Chilean legislation for the control of diseases of aquatic species

M.C. CAMPOS LARRAÍN and M.E. VALENZUELA ALFARO *

Summary: The Political Constitution of Chile establishes the right of the people to live in an environment which is free from contamination. The State has a duty to uphold this right and to preserve nature. With the aim of reconciling this constitutional guarantee with the pursuit of profitable economic activities, the concept of ‘sustainable development’ has been promoted. This mechanism makes it possible to use natural resources and the environment in a rational, effective and efficient manner both at present and in the future, and led to the promulgation of the General Law of Fisheries and Aquaculture No. 18,892 of 6 September 1991 and its amendments.

This law regulates national fisheries and aquaculture activities throughout the country, and contains eleven regulations applicable to aquaculture. These regulations form a complete procedure of action relevant to the importation of aquatic species, to applicants for aquaculture concessions and authorisations, to the operation of these concessions and authorisations, and to ocean ranching systems.

Due to the complexity of these regulations, important rules are still under study, while the remaining texts come into force on 1 September 1996. Formulating these rules involves consideration of current national and international regulations, the experience of farmers, the results of technical and scientific research, and bibliographical data. These regulations will form the cornerstone of Chilean aquaculture policy in confronting the challenges of the next century.


INTRODUCTION

The Political Constitution of Chile (1) provides for the right to live in a pollution-free environment. The State has the duty to ensure that this right is fulfilled and to safeguard the preservation of nature. To protect the environment, the State may impose specific restrictions on the exercise of certain rights and freedoms.

The concept of ‘sustainable development’ has been invoked to make this constitutional guarantee compatible with productive activities. Sustainable development ensures the rational, effective and efficient use of natural resources and the environment both at present and in the future.

These considerations led to the promulgation, on 6 September 1991, of the General Law of Fisheries and Aquaculture (GLFA) No. 18,892 as amended. The adapted,
coordinated and systematised text of this law was established by Executive Decree No. 430 of 1991, of the Ministry of Economy, Development and Reconstruction (MINECON) (6). This legal provision constitutes the regulatory body for all Chilean fishing and aquacultural activities. For aquaculture alone, the issuing of at least eleven regulations is contemplated. These regulations constitute a complete framework of actions applicable to import procedures for aquatic species, to applications for aquaculture concessions or authorisations, to the operation of these concessions and authorisations and to ocean ranching.

To facilitate understanding of this complex aquacultural regulatory framework – in general terms and only as an illustration – a number of regulations may be cited, as follows:

a) Regulations applicable to importation of aquatic species:
   - Regulation on the procedure for importing aquatic species (Article 11); Article 14 of Executive Decree (MINECON) No. 175 of 1980 (2) is currently in force.
   - Regulation on health and other certificates required for importing aquatic species (Article 11); Articles 2 and 3 of Executive Decree (MINECON) No. 162 of 1985 (3), complemented by the Resolutions of the National Fisheries Service No. 2,459 of 1993 (9), and No. 2,158 of 1994 (12).
   - Regulation for aquatic species imported for the first time (Article 12).

b) Regulations applicable to applications for aquaculture concessions and authorisations:
   - Regulation on aquaculture concessions and authorisations (Article 76); this regulation was established in Executive Decree (MINECON) No. 290 of 1993 (10), amended by Executive Decree (MINECON) No. 604 of 1994 (11).
   - Regulation on restriction of aquaculture concession and authorisation areas (Article 88); established in Executive Decree (MINECON) No. 550 of 1992 (7).
   - Regulation of the National Aquaculture Registry (Article 69); established by Executive Decree (MINECON) No. 499 of 1994 (13).

c) Regulations applicable to the operation of aquaculture concessions and authorisations:
   - Regulation on protection and control of high-risk diseases and species which are susceptible to plagues (Article 86); Executive Decree (MINECON) No. 162 of 1985 (3) is currently in force.
   - Regulation on environmental protection measures for aquaculture activities (Article 87); Executive Decree (MINECON) No. 427 of 1989 (5) is currently in force.
   - Regulation on information for fishing, processing and aquaculture activities (Article 63); Executive Decree (MINECON) No. 464 of 1995 (15) is currently in force.
   - Regulation on sanitary control for admitting biological feeds and products to be used in aquaculture, and on protection measures for admitting substances that might harm aquatic resources or products (Article 122).

