Agenda Item 9.1
For Information

Council

CNL(12)34

Information for the
Compilation of a NASCO Implementation Plan
and NASCO Focus Area Reports For Spain 2011

CNL(12)34

INFORMATION FOR THE COMPILATION OF A NASCO IMPLEMENTATION PLAN AND NASCO FOCUS AREA REPORTS FOR SPAIN 2011

(Note: The information about Pais Vaco is not complete: lack of information from Diputación Foral de Guipuzkoa)

1. SALMON MANAGEMENT

1.1. Describe the objectives of the salmon management strategy for the Region and summarise the roles of the management entities involved in implementing it:

GALICIA:

The *Dirección Xeral de Conservación da Natureza* is the regional agency responsible for salmon management in galician rivers. The general objective is to promote and protect diversity and abundance of salmon stocks, maintaining where possible recreational exploitation under sustainable guidelines. In the international reach of the Miño river the responsibility belongs to a joint committee of the governments of Portugal and Spain. In the lower reach of Eo river management responsibility is shared by the asturian and galician regional agencies for environmental protection.

ASTURIAS:

As main management objectives the document includes:

1.Encouraging the sustainable management of stocks, ensuring enough natural reproduction capacity of the species and, where necessary, reinforcing it with potential repopulation and proper management of competing species.
2. Preserving and improving the habitat, especially regarding water quality, and maintenance of river courses, banks and vegetation.
3. Establishing a responsible management and recreational fishing model, which supports the sustainable management of the species.
4. Establishing programs to monitor the fish populations and fishing pressure.
5. Keeping on the research on habitats and populations in areas of their population dynamics, captures, as well as the ecological, genetics and pathology studies.
6. Increasing social awareness to the river habitats, species and their sustainable use.

PAIS VASCO:

Bizkaia:
The main objective is reintroduction the Atlantic salmon in the Lea, Barbadun and Karrantza river basins, initiated at the 90`s of the past century by the local administration (Diputación Foral de Bizkaia).

NAVARRA:

In the autonomous region of Navarra, the entity involved in salmon management is the Department of Environment of the Government of Navarra, and the main objectives of its salmon management strategy are:

1. The conservation of the species.
2. The enhancement and increase of the salmon population stock.
3. Habitat improvement and the increase of the area occupied by salmon.
4. Sustainable use of the resource by the recreational fishery.

CANTABRIA:

There is not Salmon Management Strategy for Cantabria. Atlantic Salmon Management Plan was actually in progress. The responsibilities of the Department of Forestry and Nature Conservation of the Cantabrian Government (Dirección General de Montes y Conservación de la Naturaleza) include Atlantic salmon management and conservation.

1.2. Describe the nature and extent of the salmon resource in the Region (e.g. number and size of stocks, special designations, etc) with a map, and the status of the salmon stocks:

GALICIA

Salmon breeding populations of some relevance exist at least in 9 rivers of the region: Eo, Masma, Ouro, Landro, Mera, Mandeo, Ulla, Lérez and Miño. There is some breeding in the Das Mestas, Xubia, Tambre or Verdugo systems too and maybe in some other rivers. Some individuals may enter other rivers but there is no evidence of spawning in them.

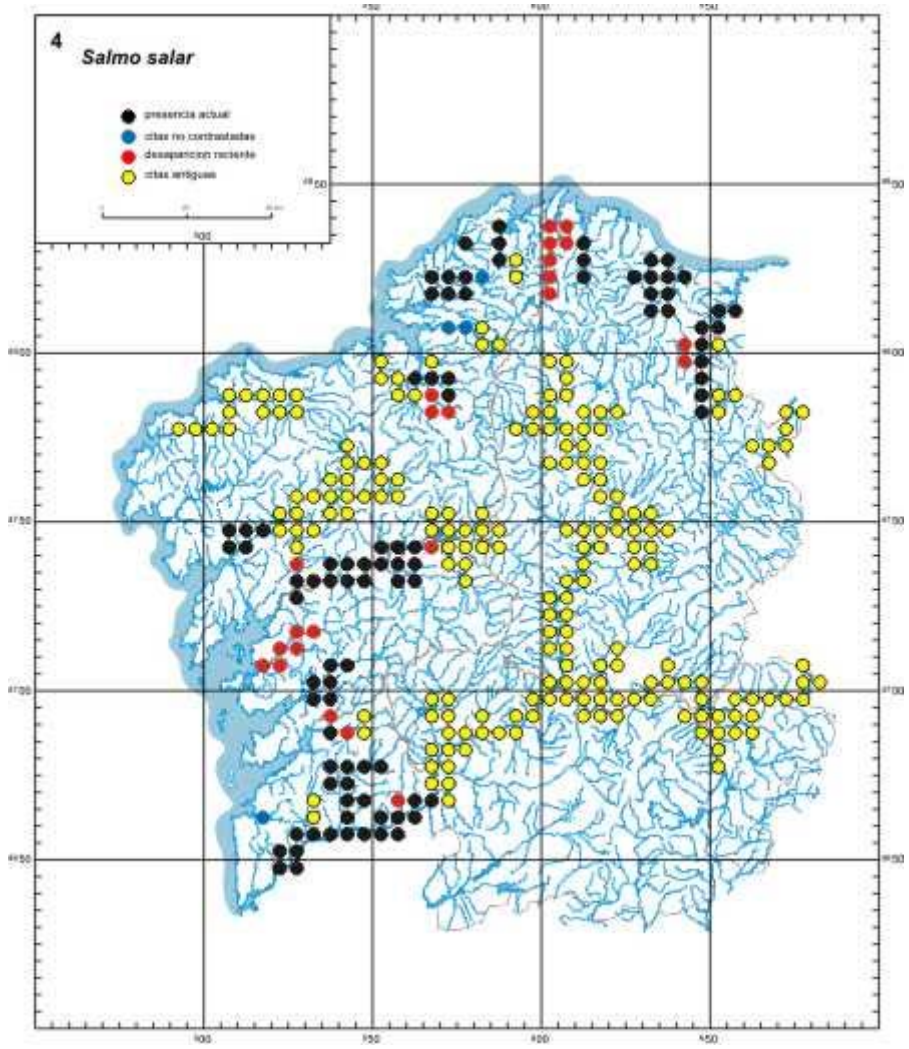
Most populated rivers are Eo and Ulla where adult counts, catches and juvenile inventories let us estimate an average annual run of more than 250 fish over the last 10 years, showing extreme interannual variations (50-800 fish in Eo's automatic counter in the period; 48-390 fish in Ulla's counting station). Masma river may have a 100 salmon run on average, while Lérez and Tea (the main tributary of the Miño) rivers may be on the 50-75 salmon average range. Rivers Ouro, Landro, Mera and Mandeo have salmon runs that definitely do not exceed 50 spawners in best years.

