management.
56 27, 24	To use catch statistic from the previous season to influence the current season quota is unfair and misleading. It is unfortunate that the Standing Scientific Committee did not investigate the effect of moving the drift-netting from 12 miles to 6 miles was, or what would transpire if it was moved closer inshore.
27, 43	Reduction of sea-caught salmon will not restore stocks alone, Catchment Management Plans should be urgently introduced.
17	Single stock management for salmon is the ideal goal.
18	Draft-net fishermen are invaluable in assisting fishery board personnel in preventing poaching, monitoring water quality, observing a number of factors that affect salmon numbers. Remove these fishermen and salmon stock will deplete further.
18, 11, 1	Counters should be placed on each river to determine how many salmon are in each. Fishing could then be allowed after enough fish have gone up the river.
44	A consequence of following the scientific advise will be an increased amount of salmon returning to rivers, this may cause the resurgence of poaching and as such a proper mechanism should be established to deal with this.
66	The scientific community should investigate the idea that there are later fish runs.
59	On rivers that meet their CL, small-scale fishing should be allowed but fishermen should be given the option to leave the fishery with a compensation package.
2	All stakeholders should be incorporated into the management process, in a community based management system.
21	After the ban of drift-netting there is no need for elaborate management plans, just management tools such as counters, smolt tagging programmes and other facilities.

Angling

No	Comments/Views
15	Angling should be promoted, as a healthy pastime, and for its positive effect on the economy
57, 43	With a ban on drift-netting the numbers of salmon in rivers may increase. This increase should be reflected in increased compensation to the state from the angling beneficiaries. The demand for wild-caught salmon could be partly met by allowing the sale of rod-caught salmon. To ensure that this does not simply turn into another fishery, the cost of tags, which will determine the sale of the rod-caught fish, could be sold at a very high price.
33, 52, 7	Anglers should be asked to cease fishing for salmon if they are serious about saving the salmon
56	Anglers should be requested to release all salmon above nine pounds (4 kgs)
65	The majority of Irish Salmon rivers had an abundance of salmon in 2005 after the end of the commercial season; this has been deliberately talked down to make drift-netting look bad.
32	It is scandalous that private fisheries own the best spawning grounds for salmon.
59	In areas where catch and release could be introduced you will get reduced numbers of anglers. The worry is that this will lead to increased poaching and illegal fishing as anglers play a role in the management of the rivers.

21	The angling community should not be penalised for the mismanagement of the salmon resource and should not have to contribute to a compensation scheme.
43	Any salmon saved though a closure of mixed stock fisheries should be protected from exploitation, be it angling or estuarine net fisheries.

Tourism

15, 43, 13	Tourist businesses will stand to gain from a drift-net ban. Some equitable scheme should be conceived to levy these.
45	A stock restoration program would allow the tourism industry to recover some of the severe losses that it has experienced
37	All salmon angling fisheries should be open to tourist access with no exceptions.
36	Drift-netting is being targeted so that the government can increase fishing tourism in Ireland.
3, 13	The damage to tourism due to the low levels of salmon stocks has been harsh.

Hardship

42	Draft-net fishermen want a compensation scheme to allow for salmon stock recovery
56, 28, 16, 65, 6, 24, 34, 30, 19, 7, 60, 3, 9, 59, 8, 38, 46	There should be a voluntary buy-out scheme with a generous compensation package.
14, 15, 19, 46 28, 30	Compensation should be based on fishing effort history Compensation should not be paid out on the basis of fishing effort but rather should be based on proving that the licence holder is traditional fisherman. Fishermen that decide to remain in a fishery should be given TAC that will allow for a viable fishery.
14, 65, 52,	A ban on drift-netting will have a negative knock on affect on the economy of local areas especially coastal communities.
32, 10, 38, 63,	There shouldn't be a complete ban of drift-netting; tradition needs to be maintained to keep our culture and heritage alive.
46, 34, 10, 38 55	Most if not all drift-net licence holders will accept a buy-out package as they realise themselves that it is no longer sustainable
41	If there is a ban on fishing in areas where there are private rights issues, the owner of these rights should be compensated for the loss of income and payment of rates.
35, 27, 23, 26	Consideration should be given to how a ban on drift-netting will affect downstream enterprises. There should be compensation and/or support for this sector if they rely heavily on drift-net fishing'
15, 5	Contributors to a compensation package might include salmon fishery owners, angling clubs and anglers
61	In Gaeltacht areas the cessation of salmon fishing will have a drastic effect on the soul of the community. There should be a new fishing policy created for rural coastal Gaeltacht communities.
6	If a fisherman does not opt for a buy-out scheme, then one could have a compulsory set-aside for a number of years before returning to the fishery when is has recovered.
27, 26	A sudden cessation of supplies of drift-net salmon to processors and distributors of wild salmon catering for the Irish and International market threatens the collapse of processing and trading in wild salmon.

