

**NASCO EIGHTEENTH ANNUAL MEETING
MONDARIZ, SPAIN, JUNE 2001**

Major Provisions in Icelandic Laws and Regulations

by

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**Directorate of Freshwater Fisheries
Iceland**

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**Special Liaison Meeting to Review Measures to Minimise Impacts of
Aquaculture on Wild Salmon Stocks**

Árni Ísaksson:

Major Provisions in Icelandic Laws and Regulations

Presentation by Iceland

**Section II. General measures
Licensing and Monitoring**

Laws and Regulation Regarding Aquaculture

Acts

- Act no 73/1997 on Planning and Building
- Act no 106/2000 on Environmental Impact Assessment
- Act no 7/1998 on Environmental and Food Control
- Act no 44/1999 on Nature Conservation
- Act no 55/1998 on Treatment, Production and Distribution of Marine Products
- Act no 76/1970 on Salmonid Fisheries with later amendments. A revision of the Aquaculture section of the Act passed through Parliament in late May 2001.

Regulations

- Regulation no 48/1994 on Pollution Control
- Regulation no 597/1989 on Disease Prevention and Health Inspection of Aquaculture Facilities.
- Regulation no 105/2000 on Transfer and Release of Salmonids and Prevention of Disease and Genetic interaction
- Regulation no 226/2001 specifying Areas where Farming of Fertile Salmon is Prohibited.

Environmental Impact Assessments

- Marine Fish Farms under 200 ton production exempt from Environmental Impact Statement (EIS).
- Marine Fish Farms exceeding 200 ton production subject to evaluation and decree by the Icelandic Planning Agency regarding the need for an EIS.
- Freshwater Fish Farms under 20 ton production exempt from EIS.
- Freshwater Fish Farms exceeding 20 ton production subject to evaluation and decree by the Icelandic Planning Agency regarding the need for EIS.

Licensing System

- Split into an “Environmental Licence” dealing with pollution control and an “Operating Licence” dealing with ecological, genetical and disease issues.
- “Environmental Licences” either by the Environmental and Food Agency or communal Health Inspection Authorities.
- “Operating Licence” by the Directorate of Freshwater Fisheries.

Environmental Licences

- Pertains mostly to pollution, harmful chemicals, distribution of suspended solids and other local environmental issues.
- Environmental licensing of Marine Fish Farms exceeding a production of 200 tonnes by the Environmental and Food Agency.
- Environmental licensing of Freshwater Fish Farms exceeding a production of 20 tonnes by the Environmental and Food Agency.
- Environmental licensing of stations with a smaller production as well as ranching stations by communal Health Inspection Authorities.

Environmental Licence Specifications(Act no.7/1998 on Environmental and Food control)

- Issued by the Environmental and Food Agency for major fish farms (>200 tonnes)
- Section 1 specifies the production volume, tonnage produced and general requirement concerning waste treatment.
- Section 2 specifies criteria concerning environmental standards as well as pollution control.
- Section 3 specifies control and monitoring visits and relevant fees.
- Coast-based salmon farms must discharge wastewater far enough to ensure rapid dilution of the effluent.
- Marine cage farms must conform to harbour rules, be clearly marked and fitted with caution lights if necessary.
- Marine Farms must collect environmental information and run monitoring routines to ensure a healthy environment.
- The farm must fulfil environmental criteria according to Pollution Control Regulation.
- The farm must fulfil environmental criteria with respect to use of antibiotics and disinfectants.

Operating Licence Specifications (Salmonid Fisheries Act no 76/1970 with later amendments)

- Pertains to ecological, parasitological, disease and genetic interactions
- Issued by the Directorate of Freshwater Fisheries after consulting the Fish Disease Committee, the Fish Disease Veterinarian, the Freshwater Fisheries Committee as well as the Institute of Freshwater Fisheries regarding genetic and ecological interactions.
- An EIS reports, if required, must be available
- Applicant must provide a valid Environmental Licence.
- Applicant is expected to provide satisfactory information on potential threats to wild salmonid stocks as a result of the proposed aquaculture activity. That failing he can be obligated to cost additional research related to ecological, parasitic, disease and genetic threats prior to processing of application.
- If application is satisfactory, the Directorate issues an operating licence for a 5 year period.