Catches probably do not reflect the status of the populations as there are severe restrictions in most of the rivers of the region.

Salmon populations in Galicia are currently dominated by 2SW fish, with a little number of 1SW fish in most rivers. 3SW fish were co-dominant in catches in the past but nowadays are really scarce. Peak runs use to be in late May/early June. Summer fish other tan grilse are rare, and there is no evidence of any autumn run.

Parr use to stay just a year in freshwater before smelting; less than 10% of the fish are two years smolts and 3 year fish are really unusual. Precocity is quite a rule among male parr.

(See distribution map below. Black dots – current; blue dots – to be confirmed; red dots – recently disappeared; yellow – known original distribution)



ASTURIAS

Rivers:
The asturian hydrographic network is very extensive. It is estimated that the stretches of permanent running waters, colonized by salmonids, are more than 2.500 linear kilometres. Of these, less than 400 kilometres would be accessible stretches for salmon and their habitat, and about a thousand kilometres would be inhabited by other migrating species, the eel.

Hydrographic Basin:
The Atlantic salmon (Salmo Salar) breeds populations in the following rivers basins: Deva, Sella, Narcea (up to dam Calabazos) Nalón (up to Las Caldas, and Cubia and Trubia rivers), Navia (up to prey Arbón), Eo, Esva, Porcía, Bedon, and occasionally, in Purón, Esqueiro and Negro.

Salmon Zone:
All of these rivers have regulated their use regime, and a geographical classification has been made, which involves possible changes in fishing periods, fishing equipment and carvings, depending on whether fishing takes place or not in the salmon zone, where there are time and fish species constraints.

The rivers in which the salmon fishing has been allowed under these rules are Deva and Cares, Sella, Narcea, Nalón, Eo, Navia, Esva y Porcía, although the 2010 legislation has limited it to Deva, Cares, Sella, Narcea - Nalón, and Eo.

Status of salmon stock.
The catches, indication of the state of the stocks, show some recovery in recent years, far from the average annual catches of about 4,000 salmons in the early fifties.

Distributión of catches, 2001-2011.

RIVER	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Deva-Cares	551	320	331	366	410	393	345	369	105	59	260
Narcea-Nalón	1159	604	273	459	910	826	656	467	122	74	336
Sella	753	563	628	628	1100	455	610	528	85	86	340
Esva	198	115	31	31	75	172	115	68	12	4	62
Navia	10	5	1	1	7	11	16	5	1	Banned	Banned
Porcía	0	0	0	4	10	13	13	96	27	Banned	Banned
Eo	135	129	62	62	236	234	194	369	105	24	100