35, 72, 61, 10, 29, 63,	There will be significant long-term and short-term seasonal job losses in communities.
37	Compensation for drift-net men should only be given to those that fished drift-nets prior to 1968, or those draft-net men that were forced to change to drift-netting because of competition.
58	A set aside programme should be established with an annual payment for a period of time after which time the fishery would be open on a full season basis.
57, 49, 52	A moratorium period with a fishing ban and without compensation could be established with fishermen having the right to re-enter the fishery when the moratorium ends.
52	Drift-net fishermen should not be compensated as they are the cause of the salmon stock demise, and it is unfair to ask the people who suffered to contribute to this compensation.
23, 9	Business that will be affected by a drift-net ban should also be compensated for loss of earnings
22	The government should have had a compensation package in place before alignment with scientific advice was implemented.
32, 24, 10, 8, 38, 40, 63,	Provision should be made for families who will be affected by a drift-net ban.
7, 63	Fishermen have invested in boats and fishing gears, have loans, and this should be considered when formulating compensation.

7, 2, 46,	A ban will have a negative affect on other inshore fishermen, as there will be a shift in fishing effort from salmon to lobster and crab, what will happen to this fishery when it is over exploited?
25	Draft-net fishermen should be included in the drift-net package.
60	Draft-nets in rivers with salmon stocks below their conservation limit should be included in the drift-net package.
29, 8, 59	Salmon fishing is keeping young people in rural areas, remove the fishing and we shall lose young people.
39	Along with a package to deal with hardship there should be an enterprise fund to help these fishermen find alternative work.
11	What is to be done where family/friends have fished off the same licence? It would be unfair if only one was to get compensation.
21, 20, 43	The valuation of the fishery must not be based on the average value of catches over a defined period of past years. It should be based upon the potential value of the fishery if it had been properly managed.
43	The state should provide the funding for the buyout
	Any compensation payment should be phased out over a five year period

Oireachtas committee report

The Joint Committee for Communications, Marine and Natural Resources set up the Sub-Committee on Salmon Drift-Netting, Draft-Netting and Angling on the 9 February 2005. The sub-committee was set up to reflect the relativity between Government and Opposition and Dáil and Seanad. Chaired by Noel O'Flynn T.D., the committee produced a report in October 2006.

The summary of the recommendation from the report of the joint committee were as follows:

The Joint Committee is adamant that public policy must be dedicated to the survival of the salmon species and in this regard it is urgent to move to single stock management.

Given that the move to single stock management will take time it is regarded that a voluntary compensatory and/or set-aside scheme (over a 3 year period) would be of significant benefit to stocks. The position to be reviewed at the end of the 3 year period.

A compensatory scheme would mean a permanent cessation of Net fishing and a permanent reduction in the number of licences in the District.

Set-aside, it is suggested, would require a current licensee to undertake not to apply for a licence to fish for 3 years. As compensation, such individuals would receive an annual payment (for each of the years in which the set-aside is in place) or a once off payment. On the basis that salmon stocks recover an individual who has participated in this scheme would be free to apply for a licence to fish and the conditions in regard to the grant of licences, as currently vested in the Minister, would remain.

Take up would lead to a reduction in the overall quota available for the District calculated as a percentage for each licence that exited. The percentage reduction would be permanent with regard to the compensatory scheme and reviewed, on the basis of the stock recovery, with regard to the set-aside scheme.

Funding for the compensatory and set-aside schemes should be made available from sectors, such as the angling and angling tourism sector as these sectors, pursuant to the arguments made at the sub-Committee hearings, will be the main 'economic' beneficiary such as conservation groups, both national and international, EU and Government.

The Joint Committee recommends that if the stock improves, in light of single stock management, then an increase in the commercial net-fishing sector should be addressed.

It is the view of the Joint Committee that the precise mechanisms required to achieve single stock management in terms of legislation, management, reorganisation and compensation are functions of the Department. The Joint Committee does not wish to be prescriptive, except in recommending that any public monies spent must have, as a primary aim, ensuring the survival of the salmon species and that this precept must be regarded as more important than any economic gain to any sector that may accrue.

The joint Committee recommends that the Department of Environment, Heritage and Local Government should prepare a report on predation by seals on the salmon stocks.

Community

The majority of salmon-netting occurs in peripheral coastal areas around Ireland. These areas are normally disadvantaged and rural in nature that exhibit a unique traditional way of life and culture. Additionally areas in Donegal, Mayo, Galway, Kerry together with parts of Cork and Waterford, where the majority of drift-netting is found, are classed as Gaeltacht areas where the Irish language is the community language.

Irish in these areas is a working language with a strong traditional maritime connection. It is viewed that the people who use Irish as a working language are vital for maintaining Irish as an extant language. The removal of salmon fishing there is a threat that these areas will move toward a monoglot culture where English becomes the predominant language.

The economy of these areas is often made up of several subsistence economies of which salmon fishing is one. It is argued that in such areas where there are little or no alternative sources of employment that the removal of salmon fishing will critically impact the economy of the area. The Hobson Report (2006) states that 'without the phased development of alternative opportunities for those engaged in the fishery would have critical impact on the economy of those areas. If fishermen in these areas in particular were forced to forgo the income derived from the wild salmon fishery, and ongoing program would be required to provide adequate compensation for the loss. A once off payment would not be adequate'.