Validation of the Operating Licence

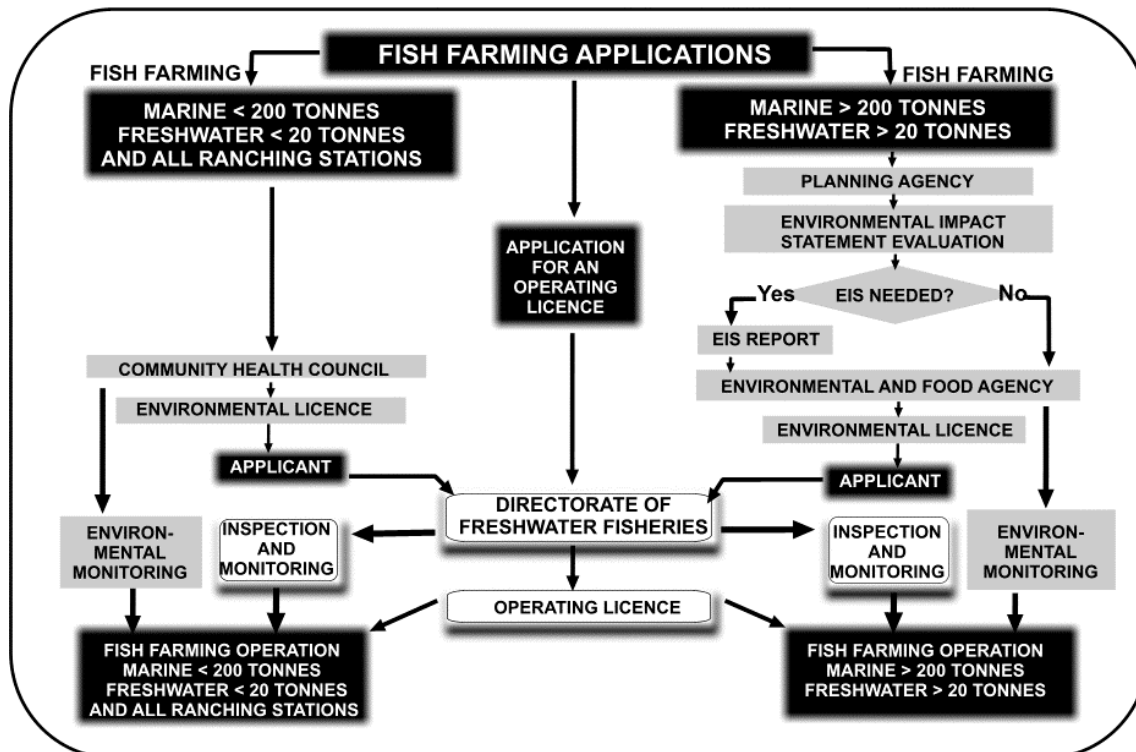
- The Operating Licence becomes valid after the aquaculture facility has been assessed and approved by the Directorate and the Office of the Fish Disease Veterinarian.
- The Operating Licence shall contain specifications regarding the species being reared, total production allowed and any precautionary conditions related to the escape of fish from cages and their recovery.

- The Operating Licence may impose financial obligations upon the applicant regarding tagging, surveillance and additional research related to disease, parasitic as well as genetic threats to wild salmonid stocks locally and in nearby areas.
- The Operating Licence is non-transferable and can not be leased or pawned.
- The operator of an aquaculture facility must report accidental releases to the Directorate of Freshwater Fisheries.

Surveillance and Monitoring of Fish Farms

- Local environmental factors and sea-cage integrity are monitored and inspected by the Environmental Agency and communal Health Inspection Authorities.
- General Fish Health, including fish diseases and parasitic infections are monitored and inspected by the Office of the Fish Disease Veterinarian, which also issues health certificates.
- Overall technical and rearing performance as well as compliance with operating licence requirements is monitored and inspected by the Directorate of Freshwater Fisheries.
- Aquaculture facilities are required to keep a diary or a log book, recording daily events such as health status, feeding regime, fish transfers and various other factors.
- Marine fish farms will be inspected at least twice a year, landbased farms once a year.
- All hatcheries and fish farms must report annually to the Directorate regarding total production, origin of brood stock, feed use, annual sales and other relevant issues.