d) Regulation applicable to open ranching:
   - Regulation limiting catches of anadromous and catadromous species, and establishing zones where the capture of these species is banned (Article 70).
Only some of the regulations indicated above contain measures aimed at reducing disease transmission risk. Others contemplate, among their provisions, some actions which can help to prevent, control and supervise unfavourable situations or situations which might alter the well-being of aquatic species. The remainder of the above regulations refer to unrelated matters. Thus, for the purposes of this paper, it was considered useful to make a detailed and specific analysis of the regulations which are directly or indirectly related to measures aimed at reducing disease dissemination. Three categories of rules and procedures exist: those established for imports of aquatic species; those referring to control of high-risk diseases and environmental protection; and those related to measures aimed at gathering information.

**RULES AND PROCEDURES ESTABLISHED FOR IMPORTING AQUATIC SPECIES**

When referring to the importation of aquatic species, Chilean law distinguishes between species imported into the country for the first time and species regularly imported into Chile.

**Species imported into Chile for the first time**

Species imported into the country for the first time have great environmental and economic relevance. Environmental issues are analysed, e.g. the possibility of introducing new diseases into the country, or the risk that the species might become a plague or cause irreversible damage to the ecosystem. The sustained growth of aquaculture in Chile means that economic issues arise, such as the increasing demand for permits to import new species into the country with the aim of studying their aquaculture potential; this issue is also analysed.

These matters are regulated by the General Law of Fisheries and Aquaculture and its regulation on species imported into Chile for the first time. Import procedures require prior authorisation from the Under-Secretariat for Fisheries, which has sixty days to consider each application. The application may be approved on the basis of the health certificates attached. If the application is rejected, the reasons must be given in the form of a Resolution. Otherwise, if no clear decision can be reached, a health study may be ordered. This study should last for not more than one year, and should be conducted at the expense of the interested party. The study should include an environmental impact assessment, to check and evaluate any signs of disease or potential damage to the ecosystem and, for this purpose, a limited importation of the species involved may be authorised. If sufficient grounds are given, a Resolution of the Under-Secretariat may extend the study only once, for up to one year.

After importation of a species into the country for the first time has been authorised, the Under-Secretariat for Fisheries may include this species on the list of regularly imported species. Initially, the species may be imported provided that strict measures are followed, including maintaining the species in controlled systems; this implies treatment of effluents, quarantine and other special sanitary measures. Subsequently, on the basis of further environmental impact assessments, ocean ranching of the species may be authorised only for the zoogeographical area where the study was performed. An example of this is the farming of the red abalone (*Haliotis rufescens*);
importation of this species for farming in a natural environment has been exclusively authorised in the geographical area that extends between latitudes 41°50S and 46°00S.

The regulation required for this purpose is still under study, and the General Law of Fisheries and Aquaculture is therefore complemented on this matter by the existing rules, i.e. Executive Decree (MINECON) No. 162 of 1985 (3). This regulation will determine the conditions and characteristics of the technical terms of reference for the studies, which institution will conduct the studies, and the background information to be supplied with the application to import species for the first time. In addition, a clear distinction will be made between ocean ranching systems and controlled farming systems. It is worth pointing out that, before importing the species into Chile for the first time, controlled farming systems will require facilities which fulfil the various technical characteristics indicated in such a regulation. Open ranching systems will be required to have a quarantine unit which complies with the established criteria. Before a commercial operation commences, a pilot plan must be prepared, and this will require authorisation of the importation of a statistically-significant lot of specimens. The applicant should therefore submit a project including structural design, field observations and experimental activities.

Aquatic species commonly imported into Chile

For import of these species, the General Law of Fisheries and Aquaculture must necessarily devise an import procedure for aquatic species, which guarantees the sanitary quality and which is compatible with the adequate and timely supply of specimens required by aquaculture, especially in the case of exogenous species such as salmonids, abalones and turbot.