Community specific funding programs, to promote alternative employment and tourism, could be established. Such a programme could be run through An Pobal. These programs would give communities affected the opportunity to envisage projects for which they could apply for funding.

We, additionally, recognised the hardship that the processing community may experience. In the absence of drift-netting the main supplier of wild salmon, processors could encounter long term and seasonal job losses.

NASCO Agreement on Adoption of a Precautionary Approach: CNL(98)46

1. NASCO and its Contracting Parties agree to adopt and apply a Precautionary Approach to the conservation, management and exploitation of salmon in order to protect the resource and preserve the environments in which it lives. Accordingly, NASCO and its Contracting Parties should be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures.

2. The Precautionary Approach requires, inter alia:

   - consideration of the needs of future generations and avoidance of changes that are not potentially reversible;
   - prior identification of undesirable outcomes and of measures that will avoid them or correct them;
   - initiation of corrective measures without delay, and these should achieve their purpose promptly;
   - priority to be given to conserving the productive capacity of the resource where the likely impact of resource use is uncertain;
   - appropriate placement of the burden of proof by adhering to the above requirements.

3. The application of a Precautionary Approach should involve all parties concerned with salmon conservation, management and exploitation.

4. The Precautionary Approach will be applied by NASCO and by its Contracting Parties to the entire range of their salmon conservation and management activities. Initially the application will be to the following three areas:

   - Management of North Atlantic salmon fisheries
   - The formulation of management advice and associated scientific research
   - The area of introductions and transfers including aquaculture impacts and possible use of transgenic salmon.

5. Both NASCO and its Contracting Parties should as the next step address application of the Precautionary Approach to freshwater habitat issues and the by-catch of salmon in other fisheries.

Management of North Atlantic Salmon Fisheries

6. An objective for the management of salmon fisheries for NASCO and its Contracting Parties is to promote the diversity and abundance of salmon stocks. For this purpose, management measures, taking account of uncertainty, should be aimed at maintaining all salmon stocks in the NASCO Convention area above their conservation limit (currently defined by NASCO as the spawning stock level that produces maximum sustainable yield), taking into account the best available information, and socio-economic factors including the interests of communities which are particularly dependent on salmon fisheries and the other factors identified in Article 9 of the Convention. In order to achieve this, a Precautionary Approach will be applied to the management both of fisheries regulated by NASCO and those in homewaters.

7. The application of the Precautionary Approach to salmon fishery management is an integrated process which requires at least the following:

   - that stocks be maintained above the conservation limits by the use of management targets;

- that conservation limits and management targets be set for each river and combined as appropriate for the management of different stock groupings defined by managers;
- the prior identification of undesirable outcomes including the failure to achieve conservation limits (biological factors) and instability in the catches (socio-economic factors);
- that account be taken at each stage of the risks of not achieving the fisheries management objectives by considering uncertainty in the current state of the stocks, in biological reference points and fishery management capabilities;
- the formulation of pre-agreed management actions in the form of procedures to be applied over a range of stock conditions;
- assessment of the effectiveness of management actions in all salmon fisheries;
- stock rebuilding programmes (including, as appropriate, habitat improvement, stock enhancement and fishery management actions) be developed for stocks that are below their conservation limits.

8. The management procedures for all salmon fisheries could include the following elements:
   - definition of target spawning stock levels in the relevant rivers;
   - definition of pre-fishery abundance of individual salmon stocks or groups of stocks occurring in the relevant fishery;
   - utilisation only of the surplus according to the first two points in (8) above;
   - socio-economic factors.
9. New fisheries targeted on salmon or which could result in a by-catch of salmon should be subject to cautious conservation and management measures. In accordance with Article 2, paragraph 3 of the Convention, the Parties shall invite the attention of non-Contracting Parties to any significant by-catch of salmon by its vessels.
10. Efforts to minimise unreported catches, and to improve estimates of them, are consistent with the Precautionary Approach. NASCO and its Contracting Parties agree to evaluate and report on progress in this area.

The Formulation of Management Advice and Associated Scientific Research

11. ICES or other scientific advisors should be requested, inter alia, to:
    - provide stock conservation limits and management targets for all river stocks;
    - advise on the risks of not achieving the objectives of NASCO or its Contracting Parties by considering uncertainty in the current state of the stocks, in biological reference points related to specific management objectives and in fishery management capabilities;
    - provide catch options or alternative management advice with associated risk assessments for the fisheries regulated by NASCO and homewater fisheries for all salmon stocks;
    - advise, in the light of current conditions in the freshwater and marine environment, on stock rebuilding programmes including, where appropriate, habitat improvement, stock enhancement, disease prevention and fishery management actions;

- identify the monitoring and data collection required to better achieve the objectives of NASCO and its Contracting Parties;
- advise on the impacts on salmon stocks of existing and new fisheries for other species, and of salmon fisheries on non-target species.