ICELANDIC FISH FARMING AND RANCHING LICENSING AND MONITORING SYSTEM



Section III. Transfers and Release

Measures to Minimize Genetic, Parasitic and Disease Interactions (Salmonid Fisheries Act no 76/1970 with later amendments)

- River association intending to perform enhancement through smolt or fry releases or maintenance of angling through smolt releases must make a 5 year Enhancement Plan for the salmon river, which is subject to approval of the Directorate of Freshwater Fisheries.
- River associations intending to perform enhancement must get a permit for collecting broodfish from the Directorate.
- Local stocks must be used for enhancement in salmon rivers. Exemption for the use of a salmon stock from a similar habitat can be granted by the Directorate following an environmental evaluation. Such exemptions, however, are only granted in accordance with the 5 year Enhancement Plan.
- Transfer of wild, ranched and reared salmonids into a natural watershed for angling is prohibited. Exemption can be granted by the Directorate after receiving comments from the Fish Disease Veterinarian on possible disease interactions and from the Institute of Freshwater Fisheries on possible ecological and genetic interactions.
- Transfer of species not-specified in the respective operating licences between rearing and ranching stations is prohibited as well as the transfer of life fish and their eggs between watersheds. The Directorate can grant an exemption upon receiving comments from the Fish Disease Veterinary officer, the Fish Disease Committee and the Institute of Freshwater Fisheries regarding possible genetic interactions.
- The use of selectively bred salmon strain shall be confined to salmon farms and its use for enhancement and ranching is prohibited. The Directorate can grant a research organization an exemption for small scale experiments after consulting the Institute of Freshwater Fisheries.

Measures to Minimize Genetic, Parasitic and Disease Interactions (Regulation no 105/2000 on Transfer and Release of Salmonids and Prevention of Disease and Genetic interaction)

Transfer and Release of Salmon of Wild Origin

- Transfer of wild salmonids and their eggs between watersheds is subject to approval by the Directorate of Freshwater Fisheries. Wild broodfish must be slaughtered and monitored for disease according to specifications from the Fish Disease Committee.
- The Directorate can grant a permission for the use of non-local stocks in rivers with none or small stocks of salmon provided that the effects on nearby rivers are considered negligible.
- The Directorate can also permit transfer of wild salmonids into sea cages and landbased rearing stations with the approval of the Fish Disease Committee.

Transfer and Release of Salmon of Reared and Ranched Origin

- Ranching stations can use ranching stocks from approved facilities.
- Reared brood fish, disinfected eggs and juveniles of reared origin can be transferred freely between rearing facilities as long as it conforms to disease regulations.
- Transfer to stations with runoff into rivers must, however, be confined to the species found in the watershed and the approval of the Directorate is needed for the introduction of other species.

- The release of salmonids of foreign origin for enhancement or ranching is prohibited. The Directorate can, however, grant an exemption to a research organization for a period of two years with the approval of the Fish Disease Committee and subject to the tagging of all fish released.

Reciprocal Distance between Aquaculture Units and their Distance from Salmon Rivers

- Minimum distance from sea-cages to rivers with an annual catch exceeding 100 salmon is 5 km.
- Minimum distance from sea-cages to rivers with an annual catch exceeding 500 salmon is 15 km. The distance can be shortened to 5 km. if sterile salmon are being used.
- Minimum distance between sea-cages and from those to land-based operations or ranching stations shall be 2 km.
- A conditional 2 year exemption can be granted by the Directorate with the approval of the Fish Disease Committee.