For this purpose, in September each year, the Under-Secretariat for Fisheries publishes a list of all the species for which import has been authorised, provided that the relevant conditions have been satisfied. The current list is established in Resolution No. 1,399 of 1995 (14), which stipulates that for farming in a natural or controlled environment only eggs or gametes of known salmonid species (e.g. Atlantic salmon [Salmo salar], coho salmon [Oncorhynchus kisutch], Pacific salmon [O. tshawytscha], masu salmon [O. masu], chum salmon [O. keta], pink salmon [O. gorbuscha], rainbow trout [O. mykiss], brown trout [Salmo trutta], stream trout [S. trutta fario] and mountain trout [Salvelinus alpinus]), or specimens of Pacific oysters (Crassostrea gigas) at any stage of development may be imported. The importation of specimens of red abalone (H. rufescens), Japanese abalone (H. discus hannai), freshwater lobster (Cherax tenuimanus) and turbot (Scophthalmus maximus) in any stage of development is authorised for controlled farming with effluent treatment. All ornamental species of commercial interest may be imported, with the exception of the genera Serrasalmus, Rooseveltiella and Pygocentrus; these species must be kept, however, exclusively in aquaria. This situation is currently being reviewed, with the aim of restricting imports of such species, as indiscriminate imports may represent a significant risk for wild resources.

Imports of listed species should be accompanied by the appropriate health certificates, as indicated in Article 11 of the General Law of Fisheries and Aquaculture (6). These certificates should be submitted to the National Customs Service, duly countersigned by the National Fisheries Service.
It is worth noting that the Under-Secretariat for Fisheries is also authorised to request, prior to import, complementary confirmation health certificates issued on the basis of studies performed in Chile to establish freedom from the diseases referred to in the regulation.

Importation of aquatic species commonly imported into Chile was in a transitional stage in 1995, as the list given above was available but the regulation indicating the contents of the certificates to be attached was still being prepared.

In this transitional stage, authorisation from the Under-Secretariat for Fisheries is required, under Article 14 of Executive Decree (MINECON) No. 175 of 1980 (2), for each import, as well as propagation of aquatic resources at any stage of development. The regulation issued prior to the General Law of Fisheries and Aquaculture – namely Executive Decree (MINECON) No. 162 of 1985 (3), particularly Articles 2 and 3 – also applies.

Executive Decree (MINECON) No. 162 of 1985 (3) has been complemented by Resolutions No. 2,459 of 1993 (9) and No. 2,158 of 1994 (12) (both of the National Fisheries Service). In general terms, these provisions establish import requirements, disinfection and disease control procedures, diagnostic methods to certify and prove absence of diseases (e.g. viral haemorrhagic septicaemia, infectious pancreatic necrosis, infectious haematopoietic necrosis, whirling disease and bacterial kidney disease), and obligatory notification of the diagnosis of furunculosis, enteric redmouth disease, vibriosis and Hitra disease at the farming centre from which the imports originate.

To ensure full application of the ordinance established in the General Law of Fisheries and Aquaculture, a regulation should be issued which – as well as including a series of definitions and abbreviations to facilitate reading and understanding – will establish the administrative procedure for imports and the formal requirements to be fulfilled with regard to aquatic resources.

With respect to certificates, it is worth noting that one or more legal provisions should be issued, as prescribed by regulations, establishing the specific contents of the health certificates and other certificates required to import aquatic species. These certificates should be issued by the country of origin and countersigned by the National Fisheries Service (SERNAP) in Chile. They should indicate the health status of aquatic resources to be imported. In other words, all imports should be backed by an official document certifying that the specimens are free from notifiable diseases, in accordance with the conditions indicated in the regulation for each species at any stage of development.

This regulation, the draft of which is under consideration at present, contains rules related to notifiable diseases applicable to species for which import has been approved, to the contents of health certificates, to sampling, analysis and diagnostic methodologies, as well as to the requirements for aquatic species to be imported. To facilitate any amendment to this regulation and to make it as consistent as possible with the production processes and the progress of knowledge, the Law allows for amendments to be incorporated by the signature of the Minister of Economy, Development and Reconstruction, under the title ‘By Order of the President of the Republic’.

Full application of the General Law of Fisheries and Aquaculture, with regard to the importation of aquatic species commonly imported into Chile, will become effective
on 1 September 1996, when the Under-Secretariat for Fisheries issues the provisions prescribed by the regulations indicated above.