The Area of Introductions and Transfers Including Aquaculture Impacts and Possible Use of Transgenic Salmon

12. Implementation of the measures contained in the following agreements is essential in the light of the Precautionary Approach:
    - North American Commission Protocols on Introductions and Transfers, NAC(92)24
    - Amendments to the North American Commission Protocols on Introductions and Transfers, NAC(94)14
    - Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean to Minimise Impacts from Salmon Aquaculture on the Wild Salmon Stocks, CNL(94)53
    - NASCO Guidelines for Action on Transgenic Salmon, CNL(97)48
    - Resolution by the North-East Atlantic Commission of the North Atlantic Salmon Conservation Organization to Protect Wild Salmon Stocks from Introductions and Transfers, NEA(97)12.

The Parties therefore agree to report to the Council or to the appropriate Commission of NASCO on the steps taken to achieve the measures described in the above agreements. The Contracting Parties should ensure full implementation of these agreements and will consider whether the agreements need to be re-examined and complemented by additional steps.

NASCO Guidelines on the Use of Stock Rebuilding Programmes in the Context of the Precautionary Management of Salmon Stocks: CNL(04)55

1. **Background**

   In 1998, NASCO and its Contracting Parties agreed to apply a Precautionary Approach to the conservation, management and exploitation of Atlantic salmon. The NASCO Agreement states that the application of a Precautionary Approach requires:

   "all salmon stocks in the NASCO Convention Area to be maintained above their conservation limits (CLs) by use of management targets "; and

   "stock rebuilding programmes to be developed for stocks that are below their conservation limits ".

   The inclusion of 'stock rebuilding programmes' within the NASCO Agreement reflects similar clauses in other agreements on the Precautionary Approach (e.g. UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks).

   This document provides guidance on the process of establishing a Stock Rebuilding Programme (SRP) for a salmon stock and what such a plan might contain. It also provides a link between several other guidance documents developed by NASCO in relation to the application of the Precautionary Approach, including the Decision Structure for the Management of Salmon Fisheries, and the Plan of Action for the Protection and Restoration of Atlantic Salmon Habitats.

- **What is an SRP?**

  An SRP is an array of management measures, possibly including habitat restoration/ improvement, exploitation control and stocking, which is designed to restore a salmon stock above its CL. The nature and extent of the programme will depend upon the status of the stock and the pressures that it is facing.

  While the short-term response to a stock failing to exceed its conservation limit may be to reduce or eliminate exploitation, there will generally be a need to develop a programme to evaluate and address the causes of the stock decline. In more serious situations, there may be a need for a comprehensive programme of research and management, involving a wide range of management actions undertaken by a number of user groups.

2. **Evaluate status of stock**

   NASCO has recommended that SRPs be developed for all stocks that are failing to exceed their conservation limits (CLs). NASCO Parties are developing conservation limits for all their salmon stocks, based at a national, regional, river or population level according to their management requirements. However, assessing the status of the stock requires more than simply determining whether the escapement has fallen below the CL, and a range of other factors will influence management decisions on the nature and extent of the SRP.

   Uncertainty in assessments: Information on the stock may be limited, so there may be uncertainties about both the conservation limit and the current stock abundance. In addition, the numbers of salmon returning to spawn can be highly variable, and so the stock will sometimes fall below the conservation limit simply as a result of natural variation. These uncertainties must be taken into account in the decision-making process.

   Nature of conservation limit failure: Both the duration and degree of the conservation limit failure (e.g. failure by more than X% for more than Y years) are relevant to the assessment. Clearly, the further that a stock falls below its conservation limit and the more years for which it does this, the greater the probable need for management action. The nature of the stock decline (e.g. timing and severity of decline) may also be informative

in determining the main causes. Ideally, managers and stakeholders should agree in advance upon the failure criteria that will trigger certain management actions.

Recent stock status history: Where the stock has fallen below the conservation limit for only a single year (or a short period) consideration might be given to the margin by which the conservation limit was exceeded in earlier years. If the stock has been well above the conservation limit in recent years, this may suggest that the current management practices are appropriate under most normal circumstances and there may be less reason to consider extensive management changes.

Stock diversity: Consideration must also be given to other stock criteria, such as age structure, run timing and fecundity. A minor overall shortfall in egg deposition, for example, may mask a much greater problem with one stock component.

3. **Evaluate causes of stock decline and threats to stock**

Proposals for remedial measures should be developed on the basis of a full assessment of the pressures faced by the stock. Stocks may fall below their conservation limits as a result of reduced production and/or increased mortality, and these can result from either natural or anthropogeneic factors (including fishing). The exact reasons for the stock decline may be unknown, but possible causes and potential threats should be described and evaluated. The following categories of factors may be considered:

Natural environmental change: (including rainfall and river flow patterns, river temperatures, sea surface temperatures, marine currents)

Any remedial actions will need to take account of best predictions of the likely duration and extent of natural environmental change, and whether this is likely to progress further. If continuing deterioration of natural environmental conditions is predicted, this will need to be taken into account in determining the most appropriate management actions.

Habitat degradation: (including water quality (including sub-lethal effects), water chemistry (e.g. pH), water quantity caused by man-made structures or extractions, spawning and juvenile habitat (e.g. sediments and reduced carrying capacity), factors affecting food production, obstructions to smolt or adult migration (and entrainment), fish farming).

It is important to try to identify where habitat degradation is causing production 'bottlenecks', and to determine whether the problems are natural or man-made, and whether the impact is reversible.