SALMON CATCHS STATISTICS IN ASTURIAS. INCIDENCE (%) OF SALMON OF DIFFERENT SEA AGE IN ASTURIAN CATCHES

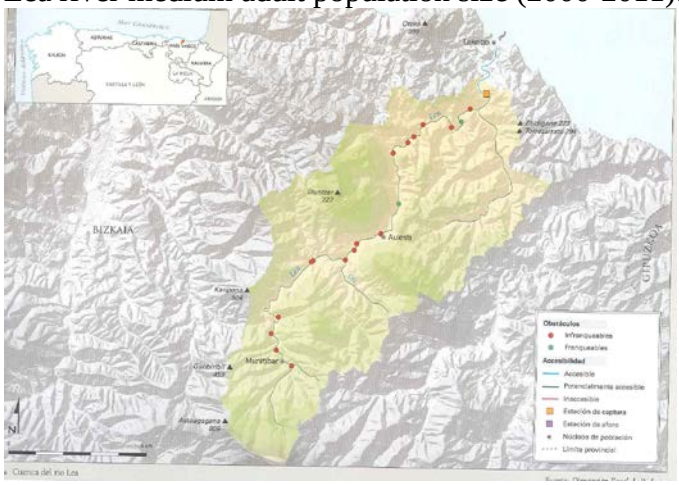
Year	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Total Catch Asturias	2214	1949	1533	462	371	1098
Total weight Asturias	10074	8507	7006	1488	1060	5471
Asturias 1SW-number	335	520	166	106	81	18
Asturias 1SW-weight	879	1365	1367	278	212	
% 1SW	15,8	26,7	10,8	29,8	32,7	1,8

PAIS VASCO:

Bizana:

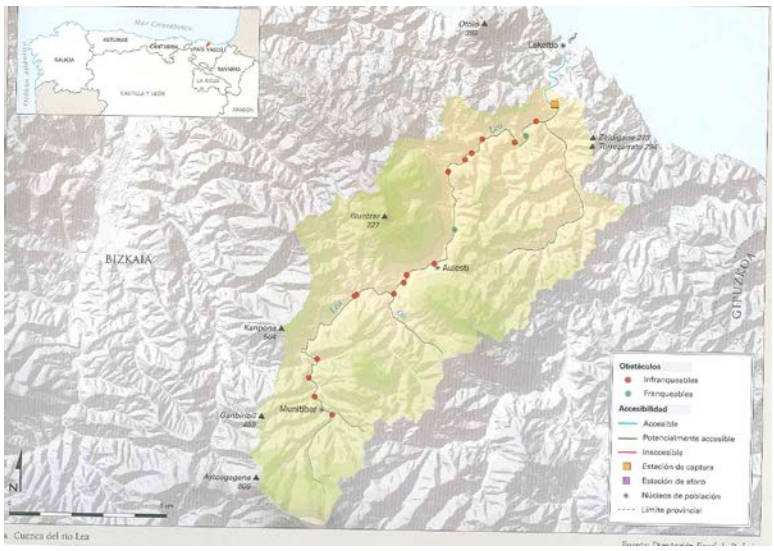
Lea river basin:

Lea river medium adult population size (2000-2011): 5 adult salmon.



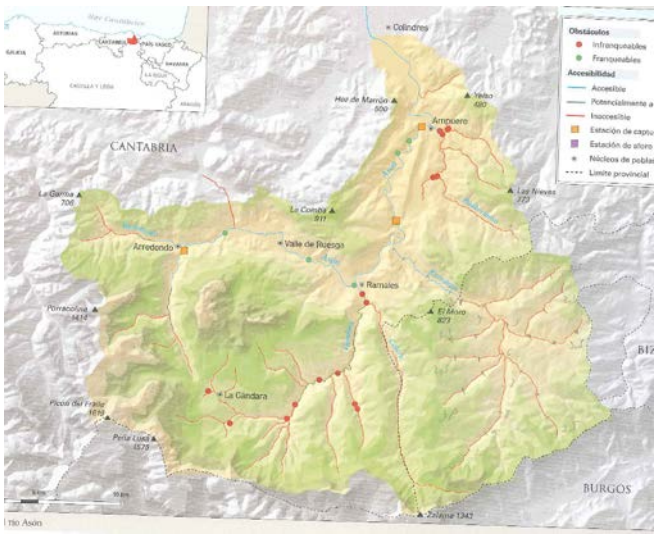
Barbadun river basin:

Barbadun river medium adult population size (2000-2011): 5 adult salmon.



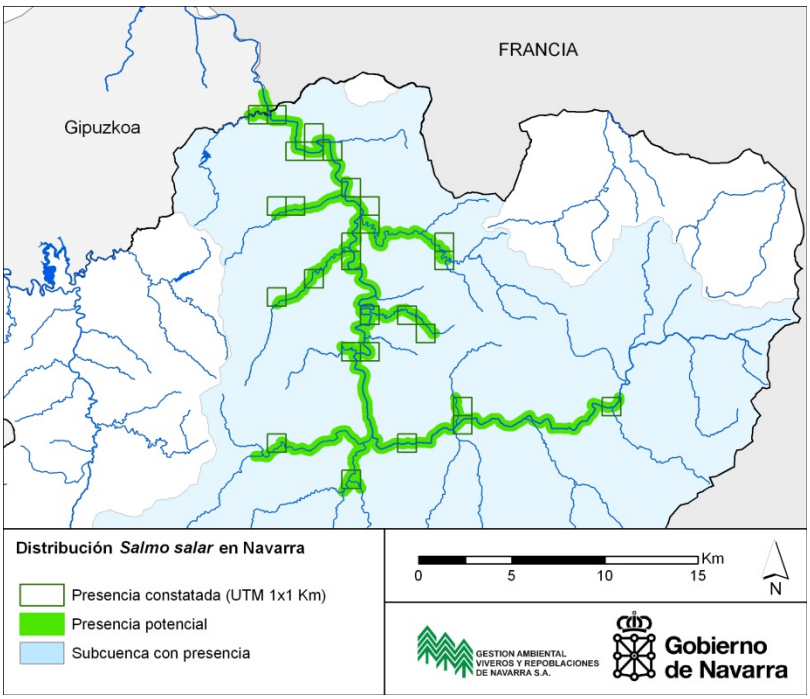
Karrantza river basin:

Karrantza river medium adult population size (2011): 1 adult salmon.



NAVARRA:

The main salmon stock within Navarra is located in the Bidasoa River (see map), where the adult salmon population size vary between 250 and 500 returning adults. The decrease in salmon returns observed in during from the 70s to the 90s have been stopped and stabilized since the middle 90s. In 2011 the number of adults returned has been at least 504 salmons, of which 57% was MSW. But, habitually, the returning adults are nearly 80% grilse (1SW) and the remaining 20% MSW. Recently the proportion is MSW in slowly growing. Anecdotal numbers of previous spawners and 3SW are being reported again in the recent years. The sex ratio within 1SW is nearly 1.5 M : 1 F, and within MSW is 0.6 M : 1 F.



CANTABRIA:

There are four main salmon rivers in Cantabria (Asón, Pas, Nansa and Deva) which support salmon population sizes ranged from 250 to 500 returning adults. Atlantic salmon inhabits also other three rivers (Agüera, Miera and Saja) but with a lower running. All of these rivers are short, usually less than 50 km, and have small catchment areas. They are spate rivers, quick to rise and fall and prone to droughts during summer months when flow rates can decline dramatically.

Cantabrian Atlantic salmon populations have historically declined, particularly over the last decades. Compared to the historical populations, returning adults are now less abundant, have a smaller body size and a lower sea age. They also returned later in the season and face greater difficulties to reach the headwaters, making them less likely to survive until spawning. Barriers to migration, lower water quality and quantity and uncontrolled fisheries can be identified as the main factors responsible for the declines.

The main threats to the species include over exploitation by anglers, excessive water being abstracted for human consumption and hydroelectric production and barriers to migration.

2. SALMON FISHERIES MANAGEMENT

2.1. Describe the salmon fisheries in the Region (i.e. methods, locations, etc):

- **GALICIA**

Angling is the only fishing method allowed in galician rivers. Spinning and bait (prawn and worm) are most popular methods in Galicia; fly fishing is still a minority sport. Catch & release is unusual.

In the international reach of the Miño river still exists a commercial fishery in which some salmon are caught each year. This artisanal fishery is directed mainly toward other species (singularly sea lamprey, a locally high prized species) using trammel-nets (*lampreeira*) or a type of fyke-nets (*butron*) operated from very ancient traps located on the banks called *pesqueiras*.

- **ASTURIAS**

The fishing presents from the forties, singular and even modern aspects of management in Asturias: the prohibition of fishing salmon in river mouth and adjacent coast, as well as the use of nets, the obligation to register the catches, the non-privatization of the fishing rights and the existence of drawings to accede to the fishing preserves.

The abundance of the stock is being assessed by the catches rate, since it`s required to be registered. The catch effort has not changed significantly.

In the last years, the fishing season has been kept constant between late March and early July, and there have not been important changes in the allowed quotas or in the baits. The number of licenses of fishing preserves are stabilized around 8.000, being favoured the fishermen who practices catch and release fishing.

- **PAIS VASCO:**

Bizkaia:
There is no Atlantic salmon catch or fishery in Bizkaia.

- **NAVARRA:**

The only salmon fishing method in Navarre is recreational rod and line in the river from traditional angling spots located along the river banks. In 2011, the yearly Total Authorized Catch (TAC) is 39 returning salmon adults, which in turn results in a nearly 15% of exploitation rate. In 2011, the fishing season starts the first of May to end the 17th of July, or when the TAC is reached.
There is no commercial or industrial exploitation of the stock in the river, the estuary or the sea in the area.

CANTABRIA:

Since 1942, when Spanish Government banned all salmon netting stations, salmon fishery was dedicated entirely to anglers.

Angling is allowed in restricted areas where fishing effort is regulated, and in free zones. Fishing season starts in May and finish in July, and only is allowed to fish salmon in 4 rivers (Asón, Pas, Nansa and Deva), in 2010 a conservative quota was implemented for a total of 100 adult captures, with the exception of River Deva, bordering with Asturias, where asturian regulations (no quota and no restricted areas) prevail.

In 2011 quotas were reviewed and increased to 125 captures because mainly Anglers Associations pressure.