RULES AND PROCEDURES RELATED TO CONTROL OF HIGH-RISK DISEASES, ENVIRONMENTAL PROTECTION AND OTHER SIMILAR MEASURES

The regulatory framework for Chilean aquaculture constitutes a complex set of provisions with the aim of preventing, directly or indirectly, situations which might favour or permit the development, proliferation and dissemination of various pathogenic agents or facilitate the occurrence of imbalances in the host/pathogen relationship (by affecting physiological factors), thus favouring a number of disease conditions.

Consequently, Chilean legislation has contemplated a series of provisions related to control of aquatic resources and their environment. For the purposes of this paper, the provisions described below may serve as an example.

Regulation on the protection and control of high-risk diseases and species which may constitute a plague

A regulation is under consideration – pursuant to Article 86 of the General Law of Fisheries and Aquaculture, and based on well-founded Technical Reports from the Under-Secretariat for Fisheries and the National Fisheries Council – which would establish protection and measures to prevent the introduction of high-risk diseases and species which constitute plagues, to isolate these species if such diseases do occur, to prevent their dissemination and, if necessary, to ensure their eradication.

This regulation will also establish which pathologies are classified as high-risk and which aquatic species are considered as constituting plagues.

The regulation is being studied by the Under-Secretariat for Fisheries. Preliminary drafts include several provisions related to definitions and abbreviations, notifiable diseases, inspections and certificates of farming centres in the country, contents of national animal health certificates, procedures for transferral or admission of species, and methodologies for prevention, control and eradication.

Executive Decree No. 162 (MINECON) of 1985 (3) is currently in force. As this decree has been in effect for ten years, however, it no longer corresponds to the current needs and conditions of Chilean aquaculture production. Despite the imminent repeal of this rule, it includes certain provisions necessary to the operation of aquaculture production in this country. These provisions are related to notifiable diseases, control measures, the requirement of health certificates and the transportation of species within Chile.

Regulation on environmental protection measures for aquaculture activities

To date, environmental protection measures in the aquaculture sector are included in Executive Decree No. 427 (MINECON) of 1989 (5).

Article 87 of the General Law of Fisheries and Aquaculture states that – on the basis of well-founded Technical Reports of the Under-Secretariat for Fisheries, the National
Fisheries Council and the corresponding Zonal Fisheries Council — one or more Executive Decrees shall regulate environmental protection measures, so that institutions performing aquaculture activities may operate at levels compatible with the capacities of lakes, rivers and seas. The private sector participates, through these Councils, in the decision-making processes of the public fishing sector.

Clause 3 of Article 74 also states that maintenance of a clean environment and ecological balance in the area granted to the holders of aquaculture concessions or authorisations will be the responsibility of the concessionary, in accordance with the regulations issued.

The Under-Secretariat for Fisheries, aware of the importance of the above regulation, has been preparing and refining it for over two years. Numerous representatives of the Chilean aquaculture industry participated, such as professionals of production associations, feed manufacturing plants, research institutes, universities and State organisations.

The main aspects of this regulation, which will be enacted soon, are summarised below.

**General provisions**

Definitions are provided of the main words or technical terms used, the scope of the regulation and the general rules, both for controlled systems and for maintaining a clean environment and ecological balance in the designated area.

**Aquaculture activities**

The requirements to be fulfilled by concession holders and farming centres for algae, molluscs, crustaceans and fish are established, so that these activities may be developed under conditions compatible with the capacity of the various water bodies.

**Food and environmental control**

The characteristics to be fulfilled by feed supplied to salmonids are specified, as well as environmental control measures to be complied with by the various farming centres. Regular inspections of the quality of water, sediment and feed, and whether farms comply with these environmental control measures, may be carried out.

**Transitory provisions**

Several transitory provisions are established, which also make it possible to apply this regulation to all current holders of aquaculture concessions and authorisations, thus overcoming any possible anomalies.