Species interactions: (including fish/bird/mammal predators in sea/fresh water, diseases and parasites (e.g. sea lice), competition with native species, competition with introduced species (e.g. releasing of non-indigenous stocks); wild/farmed fish (e.g. fish farms).

The potential impact of predators should be assessed taking into account known characteristics of salmon and predator biology and population dynamics; possible sources of disease from wild and reared stocks should be evaluated, and the effects of any stocking programme, with salmonids or other species, and any changes in stocks of other native species considered.

Exploitation: (including by-catches of post smolts, marine salmon fisheries, by-catches in home water fisheries, directed home water net and rod fisheries, non-catch fishing mortality, exploitation of prey species).

The need for exploitation control should be determined based upon an assessment of how fisheries are contributing to the stock decline and its longer-term sustainability.

Differential effects on stock components: (including sea-age groups, size classes, tributary populations, etc.)

Different stock components may be affected in different ways by different factors, and it is important to identify those components in greatest need of protection or restoration. For example, age groups may be differentially affected by fisheries which are size-selective, and tributary populations may be differentially affected by water quality problems.

4. **Identify and involve stakeholders**
   Stakeholder groups need to be consulted when restoration programmes are being considered and kept informed when action is planned. Wherever possible, they should be involved from the earliest stages in the development of an SRP. Benefit may be gained from their general experience of salmon management and their specific knowledge of the stock(s) in question.

   Consideration also needs to be given to the potential incidental effects of an SRP on other users or those with interests in other parts of the ecosystem that may be affected. Early involvement may also help to secure the buy-in of groups that may be affected by proposed measures.

   The responsibilities of different groups and organisations in the SRP must be clearly defined.

   Consideration should be given to the development of education material for dissemination to interested groups and the wider public.

5. **Plan and prioritise management actions**
   A programme of management actions should be developed to address the problems and threats that have been identified. Efforts should be made to ensure all activities are consistent with the Precautionary Approach.

Prioritising actions: Where a number of problems/threats have been identified, proposed actions will need to be prioritised to assist in planning the funding of the conservation and restoration programme.

Research needs: Where there is insufficient information of the nature of the problems, the management plan may need to include a provision for further research.

Environmental management: Decisions on habitat restoration should be based on identification of whether the cause of a production bottleneck is natural or man-made. It may not be appropriate to try to reverse natural changes, and where effects are irreversible it may be necessary to reassess the CL. Further guidance is provided by the NASCO Action Plan 2 which provides a framework for use by jurisdictions that have responsibility for activities involving salmon habitat.

Fishery management: Reducing the impact of salmon fisheries is often the first response to a decline in stocks since it is likely to have the most immediate effect on the spawning escapement. However, exploitation control should be seen in the context of other measures that may be taken, including reductions on unreported catches and by-catches, and may only be required while other problems/threats are remedied; ideally such responses should be based upon pre-agreed plans. However, if long-term changes in production are expected, there may be a need for a readjustment of the harvest strategy. The NASCO Decision Structure 3 provides further guidance on the decision-making process for determining appropriate management measures in targeted fisheries.

Gene banks: Consideration may be given to the need for establishing a gene bank in case the stock declines to critically low levels.

6. **Identify interim measures**
   Where stocks are seriously depleted, and full recovery is likely to take several generations, there may be a need to develop a staged approach to the recovery programme and to adopt certain interim measures.

   Interim reference points: Where a stock has fallen well below its CL, or has been below the conservation limit for an extended period, it may be appropriate to consider an intermediate 'recovery' reference point or to set a goal of an annual average percentage increase. This may assist in tracking stock recovery over a longer period.

   Stocking: Consideration should be given to the need for stocking, but this should generally only be used as an interim stock protection measure. Stocking may be used to circumvent particular bottlenecks in production while other actions are taken to address the cause of the stock decline. Further guidance is provided in the NASCO Stocking Guidelines.

7. **Assess social and economic factors**
   Managers will need to consider the social and economic consequences of different management options including the possible impacts on other users and other activities that may constrain success. NASCO guidelines are being developed to provide a framework for incorporating social and economic factors into decisions which may affect wild salmon and the environments in which it lives.

   Fisheries managers may have to consider whether:

   - there is a need to permit a residual fishery to continue (e.g. subsistence fishing);
   - the fishery itself has an intrinsic value (e.g. heritage values of specific methods); or
   - certain fishing activities (e.g. catch and release angling) may be allowed to continue because it will have a minimal effect on the stock.

8. **Monitor and evaluate progress**
   SRPs should include a forecast of the expected effects of the proposed measures against which the stock recovery can be assessed. This will facilitate an assessment of the effectiveness of the measures. Project timescales should be developed with interim targets and expected outcomes.

   Monitoring programmes should be maintained or enhanced to permit appropriate evaluation of the progress of the SRP.

   Progress should be assessed against the forecasts of the expected benefits of the different management measures, including where possible trajectories for stock recovery. Objectives should be reviewed at regular intervals during the recovery process.