2.2. Provide a summary of the regulations used to control salmon fishing in the Region:

GALICIA

Angling for salmon is allowed only in the most populated rivers (Eo, Masma, Mandeo, Ulla, Lérez, Miño) and just in some restricted beats (*cotos*) in which fishing pressure is strongly controlled and heavily restricted. There are not free-access beats but in a small reach of the Eo river and in the international reach of the Miño river.

Fishing season usually begins late, on the 1st of May looking for the protection of seaward migrants (smolts and kelts) and a lesser pressure over the early spring runners. In the Eo and the Miño rivers it is opened earlier (3rd Sunday of March and 15th of February respectively). Closure is over the 31th of July (earlier in the Miño). There are some days without fishing on the week: Monday and Thursday in general, Monday in Eo and none in the Miño.

Most of the rivers have TACs fixed yearly, except the Eo and the Miño rivers.

ASTURIAS

Asturian Government Law 6/2002, June 18th 2002, on protection of aquatic ecosystems and regulation of continental water fishing.

a) ban the marketing of salmonids and ban salmon fishing in the inner marine waters.

b) Adaptation of the annual fishing regulations:
- Total allowable catches: set in 3 salmons for fisher/year
- Reduction of the fishing season: fishing season with death has been reduced regarding 2009 y 2010.
- Reduction of working days: two days a week without removal. In 2012 will be only one day.
- Fishing methods: promotion of catch and release fly fishing and limitation of natural baits, etc.

⊕ PAIS VASCO:

Bizkaia:
There is no Atlantic salmon catch or fishery in Bizkaia.

⊕ NAVARRA:

Each fisherman is allowed to catch only one salmon per day, using a single rod.
Every catch have to be immediately declared to the Rangers and a certificate is given.

⊕ CANTABRIA:

- Rod and line only.
- Creel: one salmon per day.
- No angling days: Monday and Thursday.
- Quotas: 125 adult captures.
- Official logging of each salmon caught.

2.3. What future actions are planned to control salmon fishing in order to restore stocks?

⊕ GALICIA

(This information has not been received from this Autonomus Region)

⊕ ASTURIAS

- Establishment of permanent preserves in every basin (fishing refuge) and increased surveillance. Permanent closed of certain fishing preserves for use as a refuge for breeding.

- Fishing methods: Promotion of catch and release fishing and limitation of natural baits.

- To promote the collection of information and control over the impact of predatory species, especially the great cormorant, on salmonid populations.

- To control the exotic species of fishes, and Environmental education program about exotic species.

- Total allowable catches will be established considering the status of the salmon stock and studies.

- Total allowable catches will be established for river basins, zones or management units.

- To promote the use of fishing methods, baits, etc., which generate the least possible damage to the released specimens.

- In salmon areas, the use of harmful baits for fry will be restricted.

- **PAIS VASCO:**

Bizkaia:
There is no Atlantic salmon catch or fishery in Bizkaia.

- **NAVARRA:**

To reinforce measures in order to protect the MSW fraction of the stock.
The establishment of the yearly TAC in relation to reproduction and escapement objectives.
To promote salmon Catch-and-Release fishing.

- **CANTABRIA:**

None.

3. HABITAT RESTORATION, PROTECTION AND ENHANCEMENT

3.1. Do you have a plan for the protection, restoration, and enhancement of salmon habitat? If so provide an outline:

- **GALICIA**

Enhancement of accessibility plans have been operating since early 90s, involving removal of dams, building or fish-ladders or improvement of older ones and the regulation of flows under reservoirs or hydro-power dams. Application of the WFD encourages water quality restoration in salmon rivers.

- **ASTURIAS**

The Government of the Principality of Asturias has developed a draft plan for managing populations to promote sustainable fishing and preserve and improve the habitat.

This plan encourages the water quality restoration according with Water Framework Directive, removing obstacles in the rivers and improve of river banks and spawn areas.

- **PAIS VASCO:**

Bizkaia:
There is not an specific plan for salmon, however there are many actions taken like fish pass building, dam demolition, water quality improvement, etc. that benefits salmon populations.

- **NAVARRA:**

There is a plan currently underway to make more permeable the existing barriers to migration in order to favour fluvial continuity.

- **CANTABRIA:**

There is not a specific plan for salmon, however Atlantic Salmon Management Plan is actually in progress, in the terms commented in question 1.1.

3.2. Provide a summary of the status of salmon habitat in the rivers in the Region:

- **GALICIA**

With the exception of a few systems salmon is presently restricted to the lower reach of main rivers; headwaters and tributaries are no longer available to the species in most systems and therefore problems arise in respect of water quality, siltation, scarcity of adequate areas for spawning/breeding and a critically high temperature regime.

Many sections of salmon rivers are affected by operating hydropower stations, with problems related with reduced flows in the small HP stations or extreme variations in flows in larger reservoirs.

- **ASTURIAS**

(This information has not been received from this Autonomus Region)

- **PAIS VASCO:**

Bizkaia:
In the past water quality was one of the most limiting factors. Nowadays accessibility problems (dams) and hydroelectric uses are the main limiting factors.