Section IV. Setting of Regulatory Measures and Aquaculture Zones Salmonid Fisheries Act no.76/1970 with later amendments

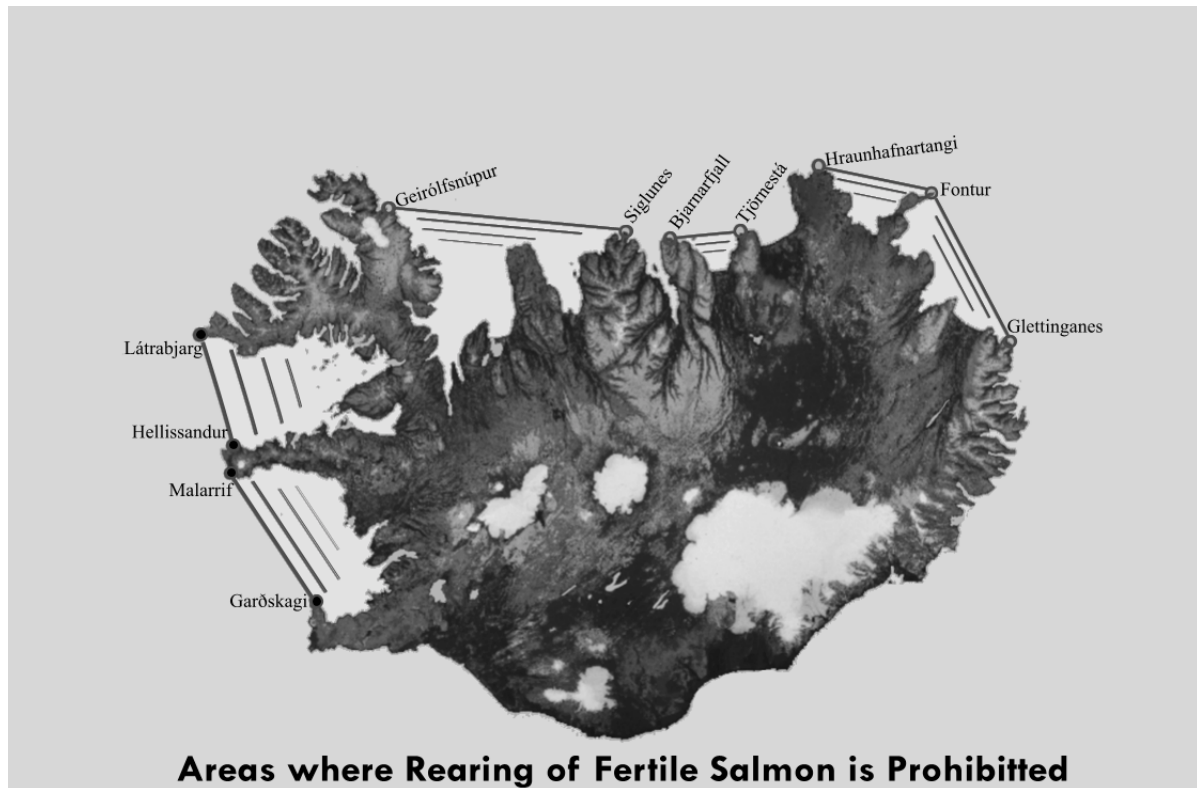
Regulatory Measures

The Ministry of Agriculture can set regulatory measures covering the following items:

- The Contents and the Issuing of an Operating licence.
- Microtagging of all or part of the smolts used in sea-cages
- The use of Sterile salmon in Aquaculture
- The use of Feed in salmonid farms.
- Maintenance of Farming Facilities including sea-cages.
- Monitoring, Inspection and Assessment of salmonid farms.
- Transfer of Salmonids between salmonid farms and ranching stations.
- Transfer of Wild Salmonids and their eggs between watersheds.
- Wild salmon Coastal Protection Areas, where salmon farms are prohibited
- Setting up of specific Aquaculture Areas.
- Setting up of a maximum Production Quota in Aquaculture areas

Aquaculture Zones and Salmon Protection Areas

- Protection areas can be set up to prevent disease, parasitic and genetic interaction through a regulatory measure.
- Specific aquaculture areas can be set up through a regulatory measure.
- Total production quota in an aquaculture area can be specified through a regulatory measure.
- A regulatory measure has been set, which prohibits rearing of fertile salmon in sea cages in certain fjords and bays in Iceland (Regulatory measure no 226/2001)
- A Fish Farming Committee composed of Administrative and Scientific personell from the Agricultural and Marine Departments has been recently established to coordinate fish farming activities of salmonids and marine species in various areas.



Section V. Control of Fish Diseases and Zoning

Disease Legislation and Authorities Responsible for Surveillance and Disease Control.