NASCO Guidelines for incorporating social and economic factors in decisions under the Precautionary Approach: CNL(04)57

The principal objective of NASCO and its Contracting Parties in applying the Precautionary Approach to the conservation and management of Atlantic salmon is to protect the resource and preserve the environments in which it lives. Under the Precautionary Approach priority should be given to conserving the productive capacity of the resource.

These Guidelines form a framework for incorporating social and economic factors into decisions which may affect the wild Atlantic salmon and the environments in which it lives. The guidelines have been developed on the basis that all decisions in relation to:

- management of salmon fisheries;
- habitat protection and restoration;
- aquaculture, introductions and transfers and transgenics;
- stock rebuilding programmes;
- by-catch

will be taken in the context of the Precautionary Approach as adopted by NASCO and its Contracting Parties. In applying these Guidelines there may be a need for expert social and economic advice.

These Guidelines are intended for use by those who have responsibility for managing the wild Atlantic salmon and its environments. However, they are also intended to be used for communicating concerns to other sectors whose proposals could impact on the wild salmon and its environments.

The means by which social and economic factors may be incorporated in decisions under the Precautionary Approach is through socio-economic impact assessments. In these guidelines, the purpose of socio-economic impact assessments is to support and inform decision-making, rather than to provide a mechanism for making the decision.

The impacts from a particular proposal may affect not only the salmon. For example, schemes to improve salmon habitat are likely to benefit wildlife in general. On the other hand, actions designed to benefit the Atlantic salmon (e.g. predator control) may have other environmental costs.

The following steps should be followed in carrying out a socio-economic impact assessment of a proposal that could affect the wild Atlantic salmon and its environment:

1. Describe the proposal, its objective and the options within the relevant legislative framework for achieving the objective.

The proposal should first be considered in the light of the appropriate NASCO agreement on application of the Precautionary Approach. The objective of the proposal should be identified together with an appropriate range of options, within the relevant legislative framework, for achieving that objective. It should be borne in mind that rejecting the proposal is always an option. The options should then be subject to the socio-economic evaluation that follows.

- What is the proposal, its objective and how would it affect the wild Atlantic salmon and the environment in which it lives?
- How does the proposal conform with the appropriate NASCO agreement on application of the Precautionary Approach?
- What is the range of options available, within the relevant legislative framework that would achieve the objectives of the proposal?

2. Assess for each option whether there is a risk of serious or irreversible deleterious impact on the salmon and its environments.

Under the Precautionary Approach, it is the responsibility of the proponent of a proposal to provide all necessary information to allow a thorough assessment of the risks associated with that proposal. There is a need to avoid deleterious impacts that are serious or irreversible. Deleterious impacts that are neither serious nor irreversible should not, however, be ignored and should be subject to evaluation albeit that this may be less rigorous. The impacts of these options on the salmon and its environments should be clearly stated.

- What information has been provided by the proponent of the proposal which will allow for a thorough assessment of the risks to the salmon and its environments?
- What is the impact of each option on the salmon and its environments?
- Do any of the options involve the risk of serious or irreversible damage to the salmon and its environment and what are these risks?

3. Identify the stakeholders and how their behaviour might be affected by each option.

In principle the potential stakeholder constituency should be as wide as possible but subsequent analysis should focus on those stakeholders who will be directly or indirectly affected.

- Who are the stakeholders who will be directly or indirectly affected by each option?
- What is the likely impact of each option on the behaviour of those stakeholders?

4. Assess the changes in social, economic and environmental costs and benefits, both short- and long-term, associated with each option, and determine the economic impacts of those changes. This should be done for each group of stakeholders. The scale of the assessment should be proportionate to the scale of change.

The economic and social values associated with salmon and the different groups of stakeholders associated with these are listed in NASCO Council document CNL(03)18. It is appropriate to consider whether and to what extent these values and each stakeholder group will be affected. It may also be appropriate to consider the economic impacts for local, regional or national economies.

While it may be theoretically possible, though difficult, to put an economic value on all costs and benefits, in practice this may not be feasible. The assessment may therefore include a number of different units of value, monetary and non-monetary. The non-monetary elements of value may be difficult to assess but may be highly significant.

The level of assessment should be proportionate to the scale of change proposed and its likely impact. For major changes, detailed quantitative analysis would be appropriate whereas for smaller changes the analysis would be semi-quantitative or even qualitative.

The time period over which the benefits and costs are being considered should be explicit. The assessment should also indicate how costs and benefits will change over that period. For example, stricter fishing regulations may impose short-term costs but generate economic benefits in the long term.

- What are the key elements of value, monetary and non-monetary, which should be incorporated into the assessments?
- To what extent is the scale of the assessment being conducted proportionate to the scale of the change proposed and the potential impact of the proposal?
- What are the changes in social, economic and environmental costs and benefits, both short- and long-term, associated with each option for each group of stakeholders?
- What are the impacts of those changes for each option and for each group of stakeholders?

5. Rank options and consult with stakeholders as appropriate.

The options should be ranked on the basis of costs and benefits and presented to the stakeholders who would be affected by each of the options.

- What is the ranking of all the options on the basis of costs and benefits?
- What was the outcome of the consultations with stakeholders who will be affected by these ranked options?