- **NAVARRA:**

During the last decade, the efforts to reduce the upstream migration barriers have significantly improved the salmon accessibility of the Bidasoa River basin upstream reaches. Briefly, in 2001 the Bidasoa main course river length in Navarra that was accessible for salmon was 2.4 km (4%) whilst additional 68 km (17%) were accessible with difficulties. By the end of 2011, 43.7 km (71.9%) were accessible. Similarly, from only 4.7 km (1.5%) of tributaries accessible in 2001, nearly 210.1 km (61.5%) were accessible and additional 23.4 km (6.8%) were accessible with difficulties by the end of 2011.

- **CANTABRIA:**

Important changes in land-use have in turn affected the quality of the salmon habitat. Over 82% of the original river length accessible to salmon has been lost. Dams, weirs and other artificial obstacles are the main reason for losses in accessibility. Even today, the density of artificial obstacles remains high (0.46 obstacles per km). Cattle pressure is also high in some river drainages, and the estimated daily load of waste products can sometimes exceed the capacity of drainage systems to disperse nutrients without major ecological effect. Other disturbance factors of particular significance include excessive abstraction and flow reduction, the channelization of rivers, industrial pollution, rapid

flow variations caused by hydroelectric power stations, and the high density of roads, tracks and fords that cross salmon streams.

3.3. What co-ordination is there between relevant bodies to exchange information on habitat issues and share best management practice?

- **GALICIA**

(This information has not been received from this Autonomus Region)

- **ASTURIAS**

The coordination with river basin organizations (Cantabrico Hydrographic Confederation) for performances in the river environment and defending the public domain is clear and real.

Will promote the inclusion of corrective measures to establish in operations or projects subject to environmental impact assessment or draft environmental impact assessment for the improvement the quality of river habitat. Compensatory measures or environmental monitoring plans for monitoring environmental evolution and population after the end of the project may be established.

- **PAIS VASCO:**

Bizkaia:
Diputacion Foral de Bizkaia-Bizkaiko Foru Aldundia, responsible for the salmon reintroduction and monitoring program, is in coordination with CHC (Confederación Hidrográfica del Cantábrico) and URA (Agencia Vasca del Agua-Ur Agentzia) in many items as river permeability.

- **NAVARRA:**

The Government of Navarra closely work in coordination with Confederación Hidrográfica del Cantábrico –the Spanish Government agency for water management in the area– in the plan to reduce the upstream migration barriers for salmon.

- **CANTABRIA:**

Since 2001 all the regional governments with salmon populations create the “Spanish Salmon Working Group” that represents a joint effort to make an updated assessment of the Iberian salmon rivers and the conservation status of native salmon populations.

3.4. What activities are underway or planned to improve salmon habitat?

- **GALICIA**

(This information has not been received from this Autonomus Region)

- **ASTURIAS**

The recovery of water quality is being promoted, an aspect that is into relation with the objectives of the Water Framework Directive, to achieve a good ecological water status and the creation of a Monitoring Network quality by biological parameters as the fish.
To achieve this objective of good ecological status, sanitation programs in river basins exists as well as actions to prevent diffuse pollution by agricultural and livestock or industrial waste.

The removal of those obstacles which involve a river impact by populations fragmentación is being promoted too.

Asturian Government Law 6/2002, June 18th 2002, on protection of aquatic ecosystems and regulation of continental water fishing, specifies the actions to facilitate the transit of this specie:

> Article 12 – Fish ladder, ways and grids:
> 1. Owners or concessionaire of harnessing water resources, under the conditions established by regulation, are required to equip their facilities with fish ladders and ways to ensure upward and downward migration of species.

There is an inventory of those barriers that block migration of species.

- **PAIS VASCO:**

Bizkaia:
(This information has not been received from this Autonomus Region)

- **NAVARRA:**

As mentioned in the points 3.1 to 3.3, there is a plan currently underway to make more permeable the existing barriers to migration in order to favour fluvial continuity.

- **CANTABRIA:**

None.

4. AQUACULTURE AND MOVEMENTS OF FISH

4.1. Provide a summary of aquaculture, introductions and transfers (including stocking) activities in your Region:

- **GALICIA**

Salmon aquaculture in Galicia disappeared 15 years ago but a Norwegian project on sea-pen farming has restarted in the Arousa Ría (the Ulla's mouth) recently. Last year the experimental pens were moved to the nearby Muros Ría (Tambre's mouth). The experimental design will be completed in March 2012, with an expected production of 5.000 Tn. It is expected to rise 40.000 Tn of fresh salmon in next future.

Only the regional government operate other salmon hatcheries in Galicia, just for stocking purposes. Brood fish are exclusively from local origin. Stocking in the original river of parents is heavily encouraged though in some rivers with heavily depleted populations and were no broodfish are available stocking of mixed origin may be carried out (but always from nearby rivers).

Salmon stocking in galician rivers in recent years may have been in the range of 300.000-550.000 fish, mainly summer or autumn parr.

- **ASTURIAS**

There is no commercial salmon aquaculture. Fish farming is done only for restocking, in address to offset the decrease of salmon stocks.