- The Salmonid Fisheries Act, no. 76/1970 was amended and extended in 1970, which provided the Fish Disease Enforcing Authorities with a wide range of statutory powers, and established certain legal obligations for river owners, fish farmers and fish importers.
- Fish Disease Committee, which assists the Minister of Agriculture in matters related to prevention and control fish diseases, was established at that time. It is headed by the Chief Veterinary Officer but otherwise comprised of the Director of Freshwater Fisheries and the Director of the Institute for Experimental Pathology of Animals.
- In 1985 a new law (no. 61/1985) about a “Veterinary Officer for Fish Diseases”, was brought into force in response to changing fish disease risks, as fish farming was expanding and knowledge of such disease increasing. This law was followed by a new regulation in 1986 (no. 403/1986) concerning measures to prevent and control fish diseases and provide health inspection at fish farms.
- In 1986 a new law was enacted establishing the Fish Disease Laboratory as a separate department of the Institute for Experimental Pathology.

Natural Salmonid Species and the Legislation Concerning their Health Control.

- There are three natural and one imported salmonid species in Iceland; that is Atlantic salmon (*Salmo salar* L.), Brown trout (*Salmo trutta*), Arctic char (*Salvelinus alpinus*) and rainbow trout (*Onchorhynchus mykiss*). There are both sea-run and stationary populations of trout and char.
- The fishing rights are private and all the owners on a river system are obliged to form a "River Association, which manages the cultivation and restocking projects.
- There are 45 major salmon rivers around Iceland, of which many are following a cultivation plan on restocking. Since 1985 there is also a compulsory monitoring program for fish diseases regarding wild brood fish, in the same manner as for the farmed salmonids.

System of Disease Monitoring, Health Status and Implementation of International Regulations

- Since 1985 all fish farms in Iceland have been under obligatory and regular fish health surveillance.
- From 1993 Iceland has followed the European Union (EU) regulations and used the requirements layed down in Council Directive 91/67/EEC and the disease control measures provided for in Directive 93/53/EEC as a guidelines in the national fish health monitoring system.
- The sampling and diagnostic procedures as given in Commission Decision 96/240/EEC were followed.
- The fish health status in Icelandic aquaculture in general is very promising. The main reasons for that is presumed to be the geographical isolation of the country, strict import policy, secure water supply for the farms and effective fish health surveillance.

Fish Diseases Occurring on Fish Farms in Iceland during the last Decade:

Fish disease:	Annual incidence of new outbreaks / no. of farms										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Atyp. furunculosis	2*	1*	3*	1*	0	0	0	1*	0	0	0
BKD	1*	0	1*	1 ^{o*}	4*	1*	0	0	0	0	0
Winter ulcers	1*	0	2*	0	1*	0	0	0	0	0	0
Cold water vibriosis	0	0	0	1*	0	0	0	0	1*	0	0

* On growing farm - land based (salinity: 10 - 25‰)
 · On growing farm - sea cages (full salinity)
 ° Hatchery/smolt farm (fresh water)

Public Authorities Administering Importation of Live Fish and their Gametes

- The Minister of Agriculture has supreme authority on matters concerning imports and all matters related to fish diseases.
- He is advised by the "Fish Disease Committee".
- The enforcement and surveillance authority rests with the "Veterinary Officer fo Fish Diseases".
- Disease diagnosis and sample analysis rests with the "Fish Disease Laboratory"
- During the last fifty years the import of live fish, eggs and gametes to Iceland has been very restricted. Fish species have only been imported as disinfected eggs, with one exception, and these imports are as follows:

Importation of Salmonids, other Fin-fish and Molluscs to Iceland

- 1951:Disinfected rainbow trout eggs (*Salmo gairdneri*) from Denmark.
 1984 - 1987: Disinfected salmon eggs (*Salmo salar L.*) from Norway, one import yearly from VHS and IHN free zones.
 1994:Seabass larvae (0,5 gr) (*Dicentrarchus labrax*) from France, from zones free of VHS and IHN.
 1995 - 2001:Disinfected seabass eggs (*Dicentrarchus labrax*) from France, 1-2 imports yearly, from zones free of VHS and IHN.
 1999:Disinfected turbot eggs, 4 dl (*Psetta maxima*) from France.
 1988:Red abalone (*Haliotis rufescens*) from California, U.S.A.
 1996:Red abalone (*Haliotis rufescens* + *Haliotis discus hannai*) from Japan.