6. Review the options, including mitigation measures or compensation where appropriate.

Where these options may have social, economic or environmental costs the possibilities for mitigation or compensation should be explored.

- Where there are social, economic or environmental costs what are the possibilities for mitigation or compensation?

7. Choose option and implement.

On the basis of steps 1-6 above, the option with the highest social, economic and environmental benefits would normally be chosen and implemented, but the decision maker will have the responsibility for assigning weightings to the various costs and benefits.

- Which option has been chosen and was it selected on the basis of it having the highest social, economic and environmental benefits or on some other basis? If the selection was not on the basis of the highest social, economic and environmental benefits, on what basis was it made?
- What is the timescale for implementation?

8. Monitor impacts and consider need for further mitigation.

After implementation of the chosen option its social, economic and environmental impacts should be monitored, proportionate to the scale of the change and its potential impact, to ensure conformity with the Precautionary Approach and the need for mitigation measures considered. Under the Precautionary Approach, where there is a risk of a serious or irreversible deleterious impact, corrective measures should be implemented without delay and should be designed to achieve their purpose promptly.

- What steps have been taken to monitor the social, economic and environmental impacts of the chosen option following its implementation to ensure consistency with the Precautionary Approach?
- What procedures have been developed for introducing corrective measures, in the event that monitoring reveals unanticipated, undesirable impacts?

National Legislation

In 2005, the Department of Communications Marine and Natural Resources continued to promote the policy of quotas on commercial salmon fishing and bag limits on angling to achieve catch reductions as the best instrument available to achieve the shared objective of restoration of salmon stocks. Specific conservation measures included the Wild Salmon and Sea Trout Tagging Scheme Regulations 2005 (S.I. No. 204 of 2005) which set, among other things, the total allowable commercial catch of salmon on a fishery district basis; and the Salmon and Trout Conservation Bye-Law No. 798, 2005, which sets quotas on the recreational catch of salmon and sea trout over 40 cms. Regulations were also introduced increasing the commercial salmon licence fees, dealers licence fees, special local licence fees and salmon rod ordinary licence fees in line with inflation since they were last set in 2004.

The Inland Fisheries (Payment in Lieu of Prosecution) Regulations 2005 (S.I. No. 348 of 2005) provide for a system of on-the-spot fines in the area of inland fisheries. These regulatory measures were introduced on the advice of the National Salmon Commission.

The Control of Fishing for Salmon Order (S.I. No. 70 of 2005) which replaced the Control of Fishing for Salmon Order 1980 and subsequent amendments authorises the issue of commercial salmon fishing licences by Regional Fisheries Boards and prescribes revised criteria under which these licences may be issued. This Order also specifies the maximum numbers of commercial licences that may be issued by Regional Boards. These measures were introduced on the recommendations of the joint National Salmon Commission/National Fisheries Management Executive Working Group. A number of Salmon and Sea Trout Conservation Bye-laws were also introduced in 2005. The term of office of the members of the National Salmon Commission expired during 2005.

A new National Salmon Commission was appointed in September 2005.

Primary Legislation

The primary legislation governing Inland Fisheries is the Fisheries Consolidation Act 1959 (No. 14 of 1959) and was amended by Fisheries (Amendment) Acts in 1962, 1964, 1974, 1976 and 1978. The Fisheries Act, 1980 broader about significant changes in the structure of the Inland fisheries management regime. Further amendments to the Fisheries Acts were made in 1983, 1987, 1991, 1994 and 1995. Since publication of the Salmon Management Task Force report in 1996, the following legislation has been enacted:

Fisheries (Commissions) Act, 1997 No 1 of 1997

Fisheries (Amendment) Act, 1997 No 23 of 1997

Fisheries and Foreshore (Amendment) Act 1998

Fisheries (Amendment) Act, 1999 No 35 of 1999

Fisheries (Amendment) Act, 2000 No 34 of 2000

Secondary Legislation

Fisheries (miscellaneous commercial licences) (Alteration of Duties) Order 2003, S.I. No. 703 of 2003. This Order prescribes the licence fees to be payable in respect of salmon, eel and molluscan shellfish dealers' licences issued or renewed for a period commencing on or after 1 January 2004.

Salmon Rod Ordinary Licences (Alteration of Licence Duties) Order 2003. This order prescribes the licence fees payable in respect of salmon rod ordinary fishing licences including the Foyle Area extension licence issued in respect of a period commencing on or after 1 January 2004.

Wild Salmon and Sea Trout Tagging Scheme Regulations 2004 provides for a scheme of carcass tagging and quotas in each of the 17 fishery districts.

Inland Fisheries Payment in Lieu of Prosecution Regulations 2004 provides for a system of on-the-spot fines in the area of inland fisheries.

Salmon and Sea Trout Caught by Rod and Line (Prohibition on Sale) Order, 2001, S.I. No. 353 of 2001. This Order provides for a prohibition, from 1 January to 31 October in each year, on the sale of salmon or sea trout caught by rod and line.

Conservation of Salmon and Sea Trout Bye-Law No. 794 of 2004 prescribes the opening and closing dates and the weekly close times for commercial salmon and trout fishing in 2004 and affects the use of drift-net fishing, draft-net, snap-net fishing and other engine fishing.