- **PAIS VASCO:**

Bizkaia:
Hatchery origin fry, parr and smolt stocking every year. Adult captured in traps in Lea and Barbadun rivers are the breeder stock for hatchery. Production is about 25.000-35.000 eggs.

- **NAVARRA:**

There is only one fish hatchery owned and managed by the Government of Navarra within the Bidasoa River Basin producing native brown trout and salmon for stocking of the Bidasoa River. Both brown trout and salmon stocks are of native, wild origin. Every winter season a proportion of returning adults are captured from the Bidasoa River to use as parental stock in this hatchery. Additionally, efforts for the survival of previous spawners are made in order to use them in successive reproductions. The annual production in 2011 has been 154,000 eggs that finally have resulted in 104,000 parrs to stock.
There is only one commercial aquaculture facility in the Bidasoa River basin that produces rainbow trout.

- **CANTABRIA:**

There is only one hatchery managed by the Regional Government producing native salmon for stocking. Salmon juveniles for stocking have wild origin and half of which originate from the mending of kelts and the rearing of female parr in freshwater until maturity. Annual production is about 500000 ova.

4.2. Describe measures taken to limit the impact of freshwater aquaculture on rivers and wild fish stocks:

- **GALICIA**

(This information has not been received from this Autonomus Region)

- **ASTURIAS**

For limiting impacts, the Administration of the Principality of Asturias, only restocks the waters with healthy fishes and native varieties.

- **PAIS VASCO:**

Bizkaia:
(This information has not been received from this Autonomus Region)

- **NAVARRA:**

There is no commercial freshwater salmon aquaculture in the Bidasoa River basin.

- **CANTABRIA:**

N/A

4.3. Describe the procedures used to regulate or manage stocking of salmonids or other species

- **GALICIA**

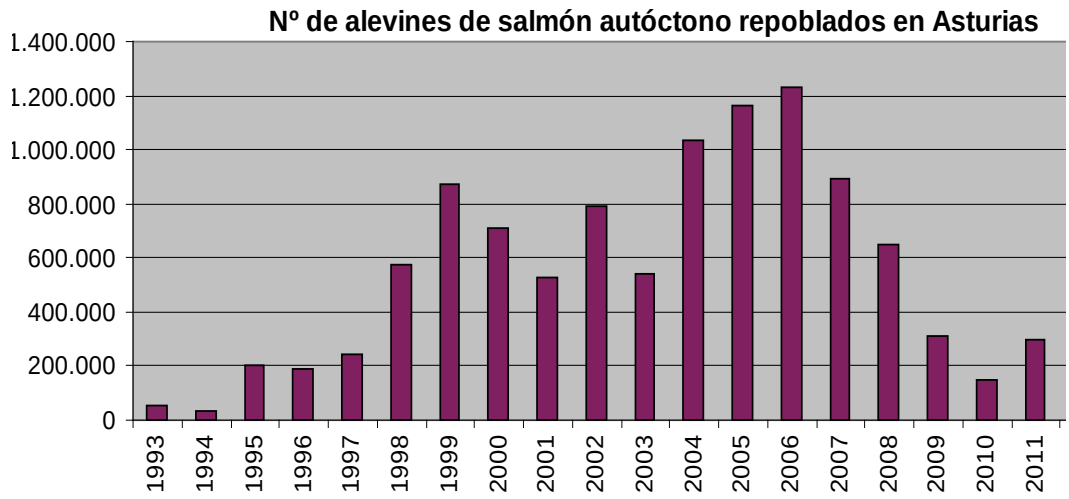
(This information has not been received from this Autonomus Region)

- **ASTURIAS**

Fish monitoring is carried out in fish farms for restocking, with health and genetic analytical.
In this respect all I+D+i institution have sampling and analytical plans for disease control according to Directive 2006/88/EC, Council of 24 October 2006 on animal health requirements for animals and aquaculture products, and the prevention and control of certain diseases transposed by Royal Decree 1614/2008.

There is an identification program that focuses specifically on the notifiable viral diseases, VHS and IHN as well as IPN and Gyrodactylus without eliminating the most common and harmful bacteria.

Stocking effort in Asturian rivers (1993-2011)



- **PAIS VASCO:**

Bizkaia:
All management actions including artificial reproduction, rearing and stocking of salmon are developed by Diputación Foral de Bikaia.

- **NAVARRA:**

All management actions including artificial reproduction, rearing and stocking of salmon (and brown trout) in Navarra are made by the Department of Environment of the Government of Navarra.

- **CANTABRIA:**

Stocking is not allowed in cantabrian rivers.

4.4. What future actions are planned to limit adverse effects of aquaculture or stocking activities?

- **GALICIA**

(This information has not been received from this Autonomus Region)

- **ASTURIAS**

(This information has not been received from this Autonomus Region)

- **PAIS VASCO:**

Bizkaia:
Stocking effort is quite low, so at short term it will continue in the future.

NAVARRA:

As the area occupied by the salmon and its wild production is improved within the Bidasoa River basin, the stocking efforts are planned to decrease accordingly.