The regulation on environmental protection measures is essential to the development of the aquaculture industry in Chile, as it helps to ensure supplies of clean water. This is one of the most important assets in aquaculture, and the industry must be protected from other producers who may pollute the waters. The inspiring principles of this regulation are as follows:

a) the State must establish maximum acceptable pollution limits

b) those who cause pollution are responsible for their actions

c) those who contaminate less should be allowed to produce more.
Regulation on sanitary control for the authorisation of feeds and biological products to be used in aquaculture, and on protection measures for the authorisation of substances which might affect aquatic resources or products

These regulations are necessitated by the supervisory functions of the National Fisheries Service, and come under the provisions in Article 122 of the General Law of Fisheries and Aquaculture, but preparatory studies have not yet been initiated. This regulatory provision is closely related to the enactment of other provisions which will establish inspection, sampling and analysis; preparatory studies for such provisions are already under way. With regard to protection measures for the authorisation of substances which might affect aquatic resources or products, it is important to note that the Ministry of Agriculture is in sole charge, throughout the country, of the sanitary inspection and control of pharmaceutical products exclusively for veterinary use (under Law No. 19,283 of 1993 [8], modifying Law No. 18,755 [4] on the organisation and authority of the Livestock and Agricultural Service, which reports to the Ministry). For these purposes, such substances include any natural or synthetic substance or a combination thereof administered to animals, and antigens to be used in vitro. A specific regulation will include sanitary rules on the production, manufacture, registration, storage, distribution, sale, import or export and characteristics of these products. The manufacture, import, holding, distribution and transport of such products is permitted only if they have been registered and are not polluted, adulterated or falsified. The Livestock and Agricultural Service is responsible for ensuring fulfilment of the relevant legal and regulatory norms, and for sanctioning infringements. Executive Decree No. 139 (Ministry of Agriculture) of 1995 (16) is currently in force.

Regulations applicable to ocean ranching

With respect to these regulations, the Under-Secretariat for Fisheries, regardless of whether or not it favours the promotion of ocean-ranching, is responsible for regulating the activity contemplated in the General Law of Fisheries and Aquaculture. Therefore, it has seemed necessary to gather the maximum amount of information on this subject at a national level, with the purpose of defining a fisheries policy related to ocean ranching in Chile, without damaging the consolidated national salmon industry through mistaken decisions. On the basis of the background information currently available, the Under-Secretariat for Fisheries does not envisage promoting, at least for the moment, ocean ranching in Chile. This attitude is aimed at preserving the environment and autochthonous resources, and also has an important sanitary component as it helps to restrict disease spread. With regard to the latter, important efforts are being made to acquire information on the pathologies of wild species in Chile, to prevent the transfer of pathogenic agents to farmed species and vice versa. Efforts should be focused principally on controlling vectors.

Regulation on area restriction

The Regulation on restriction of aquaculture concession or authorisation areas – issued by Executive Decree No. 550 (MINECON) of 1992 (7) in accordance with the provisions in Article 88 of the General Law of Fisheries and Aquaculture – has the purpose of achieving an appropriate use of areas of water and seabed. This regulation restricts the concession or authorisation areas for the various aquatic species farmed
in the country, in terms of the dimensions and nature of the elements used in their farming. This implies establishing maximum levels for the number of specimens, and for sowing, filtering or harvesting, which will not significantly alter the ecological balance.

**RULES AND REGULATIONS RELATED TO MEASURES AIMED AT GATHERING ENVIRONMENTAL INFORMATION**

Three mechanisms are aimed at gathering significant environmental data. All measures related to epidemiological aspects of aquaculture become particularly important. These provisions are described below.

**National Aquaculture Registry**

Any aquaculture activity performed in the country – whether through an aquaculture concession or authorisation or not – should be registered (together with its respective technical project and activity programme as amended) in the National Aquaculture Registry of the National Fisheries Service. Registration is a formality which makes it possible to exercise the rights inherent in aquacultural activities.

In this way, it is possible to create a national register of the people, species and locations involved in aquaculture. The register is kept on a computer database with the following information: name of holder, mailing address, number of the relevant aquaculture concession or authorisation, location of the farming centre (as well as its area and geographical coordinates), species and systems authorised for farming.

The Registry is governed by Executive Decree No. 499 (MINECON) of 1994 (13).

**Regulation on environmental protection**

As indicated before, this regulation (to be issued soon, as a consequence of environmental control measures) requests regular information on the results of the activity developed. It thus enables verification of variations in the environment and how these are affected by the aquaculture activity in the authorised area. This is valuable information for environmental control, mainly for the preparation of new control measures or for correcting those already established.