Official Certification Systems and Listing of Diseases for the Export of Live Fish and their Gametes

- The official certification associated with export of live fish, eggs and gametes is under the supervision of the Veterinary Officer for Fish Diseases. The certification is never made without intensive disease screening and laboratory examination.

There are 3 following categories of diseases:

- List A diseases: Transmissible diseases which have the potential for very serious and rapid spread and which are of serious socio-economic importance in the international trade of live fish, eggs and gametes. List A diseases will be met with stamping out procedures as these diseases are considered as dangerous and exotic in Iceland. Measures are taken immediately and reports submitted to the OIE.
- List B diseases: Transmissible diseases which are considered to be of socio-economic importance within the country and which are significant in the international trade of live fish, eggs and gametes. Measures are variable, from stamping out to general vaccination.
- List C diseases: Diseases registered once a year.

Potential Diseases Listed in Iceland by the Veterinary Officer for Fish Diseases

List A diseases:	List B diseases:	List C diseases:
Infectious salmon anemia (ISA)	Furunculosis	Viral erythrocytic necrosis (VEN)
Infectious pancreas necrosis (IPN)	Atypical furunculosis	Ulcerative dermatic necrosis (UDN)
Infectious haematopietic necrosis (IHN)	Piscirickettsiosis	Papillomatosis
Epizootic haematopietic necrosis (EHN)	Bacterial Kidney disease (BKD)	Mycobacteriosis
Oncorhynchus masou virus (OMV)	Enteric red mouth (ERM)	Epitheliocystis
Viral haemorrhagic septicaemia (VHS)	Systemic spironucleosis	Winter ulcers
Spring viraemia of carp (SVC)	Pancreas disease (PD)	Vibriosis
Viral nervous necrosis (VNN)	Erythrocytic inclusion body syndrome	
Gyrodactylosis	Proliferative kidney disease (PKD)	
	Salmon louse infection	
	Marine louse infection	
	Whirling disease	
	Swimbladder nematode of eel	

Fallowing and Other Possible Emergency Measures in the event of a Positive Disease Diagnosis.

- According to Act no. 25/1993, governing animal diseases and preventive measures against them the, Minister of Agriculture may prescribe any measures, by suggestions from the Chief Veterinary Officer, deemed necessary to eradicate or prevent the spreading of List A and List B diseases.
- According to the Salmonid Fisheries Act no. 76/1970 the Minister of Agriculture can prescribe, if so advised by the “Fish Diseases Committee”, any measures necessary to eradicate and prevent spreading of contagious fish diseases
- Stamping out procedures followed by cleaning, disinfection and fallowing will be carried out if List A fish diseases (and in some cases List B fish disease) are diagnosed.

Disease Zones and Degree of Contact between the Farmed Aquatic Animals and those of Natural Populations.

- Iceland is just divided into two different disease zones, open sea water zone and a land based fish farming zone. For many years there has only been one particular fish farm using sea cages on open sea. Almost all of the on-growing fish farms in Iceland have been land-based, supplied exclusively with pumped fresh and sea water from bore-holes.
- The pumped water supply has no contact to surface water or open sea and therefore no possible contact with wild fish. The land-based zone is recognised by the Official Authorities, in accordance with the recommendations of the International Aquatic Animal Health Code of the EU, as being free of virus diseases as well as many bacterial diseases like BKD, Enteric red mouth and Furunculosis.

Use of Medicines and Disinfectants

- Use of Medicines Controlled by the Veterinary Officer for Fish Diseases
- Use of Disinfectants Controlled by the Environmental and Food Agency

Disinfection of Angling Equipment

- All fishing equipment brought to Iceland for angling purposes must be disinfected at the port of entry.
- Such facilities are provided at the Keflavík International Airport as well as at the Seyðisfjörður ferry terminal on Iceland’s east coast.
- A valid certificate of disinfection from a veterinary officer is accepted and encouraged to reduce delays.