CANTABRIA:

N/A

5. MONITORING

5.1. Provide a summary of activities to monitor the status of stocks and the effectiveness of management measures.

GALICIA

Catches are recorded and heavily controlled since 1949. Electrofishing surveys for parr have been carried out each September in most rivers since 1996. There are automatic counters in operation in some rivers (Eo, Masma, Ouro and Landro and another one in Mandeo river under evaluation) and some other counting traps (hand-operated) in Ulla and Lérez rivers.

ASTURIAS

Besides fishing data, salmon management is based on data obtained from fish counters or capture stations. There is a plan to increase the number of capture stations and to obtain data from fish counters, being the current situation and objectives as follows:

1 Caño Station (Sella):

Remodeled between 1997-2000, with fish counter installed since 2003 to 2005. In 2010 is installed again. Count of breedings in capture station 1998-2011.

2 Cares Capture Station Cares in Niserias:

Remodeled in 1997, fish counter is installed in 2010. Count of breedings in capture station 2005-2011.

3. Eo Station, Viña Pé -bordering Galicia-

Its renovation was completed in 2001. Spawning management in this river is shared with Galicia. Fish counter.

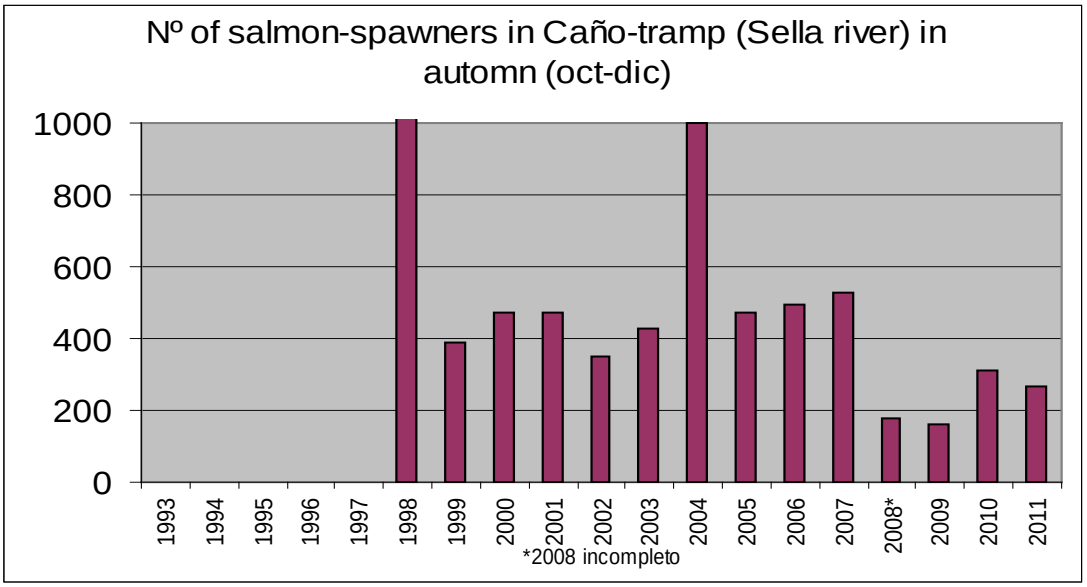
4. Esva Station on Casielles

Count of breedings in capture station in October.

5. Nalón Valduno capture Stations:

Capture stations should be installed.

Data provided by the Sella capture station :



Monitoring the effectiveness of restocking: Percentage of restocking returns: Since 1993 to 2008 about 1.250.000 fish were tagged, 650 adult fish tagged returns are obtained. That means that the rate is 0,52 per thousand recovered specimens from catched or autumn fishes. This rate could be multiplied at least per 3, if we estimate that catched fish rate for total. If we apply this in Sella river, the rate is estimated at 0,54 per thousand.

We are working since 2010 to determine population size and the percentage of salmon that come from repopulation by genetic studies.

Other research activities:

The research applied to conservation of trout stock and their habitat is being promoted, and in particular by advancing in the general study on the species, and issues related to their stock dynamics and ecology.

It’s necessary to encourage coordination among researchers, developing protocols and encouraging research projects under colaboration agreements with Oviedo University and other research centers.

- **PAIS VASCO:**

Bizkaia:

- Adult monitoring by traps.
- Spawning activity, red counting.
- Salmon hatchery with Lea, Barbadun and Karrantza stock.
- Salmon fry, parr and smolt stocking with Lea, Barbadun and Karranmtza stock.
- Juvenil monitoring by electrofishing

- **NAVARRA:**

1. Control of the catches in the recreational fishery;
2. Monitoring of the returning adults in the upriver migration trap;
3. Monitoring of juvenile production by means of semi-quantitative electrofishing surveys;
4. Reed count surveys;
5. It is planned the installation of a rotary screw trap to monitor the downstream migration of smolts;
6. It is planned the acquisition and installation of a Vaki RiverWatcher to non-intrusively monitor the adult returns.

- **CANTABRIA:**

1.- EF autumn parr surveys.
2.- Data collected in angling fishery.