**Regulation on information for fishing, processing and aquaculture activities**

This regulation was established by Executive Decree No. 464 (MINECON) of 1995 (15), and is a consequence of the provisions in Article 63 of the General Law of Fisheries and Aquaculture.

Through its application, information on the operation and production levels of the various farming centres in the country will be obtained and updated. It will also enable the collection of exact information on the variables which may determine the application of policies related to the various sectors.

**CONCLUSIONS**

Due to the complexity of the new Chilean legislation, many provisions are still under study and, until they become effective, the currently valid regulations will continue to be applied.
In preparing the regulations for the General Law of Fisheries and Aquaculture, the following factors are being considered: current national and foreign provisions, experience of the production sector, results of scientific and technological investigations, and bibliographical information.

The information system established by the regulatory mechanisms described above enables advance evaluation, with a sufficient level of certainty, of the effects of any measure to be applied.

The regulations to be issued will be the result of an analysis of the most advanced knowledge, as they constitute the basis on which the Chilean aquaculture industry, and those responsible for its regulation, must face the many important challenges which will arise in the next century.

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Résumé : Le droit du peuple chilien à vivre dans un environnement non pollué est inscrit dans la Constitution de ce pays. L'État a le devoir de veiller au respect de ce droit et de préserver la nature. Soucieux de concilier ce principe constitutionnel et l'exercice d'activités économiques rentables, le Chili a lancé le concept de « développement durable ». Ce mécanisme, qui permet d'exploiter les ressources naturelles et l'environnement de manière rationnelle, effective et efficace, dans le présent comme dans le futur, a conduit à la promulgation de la Loi générale sur la pêche et l'aquaculture n°18 892 du 6 septembre 1991, avec les amendements correspondants.

Cette loi, de portée nationale, comporte onze dispositions relatives à la pêche et à l'aquaculture. Celles-ci constituent une procédure complète applicable à l'importation d'espèces aquatiques, aux demandes de concessions ou d'autorisations pour les élevages aquacoles, au fonctionnement de ces concessions et de ces autorisations et aux systèmes d'élevage en milieu océanique.

Eu égard à la complexité de cette réglementation, certains textes importants sont encore à l'étude, tandis que les autres entreront en vigueur le 1er septembre 1996. Les autorités chargées de les élaborer doivent tenir compte des règlements actuels aux plans national et international, de l'expérience des éleveurs, des résultats de la recherche technique et scientifique, ainsi que des données bibliographiques. Cette réglementation est appelée à constituer la clé de voûte de la politique aquacole chilienne face aux défis du xxie siècle.

LEGISLACIÓN CHILENA PARA EL CONTROL DE LAS ENFERMEDADES DE LAS ESPECIES ACUÁTICAS. – M.C. Campos Larraín y M.E. Valenzuela Alfaro.

Resumen: La Constitución Política de Chile garantiza a las personas el poder vivir en un entorno libre de contaminación. El Estado tiene la obligación de asegurar este derecho y de preservar la naturaleza. A fin de conciliar esta garantía constitucional con la búsqueda de actividades económicas rentables ha sido promovido el concepto de «desarrollo sustentable». Esta noción hace posible la utilización racional y eficiente de los recursos naturales y del medio ambiente tanto en la actualidad como en el futuro, y condujo a la promulgación de la Ley General sobre Pesca y Acuicultura N° 18.892 del 6 de septiembre de 1991 y de sus ulteriores modificaciones.

Esta ley que reglamenta las actividades acuícolas y pesqueras de todo el país, dispone la dictación de once reglamentos relativos a la acuicultura. Estos reglamentos definen un procedimiento de acción completo aplicable a la importación de especies acuáticas, a las solicitudes de concesiones o autorizaciones para la práctica de la acuicultura, al funcionamiento de dichas concesiones y autorizaciones y a los sistemas de granja marina (cultivos abiertos).

Debido a la complejidad de esta normativa, parte de ella se encuentra en estudio, mientras que la restante comenzará a regir el 1° de septiembre de 1996. La formulación de tales reglas exige tener en cuenta las disposiciones nacionales e internacionales existentes, la experiencia de los criadores, los resultados de las investigaciones técnicas y científicas y, por último, los datos bibliográficos. Estas reglas van a constituir la piedra angular de la política acuícolta chilena para dar respuesta a los desafíos del próximo siglo.


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REFERENCES