Bye-law No. 786 of 2002 provides for a bag limit of 1 salmon or 1 sea trout over 40 centimetres per angler per day from 1 January to 31 May and a bag limit of 3 fish being either salmon or sea trout over 40 centimetres per angler per day from 1 June to the end of the fishing season subject to a total allowable catch of 20 fish per year.

Control of Fishing for Salmon Order 1980 S.I. No. 360 of 1980 regulates the issue of salmon fishing licences for fishing engines for use in public and private fisheries. This Order authorises the issue of commercial salmon licences by Regional Fisheries Boards and prescribes the criteria under which those licences may be issued. The Order also prescribes the maximum numbers of commercial salmon licences which may be issued by Regional Fisheries Boards.

Conservation Measures Introduced In 2001

- Introduction of mandatory carcass tagging and logbook scheme in 2001 for all sectors of the salmon fishery.
- Ban on the sale of rod-caught fish
- Angling bag limit of 1 per day up to 1st June with 3 fish per day subsequently up to a season limit 20 fish
- TAC of 219,619 salmon imposed for commercial fisheries in 2002
- TAC of 182,000 imposed for commercial salmon fisheries in 2003
- TAC of 161,951 imposed for commercial salmon fisheries in 2004
- TAC to be consistent with the national scientific advice by 2005

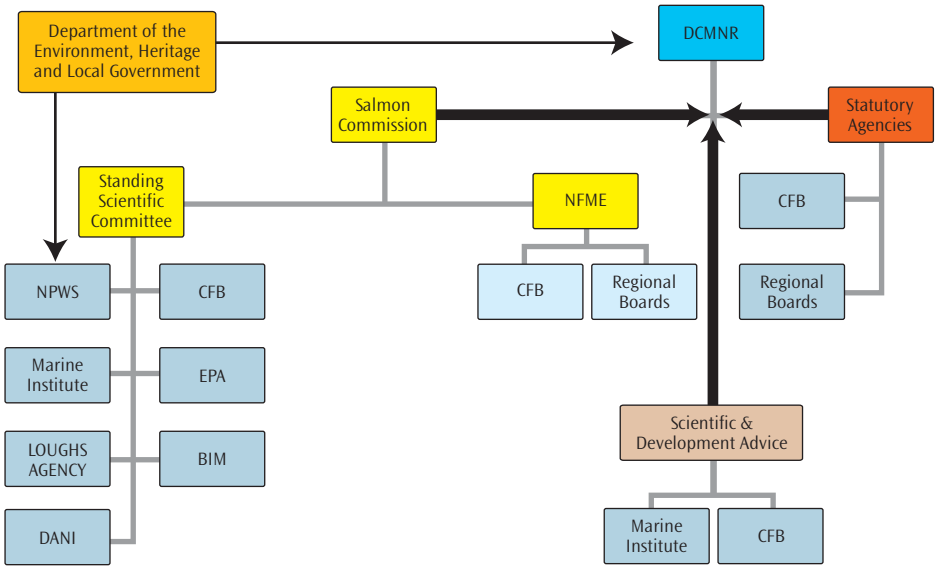
Conservation Measures Introduced In 1997

The new conservation measures introduced in 1997 aimed at reducing fishing effort, have been continued since and are as follows: -

- Cap on public commercial fishing licences for draft-nets and drift-nets
- Area of fishing at sea reduced from 12 to 6 nautical miles
- Drift-net season constrained to 1st June to 31st July
- Draft-net fishery deferred to the 12th of May
- Restriction on night time drift-net fishing (0400 to 2100 hrs only)
- Reduction to 4 days fishing per week
- Monofilament netting legalised for drift-net fishing.

Overview of management structures

National management of wild Atlantic salmon rests with the Department of Communications, Marine and Natural Resources (DCMNR). The Department is aided and advised in its task by a number of government agencies and the National Salmon Commission.



National management of Atlantic Salmon

- Primary responsibility for management of the Ireland's wild salmon fisheries lies with the Department of Communications, Marine and Natural Resources (DCMNR).
- The Department of the Environment, Heritage & Local Government is responsible for nature conservation under National and European law.
- Operating under the aegis of the Department of Communications, Marine and Natural Resources, the Central and Regional Fisheries Boards (CFB/RFB) are the statutory agencies responsible for inland fisheries in Ireland.
- The National Salmon Commission (NSC) assists and advises the Minister in relation to the conservation, management, protection and development of the national salmon resource.
- The work of the National Salmon Commission is supported by a Standing Scientific Committee (SSC).
- The provision of scientific services and inputs is undertaken by a range of bodies under the current regime including the Marine Institute, the Central Fisheries Board, the Regional Fisheries Boards, the Environmental Protection Agency (EPA) and the Electricity Supply Board (ESB). All of these bodies undertake scientific work which is relevant to the conservation and management of freshwater fish stocks and fisheries.
- Operating under the aegis of the Department of the Environment, Heritage & Local Government, the National Parks & Wildlife Service manages the Irish State's nature conservation.

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